

RESEARCH ARTICLE

Who is suitable for mentalization-based therapy for borderline personality disorder? The impact of clinical severity on outcomes.

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ABSTRACT

Objective – Evidence of remission without specialized treatment for BPD is accumulating. The authors investigated whether specialized treatments are particularly indicated for patients at high levels of clinical severity. They examined the impact of clinical severity on outcomes of a randomized controlled trial of mentalization-based treatment (MBT) contrasted with supportive clinical management (SCM). *Method* – 134 patients were randomly allocated to MBT or SCM. The primary outcome was the absence of crisis events (including suicidal and severe self-injurious behaviors and hospitalization) in the last 6 months. Secondary outcomes included symptom distress and social and interpersonal function. Severity indicators were defined as (a) severity of comorbid psychiatric syndromes (number of Axis I diagnoses); (b) severity of BPD (number of positive criteria met); (c) severity of personality disturbance (number of comorbid Axis II diagnoses); and (d) severity of symptom distress as indicated by SCL-90 GSI scores. Logistic regressions were used to predict the likelihood of recovery at 18 months. Mixed-effects regressions were applied to examine rates of change across time on the primary outcome and a selective subset of secondary outcomes. *Results* – Of the four severity criteria, only one was significantly associated with superior outcomes from specialized treatment. Greater numbers of Axis II diagnoses predicted increasing differences in rates of improvement between MBT and SCM. Three or more diagnoses precluded significant improvement without specialist therapy. *Conclusions* – Patients with BPD with significant Axis II comorbidity do better with specialist treatment. Patients whose only PD diagnosis is BPD do equally well with supportive clinical management.

Introduction

Borderline personality disorder (BPD) is a complex mental disorder of variable severity characterized by difficulties with emotion regulation and impulse control, and unstable relationships and self-image. Randomized controlled trials (RCTs) have shown a number of specialist psychosocial treatments to be more effective than treatment as usual (1-5).

A recent RCT (2) compared mentalization-based treatment (MBT) with manualized structured clinical management (SCM). MBT is a specialized therapy developed to address a hypothesized deficit in the capacity to represent and regulate mental states in patients with BPD (6). SCM is a generic intervention based on routine psychiatric practice with advocacy work and problem-solving sessions but matching the non-specialized features of MBT in terms of intensity, organization and pharmacological treatment. Patients in SCM improved on most measures. This finding is in line with observational studies that report surprisingly high rates of remission in BPD (7, 8) and with trials that have found well-organized psychiatric treatment to be as effective on core outcomes as a specialist treatment (9-11).

It is suggested that clinical severity indicates a need for specialist treatment for BPD (12). We tested this hypothesis using the comparison of MBT and SCM, predicting that higher levels of severity at baseline would favor MBT over SCM. At least four indicators of increasing severity of BPD have been suggested (13) - level of symptom distress (14), number of descriptive criteria met for the disorder (15), extent of comorbidity with Axis I disorders (16), and degree of comorbidity with other personality disorders (PDs), especially in different PD clusters (17, 18). If severity moderates the benefit from specialized interventions then the most readily discernible parameter should be identified to facilitate selection. We therefore explored the value of all four indicators.

Method

The original trial was a pragmatic randomized superiority trial comparing MBT with SCM for BPD patients following a recent crisis episode (suicide or self-harm) (2). Each patient was treated for 1.5 years with measurement points at baseline, six, 12 and 18 months post-randomization. The primary outcome measure was a crisis episode (suicide, self-harm, or hospitalization to prevent these). Secondary outcomes were independently rated Global Assessment of Functioning (GAF) scores at the beginning and end of treatments and self-reported psychiatric symptoms, social adjustment, and interpersonal function, using the Beck Depression Inventory (BDI) (19), Social Adjustment Scale Self-Report (SAS) (20), and the Inventory of Interpersonal Problems (IIP) (21), respectively. Medication use was assessed at baseline and at 6-monthly intervals until the end of treatment. Assessors and participants were both blind to assignment. Therapists were randomly assigned to treatment conditions and matched for experience and professional training. The study was registered with the International Randomized Controlled Trial Number Register (ISRCTN27660668), and approved by the Local Research Ethics Committee for Barnet, Enfield, and Haringey Mental Health NHS Trust.

Sample

134 patients with BPD were randomized to MBT ($n=71$) or SCM ($n=63$). Inclusion criteria were: (1) diagnosis of BPD, (2) suicide attempt or episode of life-threatening self-harm

within the past six months, (3) aged 18–65. Exclusion criteria were kept minimal (2). Current psychiatric in-patient treatment, temporary residence, drug and alcohol misuse, comorbid PD, including antisocial PD, were not exclusion criteria. Pretreatment variables and diagnostic data are summarized in the original report (2). There were no pretreatment differences between the groups other than reported rape, which was more common in the MBT group.

Indicators of severity

Severity was measured at baseline in four ways: (a) severity of comorbid psychiatric syndromes (number of Axis I diagnoses); (b) severity of BPD (number of positive criteria met); (c) severity of personality disturbance (number of comorbid Axis II diagnoses); and (d) severity of symptom distress (indicated by SCL-90 Global Severity Index [GSI] scores) (22). Other possible indicators of severity were either too difficult to assess reliably (e.g. frequency of self-harm, severity of suicide attempts) or too prone to contextual influences (e.g. lengths of hospital admissions) to be used as valid indicators of clinical severity.

The distribution of the four severity indicators in this sample are shown in Figure 1. All severity variables, except severity of BPD, were used assuming additivity and continuity; severity of BPD was analyzed as a dichotomous variable using six or more positive criteria met as the cut-point. Unexpectedly, we found little redundancy between these indicators as only two of them correlated significantly: the number of Axis I and Axis II diagnoses (Spearman $\rho=0.18$, $p<.05$), and Axis I diagnoses and BPD criteria ($\rho=0.21$, $p<.02$).

Sample characteristics broken down by the four severity criteria are shown in Table 1. Associations between demographic and clinical features and severity indicators were calculated using appropriate non-parametric statistics including Spearman rho correlations and Wilcoxon rank sum tests (not shown but available from the authors). The significance of the associations is indicated in Table 1. Notably, unemployment was associated with BPD severity, and gender with number of Axis II diagnoses. These associations were controlled for in all subsequent analyses.

Statistics

All analyses were carried out using Stata Statistical Software Release 12 (23). Data analysis was by intention to treat but primary outcome observations were available for 95% of primary outcome variables at each observation point and around 85% of secondary outcome or mediator variables. Logistic regressions were used to predict the likelihood of recovery at 18 months and mixed-effects regressions were applied to examine patterns of change across time on the primary outcome and a selective subset of secondary outcomes. Only primary model parameters directly relevant to the study objectives are presented here. For the logistic regressions, these are the differences in recovery associated with each of the severity indicators at 18 months and the coefficient for the severity \times group interaction (indicating whether the SCM – MBT difference varied with different levels of severity). In order to examine the rate of change, we used mixed-effects regression models with participants as random effects (24). For the mixed-effect models looking at the pattern of change, the main effect of severity is reported, along with the interaction with treatment group and the linear rate of change for all severity groups from baseline to 18 months for both treatment groups combined. The critical coefficient for each severity parameter was the severity \times group \times time interaction, indicating differential rate of change for the MBT and SCM groups at different levels of the severity indicator; a

significant coefficient for the three-way interaction indicates that the rate of improvement or deterioration in the MBT group was either slower or faster than in the SCM group at a higher or lower level of severity. As recovery is a composite variable, we followed up significant effects on clinical outcome measures of self-harm, suicidality, and hospitalization separately. None of these were normally distributed and hospitalization and suicide were relatively low-frequency events. Logarithmic transformation was used for self-harm. For suicide attempts and hospitalization we used mixed-effects Poisson regression to create models for count responses. Secondary outcomes were analyzed with mixed-effects linear growth curve models for normally distributed variables. Mixed-effects models and general estimating equations used all available data.

End-of-treatment differences and change over time were analyzed by using the LOGIT, XTMELOGIT, XTMEPOISSON, and XT MIXED procedures in Stata version 12 for Windows. The four time points were coded as -3, -2, -1, and 0 in all models where 6-monthly data were available, thereby implying that regression coefficients involving time measured the linear rate of change from baseline to 18 months and that regression intercepts referenced group differences at the last follow-up point. A likelihood ratio test confirmed that a linear random intercept model best fitted the outcome measures.

Effects for all outcome measures were adjusted by additionally incorporating into all fitted models covariates for rape because the SCM group was statistically significantly, less likely to have this experience, and gender where this varied with levels of severity. All model parameters for continuous outcome measures are presented as partial standardized effects, whereas those for the categorical measures are presented as conditional odds ratios (ORs). Plots are based on predictive margins of the Group variable (with 95% CIs) at linear portions of the Time variable at specified levels of the severity indicator (e.g. one, two, three or four comorbid diagnoses). Complete tables of all modeling results are available upon request.

Results

Previous reports provide information concerning treatment group differences on both primary and secondary outcome measures (2). Only associations with severity indicators are considered here. As was originally reported in both groups, the multilevel mixed-effects logistic regression revealed that the OR associated with recovery (no suicide attempt, self-harm, or hospital admission) increased with time (main effect of time: OR=2.97, 95% CI: 0.2, 5.58, $t(134)=3.39$, $p<.001$, $d=0.59$) but the increase was greater in the group randomized to MBT (time \times group interaction: OR=5.37, 95% CI: 1.96, 14.69, $t(134)=3.27$, $p<.001$, $d=0.56$). The number and percentage of recovered participants in the SCM and MBT arms at each observation point are presented in Table 2 for participants grouped according to four criteria for the severity of initial presentation. Table 3 contains the parameters obtained from logistic and mixed-effects regression models for the four severity indicators tested.

Only one of the four severity criteria appeared to be significantly associated with outcomes at the end of treatment. The presence of fewer Axis II diagnoses predicted greater likelihood of recovery at 18 months (OR=0.46, 95% CI: 0.25, 0.83, $t(134)=-2.58$, $p<.01$, $d=0.45$). Further, there was evidence of a significant interaction between the number of Axis II diagnoses and treatment group (OR=2.16 95% CI: 1.00, 4.59, $t(134)=1.98$, $p<.05$, $d=0.34$), with only about one-quarter (6/23) of patients with three or more Axis II diagnoses

recovered at 18 months in SCM, compared with nearly three-quarters (25/34) of the MBT group. Table 3 shows analyses by presence or absence of comorbid Cluster A, B or C diagnoses. Only the presence of Cluster C diagnoses came close to predicting recovery (OR=4.49, 95% CI: 0.90, 22.3, $z=1.84$, $p<.07$, $d=0.32$). Similarly, the presence of Cluster C diagnoses predicted a slower rate of change for individuals in SCM but this did not reach significance (see Table 3). Amongst those without Cluster C diagnoses, 20/42 (48%) individuals in the SCM group and 27/41 (66%) individuals in the MBT group recovered by 18 months ($\chi^2(1) = 2.80$, $p<.09$). Of those with Cluster C diagnoses, only 8/21 (38%) in the SCM group and 25/30 (83%) in MBT group had recovered at 18 months ($\chi^2(1)=11.07$, $p<.001$).

The number of Axis I diagnoses or GSI scores at baseline did not predict the likelihood of recovery overall or selectively in either of the treatment groups. The number of BPD criteria met also failed to correlate with recovery ($\rho(n=130) = -0.05$, ns), and both the main effect and the interaction of the logistic regression were insignificant. Tables 2 and 3 also contain information concerning the rate of increase in the number of patients who recovered by these criteria. Again, only the number of Axis II diagnoses yielded significant main or interaction effects. The main effect ($\beta=-0.156$, 95% CI: -0.24, -0.08, $t(134)=-3.6$, $p<.001$, $d=0.62$) and severity \times group effect ($\beta=0.126$, 95% CI: 0.01, 0.23, $t(134)=2.27$, $p<.023$, $d=0.39$) could be anticipated from the logistic regression predicting 18 months data. However, the significant time \times Axis II severity interaction ($\beta=-0.055$, 95% CI: -0.1, -0.02, $t(134)=-2.93$, $p<.003$, $d=0.51$) suggests that patients with more Axis II diagnoses recovered at a slower rate. Overall, 38% of those with only one diagnosis in addition to BPD were recovered by 12 months and 64% by 18 months; only 28% and 54% of those with two or more additional diagnoses were recovered at these times. Importantly, the prediction from the baseline number of Axis II diagnoses was significantly stronger for the SCM group as indicated by the significant three-way interaction (severity effect on group differential rate of change: $\beta=0.048$, 95% CI: 0, 0.09, $t(134)=1.99$, $p<.05$, $d=0.34$). To illustrate this interaction, Figure 2a shows the linear prediction of recovery for each of the treatment groups at linear portions of the Time variable at one, two, three or four comorbid Axis II diagnoses. While the model predicts almost identical rates of recovery for the cases with only BPD diagnosis, the prediction of the rate of recovery decreases with each additional Axis II diagnosis for the SCM group, while it remains essentially unaltered for the MBT group. No similar associations of severity indicators with recovery rates were evident for Axis I, symptom distress, or BPD severity criteria.

We explored whether the additional benefit from MBT impacted on the three indicators contributing to the definition of recovery: hospitalization, self-harm, or suicide attempts. We used mixed-effects Poisson regressions to model the frequency data associated with hospitalization and suicide attempts. The Poisson regression for the number of suicide attempts yielded no significant interactions with the number of Axis II diagnoses (IRR=1.045, 95% CI: 0.84, 1.29, $t(134)=0.4$, ns , $d=0.07$); only the interaction between treatment group and time was significant (IRR=0.56, 95% CI: 0.31, 0.99, $t(134)=1.96$, $p<.05$, $d=0.34$). Similar negative results emerged in relation to number of hospitalizations. The only component of recovery to reflect the impact of Axis II diagnosis was self-harm. The Poisson regression yielded a main effect for severity (IRR=1.98, 95% CI: 1.21, 3.22, $t(134)=2.76$, $p<.006$, $d=0.48$) and interaction with time (IRR=1.27, 95% CI: 0.47, 1.44, $t(134)=3.81$, $p<.0001$, $d=0.66$). A significant three-way interaction indicated that the reduction of self-harm over the course of treatment was substantial only for those with one or two Axis II diagnoses in the SCM group, whilst the moderating effect was not apparent in the MBT group (IRR=0.79, 95% CI: 0.66, 0.93, $t(134)=2.75$, $p<.006$, $d=0.48$). Mixed-effects regression using logarithms of self-harm events yielded a similar three-way

interaction and effect size (Figure 2b) ($\beta=-0.11$, 95% CI: -0.2, -0.03, $t(134)=-2.56$, $p<.01$, $d=0.44$). Overall, MBT was more effective than SCM for individuals with a higher number of Axis II diagnoses in reducing self-harm.

We restricted analysis of secondary outcomes to the severity indicator that yielded significant interactions with the primary outcome measure. Three secondary outcomes were considered, namely the BDI, IIP, and SAS. Linear regression predicting end-of-treatment effects and mixed-model random effects regressions are summarized in Table 3. For two of the three variables there was a three-way, time \times number of Axis II diagnoses \times group interaction, with self-rated depression scores declining and interpersonal function improving faster in the MBT arm for individuals with three or four diagnoses. For BDI scores, the contrast between SCM and MBT groups was not significant at 12 and 18 months in patients with one or two diagnoses ($\beta=-1.09$, 95% CI: -4.2, 2.1, $z=-0.68$, *ns*; $\beta=-1.91$, 95% CI: -5.43, 1.60, $z=1.07$, *ns*, respectively). In contrast, BDI scores were significantly lower for individuals with three or more diagnoses in MBT treatment by 12 months ($\beta=-4.42$, 95% CI: -8.07, -0.78, $z=-2.38$, $p<.017$) and this difference increased by 18 months ($\beta=-6.94$, 95% CI: -10.9, -2.88, $z=-3.35$, $p<.001$).

The IIP scores were marginally significantly lower at 18 months for the MBT group even for individuals with only BPD diagnosis with no comorbidity ($\beta=-0.28$, 95% CI: -0.54, -.01, $z=-2.01$, $p<.04$). The size of the difference was marked at 18 months for individuals with two or three Axis II diagnoses ($\beta=-.372$, 95% CI: -0.55, -0.12, $z=-4.20$, $p<.000$; $\beta=-0.47$, 95% CI: -0.67, -0.27, $z=-4.7$, $p<.000$, respectively) and became even larger for those with four diagnoses ($\beta=-0.576$, 95% CI: -0.899, -0.253, $z=-3.49$, $p<.000$). There was no significant interaction associated with social adjustment scores, but the MBT group showed better function independent of the number of Axis II diagnoses.

To test whether baseline correlates of the number of Axis II diagnoses (such as social isolation, unemployment, education level, early loss, sexual abuse, physical abuse, history of antisocial behavior, GAF scores) or the better medical management of the multiple PD diagnosis group could account for the greater benefit from MBT, we examined the correlation between number of PD diagnoses and these risk variables, but identified no significant association except gender and baseline GAF scores ($\rho(134)=-0.24$, $p<.006$). Including GAF in addition to gender in the models did not alter any of the findings. The use of medication, number of different classes of medication used, or use of antidepressants, mood stabilizers, or benzodiazepines were also not associated with group \times time interactions. There was some indication of a relatively more rapid reduction in antipsychotic use in patients with a greater number of Axis II diagnoses (OR=-1.57, 95% CI: -3.32, 0.178, $z=-1.76$, $p<.08$). Controlling for this effect did not change any of the associations reported above.

Discussion

The results suggest that increasingly severe presentation of BPD predicts greater benefit from MBT over SCM. However, this is only true if the definition of severity is based on number of Axis II diagnoses. When severity was defined as the number of comorbid Axis I diagnoses or positive BPD criteria, or high levels of symptom distress, no relationship to treatment outcome was observed. Complex or severe PD, where criteria for more than one PD are met, may entail a range of correlated factors such as greater likelihood of being unemployed and greater social and interpersonal dysfunction (25), (14), accounting for the relatively poorer outcomes.

The absence of prediction from some of our severity indicators contrast with findings from substantially larger, longer-term follow-along studies (26-28). Gunderson and colleagues (26), in a prospective longitudinal study, found that severe baseline psychopathology, suggested by higher levels of BPD criteria and functional disability, along with childhood trauma, predicted poor outcomes over two years. Other studies, mostly using retrospectively collected data, have identified other predictors of variations in the longitudinal course of the disorder, including affective disorder, substance abuse, dysphoria, and comorbid PDs. Only the latter influenced treatment outcomes in the present, smaller, sample. Perhaps these variables influence the longitudinal course of BPD but not treatment outcomes.

Specifically, the results suggest that the addition of Cluster C disorders rather than other Cluster B disorders, impacts negatively on treatment outcomes. In a study on the long-term course of global functioning in patients in therapy with mixed PD, Kvarstein and Karterud also found that avoidant traits were a negative prognostic factor (29). Whilst the risk-taking behaviors of patients with BPD represent an initial treatment challenge to services, the long-term functional outcomes, including social impairment, are more problematic (30). It is possible that the combination of BPD and avoidant features may increase associated social impairment (31), maintaining impairments of emotion regulation (32) by limiting exposure to potentially corrective social influences.

Beyond understanding the prediction of treatment outcome overall, our results underscore the importance of multiple PD diagnoses as an indicator for MBT. We controlled for potentially confounding demographic and clinical correlates (gender, age, and rape), and yet MBT appeared particularly beneficial for patients whose BPD was embedded in other personality problems. How can we explain the paradox that a therapy specifically designed for BPD is particularly beneficial for those with additional problems beyond the target of the therapy? We have limited data to answer this question.. But, first, while MBT was designed for BPD, it may have broader scope. Mentalizing is a key component of self-identity and a central aspect of interpersonal relationships. Thus, improvements in mentalizing may impact on a range of disordered mental processes whatever the source of pathology. If PD is conceptualized as a serious impairment in interpersonal relationships, intimacy, identity, and self-direction (33), enhancing mentalizing might benefit PD as a whole, regardless of subtype. In contrast, SCM is more restricted in scope which makes it less relevant to patients' functional problems.

Second, assuming PDs to be more discrete diagnostic groupings, MBT may effectively address treatment-interfering behaviors, allowing a more generic set of processes that improve affect regulation to emerge. Implicit to this argument is the assumption that various treatment models for BPD act via a dual set of mechanisms: (a) a generic rehabilitative component, which restores the regulation of emotion via a generic set of processes embedded in the therapeutic relationship; (b) a set of modality-specific mechanisms, designed to maintain engagement in treatment and address aspects of the patients' presentation that potentially undermine the rehabilitative component. We might argue that SCM contains many elements of the former but MBT training ensures that the generic component can be delivered despite the interpersonal challenges linked to multiple PD diagnoses.

Third, the advantage of MBT may be due to its reduction of the potential for psychotherapy to do harm to patients with BPD (34). Therapists delivering SCM may have inadvertently caused some harm. Betan and colleagues (35) found that therapist countertransference to

Cluster C patients was parental/protective, with therapists wishing to protect/nurture the patient above and beyond normal positive feelings toward the patient. MBT specifically cautions therapists against overprotective/nurturing interactions because of the danger of overstimulation of the attachment system (36).

This study tentatively suggests which patients with BPD may need a specialist treatment such as MBT but the observations should be considered only preliminary. The trial was not powered to examine moderating variables, and should be followed by either further, specially designed investigations or a full meta-analytic study. Although having a baseline indicator of suitability is helpful, differences in outcome were observed at the end of an 18-month treatment. It would be more valuable to have indicators of the need for particular types of therapy during the course of treatment, in order to move towards a stepped-care approach.

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