Psychiatry Research 271 (2019) 76–82

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

# Facets of identity disturbance reported by patients with borderline personality disorder and personality-disordered comparison subjects over 20 years of prospective follow-up

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ARTICLE INFO

*Key words:*
Identity
Borderline personality disorder
Recovery
Inner states

ABSTRACT

This study had two objectives. The first was to determine the levels of identity disturbance reported by **290** patients with borderline personality disorder (BPD) and **72** personality-disordered comparison subjects over 20 years of prospective follow-up. The second aim was to describe the levels of identity disturbance reported by **152** ever recovered vs. **138** never recovered borderline patients over 20 years of prospective follow-up. Participants were followed and re-assessed every two years for a total of 20 years of follow-up. Borderline patients reported levels of these states that were more than three times higher than personality-disordered comparison subjects, with both groups demonstrating significant declines in these states over time. For three of these inner states ("I feel like I am worthless," "I feel like a complete failure," and "I feel like I am evil"), recovered borderline patients had lower baseline scores and significantly different patterns of decline than non-recovered patients. For the fourth state, "I feel like I am a bad person," recovered patients had lower scores over time, but the groups declined at the same rate. These results suggest that borderline patients report experiencing inner states related to having a negative identity less often over time. Additionally, recovery status is significantly associated with decreased time experiencing these states.

## 1. Introduction

Borderline personality disorder (BPD) is a common and serious psychiatric disorder. Identity disturbance is one of the nine diagnostic criteria for BPD in the DSM system of nomenclature (American Psychiatric Association, 1980; American Psychiatric Association, 1987; American Psychiatric Association, 1994; American Psychiatric Association, 2013).

Identity disturbance in the context of BPD is a complex construct. It originally entered the nomenclature as a result of the work of Kernberg and his colleagues. These theorists viewed identity in BPD as diffuse, meaning that it shows persistent inconsistency and lack of integration with sometimes distorted or fragmented representations of self and others (Kernberg, 1975). Wilkinson and Westen (2000) found that adults with BPD suffered from four different aspects of identity disturbance—role absorption, painful incoherence, inconsistency, and lack of commitment. A recent empirical study corroborated this conceptualization of the diffuse nature of identity. In this study, subjects with BPD showed significantly less consistency across trials than healthy comparison subjects when asked to list their personality traits twice within a three-hour period as a part of a self- and other-representation maintenance task (Beeney et al., 2016). In the same study, in which participants described themselves by sorting personality trait cards, BPD subjects likewise produced sorts with lower levels of self-integration than healthy controls.

Alternatively, Zanarini and colleagues have conceptualized the identity of people with BPD as more stably negative. In their view, borderline identity consists of overvalued ideas of inner worthlessness and/or badness with only brief periods of feeling positive about oneself (Zanarini et al., 2007). Three empirical studies support Zanarini's view, with findings suggesting that patients with BPD predominantly see themselves extremely negatively rather than having a vacillating,

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https://doi.org/10.1016/j.psychres.2018.11.020
Received 9 October 2018; Received in revised form 9 November 2018; Accepted 9 November 2018
Available online 10 November 2018
0165-1781/ 

unstable sense of self (Sieswerda et al., 2005; Vater et al., 2015). Beeney and colleagues confirmed the same view but also showed a polarized state of identity where a sense of integration is severely lacking (Beeney et al., 2016).

Although these past studies are informative, they leave some gaps in our understanding of identity disturbance in borderline patients. First, these studies compared people with BPD to subjects who were healthy or had another psychiatric disorder; no studies have examined whether there is variability in identity disturbance within subgroups of patients with BPD. Second, past studies of these constructs were cross-sectional; thus, less is known about the longitudinal course of identity disturbance.

The current study, which focuses on four maladaptive inner states that are aspects of identity ("I feel like I am worthless," "I feel like I am a complete failure," "I feel like I am a bad person," and "I feel like I am evil") had two objectives. The first was to determine the levels of these negative inner states related to identity reported by patients with BPD and personality-disordered comparison subjects over 20 years of prospective follow-up. The second was to determine these inner states reported by patients with BPD who had and who had not ever recovered (i.e., achieved concurrent symptomatic remission and good psychosocial functioning) over the past two decades.

## 2. Methods

### 2.1. Design

The current study is part of the McLean Study of Adult Development (MSAD), a multifaceted longitudinal study of the course of borderline personality disorder. The methodology of this study, which was reviewed and approved by the McLean Hospital Institutional Review Board, has been described in detail elsewhere (Zanarini et al., 2003). Briefly, all adults with BPD were inpatients at McLean Hospital in Belmont, Massachusetts who were consecutively admitted between June 1992 and December 1995. Each patient was screened to determine that he or she: (a) was between the ages of 18–35; (b) had a known or estimated IQ of 71 or higher; and (c) had no history or current symptoms of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause serious psychiatric symptoms (e.g., lupus erythematosus, multiple sclerosis).

### 2.2. Diagnostic assessment

After the study procedures were carefully explained, written informed consent was obtained. Each patient then met with a masters-level interviewer blind to the patient's clinical diagnoses for a thorough psychosocial/treatment history and diagnostic assessment. Four semi-structured interviews were administered: (1) the Background Information Schedule (BIS) (Zanarini et al., 2001; Zanarini et al., 2005), (2) the Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I) (Spitzer et al., 1992), (3) the Revised Diagnostic Interview for Borderlines (DIB-R) (Zanarini et al., al.,1989), and (4) the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R) (Zanarini & Frankenburg, 2001). The inter-rater and test-retest reliability of the BIS (Zanarini et al., 2001; Zanarini et al., 2005) and of the three diagnostic measures (Zanarini & Frankenburg, 2001; Zanarini et al., 2002) have all been found to be good-excellent.

At each of 10 follow-up waves, separated by 24 months, diagnostic status was reassessed via interview methods similar to the baseline procedures by interviewers blind to baseline diagnoses. After informed consent was obtained, our diagnostic battery was re-administered. Social and vocational functioning were also assessed at each time period using the follow-up analog of the Background Information Schedule—the Revised Borderline Follow-up Interview (BFI-R) (Zanarini, 1994). The follow-up inter-rater reliability (within one generation of follow-up raters) and follow-up longitudinal reliability (from one generation of raters to the next) of all four interviews were good-excellent (Hörz et al., 2010; Zanarini & Frankenburg, 2001; Zanarini et al., 2002; Zanarini et al., 2005).

### 2.3. Assessment of identity disturbance

In the current study, inner states reflecting identity disturbance were assessed using four items from the Dysphoric Affect Scale (DAS) at baseline and each of the 10 follow-up waves (Zanarini et al., 1998). The DAS is a self-report measure consisting of 50 items that describe negative inner states of either an affective or cognitive nature found to be common and/or discriminating for borderline personality disorder (Zanarini et al., al.,1998). Participants are asked to report the percentage of the time that they have experienced each negative affect or cognition over the past month and thus, scores range from 0–100%. The psychometric properties of the full DAS are excellent, with very high internal consistency (Cronbach's $\alpha = 0.97$). In addition, the one-week test-retest reliability of the DAS was found to be 0.97 when examined in a sample of 15 non-psychotic outpatients (Zanarini et al., al.,1998). The items used in the present study are: "I feel worthless," "I feel like I am a complete failure," "I feel like I am a bad person," and "I feel like I am evil." When examined separately from the full scale, these four items also demonstrated high internal consistency ($\alpha = 0.86$). Additionally, test-retest reliability of these specific items was also generally good (*ICCs* = 0.82–0.89), with one item demonstrating somewhat lower test-retest reliability (i.e., "feels like a bad person," *ICC* = 0.57).

### 2.4. Recovery status

Subjects were characterized as ever recovered if they had a two-year period in which they 1) achieved a concurrent symptomatic remission from BPD, 2) had at least one emotionally sustaining relationship with a close friend or life partner/spouse, and 3) were able to work or go to school consistently, competently, and on a full-time basis (which included being a houseperson).

### 2.5. Statistical analyses

The generalized estimating equations (GEE) approach was used in longitudinal analyses to assess the level of these inner states over 20 years of follow-up. Linear models for change in the mean level over time included the effects of diagnostic/recovery group, time, and their possible interaction; all analyses included a quadratic time trend to allow for the discernible non-linear decrease in the level of these inner states over time. Post-estimation tests were used to determine if the interactions were significant. If not, they were dropped from the final models.

The GEE method used for these analyses appropriately accounts for the correlation among the repeated measures of the DAS over time. Because the DAS variables are negatively skewed, these analyses are based on logarithmically transformed scores; consequently, the results when expressed on the original scales of the scores have interpretations in terms of relative, rather than absolute, differences.

The development of the DAS was completed and the measure was introduced into our assessment battery about half-way through recruitment of the baseline MSAD sample. As a result, DAS data for 140 of 290 subjects were collected at baseline. Additionally, 18 subjects at the 18-year and 20-year follow-up assessments did not complete the DAS. A multiple imputation procedure was used to handle missing DAS data and analyses included observed and imputed data. The imputation model incorporated both diagnostic and follow-up DAS data as predictors of the missing baseline and 18 and 20-year follow-up DAS data. Specifically, the missing baseline, 18-year, and 20-year values were replaced by a set of 10 plausible values randomly drawn from the imputation model. Results from the 10 imputed datasets were then appropriately combined to provide a single estimate of the parameters of

interest, together with standard errors and test statistics that reflect the uncertainty inherent in the imputation of the unobserved data.

## 3. Results

### 3.1. Participants

The sample and its diagnostic characteristics have been described before (Zanarini et al., 2003). Two hundred and ninety patients met both DIB-R and DSM-III-R criteria for BPD and 72 met DSM-III-R criteria for at least one non-borderline personality disorder (and neither criteria set for BPD). Of these 72 comparison subjects, 58 (80.6%) met criteria for only one personality disorder. Of the 14 (19.4%) who met criteria for two or more disorders, the primary disorder was determined by the severity of psychopathology reported. All told, the following primary personality disorder diagnoses were found: antisocial personality disorder ($n$ = 10, 13.9%), narcissistic personality disorder ($n$ = 3, 4.2%), paranoid personality disorder (N = 3, 4.2%), avoidant personality disorder ($n$ = 8, 11.1%), dependent personality disorder ($n$ = 7, 9.7%), self-defeating personality disorder ($n$ = 2, 2.8%), and passive-aggressive personality disorder ($n$ = 1, 1.4%). Another 38 (52.8%) met criteria for personality disorder not otherwise specified (which was operationally defined in the Diagnostic Interview for DSM-III-R Personality Disorders as meeting all but one of the required number of criteria for at least two of the 13 personality disorders described in DSM-III-R).

Demographic data from baseline and 20-year follow-up are reported in Table 1. In terms of continuing participation, 220/258 (85%) of surviving patients with borderline personality disorder (13 died by suicide and 19 died of other causes) were reinterviewed at all ten follow-up waves. A similar rate of participation was found for personality-disordered comparison participants, with 58/70 (83%) of surviving patients in this study group (one died by suicide and one died of other causes) being reassessed at all ten waves of follow-up.

### 3.2. Findings

Table 2 details the mean scores (based on untransformed data) for each of the four inner states reported by borderline patients and patients with other personality disorders (OPD) over 20 years of follow-up. The table also details relative differences (RD) between BPD vs. OPD patients and relative change over time for both groups. For example, the results for feeling worthless indicate that borderline patients had scores that were around three times (3.09) higher than those reported by personality-disordered comparison subjects over time. Both groups of patients demonstrated significant ($p < 0.001$) declines in feeling worthless over time, and the rate of change was similar for both groups (i.e., approximately 88%; [0.12–1] x 100%).

For the inner states of feeling like a failure and like a bad person, similar differences between patients with BPD and personality-disordered comparison subjects were found. Specifically, borderline patients had significantly higher scores on both inner states than comparison subjects over time (i.e., 3.37 times higher for feeling like a failure and 3.75 times higher for feeling like a bad person). The relative rates of decrease in these states was significant and similar for both groups (i.e., 82% for feeling like a failure and 87% for feeling like a bad person).

A different pattern emerged for the state of feeling like I am evil. At baseline, scores for feeling like I am evil were approximately 3.7 times higher in borderline patients. Between-group differences in relative change were also significant ($p < 0.001$, based on a 2-degree of freedom test of diagnostic group by time interaction). Specifically, borderline patients showed a significant decline of 85% over time, whereas personality-disordered comparison subjects showed a significant decline of 46% over time in this inner state.

Table 3 details mean scores (based on untransformed data) for the same four inner states described above reported by borderline patients who have ($n$ = 152) and have not achieved recovery ($n$ = 138) during the 20 years of follow-up. The table also details relative differences (RD) between ever recovered vs. never recovered patients and relative change over time for both groups. For example, the results for feeling worthless indicate that recovered borderline patients had scores at baseline that were around 59% ([0.41–1] x 100%) lower than that reported by non-recovered borderline patients over time. In terms of change over 20 years of follow-up, the relative change for non-recovered borderline patients was a significant ($p < 0.001$) decrease of 85% ([0.15 – 1] x 100%), whereas the relative change for recovered patients was a significant ($p < 0.001$) decrease of 91% ([0.09 – 1] x 100%). Furthermore, the between-group difference in relative change was highly significant ($p < 0.001$, based on a 2-degree of freedom test of recovery group by time interaction).

For the inner-state of feeling like a failure, similar differences between recovered and non-recovered borderline patients were found. At baseline, scores for feeling like a failure were around 67% lower among recovered borderline patients. The relative rates of decrease over 20 years of follow-up were significant ($p < 0.001$) for both recovered and non-recovered borderline patients, with decreases of 86% and 80% respectively. In addition, between-group differences in relative change were also significant ($p < 0.05$). Compared to non-recovered patients, recovered patients exhibited steeper decreases in levels of this inner state than non-recovered patients.

Similar to the previous two inner-states, feeling like I am evil was lower among recovered patients at baseline by around 72%. Additionally, the relative rates of decrease over 20 years of follow-up for feeling like I am evil were significant ($p < 0.001$) for recovered patients (with a decrease of 81%) and non-recovered (with a decrease of 89%). Between-group differences in relative change were also significant ($p < 0.05$). Unlike the previous two inner-states, for the inner-state of feeling like I am evil, non-recovered patients had more substantial declines than recovered patients over time.

For the fourth state being studied (feeling like a bad person), a different pattern emerged. For these inner states, recovered patients with BPD had scores over time that were approximately 80% lower than non-recovered patients, a significant between-group difference. Additionally, both study groups had a similar rate of significant ($p < 0.001$) relative decrease over time of approximately 89%.

**Table 1**
Demographic characteristics of borderline patients and personality-disordered comparison subjects at baseline and at 20-year follow-up.

| | Baseline | | | | 20-year follow-up | | | | BPD vs. OPD | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BPD ($n$ = 290) | | OPD ($n$ = 72) | | BPD ($n$ = 220) | | OPD ($n$ = 58) | | Baseline | | 20-Year | |
| | % | $n$ | % | $n$ | % | $n$ | % | $n$ | $X^2$ | $p$-value | $X^2$ | $p$-value |
| Female | 80.3 | 233 | 63.9 | 46 | 81.8 | 180 | 65.5 | 38 | 8.84 | 0.003 | 7.21 | 0.007 |
| Nonwhite | 12.8 | 37 | 13.9 | 10 | 12.7 | 28 | 12.1 | 7 | 0.07 | 0.798 | 0.02 | 0.893 |
| | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | **Mean** | **SD** | ***t*** | ***p*-value** | ***t*** | ***p*-value** |
| Age | 26.9 | 5.76 | 27.0 | 8.00 | 46.8 | 0.38 | 47.7 | 1.08 | 0.07 | 0.943 | 0.97 | 0.328 |
| SES | 3.4 | 1.5 | 2.8 | 1.3 | 3.0 | 1.6 | 3.3 | 1.7 | −3.09 | 0.002 | 1.07 | 0.287 |
| GAF | 38.9 | 7.54 | 43.5 | 7.51 | 60.8 | 12.42 | 69.0 | 12.80 | 4.67 | <0.001 | 4.74 | <0.001 |

**Table 2**
Percentage of time aspects of identity disturbance were reported by borderline patients vs. personality-disordered comparison subjects over 20 years of prospective follow-up.

| (Mean and SD) | BL | 2 YR FU | 4 YR FU | 6 YR FU | 8 YR FU | 10 YR FU | 12 YR FU | 14 YR FU | 16 YR FU | 18 YR FU | 20 YR FU | Rel. Diff. Diagnosis Δ OPD Δ BPD | 95% CI Diagnosis Δ OPD Δ BPD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I feel worthless** | | | | | | | | | | | | 3.06 | 1.94, 4.82 |
| OPD | 28.0 (28.4) | 20.0 (28.4) | 15.5 (25.7) | 13.0 (24.7) | 9.8 (22.2) | 14.1 (22.9) | 9.6 (16.1) | 7.9 (19.5) | 10.1 (19.3) | 8.4 (17.7) | 8.5 (21.3) | 0.12 | 0.09, 0.16 |
| BPD | 59.4 (31.2) | 38.0 (35.9) | 35.3 (36.2) | 29.6 (33.2) | 25.5 (32.1) | 26.3 (32.1) | 24.6 (32.2) | 21.1 (29.9) | 19.9 (28.7) | 21.0 (31.1) | 20.2 (29.7) | | |
| **I feel like I am a complete failure** | | | | | | | | | | | | 3.37 | 2.11, 5.36 |
| OPD | 27.1 (32.5) | 17.6 (29.3) | 13.4 (26.3) | 13.0 (26.3) | 8.9 (22.0) | 13.0 (24.0) | 10.2 (20.8) | 10.0 (21.4) | 10.1 (20.2) | 10.4 (20.6) | 7.9 (21.7) | 0.18 | 0.13, 0.24 |
| BPD | 55.2 (35.2) | 34.1 (35.4) | 31.8 (35.9) | 27.9 (33.2) | 23.0 (31.5) | 24.2 (31.7) | 23.6 (32.1) | 20.2 (29.3) | 20.7 (30.3) | 20.4 (30.5) | 20.1 (29.8) | | |
| **I feel like I am a bad person** | | | | | | | | | | | | 3.75 | 2.44, 5.77 |
| OPD | 15.9 (25.1) | 12.6 (21.9) | 8.2 (18.5) | 5.6 (15.1) | 5.8 (17.6) | 6.7 (15.7) | 6.0 (16.0) | 5.9 (17.8) | 6.3 (16.4) | 5.7 (15.5) | 5.7 (17.5) | 0.13 | 0.10, 0.18 |
| BPD | 45.9 (35.4) | 30.7 (34.3) | 28.1 (34.5) | 23.9 (31.3) | 19.3 (28.8) | 16.6 (26.1) | 17.8 (27.1) | 14.9 (24.9) | 16.1 (27.1) | 14.7 (27.2) | 14.2 (25.0) | | |

| **(Mean and SD)** | BL | 2 YR FU | 4 YR FU | 6 YR FU | 8 YR FU | 10 YR FU | 12 YR FU | 14 YR FU | 16 YR FU | 18 YR FU | 20 YR FU | Rel. Diff. Diagnosis Δ OPD Δ BPD | 95% CI Diagnosis Δ OPD Δ BPD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I feel like I am evil** | | | | | | | | | | | | 3.70 | 1.88, 7.29 |
| OPD | 3.9 (11.3) | 3.8 (14.0) | 1.8 (6.3) | 1.6 (6.4) | 2.1 (12.4) | 1.9 (9.8) | 0.5 (2.7) | 1.5 (10.4) | 2.3 (11.0) | 1.4 (5.9) | 1.7 (11.2) | 0.54 | 0.32, 0.94 |
| BPD | 23.9 (33.9) | 15.8 (29.7) | 13.1 (27.1) | 9.7 (23.4) | 7.8 (21.5) | 6.8 (19.5) | 6.6 (18.9) | 4.1 (13.0) | 6.7 (19.1) | 4.8 (18.4) | 4.4 (14.3) | 0.15 | 0.11, 0.20 |

**Table 3**
Percentage of time aspects of identity disturbance were reported by recovered and non-recovered borderline patients over 20 years of prospective follow-up.

| (Mean and SD) | BL | 2 YR FU | 4 YR FU | 6 YR FU | 8 YR FU | 10 YR FU | 12 YR FU | 14 YR FU | 16 YR FU | 18 YR FU | 20 YR FU | Rel. Diff. Recovery Δ Recovered Δ Non-recovered | 95% CI Recovery Δ Recovered Δ Non-recovered |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **I feel worthless** | | | | | | | | | | | | 0.41 | 0.27, 0.60 |
| Recovered | 55.0 (33.2) | 27.7 (32.6) | 23.3 (31.6) | 18.5 (27.1) | 13.5 (22.1) | 14.6 (22.8) | 12.9 (22.5) | 12.3 (23.0) | 11.1 (21.4) | 11.6 (23.1) | 11.8 (22.2) | 0.09 | 0.06, 0.14 |
| Non-Recovered | 64.3 (28.2) | 50.7 (35.9) | 50.9 (36.0) | 44.8 (34.9) | 41.7 (36.3) | 42.6 (36.0) | 41.4 (36.6) | 33.7 (34.1) | 32.7 (32.9) | 34.2 (35.8) | 32.4 (34.7) | 0.15 | 0.09, 0.24 |
| **I feel like I am a complete failure** | | | | | | | | | | | | 0.33 | 0.21, 0.52 |
| Recovered | 47.0 (35.2) | 23.4 (30.8) | 18.7 (28.8) | 15.9 (25.0) | 11.2 (20.0) | 13.0 (21.1) | 12.1 (21.5) | 11.8 (21.1) | 10.5 (19.7) | 10.4 (22.1) | 12.7 (24.4) | 0.14 | 0.08, 0.22 |
| Non-Recovered | 64.5 (33.0) | 47.4 (36.4) | 48.7 (37.3) | 44.2 (36.1) | 39.1 (36.9) | 39.9 (37.0) | 40.1 (37.3) | 32.5 (34.0) | 35.6 (36.4) | 34.3 (34.9) | 30.8 (33.6) | 0.20 | 0.12, 0.32 |
| **I feel like I am a bad person** | | | | | | | | | | | | | |
| Recovered | 36.8 (34.6) | 20.5 (29.5) | 15.9 (27.2) | 14.2 (24.3) | 10.0 (18.8) | 8.1 (13.9) | 9.2 (18.4) | 8.0 (15.2) | 7.0 (16.3) | 7.3 (18.4) | 9.4 (20.4) | 0.20 | 0.14, 0.30 |
| Non-Recovered | 56.2 (33.7) | 43.2 (35.8) | 44.1 (36.5) | 37.1 (34.9) | 32.0 (34.7) | 28.4 (33.6) | 30.1 (32.5) | 34.9 (32) | 29.3 (33.7) | 25.3 (33.5) | 21.2 (29.1) | 0.11 | 0.08, 0.17 |

| **(Mean and SD)** | BL | 2 YR FU | 4 YR FU | 6 YR FU | 8 YR FU | 10 YR FU | 12 YR FU | 14 YR FU | 16 YR FU | 18 YR FU | 20 YR FU | Rel. Diff. Recovery Δ Recovered Δ Non-recovered | 95% CI Recovery Δ Recovered Δ Non-recovered |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I feel like I am evil | | | | | | | | | | | | 0.28 | 0.15, 0.50 |
| Recovered | 16.0 (28.9) | 7.8 (20.0) | 5.7 (16.6) | 4.1 (14.3) | 1.7 (7.3) | 1.5 (5.6) | 1.9 (7.9) | 1.1 (4.5) | 1.2 (6.0) | 1.5 (9.2) | 2.4 (9.7) | 0.19 | 0.13, 0.30 |
| Non-Recovered | 32.8 (36.9) | 25.6 (36.2) | 22.7 (34.2) | 17.4 (30.3) | 16.2 (30.0) | 14.1 (27.9) | 13.3 (26.7) | 8.3 (18.9) | 14.7 (27.1) | 9.4 (25.7) | 7.2 (18.8) | 0.11 | 0.07, 0.17 |

## 4. Discussion

This study had several findings. The first is that patients with BPD reported experiencing the four inner states related to identity disturbance more than three times as often as personality-disordered comparison subjects. Both groups exhibited significant declines in all four inner states. Furthermore, the declines happened at the same rate for all four of the studied inner states except for "I feel like I am evil," for which borderline patients experienced a significantly steeper decline. Said another way, the relative level of these inner states in borderline patients relative to comparison subjects remained the same over time for three inner states ("I feel like I am worthless," "I feel like I am a complete failure," "I feel like a bad person"), whereas the gap between the two groups lessened over time for "I feel like I am evil."

These results are not surprising as borderline psychopathology has generally been found to be more severe both subjectively as well as on the level of psychosocial impairment. Additionally, identity disturbance is one of the DSM criteria for BPD, and no other personality disorder shares this criterion.

A second major finding is that recovered borderline patients had lower scores on three of the four negative inner states ("I feel like I am worthless," "I feel like I am a complete failure," and "I feel like I am evil") at baseline. Additionally, for two of these three inner states ("I feel like I am worthless" and "I feel like I am a complete failure"), recovered patients showed greater declines over time (from 55% to 11.8% and from 47% to 12.7%, respectively) than non-recovered patients (who declined from 64.3% to 32.4% and from 64.5% to 30.8%, respectively). These findings suggest that recovered patients differ from non-recovered patients in both level and trajectory of states pertaining to negative perceptions of self-worth.

By contrast, for the inner state "I feel like I am evil," the non-recovered group showed a significantly steeper decline than the recovered group (i.e., from 32.8% to 7.2% vs. from 16% to 2.4%). Perhaps this finding can be explained by the fact that the recovered group had particularly low levels of this more extreme negative inner state at baseline compared to the non-recovered group, leading to less room for change.

Finally, for the fourth state "I feel like I am a bad person," recovered borderline patients had significantly lower scores over time than the non-recovered borderline patients (i.e., by 80%); however, the rate of decline over time was the same for both groups (i.e., decline of 89% for both groups). Although these numbers show a decrease in both groups, the non-recovered group spent a greater amount of time in this negative inner state.

Overall, the findings of the present study support the idea that the identities of patients with BPD are defined by persistently negative self-views (Zanarini et al., 2007). Furthermore, they highlight the interplay between these negative self-perceptions and recovery from BPD, particularly since non-recovered patients reported higher levels of all of these negative inner states. One strength of this study is that we used a continuous measure of identity disturbance instead of only examining the presence or absence of negative identity. This allowed for a nuanced description of the phenomenological experience of these patients and provided a more refined measure of change.

It is not apparent from the present study whether these states decrease before recovery, after recovery, or concurrently. Regardless, identity disturbance is associated with less effective functioning in school, work, and interpersonal relationships. For instance, if people always feel worthless, they may not be motivated to look for a job or pursue an educational goal. Likewise, feeling like a failure might diminish a patient's desire to retake an exam or attempt to repair a rupture in a significant relationship. On the other hand, achieving a significant success like getting a degree or a promotion at work might reduce patient's sense of feeling like a failure. Given the clear impact that identity disturbance has on behavior, clinicians could use these inner states as prognostic signs to gauge how patients will behave in interpersonal, professional, and academic settings.

Further, clinicians could address these states in treatment. Empirically-based treatments, such as dialectical behavior therapy (DBT), transference-focused psychotherapy (TFP) and mentalization-based treatment (MBT) offer some strategies to address identity diffusion (Fonagy and Bateman, 2013; Roepke et al., 2011; Stepp et al., 2008; Yeomans et al., 2002). However, to the best of our knowledge, no existing treatments focus on reducing negative identity. In order to develop a useful treatment, it is important to understand the etiology of this self-loathing in BPD patients. Thus, we recommend that future research investigates potential causes of negative identity.

### 4.1. Limitations

This study has several limitations. First, only inpatients were studied and therefore results may not be generalizable to outpatient populations. Second, individual therapy and psychiatric medications were accessed by around 90 percent of both BPD groups at baseline, and about 70 percent were using individual therapy and standing medications at each follow-up period (Zanarini et al., 2015). Hence, we cannot generalize the outcome to less severely ill BPD patients or to those with BPD who are not being treated. Third, we used a short four-item scale to measure identity disturbance. Although potential subject burden led us to use only the most essential items, focusing on these four negative inner states enabled us to study aspects of negative identity in a more detailed manner than general questions about identity disturbance leading to a categorical rating of presence or absence.

### 4.2. Conclusion

Taken together, the results of this study suggest that borderline patients tend to report less severe negative identity over time. These results also suggest that recovery status is significantly associated with the rate of decline in these negative inner states over time.

The authors report no relevant conflicts of interest.

This study was supported by NIMH grants MH47588 and MH62169.

## References

American Psychiatric Association, 1980. Diagnostic and Statistical Manual of Mental Disorders, 3rd ed. American Psychiatric Association, Washington, DC.
American Psychiatric Association, 1987. Diagnostic and Statistical Manual of Mental Disorders, 3rd ed rev. American Psychiatric Association, Washington, DC.
American Psychiatric Association, 1994. Diagnostic and Statistical Manual of Mental Disorders, 4th ed. American Psychiatric Association, Washington, DC.
American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders, 5th ed. American Psychiatric Association, Washington, DC.
Beeney, J.E., Hallquist, M.N., Ellison, W.D., Levy, K.N., 2016. Self-other disturbance in borderline personality disorder: neural, self-report and performance-based evidence. J. Pers. Disord. 7, 28–39. https://doi.org/10.1037/per0000127.
Fonagy, P., Bateman, A., 2013. Mentalization-based treatment. Psychoanal. Inq. 33, 595–613. https://doi.org/10.1080/07351690.2013.835170.
Hörz, S., Zanarini, M.C., Frankenburg, F.R., Reich, D.B., Fitzmaurice, G., 2010. Ten-year use of mental health services by patients with borderline personality disorder and with other axis II disorders. Psychiatr. Serv. 61, 612–616. https://doi.org/10.1176/appi.ps.61.6.612.
Kernberg, O.F., 1975. Borderline Conditions and Pathological Narcissism. Jason Aronson, New York.
Roepke, S., Schröder-Abé, M., Schütz, A., Jacob, G., Dams, A., Vater, A., Rüter, A., Merkl, A., Heuser, I., Lammers, C.H., 2011. Dialectic behavioral therapy has an impact on self-concept clarity and facets of self-esteem in women with borderline personality disorder. Clin. Psychol. Psychother. 18, 148–158. https://doi.org/10.1002/cpp.684.
Sieswerda, S., Arntz, A., Wolfis, M., 2005. Non-interpersonal evaluations by BPD patients. J. Behav. Ther. Exp. Psychiatry. 36, 209–225. https://doi.org/10.1016/j.jbtep.2005.05.004.
Spitzer, R.L., Williams, J.B.W., Gibbon, M., First, M.B., 1992. The structured clinical interview for DSM-III-R (SCID). I: history, rationale, and description. Arch. Gen. Psychiatry 49, 624–629. https://doi.org/10.1001/archpsyc.1992.01820080032005.
Stepp, S.D., Epler, A.J., Jahng, S., Trull, T.J., 2008. The effect of dialectical behavior therapy skills use on borderline personality disorder features. J. Pers. Disord. 22, 549–563. https://doi.org/10.1521/pedi.2008.22.6.549.
Vater, A., Schröder-Abé, M., Weißgerber, S., Roepke, S., Schütz, A., 2015. Self-concept structure and borderline personality disorder: evidence for negative compartmentalization. J. Behav. Ther. Exp. Psychiatry. 4, 50–58. https://doi.org/10.1016/j.jbtep.

2014.08.003.
Wilkinson-Ryan, T., Westen, D., 2000. Identity disturbance in borderline personality disorder: An empirical investigation. Am. J. Psychiatry. 157, 528–541. https://doi.org/10.1176/appi.ajp.157.4.528.
Yeomans, F.E., Clarkin, J.F., Kernberg, O.F., 2002. A Primer of Transference Focused Psychotherapy for The Borderline Patient. Rowman & Littlefield Publishers, Inc., Lanham, MD.
Zanarini, M.C., 1994. The Revised Borderline Follow-up Interview. McLean Hospital, Belmont, MA.
Zanarini, M.C., Frankenburg, F.R., 2001. Attainment and maintenance of reliability of axis I and II disorders over the course of a longitudinal study. Compr. Psychiatry 42, 369–374. https://doi.org/10.1053/comp.2001.24556.
Zanarini, M.C., Frankenburg, F.R., DeLuca, C.J., Hennen, J., Khera, G.S., Gunderson, J.G., 1998. The pain of being borderline: dysphoric states specific to borderline personality disorder. Harv. Rev. Psychiatry 6, 201–207. https://doi.org/10.3109/10673229809000330.
Zanarini, M.C., Frankenburg, F.R., Hennen, J., Reich, D.B., Silk, K.R., 2005. Psychological functioning of borderline patients and axis II comparison subjects followed prospectively for six years. J. Pers. Disord. 19, 19–29. https://doi.org/10.1521/pedi.19.1.19.62178.
Zanarini, M.C., Frankenburg, F.R., Hennen, J., Silk, K.R., 2003. The longitudinal course of borderline psychopathology: 6-year prospective follow-up of the phenomenology of borderline personality disorder. Am. J. Psychiatry 160, 274–283. https://doi.org/10.1176/appi.ajp.160.2.274.
Zanarini, M.C., Frankenburg, F.R., Khera, G.S., Bleichmar, J., 2001. Treatment histories of borderline inpatients. Compr. Psychiatry 42, 144–150. https://doi.org/10.1053/comp.2001.19749.
Zanarini, M.C., Frankenburg, F.R., Reich, D.B., Silk, K.R., Hudson, J.I., McSweeney, L.B., 2007. The subsyndromal phenomenology of borderline personality disorder: a 10-year follow-up study. Am. J. Psychiatry 164, 929–935. https://doi.org/10.1176/ajp.2007.164.6.929.
Zanarini, M.C., Frankenburg, F.R., Vujanovic, A.A., 2002. Inter-rater and test-retest reliability of the revised diagnostic interview for borderlines. J. Pers. Disord. 16, 270–276. https://doi.org/10.1521/pedi.16.3.270.22538.
Zanarini, M.C., Gunderson, J.G., Frankenburg, F.R., Chauncey, D.L., 1989. The revised diagnostic interview for borderlines: discriminating BPD from other axis II disorders. J. Pers. Disord. 3, 10–18. https://doi.org/10.1176/ajp.147.2.161.