# Process and Outcome in Psychodynamic Hospitalization-Based Treatment for Patients With a Personality Disorder

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**Abstract:** This study examined the relationship between the psychotherapeutic process and outcome in 44 patients who completed hospitalization-based psychodynamic treatment for personality disorders. Using self-report and interview ratings, outcome was assessed in terms of symptoms and personality functioning, and the psychotherapeutic process in terms of self and object relations, felt safety, and reflective functioning. Symptom and process measures were administered at intake, every 3 months during treatment, and at 3 and 12 months follow-up. Personality measures were collected at intake, the end of treatment, and at 3 and 12 months follow-up. Using Piecewise Linear Growth Curve Analysis results showed improvement in symptoms, personality functioning, self and object relations and felt safety, but not in reflective functioning. Linear changes in self and object representation and felt safety, but not in reflective functioning, predicted improvement in outcome.

**Key Words:** Personality disorders, process-outcome, psychodynamic treatment.

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Personality disorders (PDs) are characterized by chronic, pervasive, and inflexible aberrant inner experiences and behaviors. A growing body of outcome studies supports the efficacy and effectiveness of psychodynamic treatment in treating PDs (Chiesa and Fonagy, 2007; Clarkin et al., 2007). Yet, little is known about the underlying processes explaining this outcome (Clarkin and Levy et al., 2006; Kazdin, 2007; Levy et al., 2006a). The need to demonstrate that there is a relationship between the underlying processes and outcome is, however, by no means a trivial matter, as has been emphasized by many contemporary researchers in the field (Clarkin and Levy, 2006; Fonagy and Bateman, 2006; Levy, 2008).

The goal of the present study is therefore to investigate the association between changes in process variables and changes in outcome variables, measured both in terms of symptoms and personality functioning of 44 patients with PD who completed a hospitalization-based psychodynamic treatment. The treatment rationale is based on 3 dimensions central to the psychodynamic understanding of PD, and is mainly aimed at increasing: (a) levels of self and object representations (Blatt et al., 1997; Kernberg, 1996), (b) felt safety (Winnicott, 1971), and (c) reflective functioning (Fonagy et al., 2002). Congruent with this psychodynamic conceptualization, we expected that changes in these 3 dimensions would be associated with changes in outcome. More specifically, we expected a significant decrease in symptoms and an improvement in personality functioning during and after treatment. Second, we expected that treatment would result in increases in the level of self and object representations, felt safety, and the capacity for reflective functioning. Finally, and most importantly, we expected that changes in self and object representations, felt safety, and reflective functioning, were associated with changes in outcome.

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## METHOD

### Participants

All patients were consecutively referred by secondary and tertiary community mental health institutes in the Flemish part of Belgium. Inclusion criteria were: (*a*) primary diagnosis of personality disorder, (*b*) age between 18 and 60 years, and (*c*) Dutch literacy. Exclusion criteria were severe psychotic disorders (except short, reactive psychotic episodes), antisocial personality disorder, severe substance addiction, and evidence of organic brain disorder. As this study aimed at investigating the process of change during and after treatment, patients who had less than 3 points of observation during treatment (i.e., intake, and 3 and 6 months follow-up) were excluded from all analyses. From May 2001 to July 2002 a group of 70 consecutively admitted patients who met inclusion and exclusion criteria were included in the study. Forty-seven patients (67%) completed the treatment. Of these, 3 patients were not included in the statistical analyses because they did not complete assessments at discharge: 1 refused further assessments, the questionnaires of a second patient got lost in the mail, and 1 patient was discharged early because of selling drugs. As presented in Table 1, the study group consisted of 44 (31 female, 13 male) patients with a mean age of 28 years ($SD$ = 9.24). Thirty-one patients were in residential treatment, and 13 were in day-treatment. At intake, based on their medical records 24 patients had a DSM-III-R mood disorder, 3 had an anxiety disorder, 8 an adjustment disorder, and 2 a substance-related disorder. Thirty-two patients met the DSM-III-R criteria for at least one cluster B PD, 7 for at least one cluster C criteria, and 5 fulfilled both cluster B and C PD criteria.

### Treatment

The psychodynamic hospitalization-based treatment program at the University Psychiatric Centre KU Leuven, Campus Kortenberg is a combined open-ended residential and day-hospital treatment for patients with a PD with a maximum stay of approximately 12 months (average length of stay was 11.7 months). The program consists of the following components: (*a*) group (3 times a week for 1.5 hour, in a group of max 8 patients) psychodynamic psychotherapy, (*b*) nonverbal therapies (i.e., music, psychomotor, and creativity therapy, each 2 times a week for 1 or 1.5 hour in a group of 8 patients), (*c*) psychiatric consultation, (*d*) social work, (*e*) weekly individual sessions with nurse(s), (*f*) group sessions with nurses (2



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**TABLE 1.** Subject Characteristics at Intake ($N = 44$)

| Characteristic | N (%) |
|---|---|
| Gender | |
| Women | 31 (70) |
| Men | 13 (30) |
| Living status | |
| Living alone | 17 (38) |
| With parents | 17 (38) |
| Married/living together | 7 (16) |
| Divorced | 3 (8) |
| Education | |
| High school | 16 (36) |
| Higher education/university (at least 2 yr completed at intake) | 28 (64) |
| Treatment setting | |
| Residential hospital setting | 31 (70) |
| Day treatment | 13 (30) |
| Axis-II personality disorders | |
| Cluster B | 32 (73) |
| Cluster C | 7 (16) |
| Cluster B and C | 5 (11) |
| Axis-I disorders | |
| Mood disorder | 24 (55) |
| Anxiety disorder | 3 (8) |
| Adjustment disorder | 8 (18) |
| Substance-related disorder | 2 (5) |

times a week), and (*g*) a weekly patient-staff meeting. All therapies were provided by trained senior professionals with advanced degrees (MSW, MA, MD, or PhD) who had at least 10 years experience working with PDs.

The treatment program aimed to: (*a*) enhance feelings of inner safety by offering a coherent, predictable environment with a 24 hour coverage by a staff trained in being respectful, open and available, (*b*) increase levels of differentiation and integration of self and object representations, and a greater capacity for mutual interpersonal relatedness. Particularly during intensive group therapy self and object representations were targeted, providing new opportunities for different interpersonal experiences and insight in self and others, and (*c*) enhance the capacity for reflective functioning by focusing both in verbal and nonverbal therapies on the ways patients interpret their own and others interpersonal behavior as being based on intentional mental states, i.e., in terms of feelings, intentions, and thoughts.

## Outcome and Process Measures

Symptoms and process measures were administered at intake, every 3 months during treatment, and at 3 and 12 months follow-up. Personality measures were collected at intake, the end of treatment, and at 3 and 12 months follow-up.

Outcome was assessed in 2 main areas of functioning; symptom severity and personality functioning. For symptom severity the following instruments were administered: The Self Harm Inventory (SHI; Sansone et al., 1998), a 22-item self-report instrument assessing self-injurious behavior, the Symptom Checklist-90 (SCL-90; Arrindell and Ettema, 1986), the Spielberger State-Trait Anxiety Inventory (STAI; Van der Ploeg et al., 1980), the State-Trait Anger Inventory (STAXI; Van der Ploeg et al., 1982), and the Beck Depression Inventory (BDI; Bouman et al., 1985). To reduce the amount of data, based on a Principal Component Analysis (PCA) and the Scree test, a global outcome symptom score (GSS) was created. PCA at baseline on the intent-to-treat sample of 70 patients (Vermote et al., 2008) yielded a single factor accounting for 50% of the total variance. The loadings on this principal component were 0.53 for the SHI, 0.86 for the SCL-90, 0.85 for the BDI, 0.89 for the STAI trait scale, 0.73 for the STAXI state, 0.44 for the STAI state scale, and 0.49 for the STAXI trait scale. For personality functioning, the following measures were administered: the Structured Clinical Interview for DSM-III-R Axis II disorders (SCID-II; Weertman et al., 2000) to asses Axis-II diagnoses, the Inventory of Interpersonal Problems (IIP; Alden et al., 1990), a self-report scale measuring the quality of interpersonal functioning, the Inventory of Personality Organization (IPO; Kernberg, 1996), a self-report scale assessing reality testing, primitive psychological defenses, and identity diffusion. To reduce the amount of data, based on a PCA and the Scree test, a global personality score (GPS) was created for the IPO, SCID, and IIP. The first component, explained 74.6% of the total variance. The loadings on the GPS were 0.88 for the IPO, 0.87 for the SCID, and 0.81 for the IIP.

The Object Relations Inventory (ORI; Blatt, 1998; Harpaz-Rotem and Blatt, 2005) is a semi-structured, open-ended interview in which patients are asked to describe their mother, father, and self, as well as the therapeutic setting. Three scales assessing different aspects of the process were scored on the ORI: the Differentiation Relatedness Scale (DRS; Diamond et al., 1992; Harpaz-Rotem and Blatt, 2005), the Felt Safety Scale (FSS; Vermote, 2005), and the Reflective Functioning Scale (RFS; Fonagy et al., 1998; Levy et al., 2006b). Three groups of 3 raters scored each of the 3 scales of the ORI independently. Inter-rater reliability was calculated using Kendall's coefficient of concordance (W), with $W = 0.70$ ($P < 0.001$) for the DRS, $W = 0.84$ ($P < 0.001$) for the FSS, and $W = 0.74$ ($P < 0.001$) for the RF, all indicating a good inter-rater reliability. The DRS assesses levels of differentiation between self and others and the establishment of increasingly mature levels of interpersonal relatedness (DR) using a 10-point scale. The FSS is a 5-point scale that assesses the level of felt safety (FS), i.e., the overall subjective feeling of safety in the therapeutic environment. This scale is intended to capture the extent to which patients experience the treatment program as predictable, safe, secure, and nonpersecutory. The RFS assesses the person's capacity to consider mental states in themselves and others. This 11-point scale combines rating the presence of mental state concepts in interpersonal accounts with the likely accuracy of mental state attributions in interpersonal narratives (Blatt and Auerbach, 2001; Main et al., 2002). No association between these 3 scales scored on the ORI was found, except for a small correlation between the FSS and the RFS ($r = 0.30$, $P < 0.01$).

## Statistical Analysis

We conducted multilevel growth curving models using SAS 9.2. PROC MIXED. Characteristic for multilevel models is that they take into account the hierarchical structure of the data (Singer and Willet, 2003) i.e., different measurements in time (level 1) are nested within subjects (level 2). First, estimation of the proportion of variance situated at both levels was tested using an unconditional random intercept multilevel analysis, and results showed a significant proportion of variation both between and within subjects in outcome measures. More specifically, for GSS 50% of the variance was situated between subjects ($Z = 3.41$, $P < 0.001$), while 47% was situated within subjects ($Z = 10$, $P < 0.001$). For GPS, 46% of the variance was situated between subjects ($Z = 3.41$, $P < 0.001$), and 28% of the variance was situated within subjects ($Z = 6.85$, $P < 0.001$). Together, these results indicate that further analyses using multilevel modeling, was suited. Building on this unconditional model individual change over time was modeled using Piece-

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wise Linear Growth Curving Analysis (Singer and Willet, 2003). The individual growth-curve is specified as a simple linear function of time containing 2 important unknown individual growth parameters, i.e., an intercept, representing the net "elevation" of the trajectory over time, and a slope, referring to the rate of change over time. As we expected a different rate of change both during and after treatment, piecewise linear growth models were used, breaking down the growth trajectories into 2 separate linear pieces (Raudenbush and Bryk, 2002). First, for each of the outcomes (GSS and GPS), and process variables (DR, FS, and RF), both fixed (i.e., random intercept, fixed slope), and random (i.e., random intercept and random slope) piecewise growth curving models were calculated. Next, the fit of the fixed and random model was compared using the −2 Log likelihood index, with the lower the index, the better the fit. In addition, to compare the rate of change during and after treatment, the slope during treatment and during follow-up was compared using a *t* test.

Second, process variables were added to the outcome growth curving model as predictors, resulting in 6 separate within-subjects conditional linear growth-curving models, i.e., DR, FS, and RF predicting GSS and DR, FS, and RF predicting GPS. Using maximum likelihood, multilevel analysis allows for missing data (Singer and Willet, 2003). Effect-sizes were calculated using $R^2$. According to Cohen (1988), a $R^2$ of 0.01 is small, 0.10 is medium, and 0.25 is large. To be able to compare outcome at intake and 12-month follow-up, Cohen's *d* was calculated using the formula [(Mean Time 1-Mean Time 2)]/Standard Deviation Time 1]. According to Cohen (1988), 0.2 is indicative of a small effect, 0.5 of a medium, and 0.8 of a large effect size.

## RESULTS

### Outcome

Both the fixed and random model showed a significant decrease in GSS both during treatment and at follow-up (Table 2). The random model had a significantly better fit than the fixed model (−2log likelihood = 715.8 for fixed; −2log likelihood = 688.6 for random; chi-square = 27.2, $P < 0.001$) and is presented in Figure 1. In addition, for both models, the slope was significantly ($P < 0.01$) steeper during treatment than at follow-up. Second, results of both the fixed and random model showed a decrease in GPS both during treatment and at follow-up. The random model had a significantly better fit than the fixed model (−2log likelihood = 419.6 for fixed; −2log likelihood = 408.4 for random; chi-square = 11.2, $P < 0.01$) and is presented in Figure 2. However, the rate of change was not significantly different between treatment and follow-up. Effect-sizes calculated using $R^2$ for GSS and GPS were large. Cohen's *d* for GSS was 1.14 (with $M = 0.008$; $SD = 0.87$ at intake, and $M = -0.988$; $SD = 1.04$ at 12-month follow-up), and Cohen's *d* for GPS was 0.85 (with $M = 0.008$; $SD = 0.87$ at intake, and $M = -0.988$; $SD = 1.04$ at 12-month follow-up), both indicating a large effect size.

### The Process of Change During Treatment

First, for DR, results of both the fixed and random model showed a significant increase in DR during treatment, but not at follow-up, and thus in both models the slope was significantly ($P < 0.001$) steeper during treatment than at follow-up. The fit of fixed and random model however was not significantly different (−2log likelihood = 877.3 for fixed; −2log likelihood = 877.3 for random;

**TABLE 2.** Fixed and Random Piecewise Linear Growth Curving Models for Outcome and Process Variables During Treatment and at Follow-up

| | Fixed Model | | | | | Random Model | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Linear C | F | *df* | *P* | $R^2$ | Linear C | F | *df* | *P* | $R^2$ |
| Outcome | | | | | | | | | | |
| GSS | | | | | 0.25 | | | | | 0.56 |
| Treatment | −0.20 | 43.60 | 1;250 | 0.001 | | −0.20 | 30.24 | 1;250 | 0.001 | |
| Follow-up | −0.07 | 3.87 | 1;250 | 0.05 | | −0.06 | 2.59 | 1;250 | 0.10 | |
| *t*-value | −2.45 | — | — | 0.01 | | −2.46 | — | — | 0.01 | |
| GPS | | | | | 0.20 | | | | | 0.55 |
| Treatment | −0.11 | 12.22 | 1;129 | 0.001 | | −0.11 | 10.30 | 1;129 | 0.001 | |
| Follow-up | −0.08 | 5.53 | 1;129 | 0.05 | | −0.07 | 5.53 | 1;129 | 0.05 | |
| *t*-value | −0.56 | — | — | ns | | −0.65 | — | — | ns | |
| Process | | | | | | | | | | |
| DR | | | | | 0.13 | | | | | 0.13 |
| Treatment | 0.24 | 32.22 | 1;248 | 0.001 | | 0.24 | 32.22 | 1;248 | 0.001 | |
| Follow-up | −0.04 | 0.77 | 1;248 | ns | | −0.04 | 0.77 | 1;248 | ns | |
| *t*-value | 3.62 | — | — | 0.001 | | 3.62 | — | — | 0.001 | |
| FS | | | | | 0.28 | | | | | 0.33 |
| Treatment | 0.32 | 69.30 | 1;246 | 0.001 | | 0.32 | 57.80 | 1;246 | 0.001 | |
| Follow-up | 0.00 | 0.00 | 1;246 | ns | | 0.00 | 0.00 | 1;246 | ns | |
| *t*-value | 4.51 | — | — | 0.001 | | 4.40 | — | — | 0.001 | |
| RF | | | | | 0.01 | | | | | 0.04 |
| Treatment | 0.01 | 0.01 | 1;249 | ns | | 0.01 | 0.01 | 1;249 | ns | |
| Follow-up | 0.07 | 1.56 | 1;249 | ns | | 0.07 | 1.60 | 1;249 | ns | |
| *t*-value | −0.71 | — | — | ns | | −0.71 | — | — | ns | |

Linear C indicates linear coefficient.


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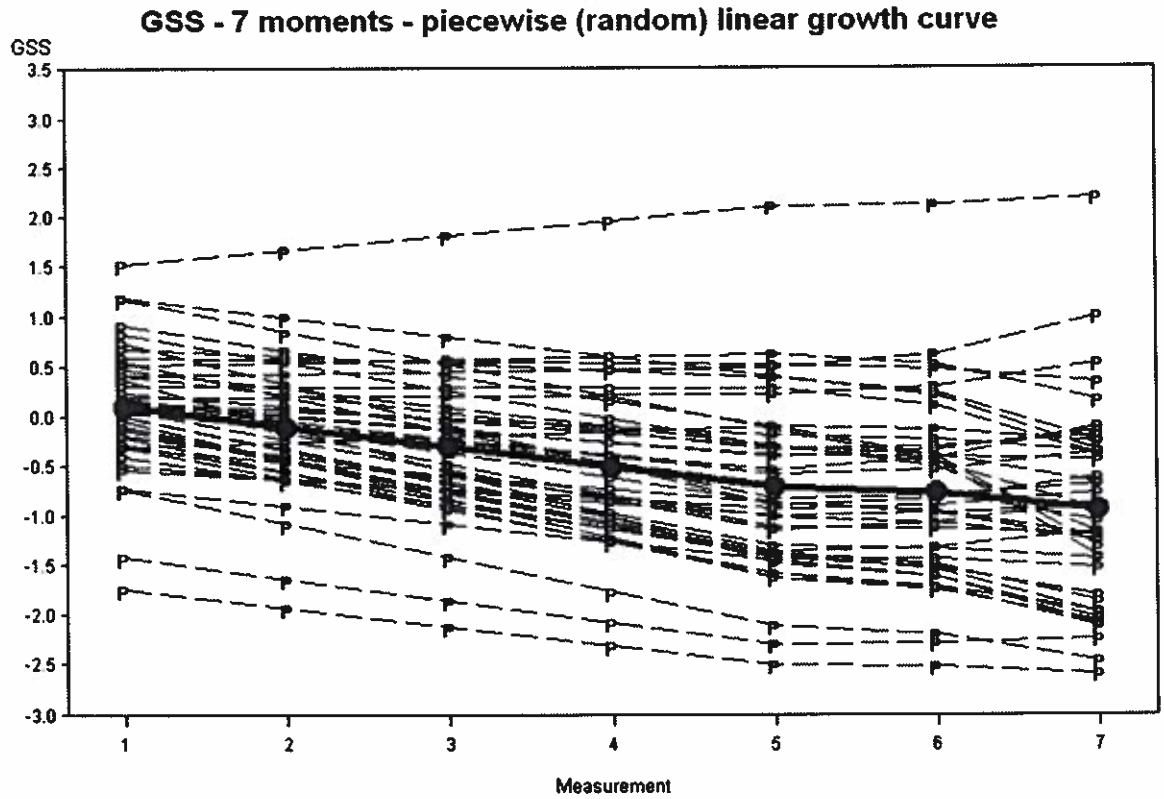


**FIGURE 1.** The GSS Piecewise Random Linear Growth Curve Model at 7 Different Moments of Measurement Time. GSS is shown on the y-axis, and Measurement Time on the x-axis (1 refers to intake; 2, to 3 months; 3, to 6 months and 4, to 9 months during treatment; 5, to the end of treatment; and 6, to 3 months and 7, to 12 months follow-up after treatment).

chi-square = 0, $P$ = ns). Similarly, for FS, results of both the fixed and random model showed a significant increase in FS during treatment, but not at follow-up. Again, the fit of fixed and random model were not significantly different (−2log likelihood = 946.2 for fixed; −2log likelihood = 945.6 for random; chi-square = 0.6, $P$ = ns). Finally, for RF, results of both the fixed and random model showed no linear increases in RF during treatment, or follow-up. Effect-sizes calculated by $R^2$ for DR were medium, and for FS large. Cohen's $d$ for DR was 0.61 (with $M$ = 4.84; $SD$ = 1.29 at intake, and $M$ = 5.64; $SD$ = 1.06 at 12-month follow-up), indicating a medium effect size; and Cohen's $d$ for FS was 1.81 (with $M$ = 2.32; $SD$ = 0.67 at intake, and $M$ = 3.54; $SD$ = 1.02 at 12-month follow-up), indicating a large effect size.

### The Relationship Between Process and Outcome

As Table 3 shows, results using linear piecewise growth curving models indicated that changes in both DR and FS, but not in RF, predicted changes in both GSS and GPS (Because RF tended to show a cubic trend, we also explored cubic conditional piecewise growth curving models using chi-square ($\chi^2$) as a measure of fit. Results showed however no significant effect of RF on GSS [$\chi^2$ (3) = 2.3; P = ns] or GPS[$\chi^2$ (3)= 0.2; P = ns]). Effect-sizes calculated by $R^2$ were large for both DRS and FS predicting GSS and GPS.

## DISCUSSION

Results of this study show that psychodynamic hospitalization-based treatment of PDs is associated with improvement in both symptoms and personality functioning with effect sizes that are quite similar to those reported in earlier studies of psychodynamic treatment for PDs (Bateman and Fonagy, 2008; Leichsenring and Leibing, 2003).

Moreover, and also in line with expectations (Blatt and Auerbach, 2001; Blatt et al., 1996), results showed a linear increase in both self and object relations and felt safety during treatment, indicating that patients were not only able to develop more differentiated and integrated representations of self and others, but also increased feelings of inner safety, which are important in dealing with future stress and crises (see also Zuroff and Blatt, 2006). Further, results showed no linear increases in the capacity for reflective functioning (RF) during treatment and follow-up. However, because of the dynamic relationship between reflective functioning and the attachment system, one can assume that the relationship between RF and change shows a more complex association than a linear trend (Luyten et al., 2009; Fonagy and Luyten, 2009). In particular, while patients may show relatively high levels of RF at the start of treatment because of the containing hospital-environment, as the attachment system becomes increasingly activated during treatment, levels of RF are likely to decrease, congruent with research findings suggesting an inverse association between activation of the attachment and the mentalization system (Luyten et al., 2009).

It is interesting to compare these results to findings of Levy et al. (2006) showing that Transference Focused Psychotherapy (TFP) for BPD was associated with linear improvements in RF. Yet, in the Levy et al. (2006b) study, RF was scored only before and after treatment, while in the current study, RF was assessed multiple times during and after treatment. Moreover in the Levy et al. study,

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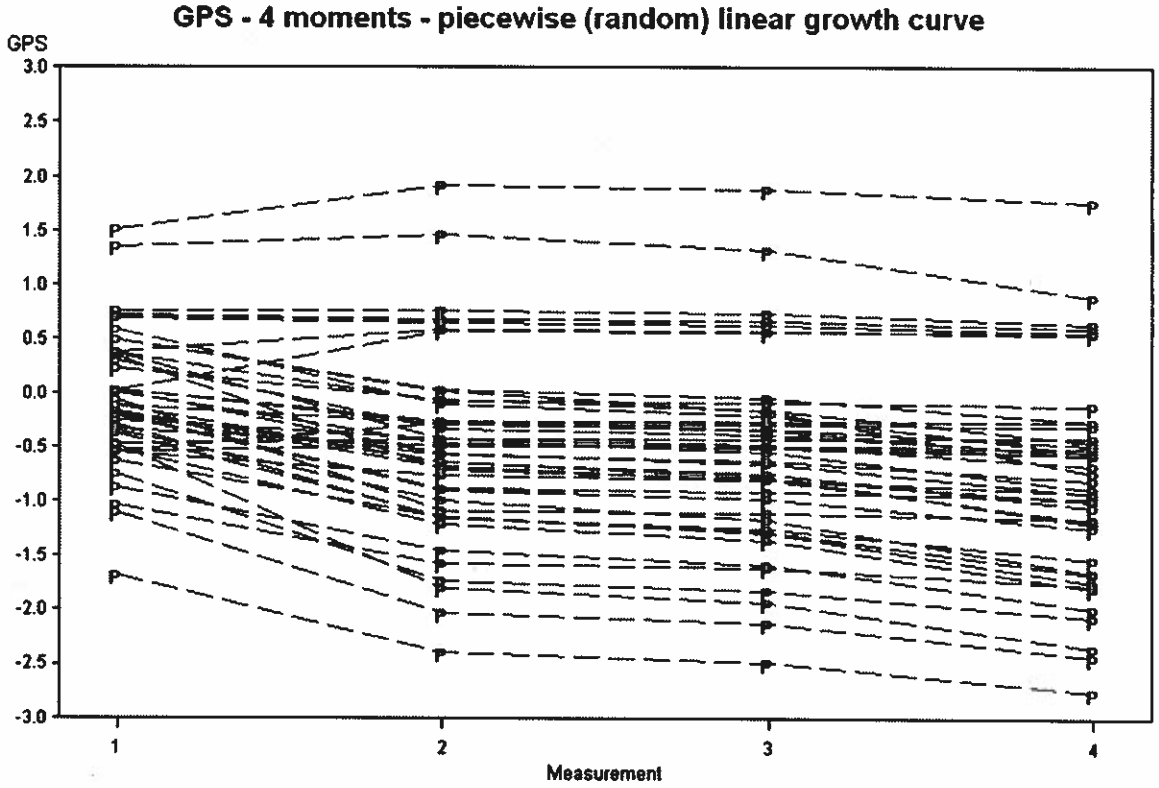


**FIGURE 2.** The GPS Piecewise Random Linear Growth Curve Model at 4 Different Moments of Measurement Time. GPS is shown on the y-axis, and Measurement Time on the x-axis (1 refers to intake; 2, to end of treatment; 3, to 3 months; and 4, to 12-month follow-up after treatment).

**TABLE 3.** Six Linear Conditional Piecewise Growth Curving Models With Process Variables (DR, FS, RF) Predicting Outcome (GSS, GPS) During Treatment and Follow-up

| | Linear C | F | *df* | *P* | $R^2$ |
|---|---|---|---|---|---|
| 1 DR-GSS | −0.13 | 11.19 | 1;245 | 0.001 | 0.57 |
| 2 FS-GSS | −0.14 | 9.21 | 1;243 | 0.01 | 0.57 |
| 3 RF-GSS | 0.02 | 0.19 | 1;246 | ns | 0.57 |
| 4 DR-GPS | −0.11 | 4.40 | 1;124 | 0.05 | 0.58 |
| 5 FS-GPS | −0.13 | 4.24 | 1;123 | 0.05 | 0.59 |
| 6 RF-GPS | 0.02 | 0.16 | 1;125 | ns | 0.56 |

Linear C indicates linear coefficient.

RF was scored on the Adult Attachment Interview (AAI; Main et al., 2002), which taps into more stable, trait-like features of RF (Fonagy and Luyten, in press), while RF as scored on the ORI is more state-sensitive (Lowyck et al., 2009). Hence, future studies are needed to further investigate these findings using different measures of RF (Yeomans et al., 2008).

Furthermore, congruent with other studies on psychoanalytic psychotherapy, patients continued to improve symptomatically and with regard to personality functioning after the end of treatment (Chiesa and Fonagy, 2007; Fonagy and Bateman, 2006; Levy, 2008). Yet, patients did not further improve on self and object representations, and felt safety after treatment, potentially suggesting a "ceiling effect." However, further and more detailed research is needed to investigate this issue. In this context, it is important to note that 73% of the patients continued with some form of psychotherapy (most of them psychoanalytically-oriented with a varying frequency) after discharge, with more than two-thirds of these patients (78%) being in psychotherapy for the whole 12-month follow-up period. This finding is important for at least 2 reasons. On the one hand, this clearly means that, even though patients showed substantial improvement during treatment, they still felt the need for additional psychotherapy. This is also congruent with other outcome studies, showing that although patients typically show improvement after intensive treatment of PD, and BPD in particular, they still show impairments in many areas of functioning (e.g., Bateman and Fonagy, 2008). On the other hand, future research should investigate whether the high rates of psychotherapy after intensive treatment of PDs differs from pretreatment psychotherapy seeking, and from psychotherapy use of patients that did not follow intensive treatment, i.e., whether intensive treatments like the one investigated in this paper, also lead to changes in psychotherapy use. For instance, it could be that these patients are able to enter into a more stable, long-term therapeutic relationship, with additional benefits in the long run, which eventually leads to reductions in medical costs. Yet, only randomized trials, carefully comparing the use of psychotherapy before and after intensive long-term treatments, can shed more light on this issue.

Finally, results showed that an improvement in levels of self and object representations and felt safety, but not reflective functioning, were associated with decreases in symptomatic behavior and improvement in personality functioning. These findings support earlier studies that found that increased levels of differentiation and relatedness were associated with clinical improvement in intensive, long-term psychodynamic psychotherapy for seriously disturbed patients (Blatt, 1996; Harpaz-Rotem and Blatt, 2005). Furthermore,


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results of this study also support the assumption that a decrease in the use of splitting, leading to more stable and coherent mental representation of self and others are associated with decreases in symptoms such as anxiety, mood, and self-harm (Blatt and Auerbach, 2003). Further, the association between outcome and changes in feelings of felt safety, supports attachment-based conceptualizations of personality disorders that point to the central role of the lack of a "secure base" in patients with a PD (Fonagy and Luyten, in press; Levy et al., 2005) and how increases in this "secure base" or feelings of basic trust and safety may be an important mechanism of change in the treatment of PDs.

## REFERENCES


Alden LA, Wiggins JS, Pincus AL (1990) Construction of circumplex scales for the inventory of interpersonal problems. *J Pers Assess.* 55:521–536.

Arrindell WA, Ettema JH (1986) *SCL-90 Handleiding bij een multidimensionele pathologie-indicator [SCL-90: Manual of a Multidimensional Pathology Indicator].* Lisse (The Netherlands): Swets test publishers.

Bateman A, Fonagy P (2008) Eight-year follow-up of patients treated for borderline personality disorder. *Am J Psychiatry.* 165:631–638.

Blatt SJ (1996) Mental representations, severe psychopathology and the therapeutic process. *J Am Psychoanal Assoc.* 49:113–159.

Blatt SJ (1998) Contributions of psychoanalysis to the understanding and treatment of depression. *J Am Psychoanal Assoc.* 16:722–752.

Blatt SJ, Auerbach JS (2001) Mental representations, severe psychopathology and the therapeutic process. *J Am Psychoanal Assoc.* 49:113–159.

Blatt SJ, Auerbach JS (2003) Psychodynamic measures of change. *Psychoanal Inq.* 23:268–307.

Blatt SJ, Auerbach JS, Levy KN (1997) Mental representations in personality development, psychopathology and the therapeutic process. *Rev Gen Psychol.* 4:351–374.

Blatt SJ, Stayner D, Auerbach J, Behrends RS (1996) Change in object and self representations in long-term, intensive, inpatient treatment of seriously disturbed adolescents and young adults. *Psychiatry.* 59:82–107.

Bouman T, Luteijn F, Albersnagel F, van der Ploeg F (1985) Enige ervaringen met de Beck Depression Inventory [Some experience with the Beck Depression Inventory]. *Gedrag.* 13:13–24.

Chiesa M, Fonagy P (2007) Prediction of medium-term outcome in cluster B personality disorder following residential and outpatient psychosocial treatment. *Psychother Psychosom.* 76:347–353.

Clarkin J, Levy K (2006) Psychotherapy for patients with borderline personality disorder: focusing on the mechanisms of change[special issue]. *J Clin Psychol.* 62:405–516.

Clarkin JF, Levy KN, Lenzenweger MF, Kernberg O (2007) Evaluating three treatments for borderline personality disorder: A multi-wave study. *Am J Psychiat.* 164:1–8.

Cohen J (1988) *Statistical Power for the Behavioural Sciences* (2nd ed) Hillsdale (NJ): Lawrence Erlbaum Associates.

Diamond D, Blatt SJ, Stayner D, Kaslow N (1992) *Self-Other Differentiation of Object Representations.* New Haven (CT): Yale University. Unpublished research manual.

Fonagy P, Bateman A (2006) Progress in treatment of borderline personality disorder. *Br J Psychiatr.* 188:1–3.

Fonagy P, Gergely G, Jurist EL, Target M (2002) *Affect Regulation, Mentalization and the Development of the Self.* New York (NY): Other Press.

Fonagy P, Luyten P (2009) A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Develop and Psychopath.* 21:1355–1381.

Fonagy P, Target M, Steele H, Steele M (1998) *Reflective Functioning Manual Version 5.* London (United Kingdom): University College London Psychoanalysis Unit.

Harpaz-Rotem I, Blatt SJ (2005) Changes in representations of self-designated significant other in long-term intensive inpatient treatment of seriously disturbed adolescents and young adults. *Psychiatry.* 68:266–282.

Kazdin AE (2007) Mediators and mechanism of change in psychotherapy research. *Ann Rev Clin Psychol.* 3:1–7.

Kernberg OF (1996) A psychoanalytic theory of personality disorders. In JF Clarkin, MF Lenzenweger (Eds), *Major Theories of Personality Disorders* (pp 106–137). New York (NY): Guilford Press.

Leichsenring F, Leibing E (2003) The effectiveness of psychodynamic therapy and cognitive behavior therapy in the treatment of personality disorders: a meta-analysis. *Am J Psychiatry.* 160:1223–1232.

Levy KN, Meehan KB, Weber M, Reynoso J, Clarkin JF (2005) Attachment and borderline personality disorder: Implications for psychotherapy. *Psychopathology.* 38:64–74.

Levy KN, Clarkin JF, Yeomans FE, Scott LN, Wasserman RH, Kernberg OF (2006a) The mechanisms of change in the treatment of borderline personality disorders with transference focused psychotherapy. *J Clin Psychol.* 62:481–501.

Levy KN, Meehan KB, Kelly KM, Reynoso JS, Weber M, Clarkin JF, Kernberg OF (2006b) Change in attachment patterns and reflective functioning in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *J Con Clin Psychol.* 74:1027–1040.

Levy KN (2008) Psychotherapies and lasting change. *Am J Psychiatry.* 165:556–559.

Lowyck B, Vermote R, Franssen M, Verhaest Y, Luyten P, Vertommen H, Peuskens J (2009) Comparison of reflective functioning as measured on the Adult Attachment Interview (AAI) and the Object Relations Inventory (ORI) in patients with a personality disorder: A preliminary study. Poster presented at The American Psychoanalytic Association 2009 Winter Meeting, New York.

Luyten P, Fonagy P, Mayes L, Vermote R, Lowyck B, Bateman A, Target M (2009) Broadening the scope of the mentalization based approach to psychopathology. Manuscript submitted for publication.

Main M, Goldwyn R, Hesse E (2002) *Adult Attachment Classification System. Manual in Draft. Version 7.1.* Unpublished manuscript, University of California at Berkeley.

Porcerelli JH, Shahar G, Blatt SJ, Ford RQ, Mezza JA, Greenlee LM (2006) Social cognition and object relations scale: Convergent validity and changes following intensive inpatient treatment. *Pers Indiv Differ.* 41:407–417.

Raudenbush SW, Bryk AS (2002) *Hierarchical Linear Models: Applications and Data Analysis Methods* (2nd ed). Thousand Oaks (CA): Sage Publications, Inc.

Sansone RA, Wiederman MW, Sansone LA (1998) The Self-Harm Inventory (SHI): Development of a scale for identifying self-destructive behaviors and borderline personality disorder. *J Clin Psychol.* 54:973–983.

Singer JD, Willet JB (2003) *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence.* New York (NY): Oxford University Press.

Van der Ploeg H, Defares P, Spielberger CD (1980) *Handleiding bij de Zelf-beoordelingsvragenlijst angst* [Manual on the self-report anxiety inventory]. Lisse (The Netherlands): Swets & Zeitlinger.

Van der Ploeg H, Defares P, Spielberger CD (1982) *Handleiding bij de Zelf-beoordelingsvragenlijst boosheid en woede* [Manual on the self-report anger inventory]. Lisse (The Netherlands): Swets & Zeitlinger.

Vermote R (2005) *Touching Inner Change: Psychoanalytically Informed Hospitalization-Based Treatment of Personality Disorders: A Process-Outcome Study* [doctoral dissertation]. Leuven (Belgium): Catholic University Press.

Vermote R, Fonagy P, Vertommen H, Verhaest Y, Stroobants R, Vandeneede B, Corveleyn J, Lowyck B, Luyten P, Peuskens J (2009) Outcome and outcome trajectories of personality disordered patients. *J Pers Disord.* 23:293–306.

Weertman A, Arntz A, Kerhof M (2000) *SCID II Persoonlijkheidsvragenlijst* [SCID II Personality Questionnaire]. Lisse (The Netherlands): Swets & Zeitlinger.

Winnicott DW (1971) *Playing and Reality.* London (Routledge).

Yeomans FE, Clarkin JF, Diamond D, Levy KN (2008) An object relations treatment of borderline patients with reflective functioning as a mechanism of change. In F Bush, (Ed), *Mentalization: Theoretical Considerations, Research Findings and Clinical Applications* (pp 159 181). New York (NY): The Analytic Press.

Zuroff DC, Blatt SJ (2006) The therapeutic relationship in the brief treatment of depression: Contributions to clinical improvement and enhanced adaptive capacities. *J Consult Clin Psych.* 74:130–140.


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