The Borderline Personality Disorder Severity Index-IV: Psychometric evaluation and dimensional structure

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A B S T R A C T

The BPDSI-IV is a DSM-IV based semi-structured interview that assesses frequency and severity of Borderline Personality Disorder (BPD) manifestations during the last three months. The present study assessed its psychometric properties and underlying factor structure. Data from 108 BPD-patients, 31 Cluster-C PD patients, 27 Axis-I patients and 76 non-patients were analyzed. Interrater reliability, internal consistency, discriminant, construct and concurrent validity proved to be very good. Clinical norms with high sensitivity and specificity were derived. Confirmatory factor analyses supported both a one and nine-dimensional model based on the DSM-IV criteria. The nine-factor model was superior over 7 alternative models. In conclusion, the BPDSI-IV is a reliable and valid instrument to assess BPD-severity as well as severity of the nine DSM-IV BPD-criteria separately.

1. Introduction

Diagnosis of personality disorders (PDs) has been improved with the development of semi-structured interviews with a long-term perspective (Weertman, Arntz, Dreessen, Velzen van, & Vertommen, 2003; Zimmerman, 1994). However, instability of symptoms in Borderline PD (BPD) requires an instrument to assess BPD in a short-term perspective. An instrument that can be used to reliably and validly assess the recent severity of BPD-manifestations is necessary for clinical evaluations and treatment-outcome research (Zanarini et al., in press). One instrument capable of assessing recent BPD-manifestations in a detailed way and yielding dimensional scores for each of the nine DSM-IV criteria, a total score, and cutoff points, is the Borderline Personality Disorder Severity Index (BPDSI) (Arntz et al., 2003). A recent review (Zanarini et al., in press) of instruments assessing BPD-severity discussed two interviews, the BPDSI, and the ZAN-BPD (Zanarini et al., 2003), and two self-report inventories, the BEST (Pfohl et al., 2009), and the BSL (Bohus et al., 2007). The BPDSI is the only instrument that assesses each DSM-IV BPD-criterion with multiple items and therefore offers reliable severity scores per criterion based on multiple indicators of each criterion. It therefore meets the need for an instrument assessing “detailed changes in specific domains of Borderline pathology” (Zanarini et al., in press).

Based on feedback by interviewers and on psychometric considerations, a new version was developed, the BPDSI-IV. The BPDSI-IV has now been used in at least six trials in two countries (Bellino, Paradiso, & Bogetto, 2005, 2006; Giesen-Bloo et al., 2006; Rinne, Brink van den, Wouters, & Dyck van, 2002; Rinne et al., 2003; Verheul, Bosch van den, Koeter, Ridder de, & Brink van den, 2003), was translated into seven languages, and is used in at least three running trials in Norway, the Netherlands, and the USA. The published trials show high sensitivity for detecting change. The aim of the present study is to document the instrument’s psychometric properties.

Many combinations of the DSM-IV criteria can lead to a BPD-diagnosis. With a categorical view, this leads to an overwhelming number of BPD-variants. With dimensional views on PDs the picture becomes simpler. Although recent taxometric studies support dimensional models of BPD (Arntz et al., 2009), the issue remains whether BPD should be viewed as one-dimensional or multidimensional (Adams, Bernat, & Luscher, 2001; Arntz, 1999; Clarkin, Hull, & Hurt, 1993; Fossati et al., 1999; Hurt et al., 1990; Livesley & Schröder, 1991; Morey, 1991; Sanislow et al., 2002; Zanarini, Gunderson, Frankenburg, & Chauncey, 1989). We detected 7 multidimensional models in the literature that we tested with our BPDSI-IV data (DSM-IV criteria-numbers listed after each factor): Zanarini et al. (1989) found four scales of borderline pathology: affect (6,7,8), cognition (9), impulsivity (4,5) and interpersonal relationships (1,2). Hurt et al. (1990) identified three criteria-sets: identity (1,3,7), affect (2,6,8) and impulsivity (4,5). Morey (1991) found four dimensions: affective instability (6,8), identity problems (3), negative relationships (1,2) and self-damaging behaviour.
(5). Livesley and Schröder (1991) found three factors, instability/disorganisation (1,2,3,6,7,9), interpersonal exploitation (no DSM-IV criteria applicable), and self-damaging behaviour (4,5,8). With the eight DSM-III-R criteria, Clarkin et al. (1993) found three factors: uncertainty about self & interpersonal difficulties (1,2,3,7), affect & affect regulation (5,6,8), and impulsivity (4). Discussion emerged on the value of anger/hostility (8 separately from affect and affect regulation) as a fourth independent factor (Clarkin et al., 1993). Sanislow et al. (2002) tested the DSM-IV BPD-criteria as a unitary construct but also as a three-factor model comprising disturbed relatedness (2,3,7,9), behavioural dysregulation (4,5) and affective dysregulation (1,6,8).

To summarize, the present study aimed to assess the psychometric properties of the BPDSI-IV. Interrater reliability, internal consistency, validity, and underlying factor structure were assessed. For the last, we compared a one-factor model (assuming one underlying dimension), a nine-factor model (nine DSM-IV criteria representing different factors), and seven multiple factor models derived from the literature, with confirmatory factor analysis. As to validity, we expected higher scores in the BPD-group than in Axis-I, -II and non-patient controls on all BPDSI-items, subscales, and total score, as well as significant correlations with other BPD-markers, but not with healthy, psychotic, or neurotic markers (Arntz et al., 2003).

2. Method

2.1. Participants

108 BPD-patients, 31 Cluster-C PD patients, and 27 Axis-I patients were recruited from twelve mental health institutions (inpatient and outpatient). 76 non-patients were recruited through advertisements in newspapers. Minimum sample sizes were derived from power calculations (2-tailed \( \alpha = .05 \); 80% power). About 100 BPD-patients are required to detect correlations >.27 (medium effect) within BPD-patients. With 100 BPD-patients, at least 50 clinical controls and 50 non-patients are required to detect medium effects (\( d = .50 \)) between groups. Diagnoses were made with SCID-I and II (First, Gibbon, Spitzer, Williams, & Benjamin, 1997; First, Spitzer, Gibbon, & Williams, 1996; Groenestijn, Akkerhuis, Kupka, Schneider, & Nolen, 1999; Weertman, Arntz, & Kerkhofs, 2000). Subjects had to be aged 18–60. To avoid non-BPD related elevations on the BPDSI and misunderstanding of the questions, exclusion criteria were psychotic disorders, bipolar disorder, psychiatric disorders secondary to medical conditions and mental retardation. BPD-patients were allowed to have comorbid personality and/or Axis-I disorders. Cluster-C patients had to have at least one Cluster-C PD, were allowed to have comorbid Axis-I disorders, but were not allowed to have an additional cluster-A or -B PD or more than two BPD-criteria. The primary Cluster-C diagnoses were: Obsessive–Compulsive (19); Avoidant (10) and Dependent (2). Eight patients had multiple Cluster-C diagnoses. Axis-I patients had to have Axis-I disorder(s), were not allowed to have (subthreshold) PD-diagnoses or meet more than 2 BPD-criteria. Main diagnoses were: anxiety disorder (17), mood disorder (8), somatoform disorder (2). Eight patients had comorbid Axis-I disorders (7 anxiety, 3 mood, 2 substance dependency, and 1 somatoform disorders). Non-patient controls had to have no psychological complaints, Axis-I disorder, PD, PD threshold diagnosis, or more than 2 BPD-criteria. Participation in the study was voluntary. Non-patients received gift certificates of 30 Euro. After description of the study, written informed consent was obtained. The study was approved by the institute’s ethical committee.

2.2. Measures

The BPDSI-IV is a semi-structured interview and consists of 70 items, arranged in nine subscales representing the nine DSM-IV BPD-criteria. For each item the frequency of the last three months is rated on an 11-point scale, running from 0 (never) to 10 (daily). Identity disturbance-items form an exception and are rated on 5-point Likert scales, running from 0 (absent) to 4 (dominant, clear and well-defined not knowing who he/she is), multiplied with 2.5. Criteria scores for the nine DSM-IV criteria are derived by averaging the item scores. The total score is the sum of the nine criteria scores (range 0–90).

The following self-report instruments were used to validate the BPDSI-IV.

The BPD-checklist (Arntz et al., 2003; Giesen-Bloo et al., 2006; Giesen-Bloo, Arntz & Schouten, 2005) assesses distress from BPD-symptoms during the last month. The internal consistency in a BPD-population is high (Cronbach \( \alpha = .93 \); Giesen-Bloo, Opdenacker, Arntz, & Spinthoven, 2005).

The Personality Disorder Beliefs Questionnaire (PDBQ)-BPD-section (Arntz, Dietzel, & Dreessen, 1999; Arntz, Dreessen, Schouten, & Weertman, 2004) includes 20 beliefs, supposedly specific for BPD. Beliefs are rated on 100-mm visual analogue scales (VASs) with “I don’t believe this at all” and “I believe this completely” as anchors. The PDBQ-BPD-section has high internal consistency (Cronbach \( \alpha = .95 \)) (Arntz et al., 1999).

Rosenberg’s Self Esteem Scale (RSES) (Rosenberg, 1965) consists of 15 items. Internal consistency is high (Cronbach’s \( \alpha = .91 \)) (Giesen-Bloo et al., 2006).

Miskimins’ self-goal-other discrepancy scale (Miskimins, Wilson, Braught, & Berry, 1971) assesses self-ideal and self-other discrepancies. 15 pairs of opposed personality characteristics are rated on 100 mm VASs from different points of view: how am I?, how do other people perceive me?, and how do I want to be? (ideal). Internal consistencies in the present study were high, Cronbach’s \( \alpha \) of self-other discrepancy = .86, of self-ideal discrepancy = .89.

The Defense Style Questionnaire-48 (DSQ-48) (Andrews, Pollock, & Stewart, 1989; Giesen-Bloo et al., 2005) indicates the use of mature, neurotic and immature defenses. Internal consistencies in this study ranged from modest to high: mature, \( \alpha = .52 \); neurotic, \( \alpha = .71 \); immature: \( \alpha = .88 \).

The SCL-90 (Arrindell & Ettema, 1986; Derogatis, Lipman, & Covi, 1973) assesses general psychopathological symptoms. The SCL-90 had high internal consistency in the current sample (Cronbach’s \( \alpha = .97 \)).

We hypothesized positive BPDSI-IV associations with all scales, except for self-other discrepancy (being psychosis-related), mature defenses (being a healthy personality marker), and neurotic defenses (being a neurotic personality marker).

2.3. Raters

Interviews were conducted by 21 interviewers: nine psychologists/psychotherapists, one psychiatric nurse, two psychiatric research assistants and nine master students. Interviewers were extensively trained in a one-day training, rating tapes and practicing on each other. To assess interrater reliability, one psychologist made blind ratings of 26 taped BPDSI-IV interviews, 5–8 from each subgroup.

2.4. Data analysis

Interrater reliability was assessed with the Intraclass Correlation Coefficient (ICC), internal consistency with Cronbach’s \( \alpha \). T-tests or Mann Whitney tests with planned comparisons were used
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