

Eight-year Prospective Follow-Up of Mentalization-Based Treatment Versus Structured Clinical
Management for People with Borderline Personality Disorder

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Abstract

Participants ($n = 134$) treated in a randomized controlled trial with mentalization-based treatment (MBT) compared with structured clinical management were followed up for 8 years after starting treatment in terms of the initial primary outcome of the trial—namely, suicide attempts, self-harm, and hospitalization—as well as service use and functional outcomes. Patients in the study group were interviewed by research assistants who remained masked to the original group allocation. Interviews were scheduled annually. Of the original participants, 98 (73%) agreed to participate. Overall, the beneficial outcomes at the end of treatment were maintained in both groups. Over the follow-up period, the number of patients who continued to meet the primary recovery criteria was significantly higher in the MBT group (74% v. 51%). Use of most other services was comparable. Participants treated with MBT showed better functional outcomes in terms of being more likely to be engaged in purposeful activity and reporting less use of professional support services and social care interventions.

Keywords: borderline personality disorder, mentalization-based treatment, follow-up, structured clinical management.

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Borderline personality disorder (BPD) is a pervasive and debilitating condition characterized by interpersonal difficulties, problems of social interaction, impulsivity, and emotional instability (Daros & Williams, 2019; Euler et al., 2019; Gunderson, Herpertz, Skodol, Torgersen, & Zanarini, 2018). The disorder leads to substantial personal distress, risk of suicide and self-harm, restricted social adaptation, and high use of health services over time (Coid et al., 2009; Paris, 2018). A number of well-characterized treatments have been shown in randomized controlled trials (RCTs) to moderate interpersonal distress, suicidality, self-harm, impulsive behaviors, general psychopathology, and service use at the end of treatment while improving emotional control (Cristea et al., 2017; Linehan et al., 2015). More limited evidence exists about whether these changes are maintained over time. Follow-up of patients from trials has been generally too short to assess whether change is long-lasting (Blum et al., 2008; Gibson, Booth, Davenport, Keogh, & Owens, 2014; Linehan et al., 2006; Linehan et al., 2015), with some notable exceptions (Sahin et al., 2018) (Bateman & Fonagy, 2008; Davidson, Tyrer, Norrie, Palmer, & Tyrer, 2010; Mehlum et al., 2019). Studies suggest that quality of life remains poor (Bateman & Fonagy, 2008; Davidson et al., 2010), outcomes may relate to initial severity (Sahin et al., 2018), and some aspects of the disorder, such as social adaptation, vocational adjustment, and physical health problems, are persistent even after treatment (Zeitler et al., 2018). A meta-analysis of prospective studies concluded there was evidence of only slight functional improvement in the long term and that age and sex modulate the long-term prognosis (Alvarez-Tomas, Ruiz, Guilera, & Bados, 2019).

Naturalistic follow-along studies suggest that, in the long term, symptomatic remission may occur after 2 years but social and functional adaptation remain impaired (Alvarez-Tomas et al., 2017; Skodol et al., 2005; Temes & Zanarini, 2018; Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010, 2012). At 16 years, BPD patients are less likely to achieve good social and vocational functioning than comparison subjects with other personality disorders, and social isolation persists in a sizable minority of BPD patients at 20 years (Pucker, Temes, & Zanarini, 2019). In the Collaborative Longitudinal Personality Disorders Study only around 20% of BPD patients attained a Global Assessment of Functioning (GAF) score of 71 or higher for a period of 2 months or longer (Gunderson et al., 2011). In a 27-year follow-up the mean GAF score remained low at 63 (Paris & Zweig-Frank, 2001). However, it is difficult to draw firm conclusions from these naturalistic studies in the absence of an experimental design and a comparison group.

We previously reported on an RCT of 134 patients with BPD, comparing the effectiveness of outpatient mentalization-based treatment (MBT) with structured clinical management (SCM) over a period of 18 months (ISRCTN 27660668; Bateman & Fonagy, 2009). More detail about the original trial, including the therapeutic approach adopted in MBT and SCM, is included in the supplementary information associated with the paper. In summary, MBT for BPD in an outpatient context consists of weekly combined individual and group psychotherapy focusing on the mentalizing strengths and failures associated with the affective, impulsive, and interpersonal symptoms of BPD. It takes an attachment theory-based conceptualization of the limitations of social cognitive and emotional functioning of individuals with BPD and systematically addresses these based on individual case formulations and a manualized hierarchical strategy adopted in both individual and group therapy formats. The

SCM-OP protocol attempted to reflect best generic practice for BPD within UK psychiatric services also incorporated in MBT but in this arm offered by non-specialist practitioners. Regular individual and group sessions were part of SCM-OP with appointments for 3-monthly psychiatric review. Therapy was based on a counseling model closest to a supportive approach with case management, advocacy support, and problem-orientated psychotherapeutic interventions. Patients in both arms of the trial were offered 140 sessions of treatment. All patients had an initial crisis plan but crisis management in SCM followed the normal risk management protocol of the general psychiatric service whilst the MBT protocol followed a mentalizing framework requiring a step-wise procedure on the part of the clinician to review the mentalizing sensitivity that had preceded the crisis. Treatment integrity was monitored through audio recordings of sessions. Reliability for MBT-OP for 50 randomly chosen tapes was $r = .77$, 95% CI [.62, .86] and for SCM-OP for 40 tapes was $r = .68$, 95% CI [.47, .81.] Substantial improvements were observed at end of treatment in both conditions across most outcome variables. Patients randomly assigned to MBT showed a steeper decline and somewhat lower end of treatment levels of both self-reported and clinically significant problems, including suicide attempts and hospitalization. This paper reports on an 8-year follow-up of patients treated in this trial.

In the context of limited improvement over time in social adjustment and quality of life both in RCTs and in naturalistic studies, we were concerned not only with establishing whether gains found in the primary outcome (absence of severe self-harm, suicide attempts, and inpatient admission) at the end of 18 months of treatment in patients treated with MBT and SCM had been maintained, but also whether improvements in social functioning and vocational engagement

were sustained over a prolonged period and whether reduction in the use of mental health services had been maintained.

Method

The characteristics of the subjects, the methodology of the original trial, the details of MBT and SCM treatment (Bateman & Fonagy, 2016; Bateman & Krawitz, 2013), and outcomes at the end of treatment have been described (Bateman & Fonagy, 2009) and are included in the supplementary materials with this paper. In the current study, we attempted to follow up all 134 patients for up to 10 years after random assignment, but due to increasing attrition of subjects after 7 years we report follow-up of patients over 8 years (6 years after they had ceased treatment in the original trial). First contact was made by letter, through their general practitioner (GP; primary care physician), and by telephone 1 year after completion of treatment. Written informed consent was obtained in person or by letter after the follow-up study had been fully explained according to the requirements of the local research ethics committee (NHS Research Authority Ethical Approval Ref 08/H0723/71). Medical and psychiatric records were obtained for all 134 patients and relevant information was extracted where available. Secondary and tertiary care medical records enabled tracing and estimation of healthcare use over the study period.

The patients in the study group were interviewed by research assistants who remained masked to original group allocation. Interviews were scheduled annually. In year 1, 106 patients were traced and 98 (73% of the original sample; 75% of those in MBT and 71% of those in SCM) agreed to participate for follow-up. Over time there was a gradual decline in the number of patients who continued to participate from both groups; at 8 years, 47 (66%) of the MBT group and 35 (56%) of the SCM group remained contactable. The data available were further limited as we were unable to obtain information on all variables from all patients.

Measures

All information obtained through self-report by personal or telephone interviews was cross-checked with appropriate records, which included hospital emergency department, medical, psychiatric, GP, and prescription records. At each follow-up assessment, information was collected on the original primary outcome measure, specified as a 12-month period of being free of suicide attempt, hospitalization, or self-harm requiring medical intervention (Bateman & Fonagy, 2009). In the follow-up we expanded this definition recording critical incidents; the use of psychiatric and medical hospital and community services; employment and other personally meaningful and purposeful activity e.g. education and voluntary work; and use of psychoactive medication and other mental health treatment. Information covered the previous year and was collected using a modified version of the Client Service Receipt Inventory (Beecham & Knapp, 2001). Service use and treatment received were grouped for analysis according to service organization into a number of domains: (1) Critical incidents requiring emergency services for mental health; (2) Crisis mental health services; (3) Outpatient mental health services; (4) Primary care services; (5) Non-mental health medical services; (6) Professional support services; (7) Social care services; (8) Purposeful activity; (9) Receipt of state financial assistance; (10) Time on psychoactive medication.

At the first follow-up point, the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (First, Gibbon, Spitzer, Williams, & Benjamin, 1997) was administered to identify BPD diagnostic status. We attempted to administer a battery of self-report symptom measures but the rate of non-compliance was extremely high and omitting these measures significantly improved participant engagement with the follow-up.

Critical incidents.

Critical incidents were operationalized as documented use of emergency and mental health crisis services. This included visits to or stays overnight in emergency departments for any mental health reason, primarily self-harm and suicide attempts, or other events necessitating mental health intervention e.g., running unclothed in the streets) that required the use of emergency services. Patient data were collected at each interview using a semi-structured interview. Suicidal acts were defined as acts having the following characteristics: (1) deliberate, (2) life-threatening, (3) resulting in medical intervention, and (4) medical assessment consistent with a suicide attempt. Criteria for acts of self-mutilation were as follows: (1) deliberate, 2) resulting in visible tissue damage, and (3) requiring nursing or medical intervention.

Crisis mental health services.

This included presenting to a mental health community crisis unit, overnight stays in a crisis unit or mental health unit, and any use of acute day hospital care or crisis support from a home treatment team.

Outpatient mental health services.

This included use of psychiatric outpatient sessions, National Health Service group therapy and individual therapy, and visits from a community mental health nurse or from other mental health professionals.

Primary care services.

Primary care services comprised visits to the GP or care delivered by a GP nurse, and any care from other primary care health professionals.

Non-mental health medical services.

This included inpatient medical treatment and outpatient medical appointments and ambulance use for medical problems unrelated to mental health.

Professional support services.

This included visits from psychiatrists, private counsellors, psychologists, social workers, and psychotherapists.

Social care services.

This included any attendance at social care day centers, involvement of community support workers, self-help groups, and housing support worker involvement.

Time in purposeful activity.

This comprised information on employment, education attendance, voluntary work, and other purposeful activity.

Time receiving state financial assistance.

This included receipt of a range of state-provided social security (welfare) benefits—disability benefits, housing benefit, income support, and jobseekers' allowance.

Time on psychoactive medication.

Use of psychotropic and other medications was elicited at interview and cross-checked with prescription records. Medication included antidepressants, antipsychotics, mood stabilizers, and benzodiazepines.

Scoring of measures.

For each item within each domain, we scored its presence or absence in each year of the follow-up period as well as the number of confirmed occurrences per year. Both of these indicators were aggregated across the 5 years of the follow-up period. We scored the presence or

absence of the item during the follow-up period (*binary items*), the number of years during which the item was present at least once (*duration items*), and the average number of times the item occurred per year (*frequency items*). On some frequency items, for example, medication, employment, and receipt of state benefits, the number of months rather than the number of occurrences was stipulated. Because of significant floor effects the median in most variables was zero, and therefore the means are reported as an indicator of the direction (not magnitude) of effect.

Statistical Analysis

Chi-squared tests were used to compare the proportion of patients in the SCM and MBT groups who reported a given item during the follow-up period (binary items). Wilcoxon signed ranks tests were used to compare the average number of years a given item was reported between the SCM and MBT groups (duration items), as the difference between these matched groups was not normally distributed. Finally, negative binomial regression was used to compare the number of occurrences of a given item between the SCM and MBT groups (frequency items). Negative binomial models are appropriate for count data like ours that feature significant floor effects (i.e. multiple zeros), as they include a dispersion parameter that adjusts for the inflated variance (Gardner, Mulvey, & Shaw, 1995). Items where the number of months were counted rather than the number of occurrences were analyzed with ordinal logistic regression, as their distributions were more multimodal than typical count distributions and the response bins are temporally ordered (e.g., 5 months on medication is 1 month more than 4 months on medication). We controlled for age in all regression models.

We report the observed proportions and means for binary and duration items, respectively, and the marginal counts or months for the frequency items adjusted for age.

Further, adjusted risk ratios (ARRs), ordinal polychotomous *ds*, and incidence rate ratios (IRRs) are reported as effect size estimates for the binary, duration, and frequency items, respectively.

The SCM group served as the reference group in all comparisons.

Results

Supplemental Table 1 displays the demographic and clinical characteristics and treatment of individuals for whom at least one point of follow up ($n = 98$) was available compared with participants for whom no follow-up data were collected ($n = 38$). There were relatively few significant differences between the groups. Participants not followed up were significantly less likely to have a diagnosis of major depression at the start of treatment (64% vs. 33%, $\chi^2(1) = 9.66, p = .002$, ARR = 1.91, 95% CI [1.31, 2.41]) and to have had fewer individual therapy sessions in the course of their treatment ($M_{(FU)} = 46.42, SD = 21.5, M_{(nonFU)} = 43.69, SD = 18.6, t = 1.79, p = .037$). As neither of these variables related to clinical outcomes, subsequent analyses did not control for either of them.

Primary outcome

The number of participants in each group meeting DSM-IV-R criteria at 1-year follow-up was 5 in the MBT group and 11 in the SCM group (13% vs. 33%, $\chi^2(1) = 4.11, p = .042$, ARR = -0.21, 95% CI [-0.4, -0.01]). However, only 73% of participants were willing to undertake the follow-up interview. The number of criteria met at this time was also somewhat lower for the MBT group ($M_{(MBT)} = 2.34, SD = 1.86, M_{(SCM)} = 3.03, SD = 2.24, t(69) = 1.41, p = .08$).

The number of participants who achieved the primary recovery criteria of the original trial (free of self-harm, suicide attempts, or in-patient hospital stays) who remained well over the follow-up period was 39 of 52 in the MBT group and 23 of 45 in the SCM group (75% vs. 51%, $\chi^2(1) = 5.28, p = .021$, ARR = 0.24, 95% CI [0.43, -0.05]). The average number of years during

which participants failed to meet recovery criteria was significantly greater for the SCM group ($M_{(MBT)} = 0.39$, $SD = 0.75$, $M_{(SCM)} = 1.02$, $SD = 1.24$, Wilcoxon $z = 2.68$, $p = .007$, Polychotomous $d = 0.61$). 29 (76%) of 38 patients who were recovered according to these criteria at the end of the treatment period remained so in the MBT group, compared with 12 (57%) of 21 in the SMC group ($\chi^2(1) = 2.15$, $p = .143$, ARR = 1.32, 95% CI [0.88, 2]). Of participants who were not recovered at the end of treatment, only 4 (28%) of 14 remained not recovered in terms of the primary outcome in the MBT group, compared with 13 (54%) of 24 in the SCM group ($\chi^2(1) = 2.34$, $p = .126$, ARR = 0.53, 95% CI [0.21, 1.31]). While neither of these specific comparisons was statistically significant, treatment group was a significant predictor of recovery during the follow-up years overall when controlling for age (ARR = 0.50, 95% CI [0.29, 0.85], $z = 2.54$, $p = .011$).

Table 1 summarizes the service use and social function outcomes for patients treated with MBT compared with SCM over a 5-year post-treatment period. Supplemental Table 2 summarizes the individual variables contributing to the service use and social function outcome clusters over the same period.

Critical Incidents

Only 9 patients in the MBT arm, compared with 19 of the SCM group, had experiences meeting criteria for critical incidents over the follow-up period (17% vs. 42%, $\chi^2(1) = 7.29$, $p = .007$, ARR = -0.25, 95% CI [0.43, -0.07]). The number of follow-up years during which at least one critical incident occurred was three times greater in the SCM group ($M_{(MBT)} = 0.20$, $SD = 0.46$, $M_{(SCM)} = 0.65$, $SD = 0.84$, Wilcoxon $z = 2.92$, $p = .003$, Polychotomous $d = 0.68$). Further, the estimated number of critical incidents was lower in the MBT group when controlling for age ($M_{(MBT)} = 0.19$, $SE = 0.07$, $M_{(SCM)} = 0.68$, $SE = 0.19$, IRR = 0.29, 95% CI [0.11, 0.71], $z = 2.7$, p

= .007). It is, however, notable that both groups showed a relatively low rate of critical incidents. Supplementary materials (Supplementary Table 2) related to this domain show that the likelihood of reporting most forms of critical incidents was significantly lower in the MBT group, with the largest differences observed for emergency department visits excluding suicide and self-harm (17% vs. 42%, $\chi^2(1) = 7.29$, $p = .007$, ARR = -0.25 , 95% CI [0.43, -0.07]), use of ambulance transport for mental health emergencies (6% vs. 24%, $\chi^2(1) = 6.81$, $p = .009$, ARR = 0.36 , 95% CI [0.13, 1.01]), and other crisis visits to the emergency department (2% vs. 16%, $\chi^2(1) = 5.92$, $p = .015$, ARR = 0.22 , 95% CI [0.03, 1.38]). The number of suicide or self-harm attempts was lower in the MBT group but this was not marked (15% vs. 31%, ARR = -0.16 , 95% CI [-0.33 , 0.01]).

Crisis Mental Health Services

The number of follow-up years when crisis mental health services were used was greater in the SCM group than the MBT group ($M_{(MBT)} = 0.62$, $SD = 1.10$, $M_{(SCM)} = 1.39$, $SD = 1.79$, Wilcoxon $z = 2.27$, $p = .023$, Polychotomous $d = 0.52$), although the likelihood of ever using crisis services over the whole follow-up period was only marginally different (34% vs. 53%, $\chi^2(1) = 3.72$, $p = .053$, ARR = -0.2 , 95% CI [-0.39 , 0]). Controlling for age, the MBT group used crisis services a third of the time compared to the SCM group, albeit statistically this was only a marginally significant effect ($M_{(MBT)} = 4.73$, $SE = 1.90$, $M_{(SCM)} = 13.84$, $SE = 5.97$, IRR = 0.34 , 95% CI [0.11, 1.08], $z = 1.82$, $p = .068$). The MBT group was less likely to present to a crisis unit (23% vs. 42%, $\chi^2(1) = 4.31$, $p = .038$, ARR = -0.2 , 95% CI [-0.39 , -0.02]) and less likely to have overnight stays in the unit (8% vs. 22%, $\chi^2(1) = 4.28$, $p = .039$, ARR = -0.15 , 95% CI [-0.29 , -0.01]). The SCM group spent more days under home treatment team care ($M_{(MBT)} = 0.44$, $SE = 0.22$, $M_{(SCM)} = 2.65$, $SE = 1.29$, IRR = 0.17 , 95% CI [0.04, 0.65], $z = 2.58$, $p = .01$).

Outpatient Mental Health Services

The likelihood of using outpatient mental health services was only slightly lower in the MBT group (87% vs. 93%, ARR = -0.07 , 95% CI [-0.19 , 0.05]) but the number of follow-up years when outpatient services were used was significantly greater in the SCM group ($M_{(MBT)} = 2.64$, $SD = 1.77$, $M_{(SCM)} = 3.40$, $SD = 1.71$, Wilcoxon $z = 2.14$, $p = .032$, Polychotomous $d = 0.35$). Controlling for age, the number of times outpatient mental health services were used over the follow-up period was not significantly different between treatment groups ($M_{(MBT)} = 17.46$, $SE = 3.61$, $M_{(SCM)} = 23.25$, $SE = 5.16$, IRR = 0.75 , 95% CI [0.41 , 1.37], $z = 0.94$, $p = .349$).

Primary Care Services

Both MBT and SCM groups made extensive use of primary care services (91% vs. 94%, ARR = -0.04 , 95% CI [-0.16 , 0.07]). and the average number of follow-up years as well as the total number of primary care attendances across the follow-up period did not differ between groups (see Table 1). However, the MBT group reported marginally fewer visits with primary care health professionals other than GPs and nurses over the follow-up period ($M_{(MBT)} = 0.4$, $SE = 0.22$, $M_{(SCM)} = 1.78$, $SE = 0.94$, IRR = 0.23 , 95% CI [0.05 , 1.11], $z = 1.83$, $p = .067$).

Non-Mental Health Medical Services

Use of non-mental health services, comprising acute medical and outpatient medical services, was similar in both groups, with over half of participants reporting use of such services for medical care (52% vs. 59%, ARR = -0.07 , 95% CI [-0.28 , 0.15]).

Professional Support Services

The MBT group had fewer visits from professional support services than the SCM group ($M_{(MBT)} = 1.5$, $SE = 0.39$, $M_{(SCM)} = 3.75$, $SE = 1.01$, IRR = 0.40 , 95% CI [0.19 , 0.84], $z = 2.43$, $p = .015$) and were marginally less likely to use professional support services in general over the

follow-up period (53% vs. 70%, $\chi^2(1) = 2.76, p = .096, ARR = -0.17, 95\% CI [-0.37, 0.02]$). In particular, the MBT group had fewer outpatient visits with a psychiatrist ($M_{(MBT)} = 0.28, SE = 0.09, M_{(SCM)} = 0.69, SE = 0.17, IRR = 0.41, 95\% CI [0.19, 0.90], z = 2.22, p = .026$) and marginally fewer counselling visits ($M_{(MBT)} = 0.9, SE = 0.05, M_{(SCM)} = 4.09, SE = 2.42, IRR = 0.22, 95\% CI [0.04, 1.10], z = 1.84, p = .066$).

Social Care Services

The MBT group was less likely to use social care interventions than the SCM group (18% vs. 44%, $\chi^2(1) = 7.53, p = .006, ARR = -0.27, 95\% CI [-0.45, -0.08]$) and the total number of incidents of social care use was substantially lower in the MBT group ($M_{(MBT)} = 2.08, SE = 1.03, M_{(SCM)} = 13.48, SE = 7.07, IRR = 0.15, 95\% CI [0.04, 0.63], z = 2.59, p = .01$). The MBT group used less day center care provided by the social care system ($M_{(MBT)} = 0.02, SE = 0.02, M_{(SCM)} = 2.91, SE = 1.99, IRR = 0.01, 95\% CI [0, 0.12], z = 3.41, p = .001$) and fewer community services ($M_{(MBT)} = 0.35, SE = 0.30, M_{(SCM)} = 8.14, SE = 6.84, IRR = 0.04, 95\% CI [0, 0.50], z = 2.52, p = .012$).

Time in Purposeful Activity

Overall, there was no significant difference between groups in the proportion of individuals who did not engage in purposeful activities (25% MBT vs. 39% SCM, $ARR = -0.14, 95\% CI [-0.35, 0.06]$), but those in the MBT group spent more months engaged in purposeful activities ($M_{(MBT)} = 40.25, SE = 4.36, M_{(SCM)} = 25.38, SE = 4.46, OR = 2.44, 95\% CI [1.08, 5.48], z = 2.16, p = .031$). The MBT group participants were less likely to be unemployed during the follow-up period (47% vs. 78%, $\chi^2(1) = 8.03, p = .005, ARR = -0.32, 95\% CI [-0.52, -0.11]$) and spent more time in education ($M_{(MBT)} = 0.68, SE = 1.12, M_{(SCM)} = 0.25, SE = 0.79, IRR = 3.37, 95\% CI [1.09, 10.46], z = 2.11, p = .035$) than the SCM group participants.

Time Receiving State Financial Assistance

The number of participants from whom we were able to obtain information in relation to social and health care benefits was smaller than for other variables due to participants' failure to report this information. Of the individuals who responded to these items, more of those in the SCM than the MBT group were in receipt of some type of state benefit (58% vs. 88%, $\chi^2(1) = 7.53, p = .006$, ARR = -0.30 , 95% CI [$-0.5, -0.1$]), and the SCM group was more likely to be in receipt of some form of state benefit in each year of the follow-up period ($M_{(MBT)} = 2.53, SD = 2.43, M_{(SCM)} = 3.81, SD = 1.85$, Wilcoxon $z = 2.24, p = .025$, Polychotomous $d = 0.10$).

Summing the number of months in which state benefits were drawn, the difference between the groups remained significant ($M_{(MBT)} = 74.31, SE = 16.16, M_{(SCM)} = 123.85, SE = 19.76$, OR = 0.42 , 95% CI [$0.18, 0.99$], $z = 1.98, p = .048$).

Time on Psychoactive Medication

Approximately 75% of participants used some type of psychoactive medication (73% MBT vs. 79% SCM, ARR = -0.07 , 95% CI [$-0.25, 0.11$]), but those in the MBT group spent fewer months on medication ($M_{(MBT)} = 38.61, SE = 5.97, M_{(SCM)} = 72.71, SE = 10.04$, OR = 0.40 , 95% CI [$0.19, 0.86$], $z = 2.34, p = .019$). In particular, the MBT group showed a fewer mean number of years taking benzodiazepines ($M_{(MBT)} = 0.02, SD = 0.14, M_{(SCM)} = 0.36, SD = 1.15$, Wilcoxon $z = 1.99, p = .046$), mixtures of psychoactive medications ($M_{(MBT)} = 2.55, SD = 2.21, M_{(SCM)} = 3.61, SD = 2.07$, Wilcoxon $z = 2.12, p = .034$), and less traditional psychoactive medications ($M_{(MBT)} = 0.46, SD = 1.40, M_{(SCM)} = 1.13, SD = 1.92$, Wilcoxon $z = 2.30, p = .021$).

Aggregate Outcomes

In order to tentatively explore whether follow-up outcomes could be predicted from baseline characteristics, we aggregated clusters into a single variable. Mean frequency and mean

time clusters were standardized and the standard scores were subjected to square root transformation before addition. The Cronbach's alpha associated with this average problem score was 0.63. The overall effect of allocation was highly significant ($M_{(MBT)} = -0.182$, $SD = 0.39$, $M_{(SCM)} = 0.15$, $SD = 0.61$, $B = 0.312$, 95% CI [0.15, 0.64], $z = -3.19$, $p = .001$). The effect size for mean difference was medium ($d = 0.65$). Ordinary least-squares regressions were used to test predictions from demographic, clinical, treatment, and outcome variables. Data are summarized in Supplemental Table 3. Demographic variables at baseline associated with good follow-up outcomes included younger age, having been in tertiary education, living with a partner, and being in employment and not on social security benefits. Clinical variables at baseline predicted follow-up outcomes poorly except for low GAF scores, anxiety disorder, eating disorder, and substance use disorder, all of which were negative predictors, along with number of BPD criteria. Of the treatment variables, any use of psychoactive medication was associated with worse outcomes, in particular mood stabilizers and other medication, primarily benzodiazepines. The treatment response in terms of main difference in self-report and GAF scores did not predict follow-up outcomes. Controlling for these baseline and treatment variables did not affect the size of treatment assignment group effects. We looked for interactions between baseline and treatment variables and group assignment to identify patients who may be most suitable for MBT. Only a small number of variables increased the size of the difference between MBT and SCM. The variables that yielded significant two-way interactions were eating disorder ($d_{(No\ ED)} = -0.28$, 95% CI [-0.70, 0.79], $d_{(ED)} = -1.65$, 95% CI [-2.58, -0.72], $B = 0.069$, 95% CI [0.01, 0.36]), $z = 3.18$, $p = .001$), substance use disorder ($d_{(No\ SUD)} = -.37$, 95% CI [-0.93, 0.19], $d_{(SUD)} = -0.86$, 95% CI [-1.46, -0.26], $B = 0.106$, 95% CI [0.02, 0.47], $z = 2.95$, $p = .003$), and physical abuse ($d_{(No\ PA)} = -0.26$, 95% CI [-0.77, 0.26], $d_{(PA)} = -1.44$, 95% CI [-2.18, -0.69], $B = 0.136$,

95% CI [0.02, 0.04], $z = -2.27$, $p = .023$) indicating relatively greater benefit from MBT in the presence of these diagnoses.

Discussion

Overall, the long-term outcomes for both treatments are encouraging. This is in keeping with the long-term outcomes reported by a number of investigators (Davidson et al., 2010; Sahin et al., 2018) who have compared BPD patients treated with other well-characterized treatments with treatment as usual, albeit within a shorter time frame. A strength of the current follow-up study is not only the presence of a comparison group but also its duration. It provides a relatively rigorous test of effectiveness of a treatment. In general the pattern of findings indicate that MBT perhaps slightly enhanced the resilience of BPD patients in so far as it reduced the likelihood of impulsive responses normally associated with encountering life stressors in this population. but the effect was not restricted to the MBT group. The primary outcome of being free of hospitalizations, suicide attempts and self-harm was achieved by almost three-quarters of the whole sample over the 5-year period after treatment ended. However, participants in the MBT benefited more, with only 17% failing to meet the criteria compared with 42% in the SCM group. The total number of times that one of these events occurred was over three times as common in the SCM group as in the MBT group. Alongside this, the use of crisis services was greater in the SCM group, although outpatient mental health service use, primary care visits, and use of non-mental health services were comparable in the two groups. Differences between the long-term outcomes of the two treatments emerged in terms of engagement in purposeful activity, particularly engagement with education, reduction in time spent unemployed, dependence on social security payments, and reduced use of professional support services and social care interventions. Duration of use of psychoactive medication was reduced for those in

the MBT group, who also reported less polypharmacy. These results of the follow-up suggest that differences between the treatments were not diluted over time and underscores the value of specialist treatments for BPD compared with non-specialist treatment (Gunderson, 2018).

The characteristics of patients described in this study, including the mean age of 30 years, (supplementary Table 1) are in keeping with other reported studies and represent a typical clinical population. Younger age was associated with better outcomes which is also in keeping with naturalistic follow-up studies (Zanarini et al., 2010) and meta-analytic data (Alvarez-Tomas et al., 2019). Closer scrutiny reveals that where differences between groups did not emerge there were also strong ceiling and floor effects. Almost all patients used outpatient mental health services and primary care interventions over the whole follow-up period, suggesting a low pace of change. The results reflect the difference between the groups for the more severely affected patients who had experienced physical abuse and/or had co-occurring eating disorder and substance abuse disorder, for whom SCM was less effective than MBT over the long term. However, although differences were in the direction of favoring MBT with more complex cases, the sample is too small to test if severity, conceived of as a history of adversity and co-morbidity, reliably interacts with group assignment. We are therefore unable to begin to answer the important clinical question of which patients do best over the long term with a specialist treatment such as MBT. This is a significant area for future research for all treatments for BPD with some promising early findings from other trials (e.g., Keefe et al., 2020). A meta-analysis of prospective studies, however, found no significant associations between clinical characteristics as moderators and the long-term outcome (Alvarez-Tomas et al., 2019).

The long-term treatment differences were less marked in terms of binary outcome variables and became more evident when either frequency or time was included in the

measurement metric. This perhaps reflects the possibility that many patients were still facing significant problems after receiving MBT, albeit with a lower severity. The data confirm earlier findings (Bateman & Fonagy, 2008) that while patients with BPD treated with MBT may fare reasonably well in terms of self-destructive symptoms, use of acute mental health services, and change in diagnosis, their ability to engage in the world without needing service support remains compromised.

It was surprisingly difficult to engage participants in the follow-up, and this was equally challenging in both treatment arms. This may be partly attributable to practical difficulties in terms of finding people who are young, mobile, and without permanent accommodation, but there were no clear differences between participants who agreed to take part in follow-up and those who did not. Even those who agreed to participate did not accept extended interviews and inevitably there was a gradual reduction in willingness to participate to the extent that we stopped the follow-up early.

There are a number of limitations to this follow-up study. First, we assume that higher use of services and lower functional outcomes in terms of purposeful activity indicate greater need for support and less stimulation of rehabilitative effects in participants who had received SCM. This may be erroneous, as those patients using services may simply be better at accessing help and their ability to apply for social security benefits successfully may be due to better advocacy skills. However, the maintenance of the gains made at the end of treatment in the MBT group, and their greater engagement in purposeful activities in education and voluntary and charity work, suggests that this is unlikely to be the main explanation of the observed differences. Second, the increasing attrition of participants over time was more pronounced for the SCM group, with only just over half of those in the SCM group who agreed to follow-up

being available for interview at the 8-year point. It is possible that this was a result of their engagement in more purposeful activity and they had no wish to continue contact with mental health services, leaving the more severely impaired patients in follow-up. Third, allegiance effects and unmasking of research assistants may have contributed to the observed differences. The delayed effects of the intervention and the absence of direct evidence of changes in mentalizing between the groups are consistent with allegiance being a possible driver of the observed group differences. There are a number of considerations that might suggest this may not be the explanation. First, we have no evidence that research assistants were unblinded. Second, data collection did not rely solely on self-reported information elicited at interview; clinical claims and service use was cross-checked with medical and psychiatric records where possible. Third, the observed effect sizes are similar across objective measures and subjective (self-report) measures. Finally, although not assessed in the current study, other studies have reported evidence that mentalizing may drive change in MBT (Rossouw & Fonagy, 2012) and other therapies (Cologon, Schweitzer, King, & Nolte, 2017; De Meulemeester, Vansteelandt, Luyten, & Lowyck, 2018). Nevertheless, researcher bias and allegiance effects should not be ruled out and replication by independent research groups is essential. We were not successful in collecting extensive questionnaire data, perhaps because all participants had been completing questionnaires throughout their treatment phase and had become disheartened by the amount of time required for repeating the battery of self-report instruments.

The ability to navigate the social world in terms of employment and progressive activities such as reconnection with education is reliant on effective mentalizing and the establishment of epistemic trust (Fonagy, Luyten, Allison, & Campbell, 2017). MBT specifically targets mentalizing in treatment, so improvement in mentalizing capacity might explain the lower use of

crisis support and higher involvement in purposeful activity over the follow-up for the MBT group if this is a proxy indicator for managing everyday stressors better. Although we have no direct evidence of changes in mentalizing in this study, we suggest that MBT may be specifically helpful in improving patients' ability to manage social situations by enabling them to distance themselves from the interpersonal pressures of work and educational stressors, anticipate other people's thoughts and feelings, and be able to understand their own reactions without overactivation of their attachment systems and subsequent emotional distress. This new-found ability protects against social withdrawal and rejection sensitivity, which have been reported over the long term in other studies. Even if this is sometimes the case, the findings indicate that most patients continue to under-function in the social world to some degree, irrespective of the treatment they received. This may indicate that neither MBT nor SCM is adequately focused on social and interpersonal adaptation and that both treatments remain too concerned with reducing impulsive behaviors and crises, which are best seen as consequences of putative underlying social disabilities (Gunderson, 2018; Gunderson, Fruzzetti, Unruh, & Choi-Kain, 2018). Future development of MBT and other treatments might consider more specifically targeting these areas through stronger emphasis on generalization of the relational and interactional changes made in treatment.

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Table 1.

Service use and social function outcomes clusters for patients treated with mentalization-based treatment (MBT) compared with structured clinical management (SCM) aggregated over a 5-year post-treatment period

| Summary variables | n | Number (%) ever meeting definition | | | | | Number of follow-up years (SD) definition met | | | | | Mean frequency or mean number of months (SE) | | | | | |
|--|----|------------------------------------|----|----------|--------------|-------|---|---------------|---------------|-----------------------------|-------|--|--------------|--------------|--------------------|-------|-------|
| | | MBT | n | SCM | χ^2 (1) | p | ES (d) | MBT | SCM | Signed -rank test (z) | p | ES (d) | MBT | SCM | IRR/OR (95% CI) | z | p |
| No suicide, self-harm or inpatient stay | 52 | 39 (75%) | 45 | 23 (51%) | 5.28 | 0.021 | 0.48 | 0.394 (0.754) | 1.02 (1.243) | 2.677 | 0.007 | 0.61 | | | | | |
| Critical incidents involving ED | 52 | 9 (17%) | 45 | 19 (42%) | 7.29 | 0.007 | 0.745 | 0.201 (0.464) | 0.653 (0.844) | 2.92 | 0.003 | 0.682 | 0.19 (0.07) | 0.68 (0.19) | 0.29 (0.11–0.71) | -2.7 | 0.007 |
| Crisis MH services | 53 | 18 (34%) | 45 | 24 (53%) | 3.72 | 0.053 | 0.497 | 0.622 (1.099) | 1.394 (1.785) | 2.273 | 0.023 | 0.521 | 4.73 (1.9) | 13.84 (5.97) | 0.34 (0.11–1.08) | -1.82 | 0.068 |
| Outpatient MH services | 53 | 46 (87%) | 45 | 42 (93%) | 1.13 | 0.286 | 0.386 | 2.636 (1.766) | 3.401 (1.714) | 2.141 | 0.032 | 0.348 | 17.46 (3.61) | 23.25 (5.16) | 0.75 (0.41–1.37) | -0.94 | 0.349 |
| Primary care services | 43 | 39 (91%) | 36 | 34 (94%) | 0.39 | 0.531 | 0.271 | 4.395 (1.56) | 4.518 (1.339) | 0.331 | 0.74 | 0.155 | 6.59 (0.97) | 6.73 (1.09) | 0.98 (0.64–1.5) | -0.1 | 0.922 |
| Non-MH medical services | 44 | 23 (52%) | 41 | 24 (59%) | 0.33 | 0.562 | 0.14 | 1.215 (1.605) | 1.325 (1.6) | 0.501 | 0.616 | 0.024 | 1.29 (0.34) | 0.77 (0.23) | 1.69 (0.78–3.64) | 1.33 | 0.184 |
| Professional support services | 51 | 27 (53%) | 43 | 30 (70%) | 2.76 | 0.096 | 0.396 | 1.328 (1.66) | 1.804 (1.715) | 1.569 | 0.116 | 0.301 | 1.5 (0.39) | 3.75 (1.01) | 0.4 (0.19–0.84) | -2.43 | 0.015 |
| Social care services | 50 | 9 (18%) | 43 | 19 (44%) | 7.53 | 0.006 | 0.707 | 0.64 (1.495) | 1.124 (1.604) | 2.371 | 0.017 | 0.271 | 2.08 (1.03) | 13.48 (7.07) | 0.15 (0.04–0.63) | -2.59 | 0.01 |
| Time in purposeful activity (months) | 44 | 33 (75%) | 36 | 22 (61%) | 1.77 | 0.182 | 0.392 | 3.409 (2.192) | 2.307 (2.204) | -2.209 | 0.027 | 0.496 | 40.25 (4.36) | 25.38 (4.46) | 2.44 (1.08–5.48) | 2.16 | 0.031 |

8-year Follow-up of Mentalization-Based Treatment 2

| | | | | | | | | | | | | | | | | | |
|--|----|----------|----|----------|------|-------|-------|---------------|--------------|-------|-------|-------|---------------|----------------|------------------|-------|-------|
| Time receiving state financial assistance (months) | 36 | 21 (58%) | 33 | 29 (88%) | 7.53 | 0.006 | 0.959 | 2.534 (2.427) | 3.813 (1.85) | 2.238 | 0.025 | 0.103 | 74.31 (16.16) | 123.85 (19.67) | 0.42 (0.18–0.99) | –1.98 | 0.048 |
| Time on psychoactive medication (months) | 48 | 35 (73%) | 39 | 31 (79%) | 0.5 | 0.476 | 0.201 | 2.614 (2.183) | 3.66 (2.08) | 2.175 | 0.029 | 0.419 | 38.61 (5.97) | 72.71 (10.04) | 0.4 (0.19–0.86) | –2.34 | 0.019 |

Note. ED = emergency department; ES = effect size; IRR = incidence rate ratio; MH = mental health; OR = odds ratio.