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EMPIRICAL PAPER

Favourable outcome of long-term combined psychotherapy for patients with borderline personality disorder: Six-year follow-up of a randomized study

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Abstract

Objective: This study reports the six-year follow-up data of patients with borderline personality disorder (BPD) who participated in the Ullevål Personality Project (UPP), a randomized clinical study comparing outpatient individual psychotherapy (OIP) with a long-term combination programme (CP) comprising short-term day-hospital treatment followed by outpatient combined group and individual psychotherapy. Methods: For 52 patients, outcomes were evaluated after 8 months, 18 months, 3 years, and 6 years based on a wide range of clinical measures, such as symptom severity, psychosocial functioning, personality functioning, and Axis-I and II diagnoses. Results: At the six-year follow-up, patients in the CP condition reported significantly greater reduction of symptom distress and improvements in the personality functioning domains Identity Integration and Self-control compared with patients allocated to OIP. Patients in the CP also had a more favourable long-term course of psychosocial functioning. There were no differences between treatment conditions in outcomes of interpersonal functioning and self-esteem. Conclusions: Long-term psychotherapy in a combination programme seems favourable for BPD patients. In this study, patients who received combined treatment fared better on crucial parameters than patients who received individual therapy. Of particular importance are the positive effects on fundamental borderline problem areas like Identity Integration and Self-control.

Keywords: psychotherapy; borderline personality disorder; randomized controlled trial; long-term follow-up; personality functioning

Introduction

Day-hospital treatment for patients with personality disorders (PDs) has long traditions in Europe (Kallert et al., 2004; Seidler, Garlipp, Machleidt, & Haltenhof, 2006). The recent decades have witnessed more long-term programmes that supplement an initial day-hospital phase with subsequent outpatient psychotherapy (Karterud & Wilberg, 2007; Verheul & Herbrink, 2007). The main theoretical and therapeutic framework for such treatment has been psychodynamic with references to pioneers such as Kohut (1962), Kernberg (1984), Winnicott (1960) and Foulkes (1975). The intensive day-hospital phase usually includes group therapies of different theoretical orientations while the long-term follow-up phase often combines group and individual therapies and keeps a psychodynamic/group-analytic tradition (Karterud et al., 2003). The integration of various combinations of group and individual therapies is proposed to offer a variety of therapeutic
relationships and perspectives that will activate the patients’ interpersonal difficulties and encourage working with identity and relational problems within a containing therapeutic milieu (Karterud & Wilberg, 2007; Stone, 2000). Although such treatment has been offered to numerous patients over the past years, there is limited research concerning the outcome of this type of more traditional combined treatment for PD patients in Europe. Most existing studies have had a naturalistic design and include mixed PD samples (Karterud et al., 2003).

Borderline PD (BPD) is the PD category that has received most attention in clinical research, and during the last two decades several specialized BPD treatments have been developed. These are characterized by psychotherapeutic techniques targeting specific aspects of borderline psychopathology, such as emotional dysregulation (Linehan et al., 2006), mentalization deficits (Bateman & Fonagy, 2004), or rigid maladaptive deficits (Kellogg & Young, 2006). Based on randomized clinical trials (RCTs) including patients with BPD there is increasing evidence that specialized treatments like Dialectic Behaviour Therapy (DBT) (Bohus et al., 2004; Linehan et al., 2006), Mentalization Based Treatment (MBT) (Bateman & Fonagy, 1999, 2009, 2010), Schema Focused Treatment (Kellogg & Young, 2006; Young, Klosko, & Weishaar, 2003), and Transference Focused Psychotherapy (Clarkin, Levy, Lenzenweger, & Kernberg, 2004; Levy et al., 2006) are efficacious in reducing symptoms, diagnostic features, and psychosocial impairment.Interestingly though, later studies suggest that the benefits of such specialized treatments may not be superior to more general therapeutic approaches when performed in structured ways by experienced therapists within well-organized clinical settings (Chanen et al., 2008; McMain et al., 2009). McMain et al. studied a large group of self-harming BPD patients and found equal benefits of DBT and general psychiatric management—a treatment consisting of case management, psychodynamically informed individual psychotherapy, and symptom-targeted medication. Moreover, in a study of adolescents with BPD traits the outcome of intensive Cognitive Analytic Therapy was not superior to standardized good clinical care (Chanen et al., 2008). These studies suggest that the effects of more general psychotherapeutic treatments should be further examined.

The Ullevål Personality Project (UPP) was designed in 2004 and aimed to investigate the effects of an intensive combined treatment programme (CP) for patients with PDs. The programme consisted of initial short-term day-hospital treatment followed by long-term outpatient combined group and individual therapies. In addition to being a combination of day-hospital treatment and outpatient treatment, the CP also refers to the use of combined group and individual therapies in the outpatient phase of the programme. While the short-term day-hospital treatment comprised both cognitive and psychodynamic groups, the overall treatment frame was based on psychodynamic theory with reference to group analysis, self-psychology, and relational psychotherapy. The treatment was organized within a hospital department specialized in the treatment of PDs and was conducted by experienced therapists. During the 1990s, psychotherapeutic alternatives to day-hospital treatment for PD patients were rare. However, since then, the Western world has seen a large increase in the number of psychotherapists in the public and private sectors. Outpatient individual therapy in the private sector was therefore considered a realistic alternative to hospital-based CP. With a randomized design for the allocation of patients, the main aim of UPP was to compare outcomes of the comprehensive CP with eclectic outpatient individual psychotherapy (OIP) conducted mainly by specialists in private practice, the majority trained in psychodynamic therapy (Wilberg, Kvarstein, & Rovik, 2014). This was the first randomized study comparing these different treatment formats for patients with PDs.

Originally, UPP was a study including a mixed PD sample, and we have previously reported results for the total sample from the follow-up investigations at 8 months, 18 months, 3 years, and 6 years after the initial random assignment (Antonsen et al., 2014; Arnevik et al., 2009, 2010; Gullestad et al., 2012). At six-year follow-up, differences between the two treatment conditions were below levels of significance, although different trends were observable (Antonsen et al., 2014). These results were contrary to our original hypothesis that patients would benefit more from the CP.

Most RCTs in this field concern BPD. To be able to compare the results of UPP with the existing PD literature, we wanted to examine treatment outcomes for the subsample of patients with BPD. Is there a possibility that the intensive combined treatment format is particularly helpful for patients with emotional dysregulation, stormy relationships, and destructive acting out behaviours, and, if so, more than individual therapy?

Moreover, BPD is a heterogeneous disorder. Co-occurring Axis-II diagnoses are suggested to represent an important differentiating feature (Zanarini et al., 2004), and the presence of avoidant PD (AvPD) among BPD patients has specifically been associated with greater functional impairment and failure of BPD remission (Chiesa & Fonagy, 2007; Zanarini et al., 2004; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005). Nevertheless, as yet, few BPD studies have investigated if or how co-
occuring PDs may predict treatment outcome (Bateman & Fonagy, 2013; Chiesa & Fonagy, 2007), or whether BPD patients with co-occurring AvPD respond differently to different treatments. In this study we specifically investigate potential effects of co-occurring AvPD upon the long-term course of BPD patients in the two treatment conditions.

As with other mental disorders, PD outcome studies have traditionally focused on symptom reduction, psychosocial functioning, and syndrome remission. In addition to these traditional outcome variables, UPP includes a measure for the assessment of core components of (mal)adaptive personality—namely, the Severity Indices of Personality Problems (SIPP 118) (Verheul et al., 2008). This questionnaire covers many of the personality domains conceptualized as core aspects of personality pathology in the alternative model in DSM-5 (Third section) (Bastiaansen, De Fruyt, Rossi, Schotte, & Hofmans, 2013; DSM-5, 2013). Including measures of personality functioning in the repertoire of outcome variables in psychotherapy research may advance our understanding of processes of change and aspects of personality pathology that require further attention or treatment. Further, change in personality organization is considered to take place gradually over years rather than months (Levy, 2008) and is often characterized by continued improvement after end of treatment (Howard et al., 1996). Thus, to detect changes in core aspects of personality functioning and to relate such changes to different treatments, long-term follow-up analyses that include post treatment periods are of great importance.

The aim of the present study was to compare the six-year outcome of patients with BPD allocated to the CP and OIP conditions. More precisely, longitudinal analyses were conducted to investigate potential differences between the treatment conditions in the following domains of clinical outcomes:

(a) Symptom distress, psychosocial functioning, interpersonal problems, and quality of life (main outcomes).
(b) Self-reported personality functioning.
(c) Self-injury, suicidal thoughts, and suicidal attempts.
(d) Diagnostic outcome and use of psychotropic medication.
(e) Effects of co-occurring AvPD (also analysed independent of treatment conditions).

Methods
Setting and Design
UPP was conducted at the Department of Personality Psychiatry (DPP) at Oslo University Hospital, and included 113 patients with PDs, of whom 52 had BPD. Patients were randomly assigned to one of the two treatment conditions. The State Health Insurance Fund covered the expenses for both treatments. The patients were evaluated at baseline, and after 8 months, 18 months, 3 years, and 6 years. All patients received optional psychopharmacological consultations with a psychiatrist as part of the follow-up evaluations. The staff at the DPP conducted the initial clinical and diagnostic evaluations, while Ph.D. students and research assistants performed the follow-up interviews and diagnostic evaluations. Written informed consent was obtained from all included patients, and the project was approved by the Regional Ethics Committee in Norway. The subjects’ characteristics, the original trial methodology, and the treatment details have previously been described in greater detail (Arnevik et al., 2009; Gullesstad et al., 2012).

Treatments
Combination programme. The CP started with an 18-week day-hospital treatment phase that included a combination of psychodynamic and cognitive-behavioural group therapies for 3–4 days per week. The psychodynamic group therapy was considered the core of the day treatment programme and was conducted according to group analytic principles. The cognitive oriented treatment included group therapy, focusing on early maladaptive schemas identified by the self-report instrument Young 75 (Young, 1999) and optional cognitive behaviour group therapy for patients with an additional anxiety disorder. After this initial day-hospital treatment, the patients continued with outpatient combined psychotherapy, which included weekly 1.5-hour group therapy sessions for a maximum of 4 years and weekly individual therapy for a maximum of 2½ years. The written treatment guidelines adhered to relational psychotherapy, with references to group analysis and self-psychology.

The average treatment duration for the BPD patients was 28 months ($SD=16$), median 26 months (range: 7–56). Average number of therapy sessions (including both individual and group) during the outpatient follow-up therapy was 94 ($SD=81$), median 75 (range: 1–290). The mean interval between the end of study therapy and the 6-year follow-up investigation (post-treatment phase) was 41 months ($SD=17$), median 26 months (range: 12–63).

Outpatient individual psychotherapy. The outpatient treatment was mainly conducted by
therapists in private practice. The therapists were instructed to treat the patients according to their own preferred method and practice. The researchers gave no instructions to the therapists regarding the duration and intensity of psychotherapy, nor did they interfere with any treatment decisions.

The average treatment duration was 24 months \((SD = 21)\), median 17 months (range: 1–73). Average number of therapy sessions was 60 \((SD = 66)\), median 36 (range = 1–283). The mean interval between the end of study therapy and the 6-year follow-up investigation (post treatment phase) was 48 months \((SD = 22)\), median 17 months (range = 0–72).

**Therapists.** Group therapists in the CP were regular staff from the DPP. Individual therapists for both the CP and the OIP were recruited externally, mostly psychologists and psychiatrists working in private practice in the Oslo region. Additional information about the recruiting process and characteristics of therapists in UPP can be found elsewhere (Arnevik et al., 2009).

**Participants**

Fifty-two patients with BPD (46% of the total sample in UPP) were included in the present study. The presence of schizotypal or antisocial PD was the exclusion criterion in UPP, based on the clinical experience that patients with these PDs do not benefit from the kind of group therapy applied in the CP. Other exclusion criteria were ongoing alcohol or drug dependence, psychotic disorders, bipolar I disorder, untreated attention deficit hyperactivity disorder (adult type), pervasive developmental disorder (e.g. Asperger’s syndrome), organic syndromes, and being homeless.

**Baseline Characteristics**

After randomization, patients in the two treatment conditions did not differ significantly in socio-demographic variables. The mean age at inclusion was 29 years \((SD, 6.7\) years\), and 85% of the participants were women. Fifty-seven per cent of patients had less than 12 years of education and 36% of patients had not attained either work or studies during the last year. The rates of co-occurring PDs were 33% avoidant, 15% paranoid, 12% obsessive-compulsive, 10% dependent, and 2% narcissistic. Eighty-eight per cent of the sample had a mood disorder, 85% an anxiety disorder, 42% a substance use disorder, and 21% an eating disorder. There were no statistically significant differences between treatment conditions regarding the presence of Axis-I or co-occurring Axis-II disorders at baseline, except that the rate of obsessive-compulsive disorder was higher among patients in the CP condition as compared with the OIP condition (25% versus 4%, \(p = .04\)).

**Completeness of Data**

Thirty-four patients (65%) attended the 6-year follow-up investigation, 70% of the original participants in the CP and 60% of the participants in the OIP (Figure 1). This difference in attendance rate was not statistically significant. There were no statistically significant differences in socio-demographic, clinical, or diagnostic variables at baseline between those who did and did not attend the six-year follow-up investigation. Response rates at the other follow-up evaluations were 87% at 8 months, 75% at 18 months, and 71% at 3 years.

**Outcome Measures**

**Symptom distress.** Self-reported symptom distress was measured using the Symptom Checklist, SCL-90-R (Derogatis, 1983). SCL-90-R was designed to cover the major symptoms of psychiatric distress, summarized as a Global Severity Index (GSI). Scores range from 0 to 4, with higher scores indicating more symptom distress. Based on SCL-90-R scores from a randomly selected Norwegian community sample (Vassend and Andersen) and cut-off scores according to Derogatis’s manual (Derogatis, 1994), we considered a value of 0.80 as the cut-off for caseness. Characteristic attitudes and symptoms of depression were assessed by the Beck Depression Inventory (BDI) (Groth-Marnat, 2003). Sum scores of between 19 and 29 indicate moderate depression, while scores of 30 and above indicate severe depression.

**Psychosocial functioning.** Psychosocial functioning was rated using the Global Assessment of Functioning Scale (GAF) (Pedersen, Hagtvet, & Karterud, 2007) and the Work and Social Adjustment Scale (WSAS) (Mundt, Marks, Shear, & Greist, 2002). GAF is rated on a scale from 0 to 100, with a higher score indicating a higher level of functioning. The staff at the DPP rated the GAF scores at baseline, while Ph.D. students and research assistants conducted the GAF interviews and ratings at the 8-month, 18-month, 3-year, and 6-year evaluations. The raters were blind to the treatment condition. The reliability of the GAF scores was estimated by intraclass correlation coefficient (ICC 2.1), which
was 0.56 at baseline, 0.81 at 8 months, 0.85 at 18 months, 0.94 at 3 years, and 0.92 at 6 years. The WSAS is a self-report five-item scale of functional impairment. Each item is scored on a scale from 0 to 8, where 0 indicates no impairment at all and 8 indicates very severe impairment. The scores of the five different items are summarized as a sum score ranging from 0 to 40.

**Interpersonal problems.** Self-reported interpersonal problems were assessed using the Circumplex of Interpersonal Problems (CIP) (Pedersen, 2002), a 48-item Norwegian version of the Inventory of Interpersonal Problems-Circumplex version with a 5-point Likert response format ranging from 0 to 4. A higher score indicates more interpersonal problems. The sum score of the two versions correlates at a level of 0.99.

**Quality of life.** Subjective quality of life was assessed using a 10-point scale. A score of 1 represented the least perceived quality of life, while a score of 10 indicated the highest perceived quality of life.

**Personality functioning.** To measure (mal)adaptive personality functioning we applied the 60-item short form of the SIPP-118 questionnaire. The 60 items are directly assigned to five higher-order domains: Self-control, Identity Integration, Relational Capacities, Social Concordance, and Responsibility. Scores range from 1 to 4, with lower scores reflecting more maladaptive levels of personality functioning (Verheul et al., 2008).

**Self-harm, suicidal thoughts, and suicide attempts.** Incidents of self-harm and suicide attempts were assessed by patients’ self-report, and then quality checked during the research interviews and revised if necessary. At baseline and at the 6-year follow-up, the patients were asked to report if they had made any self-harm or suicide attempts, or experienced suicide thoughts during the last 12 months. At the 8-month, 18-month, and 3-year follow-up assessments, they were asked to report incidents since the last follow-up. At each follow-up, the patients were also asked to report if they had experienced suicidal thoughts during the last seven days.

**Axis I and II diagnoses.** Axis-II diagnoses were determined using the Structured Clinical Interview for DSM-IV (SCID-II) (First, Gibbin, Spitzer, William, & Benjamin, 1997). To estimate diagnostic reliability at baseline an independent rater scored 24 videotaped SCID-II interviews. The kappa value for three PDs represented by at least five cases was 0.75 for AvPD, 0.66 for BPD, and 0.71 for paranoid PD, indicating acceptable reliability. The intraclass
coefficient (ICC 2.1) for total number of SCID-II criteria was 0.83. At 3- and 6-year follow-up diagnostic reliability was based on 27 and 30 SCID-II interviews, respectively, and scored by another independent rater. At three-year follow-up only PD NOS (Not Otherwise Specified) was represented with at least five cases. The kappa value for PD NOS was 0.90. ICC 2.1 for total number of SCID-II criteria was 0.90. At six-year follow-up only AvPD was represented by at least five cases. The kappa value for AvPD was 1, indicating full agreement. ICC 2.1 for total number of SCID-II criteria was 0.92. Axis-I diagnoses were based on the Mini International Neuropsychiatric Interview (Sheehan et al., 1998). ICC 2.1 for number of Axis-I diagnoses was 0.46 at baseline, and 0.94 and 0.76 at three- and six-year follow-up, indicating weak reliability at baseline, but good reliability at the three- and six-year evaluations. The reliability estimates are based on ratings of interviews selected from the total UPP sample. All raters were blind to the treatment condition.

Statistical Analysis

All results were analysed using an intention-to-treat approach based on treatment assignment. Longitudinal analyses were used to assess change over time and to relate the changes to covariates, particularly group assignment. A linear mixed model (LMM) for the continuous outcomes and a generalized linear mixed model (GLMM) for the repeated dichotomous outcomes were fitted with maximum likelihood as the method of estimation. Conditional on the random effects and covariates in the model, the error covariance matrix was set as the diagonal. All continuous longitudinal outcomes were tested in both piecewise linear splines, with one knot at three years, and as linear models. The models with the best fit were selected based on measurement with Akaike’s information criterion (AIC). Separate random intercepts and slopes were included when proven to enhance the model fit. The parameters of main interest were the fixed effect interaction terms between group and time, prior to and following the knot, describing whether the patients in the two treatment conditions changed differently across the observation period. Assumptions about drop-out (missing at random (MAR)) and selection bias were as described previously (Antonsen et al., 2014). Although it is impossible to test the MAR assumption, a comparison with a complete case analysis (participants without dropout) is informative and was conducted in this study. No correction for multiple testing was performed. Residual analyses and search for outliers were performed to assess model adequacy. Comparison of treatment effects at the six-year follow-up, regarding Axis-I and II diagnoses, was performed using the independent t-test (two-tailed) and chi-square statistics. Within-group pre-post effect sizes were computed using Cohen’s $d$, with pooled pre- and post-SD adjusting for sample size. All analyses were performed using SPSS version 19 (SPSS Inc.).

Results

Main Outcomes

The LMM analyses showed statistically significant differences between the treatment conditions in outcomes of GSI, GAF, and WSAS (Table I and Figure 2). For GSI, a linear model gave the best fit (AIC), and the patients in the CP reported significantly lower symptom distress than patients in the OIP. Regarding GAF and WSAS, a model with a spline-knot at three years had the best model fit (AIC), and the results from these two analyses showed a significantly better outcome in the CP condition in the last period, between three- and six-year follow-up.

There were, however, no significant differences in outcomes of CIP ($p = .15$), BDI ($p = .19$), and QoL ($p = .14$) between the treatment conditions (Figure 2). Table II shows the means, standard deviations, and effect sizes of the main outcomes during the six-year follow-up period. The mean effect sizes ($d$) for the six main outcome variables were 1.66 (range, 1.12–2.32) in the CP and 0.72 (range, 0.09–1.47) in the OIP.

Personality Functioning

Patients in the CP condition had a significantly better outcome of the SIPP 118 (short-version) domains Self-control ($p = .005$ and Identity Integration ($p = .032$) compared with those in the OIP group. The other SIPP domains did not differ significantly between treatment groups. The mean effect size ($d$) for all SIPP 118 domains from baseline to six years was 1.19 (range, 0.78–1.86) in the CP group and 0.53 (range, 0.37–0.66) in the OIP group (Table II).

Self-harm, Suicidal Thoughts, and Suicide Attempts

GLMM analyses did not reveal any significant differences in longitudinal outcome between treatment conditions regarding the proportion of patients who had been self-harming ($p = .56$), made suicidal attempts ($p = .14$), or experienced suicidal thoughts ($p = .43$). There were no significant differences
between treatment conditions in the proportion of patients who had experienced suicidal thoughts during the last seven days ($p = .98$). At six-year follow-up, one patient in the CP reported a suicide attempt during the past 12 months, while there were no reported suicidal attempts in the OIP group. One patient in the CP group committed suicide during the study period (this was not the same patient reporting the suicide attempt), while there were no reported suicides in the OIP group.

### Diagnostic Outcome

Longitudinal analyses showed no significant differences in outcomes of BPD diagnosis, AvPD diagnosis, BPD criteria, or total number of Axis-II criteria between treatment conditions (Table III). At the six-year follow-up, two patients in the CP group (10%) met the diagnostic criteria for BPD, as did one patient (7%) in the OIP group. The presence of other PDs in the CP included paranoid PD ($n = 1$), obsessive-compulsive PD ($n = 1$), and AvPD ($n = 4$). In the OIP group, three patients had AvPD. An LMM analysis showed that patients in the CP had a significantly lower number of Axis-I diagnosis than the OIP group ($p = .03$). Mood and anxiety disorders were the most common types of Axis-I diagnosis in both treatment conditions.

Patients in the CP tended to use less psychotropic medications over time compared with the OIP, but the difference was not statistically significant ($p = .09$). The two treatment conditions did not significantly differ in their use of health-care services during the last year before the six-year follow-up (Table III).

### Impact of Co-Occurring AvPD

In an LMM three-way moderator analysis of time x treatment condition x AvPD with GAF as the dependent variable, AvPD did not have a significant moderator effect on the outcome of GAF. This indicated that co-occurring AvPD did not impact.
Figure 2. Course of primary outcome variables.
the outcome of GAF differently in the two treatment conditions. However, the LMM analysis showed that comorbid AvPD was a negative predictor for GAF, independent of the treatment condition $(p = .0007)$. Of the 17 BPD patients with a co-occurring AvPD at baseline (CP, $n = 10$; OIP, $n = 7$), nine patients attended the six-year follow-up, and five of these patients still had AvPD.

**Analysis of Dropout**

All outcome variables that showed statistically significant differences between treatment conditions in the intention-to-treat LMM analyses also showed a $p$-value close to the 0.05 alpha level in the complete case analyses: GSI, $p = .06$; GAF, $p = .08$ (three to six-year follow-up); SIPP 118 Self-control, $p = .05$; Identity Integration = .06, all in favour of the CP. A total of 25 patients contributed to the complete case analyses: 15 in the CP and 10 in the OIP.

**Discussion**

The first main finding of this six-year follow-up of patients with BPD was that patients in the CP had a significantly greater reduction in symptom distress compared with patients in the OIP condition. Patients in the CP also showed significantly greater improvement in the personality domains Identity Integration and Self-control during the six-year follow-up. Finally, patients in the CP continued to improve in psychosocial function during the three- to six-year period, while patients in the OIP showed a decline in psychosocial functioning over this same period. The three- to six-year follow-up period constitutes the post treatment phase for the majority of the patients and the difference in trajectories was statistically significant. Both treatment conditions had a BPD diagnostic remission rate of over 90% at the six-year follow-up.
treatment conditions also was clinically significant. This finding is further supported by the significantly lower number of Axis-I diagnosis in the CP compared to the OIP. Moreover, the present results showed a trend towards less use of psychotropic medications in the CP. Taken together, the findings indicate that patients with BPD may obtain considerable symptomatic relief from intensive long-term therapy in a combination format.

Despite differences between treatment conditions in the three- to six-year course of psychosocial functioning, final GAF scores in the sample nevertheless averaged around 60 (CP, 64; OIP, 58), and indicate some persistent difficulties in psychosocial function in both treatment conditions. Similar GAF levels have been found in six- and eight-year follow-up studies of other combination models (Bateman & Fonagy, 2009; Chiesa, Fonagy, & Holmes, 2006). The results are also consistent with findings from naturalistic follow-along studies of subjects with BPD, such as the Collaborative Longitudinal Personality Disorders Study (Gunderson et al., 2011) and the McLean Study of Adult Development (Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010). There is increasing documentation that symptomatic and diagnostic remission does not necessarily coincide with social and functional improvement.

The reasons for the discrepancy between diagnostic remission and functional improvement are not yet well understood. Yet, such findings propose that successful treatments should not only be defined by symptomatic and diagnostic remission, but also by the strengthening of certain adaptive psychological capacities which will enable patients to deal with future life stressors in more productive ways (Feenstra, Hutsebaut, Verheul, & van Limbeek, 2014). In the present study, the patients in the CP achieved significantly better results in the SIPP-118 domains of Identity Integration and Self-control compared with patients in the OIP condition. These two domains also showed the largest effect sizes among the SIPP-118 domains in the CP condition. This finding is in accordance with a recent prospective cohort study of an 18-month day-hospital MBT programme for patients with severe BPD, which also found that Identity Integration and Self-control had the largest effect sizes of the SIPP 118 domains (Bales et al., 2012). Interestingly, in a Dutch mixed PD sample, levels of Identity Integration and Self-control were significantly lower among patients with four or more PD diagnoses than in patients with fewer than four PD diagnoses (Verheul et al., 2008). Moreover, as these two domains were the only SIPP 118 domains to differ by such PD comorbidity, the results suggest that they are particularly relevant in the differentiation of PD severity.

In long-term follow-up investigations as in the present study, patients have been in the post-treatment phase for a relatively long time. We did not control for possible life events inflicting on patients clinical status during or after treatment. Although UPP has a randomized design there is a possibility that the clinical course might have been influenced by other events than the gains from therapy. However, we may speculate whether differences between treatment conditions at six-year follow-up could also be explained by the attainment of higher levels of personality integration in the CP, as indicated by the differences in the personality functioning domains Identity Integration and Self-control. The difference in Identity Integration between treatment conditions is particularly interesting because identity disturbance is, by definition, a central part of BPD psychopathology (DSM-5, 2013). Furthermore, a special interest in identity as one of the core markers of

Table III. Changes in clinical measures from baseline to six-year follow-up.

<table>
<thead>
<tr>
<th></th>
<th>CP</th>
<th></th>
<th>OIP</th>
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<tbody>
<tr>
<td></td>
<td>Baseline (n = 27)</td>
<td>3 years (n = 22)</td>
<td>6 years (n = 19)</td>
<td>Baseline (n = 25)</td>
</tr>
<tr>
<td>BPD (n)</td>
<td>27</td>
<td>7</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>AvPD (n)</td>
<td>10</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Mean borderline crit. (SD)</td>
<td>6.3 (1.3)</td>
<td>2.9 (2.2)</td>
<td>1.4 (1.7)</td>
<td>6.0 (0.95)</td>
</tr>
<tr>
<td>Total PD crit. (SD)</td>
<td>18.0 (6.6)</td>
<td>9.0 (7.8)</td>
<td>5.7 (7.2)</td>
<td>17.0 (5)</td>
</tr>
<tr>
<td>Number of Axis I diagnosis (SD)</td>
<td>4.0 (1.2)</td>
<td>3.0 (2.1)</td>
<td>1.6 (1.4)</td>
<td>3.6 (1.6)</td>
</tr>
<tr>
<td>Psychiatric health care (%)</td>
<td>89</td>
<td>57</td>
<td>63</td>
<td>100</td>
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<tr>
<td>Inpatient hospitalization (%)</td>
<td>44</td>
<td>16</td>
<td>10</td>
<td>57</td>
</tr>
<tr>
<td>Psychotropic medications (%)</td>
<td>67</td>
<td>67</td>
<td>42</td>
<td>72</td>
</tr>
</tbody>
</table>

*aBased on the longitudinal analyses described in the method section.  
*bAny use of psychiatric health-care services in the past year.  
*cAny inpatient stays at a psychiatric hospital in the past year.  
*dAny use of psychotropic medications in the past year.
mixed PD sample showing no overall difference in to previously published results from the total present study focused solely on BPD. In contrast patients with BPD (Linehan et al., 2006). The modality used in dialectic behaviour therapy for treatments is also the preferred treatment setting and therapy utilizing both individual and group treat-therapy in an outpatient setting. Outpatient-based support the effectiveness of intensive combination and Fonagy (2009) and Jørgensen et al. (2013) and avoidance of negative interpersonal interactions, thus making patients more robust in tolerating psychosocial and symptomatic distress.

In previous publications, we have referred to the CP as a step-down programme due to the reduction in the level of care from day-hospital to outpatient treatment. It could be argued, however, that the main effects of the CP may be ascribed to the outpatient part of the CP, which also constitutes the lengthiest part of the programme. It must be underlined that this is an assumption based on a clinical impression and it is not empirically founded. However, the transition from day-hospital to outpatient treatment in the CP that included a change of therapists may have represented a disruption of the therapeutic process, causing delayed improvement for patients in the CP (Hummelen, Wilberg, & Karterud, 2007). This possibility is supported by the higher level of psychosocial functioning in the OIP condition at three-year follow-up (Gullestad et al., 2012). Further, publications by Bateman and Fonagy (2009) and Jørgensen et al. (2013) support the effectiveness of intensive combination therapy in an outpatient setting. Outpatient-based therapy utilizing both individual and group treatments is also the preferred treatment setting and modality used in dialectic behaviour therapy for patients with BPD (Linehan et al., 2006). The present study focused solely on BPD. In contrast to previously published results from the total mixed PD sample showing no overall difference in outcome after six years (Antonsen et al., 2014), the BPD patients in the CP achieved significantly lower symptomatic distress after six years compared to patients allocated to the less intensive OIP. Thus, the study suggests that the use of intensive combination treatment may be especially beneficial for patients with BPD.

However, one should be cautious regarding strong conclusions based on the present study. In the statistical analyses we did not control for intensity or length of treatments. While the investigation of treatments with different intensities was an intended part of the study design, any effects of the combined therapy element per se could be investigated more stringently using a control therapy with similar intensity, but without the combination of different therapy formats. Moreover, the patients in the CP condition stayed longer in therapy compared with the OIP, and the possibility that the more favourable outcome in CP could merely be due to more lengthy treatments cannot be excluded. It should also be noted that while patients in the CP showed better outcomes in important clinical variables, the treatment conditions did not differ significantly in many outcomes, for example, three of the six main outcome variables, indicating good long-term outcome in the OIP as well.

The presence of co-occurring AvPD did not influence the outcome differently in the two treatment conditions. However, patients with AvPD had an overall poorer six-year course of psychosocial functioning than those without co-occurring AvPD, which is in line with earlier findings (Chiesa & Fonagy, 2007; Zanarini et al., 2004). These results should be interpreted with caution due to small sample size and low statistical power. However, the findings suggest that co-occurring AvPD could represent a challenge in the treatment of patients with BPD.

The strengths of the present study include its randomized design and the long-term follow-up of long-term therapies for patients with BPD. Additionally, the two treatments were conducted in ordinary clinical settings, and few severe cases with complicated comorbidity were excluded, which strengthens the study’s external validity. However, certain limitations of the present study should be noted. First, the study has a relatively low number of participants and did not correct for multiple testing, making it prone to both type I and type II errors. We did not conduct an a priori power analy-sis in the current study. However, using a simplified model with constant residual variance and linear fixed effect of time, a formula for “observed power” was used as an approximation (Fitzmaurice, Laird, & Ware, 2004). For GSI the power was found to be around 0.65, indicating that the same inference would result in 65% of repeated identical experiments. Secondly, the response rate was acceptable, but missing data and violation of the MAR assumption could bias the results, even if complete case analyses supported the validity of the present findings. Furthermore, in the OIP condition, the therapists treated the patients according to their own preferred method and practice. Although this strengthened the ecological validity of the study, the results could potentially have been different if the patients had received individual psychotherapeutic treatment in accordance with more established specialized BPD treatment. Lastly, patients with BPDs are large consumers of mental health care, and the present study did not control for other kinds of treatment that patients
may have received during the six-year follow-up period.

**Conclusion**

The long-term outcome of combined day-hospital/group-individual treatment of borderline patients seems to be favourable. In this study, patients who received combined treatment fared better in the long run, on crucial parameters, than patients allocated to individual therapy alone. Of particular importance are the positive effects on core borderline problem areas like Identity Integration and Self-control. It is possible that the beneficial outcomes in symptom distress and post treatment psychosocial functioning for patients in the combined programme were mediated by changes in personality functioning. Such potential mediation effects call for further, more detailed studies.

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