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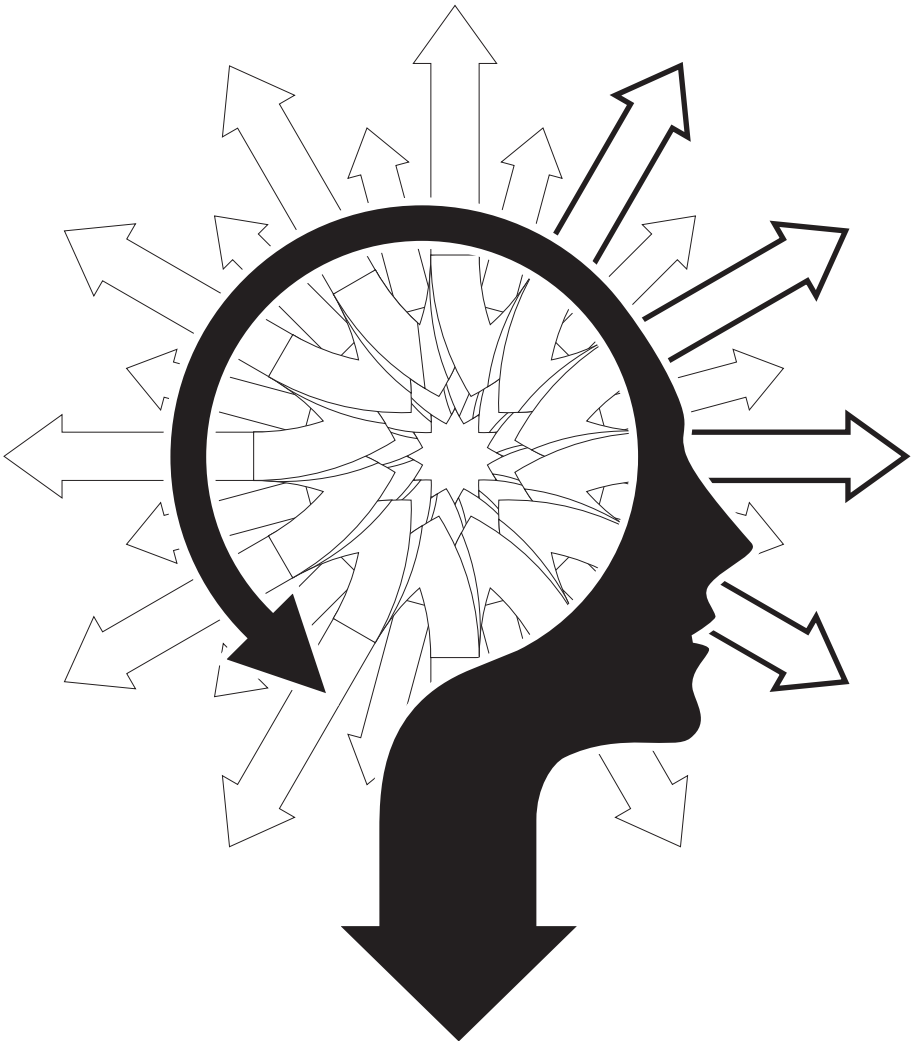

Feasibility of Mentalization-Based Treatment for adolescents with borderline symptoms: a pilot study

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ABSTRACT

Mentalization-based Treatment (MBT) is an evidence-based treatment for adults suffering from borderline personality disorder. Different adaptations of MBT for adolescents have been described, but almost none of these have been systematically evaluated so far. This paper presents pilot data from a feasibility study of an adaptation of inpatient MBT for adolescents with borderline symptoms (MBT-A). Preliminary outcome results were examined in a pilot study including 11 female adolescents (aged 14-18 years) in a mental health care centre in the Netherlands. Maximum treatment duration was 12 months and patients were assessed at start and at 12 months after start of treatment. Outcome measures included symptom severity (BSI), personality functioning (SIPP-118) and quality of life (EQ-5D). Results showed significant decreases in symptoms, and improvements in personality functioning and quality of life at 12 months after start of treatment. Effect sizes (*d*) ranged from .58 to 1.46, indicating medium to large effects. In total, 91% of the adolescents showed reliable change on the BSI, and 18% also moved to the functional range on the BSI. The results of this feasibility study are promising and encourage further research concerning the efficacy of MBT in adolescents with borderline symptoms, although some problems with implementation suggest that an outpatient variant of MBT for adolescents might be as effective whilst at the same time reducing potential iatrogenic effects of inpatient treatment for this age group.

INTRODUCTION

For a long time, diagnosing personality disorders (PDs) in adolescents was controversial (Allertz & van der Voorst, 2007; Chanen & McCutcheon, 2008). Recent studies however, suggest that PDs can be diagnosed reliably in adolescents (Westen, Dutra, & Shedler, 2005). Prevalence rates of PDs in adolescents are quite similar as in adult populations, with about 10-15% of adolescents in the community (Johnson, et al., 2000) and about half of the adolescents in a clinical setting suffering from a PD (Feenstra, Busschbach, Verheul, & Hutsebaut, 2011; Westen, Shedler, Durrett, Glass, & Martens, 2003). PDs in adolescents are extremely invalidating (Johnson, et al., 2005; Kasen, et al., 2007) and associated with low quality of life and high societal costs (Feenstra, et al., 2012).

Despite the increasing body of knowledge and compelling evidence for the existence of PDs in adolescents, with a few important exceptions, there is still a lack of evidence-based treatments for this population. Chanen and colleagues (Chanen, et al., 2008) compared cognitive analytic therapy (CAT)(Ryle, 2004) with manualized clinical care in a randomized controlled trial (RCT) with 86 adolescents aged 15-18 years, including adolescents who fulfilled two to nine of the DSM-IV criteria for borderline personality disorder (BPD). Both groups improved significantly in terms of psychopathology, parasuicidal behaviour and global functioning. Although there were no significant differences in outcome between the treatment groups, results suggested that the CAT group showed more rapid improvement. Rathus and Miller (Rathus & Miller, 2002) evaluated dialectical behaviour therapy for adolescents (DBT-A) in a quasi-experimental design including 111 suicidal adolescents. At follow-up, DBT-A resulted in fewer psychiatric hospitalizations and less dropout than treatment-as-usual. However, there were no differences in suicide attempts between the two groups. Rossouw and Fonagy (Rossouw & Fonagy, 2012) recently presented results of an RCT investigating mentalization based treatment (MBT) in self-harming adolescents compared to treatment as usual (TAU). Results suggested that MBT was more effective in reducing self-harm and depression. The current treatment is similarly based on mentalization approaches.

MBT is an evidence-based treatment approach for adults with borderline personality disorder (BPD) (Bateman & Fonagy, 1999). Mentalizing refers to the capacity to interpret oneself and others in terms of internal mental states such as feelings, emotions, wishes, desires, attitudes and values. Patients with BPD typically suffer from severe impairments in their capacity to mentalize, resulting in emotional instability, impulsive behaviour, and vulnerability in interpersonal and social interactions (Bateman & Fonagy, 2004). The theoretical assumption behind MBT is that enhancing mentalization improves symptoms and (interpersonal) functioning of patients with BPD (Bateman & Fonagy, 2004). Therefore, all program components within MBT specifically focus on enhancing the patient's mentalizing capacity. The efficacy of MBT for treating adults with BPD has been demonstrated in two RCTs showing superior effects of MBT in reducing self-injurious behavior, suicide attempts and depressive symptoms, and in improving social and interpersonal functioning compared to TAU and structured clinical management (Bateman & Fonagy, 1999, 2009).

Besides Rossouw & Fonagy (Rossouw & Fonagy, 2012), other adaptations of MBT for adolescents have been described. Bleiberg (Bleiberg, 2001) described an adapted version of MBT for adolescents based upon developmental and attachment theories. Bevington and colleagues, in turn, developed Adolescent Mentalization-Based Integrative Therapy (AMBIT) which focuses on seriously disturbed and 'hard-to-reach' adolescents (Asen & Bevington, 2007). Yet, none of these treatments specifically aimed at treatment of adolescents with borderline personality disorder features within an inpatient setting.

To our best knowledge, this is the first study to present pilot data from an inpatient MBT treatment focusing primarily on adolescents with borderline personality symptoms. The aim of the present study was to describe the feasibility and preliminary results of inpatient MBT for adolescents with borderline symptoms (MBT-A). We report data for a broad set of outcome measures, including symptoms, personality pathology and quality of life.

METHODS

Setting

The study was conducted at De Viersprong, a large mental health care institute in the Netherlands offering specialized outpatient, day hospital, and inpatient psychotherapy for adolescent and adult patients with severe personality problems and disorders. The MBT-A unit within De Viersprong offers inpatient treatment for adolescents aged 13 to 19 years. In general, adolescent patients were referred from all over the country because of complex and treatment-refractory personality problems.

Treatment

Although this treatment program was conducted in an inpatient setting, it closely resembled the original 'partial hospitalization' program as described by Bateman and Fonagy (Bateman & Fonagy, 2004). The program included four weekly group psychotherapy sessions (1 hour each), one individual psychotherapy session (45 minutes), art therapy (1.15 hours), writing therapy (1.15 hours) and mentalizing cognitive therapy (1.15 hours). Moreover, psychiatric consultations, social work, and individual coaching by a psychosocial nurse were available to all patients. Every three weeks, a family therapy session was scheduled to involve the family of the adolescent into the treatment. Patients stayed at the inpatient ward for five days a week, attended school on site for approximately three hours a day, and went home during weekends. The therapeutic milieu was organized inspired by mentalizing principles. For example, compared to many classic inpatient psychotherapeutic programs, there was a relative lack of rules and the approach by the nurses was individual instead of group oriented. Free time activities were encouraged, but adolescents were not obliged to participate in these. Average hospitalization was 11 months, with a maximum of 12 months (range 6-12 months). Compared to the original partial hospitalization program for adult patients with BPD, the MBT program was different in three important ways. First, adolescents were strongly encouraged to attend school. Second, family therapy was included in the standard program once every three weeks. Finally, and most importantly, the program was residential.

Therapists

All therapies were provided by trained psychotherapists with at least an MSc degree in Psychology and 7 to 15 years of experience in treating adolescents and adults with personality disorders. Their previous training background included psychodynamic, cognitive-behavioural and systemic approaches. Before the start of the study, all team members followed a basic two day course in MBT which was provided by experienced MBT trainers. Psychotherapists also followed a one day advanced training course in MBT (dealing with more complex methodological issues, like mentalizing the transference). After the program started, the team was supervised on a monthly base by an experienced MBT supervisor. Additionally, therapists from all disciplines (i.e., psychotherapists, nurses, art therapists) were supervised by experienced MBT therapists separately monthly. Supervision included theoretical lessons, role-play and case supervision. Furthermore, the team organized a weekly session with all team members in which details of the manual were discussed and practiced using role-playing. Treatment adherence was rated after every group therapy session by the therapists, using the Adherence and Competence Scale as provided in the MBT manual, but these data were not systematically gathered (Bateman & Fonagy, 2004), so no independent rating of adherence was available.

Participants

The MBT-A treatment program primarily focuses on adolescents with substantial borderline pathology, i.e., they had to meet at least 2 to 9 DSM-IV criteria for BPD (American Psychiatric Association, 2000), following Chanen and colleagues (Chanen, et al., 2008). Exclusion criteria for this study were: presence of a psychotic or organic brain disorders, and mental retardation. As part of the formal intake procedure, patients completed the SCID-II (First, Spitzer, Gibbon, Williams, & Benjamin, 1996); translated by Weertman and colleagues (Weertman, Arntz, & Kerkhofs, 2000). Those patients meeting inclusion criteria of the study were personally contacted by a research assistant. After informed consent, patients completed Time 1 assessments. At the end of treatment, patients completed Time 2 assessments.

Between September 2007 and August 2008, 24 patients were admitted to the MBT-A unit. Most patients (50%) were referred by a mental health center or by youth welfare, 25.0% of the adolescents by a psychiatrist, psychotherapist or

psychologist with a private practice, 16.7% by their General Practitioner and 8.3% by a general hospital. Of the 24 adolescents admitted, 20 were female (83,3%). Age varied between 14-18 years, with a mean age of 16.5 (*SD* =1.35). Fifteen patients met the inclusion criterion (Figure 1) and all of them consented to participate in the study. Two patients dropped out of treatment prematurely (within three months after start of treatment) and two patients did not complete the questionnaires at the end of treatment. Thus, analyses were based on the remaining 11 patients.

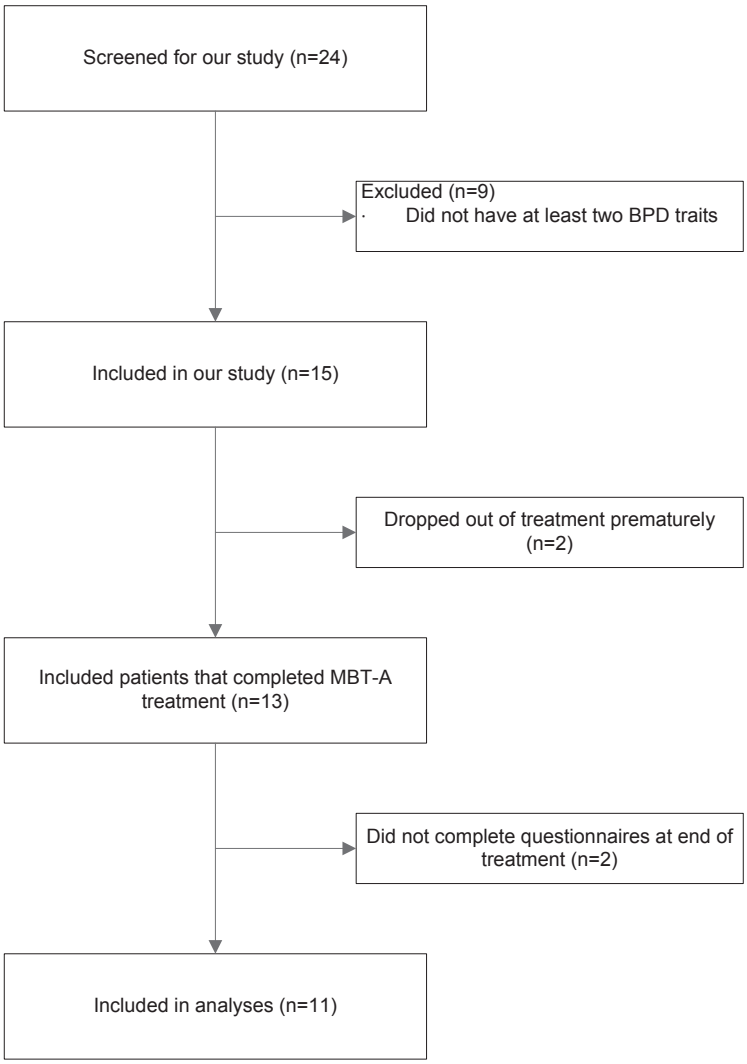

Figure 1. Flow chart of patient enrollment in the current study.

Measures

Overview

As part of the standard intake procedure, all adolescents completed a routine assessment battery, including semi-structured interviews to assess both Axis I and Axis II disorders. Interviewers were MSc-level psychologists, who were trained by an expert trainer in the SCID-II. The interviewers received two-weekly booster sessions to avoid drifting from the interview guidelines. Patients were assessed at start of treatment (in the first week of their stay at the inpatient unit) and after 12 months after start of treatment.

Screening instruments

The Anxiety Disorders Interview Schedule for DSM-IV Child Version – Child interview (Siebelink & Treffers, 2001; Silverman & Albano, 1996) was used to diagnose anxiety and mood disorders. The Adis-C is a semi-structured interview designed to measure anxiety and other Axis I disorders in children and adolescents. No inter-rater reliability data were collected in this study. However, research shows that the Adis-C is reliable across time, informants and in comparison with other forms of assessment. For instance, interrater reliability was good in a sample of children and adolescents aged 7-16 (κ = .92) (Lyneham, Abbott, & Rapee, 2007). The Adis-C was supplemented by section E, G, and H of the Structured Clinical Interview for DSM-IV Axis I disorders (First, Spitzer, Gibbon, & Williams, 1997; Groenestijn, Akkerhuis, Kupka, Schneider, & Nolen, 1999) to diagnose substance-related disorders, somatoform disorders and eating disorders, respectively. The SCID-I is a semi structured interview to measure Axis I disorders in adults. The SCID-I has good interrater reliability (κ = .85), especially when interviewers receive training as in the present study (Ventura, Liberman, Green, Shaner, & Mintz, 1998).

The Structured Clinical Interview for DSM-IV Axis II Personality disorders (First, et al., 1996) was used to diagnose Axis II PDs. Following the guidelines of DSM-IV-TR, criteria were rated as present only if they were pathological, pervasive and persistent and if they were present for one year. Because DSM-IV-TR does not allow for antisocial PDs to be diagnosed in adolescents under the age of 18, this section was left out of the interview for adolescents under 18. No inter-rater reliability data were collected in this study. Previous research has shown, however, that the SCID-II has good interrater reliability and test-retest interrater

reliability in adults (Maffei, et al., 1997; Weertman, Arntz, Dreessen, Van Velzen, & Vertommen, 2003). Although the SCID-II is primarily designed for measuring personality disorders in adults, studies on structured clinical interviews including adolescent samples suggest that the SCID-II is a reliable and valid instrument for an adolescent age group (Brent, et al., 1993; Brent, Zelenak, Bukstein, & Brown, 1990; Grilo, Becker, Edell, & McGlashan, 2001; Tromp & Koot, 2010). The Adis-C, SCID-I and SCID-II were used as a screening instrument and thus participants were only interviewed at the start of treatment.

Outcome measurements

Symptomatic distress was the primary outcome and was measured by the Dutch version of the Brief Symptom Inventory (BSI) (De Beurs, 2006; Derogatis, 1975). The BSI consists of 53 items covering nine symptom dimensions: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid ideation, and Psychoticism; and yields three global indices of distress: Positive Symptom Distress Index, Positive Symptom Total, and Global Severity Index (GSI). Possible GSI scores range from 1 to 5, with higher scores indicating a higher level of psychological and emotional distress. Respondents have to rate each feeling item (e.g., "your feelings being easily hurt") on a 5-point scale ranging from 0 (not at all) to 4 (extremely), representing the intensity of distress during the past seven days. Reliability of the Dutch version is good (alpha coefficients ranging from .71 to .85) and the factorial structure is comparable to that of the original versions of Derogatis (De Beurs, 2006).

Secondary outcome measures were severity of personality problems and quality of life. The Severity Indices of Personality Problems (SIPP-118) (Verheul, et al., 2008) is a dimensional self report measure assessing the severity of personality pathology. The SIPP aims to assess the core components of adaptive and maladaptive personality functioning. It consists of 118 items and comprises 16 facets which cluster into five higher-order domains: Social Concordance, Relational functioning, Self-control, Responsibility, and Identity Integration. The SIPP-118 asks the respondents to think about the past three months and to answer the extent to which they agree with statements like "I frequently say things I regret later" or "Whenever I feel something, I can almost always name that feeling". Items are rated on a 4-point Likert Type scale ranging from 1 to 4 (i.e., *fully disagree*, *partly disagree*, *partly agree*, or *fully agree)*. High scores on

the facets indicate better functioning. The psychometric features of the SIPP-118 in adolescents are similar as in adults, with evidence for good reliability (alpha coefficients raging from .62 to .89, with a mean estimated alpha score of .78) and convergent validity (Verheul, et al., 2008), and invariance of the factor structure (Feenstra, Hutsebaut, Verheul, & Busschbach, 2011).

Quality of life was measured using the EuroQol EQ-5D (EQ-5D) (Brooks, Rabin, & de Charro, 2003). This self-report questionnaire provides a simple method for capturing description of health problems according to a 5-dimensional classification: Mobility, Self-care, Usual Activities, Pain/Discomfort, and Anxiety/Depression. Each dimension is divided into 3 levels: No Problem – Some/Moderate Problems – Extreme Problems/Unable to. Dutch norm scores were used to calculate the mean EQ-5D index values (Lamers, Stalmeier, McDonnell, Krabbe, & Busschbach, 2005).

Statistical analyses

Baseline characteristics were calculated using descriptive statistics. We performed independent samples *t*-tests to compare scores on the study variables in the treatment group with normal population groups. Differences between mean scores at baseline and end of treatment were tested using paired-samples *t*-tests. Effect sizes were computed using Cohen's *d* (Cohen, 1988).

In order to investigate clinically significant change in level of symptom severity and adaptive functioning, we computed the percentage of patients who achieved reliable change, the percentage of patients who moved from a dysfunctional range to a normative range, and the percentage of patients who achieved clinically significant change on the BSI and the SIPP-118. Reliable change (RC) was calculated using the following formula (for more details, see Jacobson & Truax (Jacobson & Truax, 1991)): $RC = 1.96 * \sqrt{2(SE)^2}$. The RC was calculated from intake to discharge and a Cronbach's alpha of .90 was used for the BSI (De Beurs, 2006). For the SIPP-118 domains, Cronbach alpha's were as follows: .80 for the self-control domain, .77 for the social concordance domain, .81 for the identity integration domain, .76 for the relational functioning domain, and .72 for the responsibility domain (Feenstra, Hutsebaut, et al., 2011). Movement into the normative range was computed using criterion C described by Jacobson and Truax (Jacobson & Truax, 1991). The proportion of patients with clinical

significant change was calculated by comparing their scores with a clinical and non-clinical reference group using a cut-off score. The cut-off score was calculated using the following formula: $[(SD_{normal} \times M_{clinical}) + (SD_{clinical} \times M_{normal})]/(SD_{normal} + SD_{clinical})$, with *Mnormal* = .42 (*SD*= .40) and *Mclinical* = 1.21 (*SD*= .71) for the BSI for a non-clinical and a clinical population respectively (De Beurs, 2006). For the SIPP-118, we used the norms of a clinical and non-clinical population as reported by Feenstra et al (Feenstra, Hutsebaut, et al., 2011) and cut-off scores were calculated for each SIPP-domain. Clinical deterioration was also computed, defined as patients whose scores on each measure increased by the reliable change index. We did not calculate RC for the EQ-5D, because no appropriate Dutch Cronbach's alpha values were available.

RESULTS

Baseline demographic and clinical characteristics

Baseline characteristics of the sample are presented in Table 1. All patients were female, with a mean age of 16.5 (range 14-18, *SD* = 1.57). Mean treatment length was 11 months (range 6-12, *SD* = 1.83). At time of admission, almost all adolescents were living at home (91%), and 73% was going to school. A high percentage reported self harm at time of admission (73%) and almost 20% performed a suicide attempt in the year prior to treatment. All patients, except for one, met the criteria of one or more co-morbid Axis-I disorders. The Axis-I disorders reported in our study population were mood disorder (55%), anxiety disorder (36%), eating disorder (27%) and substance use disorder (18%). All patients had two or more borderline traits on the SCID-II, and eight patients fulfilled criteria for a full blown BPD (i.e., 5 traits or more on the SCID-II). No patients fulfilled criteria for a co-morbid Axis-II disorder based on the SCID-II.

Table 1. Demographic and clinical characteristics

Characteristics	n=11	%
Gender		
Female	11	100
Age, years *M (SD)*	16.5 (1.57)	
Living at home	10	91
Going to school	8	73
Reports self harm at time of admission	8	73
Suicide attempts in the last year	2	18
Psychopathology		
Mood disorder	6	55
Anxiety disorder	4	36
Eating disorder	3	27
Substance use disorder	2	18
Other Axis I disorder	0	0.0
2-4 borderline personality disorder traits	3	27
Borderline personality disorder (5 or more traits on the SCID-II)	8	73

Table 2 presents a comparison of scores on the study variables between the current sample at baseline and scores from normative samples, suggesting that the current sample indeed represents a seriously disturbed group of adolescents in that adolescents at baseline showed significantly more symptomatic distress as measured by the BSI compared to a non-clinical sample of adults (De Beurs, 2006) with a large effect size (d=3.63). Patients also reported significantly worse personality functioning, as measured by the SIPP-118, than adolescents in the community (Feenstra, Hutsebaut, et al., 2011). Effect sizes of the SIPP-118 domains ranged from d=.90 to d=2.91, representing large effect sizes. Furthermore, patients showed a significantly lower quality of life as measured by the EQ-5D compared to female adolescents in a community sample (Stolk, Krabbe, & Busschbach, 2009), with a large effect size (d=2.59).

Table 2. T-tests comparing MBT-A patients with normal population groups at baseline

Variable	MBT-A	Normal population		
	M (SD)	M (SD)	t	d
GSI	2.20 (.49)	.42 (.40)[1]	-14.35**	3.63
SIPP-118 Self-control	3.26 (.91)	5.18 (.82)[2]	7.68**	2.34
SIPP-118 Social concordance	5.18 (.72)	5.87 (.77)[2]	3**	.90
SIPP-118 Identity integration	2.72 (.55)	4.58 (.64)[2]	9.3**	2.91
SIPP-118 Relational capacities	3.49 (.61)	4.89 (.71)[2]	6.67**	1.97
SIPP-118 Responsibility	3.90 (.67)	4.55 (.67)[2]	3.25**	.97
EQ-5D	.43 (.25)	.87 (.17)[3]	7.70**	2.59

Note. GSI = Global Severity Index (Brief Symptom Inventory); SIPP-118 = Severity Indices of Personality Problems 118; EQ-5D = EuroQol EQ-5D. [1](De Beurs, 2006), [2](Feenstra, Hutsebaut, et al., 2011), [3](Stolk, et al., 2009).
* p < .05. **p < .01.

Treatment outcome

Participants reported significantly less symptomatic distress on the BSI at 12 months after start of treatment with a large effect size (GSI score) (p<.001, d=1.46). They also showed marked improvements in personality functioning with large effect sizes on the following SIPP-118 domains: self-control (p<.01, d=1.29), social concordance (p<.05, d=.70), identity integration (p<.01, d=1.42) and responsibility (p<.05, d=.58). And although patients also showed an improvement in the relational capacities domain, this trend did not reach significance (p=.067). Finally, patients also reported a significant improvement in quality of life at 12 months after start of treatment (p<.05, d=1.11), representing a large effect size. These results are shown in Table 3.

Table 3. Treatment outcome

Variable	Baseline	12 months		
	M (SD)	M (SD)	t	d
GSI	2.20 (.49)	1.33 (.74)	5.408***	1.46
SIPP-118 Self-control	3.26 (.91)	4.56 (1.17)	-.3466**	1.29
SIPP-118 Social concordance	5.18 (.72)	5.66 (.68)	-2.258*	.70
SIPP-118 Identity integration	2.72 (.55)	3.87 (1.07)	-3.513**	1.42
SIPP-118 Relational capacities	3.49 (.61)	4.06 (1.00)	-2.050	.72
SIPP-118 Responsibility	3.90 (.67)	4.33 (.86)	-2.483*	.58
EQ-5D	.43 (.25)	.68 (.24)	-2.461*	1.11

Note. N = 11. GSI = Global Severity Index (Brief Symptom Inventory); SIPP-118 = Severity Indices of Personality Problems 118; EQ-5D = EuroQol EQ-5D.
* p < .05. **p < .01. ***p < .001.

Clinically meaningful change

Table 4 presents the reliable change, movement to normal functioning, clinically significant change and deterioration of the BSI (GSI-score) and the SIPP-118. As measured by the BSI, ten patients showed reliable change (91%). Two of them (18%) moved from a dysfunctional to a normative range across treatment and also demonstrated clinically significant change. No patients demonstrated clinical deterioration as measured by the BSI. Percentage of patients with reliable change measured by the SIPP-118 varied from 27 to 55%, clinically significant change ranged from 9 to 55%, and movement into normative functioning ranged from 9 to 55%. One patient showed deterioration on the SIPP-118 relational functioning domain.

Table 4. Clinically meaningful change

	Reliable change	Movement to normative range	Clinically significant change	Deterioration
GSI	91%	18%	18%	0%
SIPP-118 Self-control	55%	36%	36%	0%
SIPP-118 Social concordance	27%	36%	18%	0%
SIPP-118 Identity integration	55%	55%	55%	0%
SIPP-118 Relational capacities	27%	46%	27%	9%
SIPP-118 Responsibility	36%	9%	9%	0%

Note. N = 11. GSI = Global Severity Index (Brief Symptom Inventory); SIPP-118 = Severity Indices of Personality Problems 118; EQ-5D = EuroQol EQ-5D.

DISCUSSION

In the context of a broader feasibility study, this paper provides preliminary support for the effectiveness of inpatient mentalization-based treatment for adolescents with borderline symptoms. This study provides preliminary support that MBT-A is associated with reliable change in most patients (91%) in terms of symptomatic improvement. Moreover, patients showed marked improvements in personality functioning and a higher level of quality of life at 12 months after start of treatment, with medium to large effect sizes. Effect sizes were similar to, or higher than, effect sizes reported in other studies in adolescents with borderline features. For example, Schuppert and colleagues (Schuppert, et al., 2009) found effect sizes ranging from d=.16 to d=.67 in a 17-week controlled

trial involving 43 adolescents randomized to Emotion Regulation Training (ERT) + TAU (*n*=23) or to TAU alone (*n*=20). Effect sizes found in this study are also similar to those obtained in various inpatient treatments of adult patients with personality pathology. For example, in a study of a psychoanalytic hospitalization-based treatment for adults with PDs, Vermote and colleagues (Vermote, et al., 2010) reported a large effect (*d*=1.14) for symptom reduction at 12 months of follow-up and *d*=.85 for personality functioning. Results of this study, together with the study by Rossouw and Fonagy (Rossouw & Fonagy, 2012), thus provide preliminary evidence for the effectiveness of MBT in adolescents with substantial personality pathology. However, whereas the Rossouw and Fonagy study (Rossouw & Fonagy, 2012) focused on self-harming adolescents in an outpatient setting, this study focused on adolescents with borderline features treated in an inpatient setting.

These findings are all the more noteworthy given that the current study sample was seriously disturbed at the start of treatment compared with normative samples of adolescents and adults (De Beurs, 2006; Feenstra, Hutsebaut, et al., 2011; Stolk, et al., 2009). However, almost all patients showed reliable change in the direction of the normal range on the BSI. On the SIPP-118 domains, reliable change was more variable, with a range between 27 and 55%. At the same time, however, it should be noted that only 18% moved into the normative range of functioning on the BSI. Remarkably, however, on the SIPP-118 domains, the percentage of patients moving to the normal range was slightly higher, ranging from 9 to 55%. Hence, congruent with studies in adults and similar studies in adolescents, it is clear that even an intensive treatment such as the present one does not allow adolescents with borderline features to catch up with normal development. In fact, existing research suggests that this may take years and hence, further follow-up studies are needed. However, the earlier we intervene, the greater the probability may be that adolescents do catch up with normal development, and findings concerning movement to the normal range in terms of personality pathology are particularly encouraging in this context.

Another important issue relates to the feasibility of inpatient MBT-A. Elsewhere we have reported difficulties with the implementation of MBT-A in the current and similar settings (Hutsebaut, Bales, Busschbach, & Verheul, 2012), including difficulties to adapt the model to an inpatient setting for adolescents, leading

to problems with staff absence and turnover rates. One consequence of these implementation problems has been that we now advice to offer MBT-A in an outpatient variant instead of the original inpatient setting. We expect such a less intensive treatment should decrease the high levels of arousal both within patients and the treatment team typical of inpatient work with adolescents, which should lead to less implementation problems whilst at the same time retaining treatment effects. In fact, these abovementioned implementation problems in combination with the relatively large effect sizes led us to stop this pilot study and focus on the development of a less intense form of the treatment which capitalizes on the effective ingredients of the treatment while minimizing iatrogenic effects. We are currently conducting a larger study to test the effectiveness of an outpatient MBT that essentially retains the treatment components of inpatient MBT for adolescents.

Results of this study need to be interpreted in the context of some important limitations. The first limitation is the lack of a control group. Hence, improvements may be due to treatment effects, the natural course of the disorder, external events, or any combination of these factors. However, the striking similarity of effect sizes with other treatment studies in similar samples suggest that the observed effects seem at least partially related to the treatment. Another drawback is the small sample size, which does not allow for any analyses of moderators of treatment. Moreover, the sample consisted entirely of girls, so results might not necessarily generalize to boys with BPD features. Furthermore, no inter-rater reliability data were collected in this study for the semi-structured interviews and treatment adherence was not systematically recorded. However treatment adherence was rated after every group therapy session by the therapists, using the Adherence and Competence Scale as provided in the MBT manual (Bateman & Fonagy, 2004). These ratings were used for treatment goals only and unfortunately were not preserved for research use. Nevertheless, psychotherapists were trained intensively by experienced MBT-trainers and the team was supervised on a monthly base by an experienced MBT supervisor.

Overall, despite these limitations, results of the current pilot study are promising and support the further development of MBT for adolescents with serious borderline pathology.

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