Dysfunctional beliefs discriminate personality disorders


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Received 10 July 2000; received in revised form 4 October 2000

Abstract

This study examines whether specific sets of dysfunctional beliefs are differentially associated with five personality disorders (PDs) as predicted by cognitive theory. Seven hundred fifty-six psychiatric outpatients completed the Personality Belief Questionnaire (PBQ) at intake and were assessed for PDs using a standardized clinical interview conducted by assessors who were blind to patients’ PBQ responses. Findings showed that patients with avoidant, dependent, obsessive–compulsive, narcissistic, and paranoid PDs preferentially endorsed PBQ beliefs theoretically linked to their specific disorders. The study results support the cognitive theory of personality disorders. Suggestions are made regarding the clinical utility of the PBQ with personality-disordered patients and future research on the PBQ. © 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Personality disorders; Dysfunctional beliefs; Cognitive therapy; Assessment measurement

A prominent feature of the cognitive theory of personality disorders is its emphasis on the role of dysfunctional beliefs. According to cognitive theory, the essence of a personality disorder is revealed in the dysfunctional beliefs that characterize and perpetuate it (Beck & Freeman, 1990; Pretzer & Beck, 1996). For example, people with avoidant personality disorder hold key beliefs such as “I am socially inept and undesirable” and “I cannot tolerate unpleasant feelings”, among others. Such beliefs can parsimoniously explain a wide range of avoidant personality disorder thoughts and behavior, such as frequently expecting rejection and consequent unbearable psychic distress, focusing inordinately on one’s flaws and others’ potential negative evaluation, and avoiding or retreat ing from social situations where others might discover one’s shortcomings.
An emphasis on key dysfunctional beliefs is one component that distinguishes cognitive theory from other theories of personality disorders including psychoanalytic (e.g., Kernberg, 1996), evolutionary (Millon & Davis, 1996a), interpersonal (Benjamin, 1996), and neurobiological (e.g., Cloninger, 1987; Depue, 1996). Consistent with their prominence in cognitive theory, dysfunctional beliefs are a primary focus of treatment in cognitive therapy of personality disorders (Beck 1996, 1998). They form the central component of a cognitive case conceptualization and are a prime target for intervention. When correctly identified, key dysfunctional beliefs reflect one or more conceptual themes that link a patient’s developmental history, compensatory strategies, and dysfunctional reactions to current situations. As therapist and patient work together to identify and modify these key beliefs, improvements may be seen simultaneously across many areas of functioning (Beck, 1998).

Although assessment of patients’ dysfunctional beliefs is primarily accomplished through clinical interviewing techniques (see Beck, 1995), self-report questionnaires can facilitate this process. For instance, the Dysfunctional Attitude Scale (Weissman & Beck, 1978) is a self-report questionnaire that has been used to help identify the attitudes and beliefs that underlie a patient’s depression. Many personality disorder beliefs may be accessible via a similar self-report measure.

A number of structured or semi-structured clinical interview protocols are available for diagnosing personality disorders (e.g., the Structured Clinical Interview for DSM, First, Spitzer, Gibbon & Williams, 1995; the Personality Disorder Examination, Loranger, Susman, Oldham & Russakoff, 1987; and the Structured Interview for DSM Personality, Pfohl, Blum & Zimmerman, 1997). However, none of these instruments specifically assess dysfunctional beliefs. The same is true for self-report instruments such as the Personality Diagnostic Questionnaire—Revised (PDQ-R; Hyler, Skodol, Oldham, Kellman & Doidge, 1992) and the Millon Multiaxial Clinical Inventory (MMCI; Millon, Millon & Davis, 1994). Thus, there is a need for a measure that will help clinicians and researchers assess the dysfunctional beliefs associated with specific personality disorders.

Jeffrey Young developed a measure of maladaptive schemas relevant to personality disorders called the Schema Questionnaire (Young 1990, 1991). Young’s heuristic use of the term schema refers to behavior patterns (e.g., subjugation) as well as core cognitive themes (e.g., abandonment). His Schema Questionnaire comprises a mixture of dysfunctional beliefs (e.g., “I’m incompetent when it comes to achievement”) and descriptions of maladaptive behavior patterns (e.g., “I don’t let people know the real me”) and symptoms (e.g., “I am a fearful person” and “I often feel that I’m going to have an anxiety attack”). The 16 primary schemas assessed by the schema questionnaire were not developed to correspond directly with Axis II personality disorders. However, subjects that score highly on the Schema Questionnaire also tend to score highly on a questionnaire measure of personality disorder symptoms (Schmidt, Joiner, Young & Telch, 1995).

Arntz, Dietzel and Dreessen (1999) developed a measure called the Personality Disorder Beliefs Questionnaire (PDBQ) and tested it among patients with personality disorders. Borrowing from the list of personality disorder beliefs proposed by Beck, Freeman & Associates, 1990 (see below), and including additional beliefs identified in their own work, the short version of the PDBQ includes six sets of 20 assumptions each. The assumptions are hypothesized to be characteristic of avoidant, dependent, obsessive–compulsive, paranoid, histrionic and borderline personality disorders. Arntz et al. (1999) focused primarily on borderline personality disorder. They found that PDBQ borderline assumptions successfully discriminated borderline from cluster C personality
disorders. No evidence was presented on the discriminant or convergent validity of the other PDBQ scales.

In a previous report, Beck, Freeman & Associates (1990) listed specific sets of dysfunctional beliefs that correspond theoretically and clinically to corresponding personality disorders. Beck & Beck (1991) incorporated these belief sets into a self-report measure called the Personality Belief Questionnaire (PBQ). The PBQ contains nine scales that can be administered separately or together and that correspond to nine personality disorders on Axis II of the DSM-III-R.

We have now administered the PBQ routinely for the past several years in two cognitive therapy settings. Clinical observations suggest that the more strongly patients endorse one of the belief sets in the PBQ, the more likely they are to meet behavioral criteria for the corresponding disorder. Alternatively, if patients do not endorse the beliefs proposed to underlie a specific personality disorder, they tend not to show the behavior patterns characteristic of that disorder. The present study is designed to test the criterion validity of the PBQ empirically.1 Evidence regarding its criterion validity has implications for both the cognitive theory of personality disorders and the utility of the PBQ for clinical diagnosis and intervention.

The psychometric properties of an early version of the PBQ were investigated by Trull, Goodwin, Schopp, Hillenbrand & Schuster (1993).2 These researchers tested the PBQ among college students by examining the inter-correlations among the scales, and the correlations between the scales and other personality disorder measures. They found good evidence of reliability but not surprisingly, less support for validity in this nonclinical sample. The median inter-correlation among PBQ scales was 0.40, and only modest correlations were obtained between the PBQ and both the Personality Disorder Questionnaire—Revised (Hyler et al., 1992) and the MMPI-PD (Morey, Waugh & Blashfield, 1985).

Two problems arise when interpreting the findings from Trull et al. (1993). First, the PBQ was designed for use with psychiatric patients and tests of its criterion validity should evaluate how it performs with its intended population. Secondly, Trull et al. suggested that the inter-correlations between the scales indicated overlap among the constructs being measured and that this detracts from the validity of the scales. To the degree that there is overlap among the constructs measured by the PBQ, this may accurately reflect overlap in the nosological categories (Beck & Freeman, 1990). However, a more likely reason for moderate inter-correlations between PBQ scales is the common heterogeneity of personality disorder features and the rarity of “pure” personality disorders (Millon & Davis, 1996b).

We set out to investigate the reliability and validity of the PBQ in a sample of psychiatric outpatients. Several important questions are addressed in this study. First, do PBQ scales show adequate internal consistency in a patient population? Second, do patients with a given Axis II diagnosis score higher on the corresponding PBQ scale than patients with no Axis II diagnosis? Third, do patients with a given Axis II diagnosis score higher on the corresponding PBQ scale than patients with alternative Axis II diagnoses? Finally, do patients with a given Axis II diagnosis score higher on the corresponding PBQ scale than on other PBQ scales? This fourth question

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1 An alternative method of assessing the validity of the PBQ is confirmatory factor analysis. Due to space limitations, these analyses are not included here. However, findings were largely supportive and results can be obtained from the first author.

2 The only difference between the two versions is the scaling. The early seven-point Likert scale was later reduced to a five-point Likert scale.
addresses the potential of the PBQ to provide meaningful patient profiles of Axis II beliefs. Due to limited sample sizes for some Axis II disorders, we focused our investigation on five diagnoses: Avoidant, Dependent, Obsessive–Compulsive, Narcissistic, and Paranoid personality disorders.

1. Method

1.1. Setting

The study was conducted using data from patients presenting for therapy at one of two outpatient sites. Most of the patients were seen at the Center for Cognitive Therapy, a psychotherapy unit in the Department of Psychiatry at the University of Pennsylvania School of Medicine in Philadelphia, Pennsylvania. A minority (24%) of the sample consisted of patients treated at the Beck Institute for Cognitive Therapy and Research, a private not-for-profit clinic, and training and research institute in the Greater Philadelphia area.

1.2. Subjects

An initial pool of subjects consisted of 756 adult psychiatric outpatients evaluated between February of 1995 and June of 2000 for whom complete PBQ data were obtained. The mean age of the sample was 34.73 years (SD=11.46; range 18–73). There were 217 (53%) women and 193 (47%) men. The racial composition of the sample was 82% White, 10% African–American, 2% Hispanic, and 4% Asian. Fifty-two percent of the subjects were single and had never been married. Of the remaining subjects, 33% were married, 11% divorced, 4% separated, and 1% widowed. Sixty-three percent were employed, 17% were unemployed, and 20% were students. With respect to education, 57% of subjects had a college degree, 40% had graduated from high school, and 3% had not graduated from high school. Regarding psychiatric history, 70% of subjects had received prior psychotherapy, 50% had received pharmacotherapy, and 18% reported having been hospitalized for a psychiatric reason.

All patients were diagnosed according to the Structured Clinical Interview for the DSM-III-R Personality Disorders (SCID-II, Spitzer, Williams, Gibbon & First, 1992), or for those whose diagnostic evaluation occurred after January 1996, according to the Structured Clinical Interview for the DSM-IV Personality Disorders (First, Spitzer, Gibbon & Williams, 1995). All assessors were postdoctoral clinicians who received training on the SCID-II prior to conducting diagnostic evaluations. Two hundred thirty (56%) patients were diagnosed with an Axis I mood disorder (including single episode or recurrent depression, bipolar disorder, dysthymia, depressive disorder not otherwise specified, or adjustment disorder with depressed or mixed anxiety and depressed mood) and 180 (44%) were diagnosed with nonmood disorders. With regard to primary Axis II diagnosis, sample sizes for individual personality disorders were as follows: Avoidant (n=130), Dependent (n=38), Obsessive–Compulsive (n=94), Narcissistic (n=20), and Paranoid (n=17). Patients with an Axis I diagnosis but no Axis II diagnosis served as controls (n=128).
1.3. Measures

The PBQ includes an equal number of items (14) representing Avoidant, Dependent, Obsessive–Compulsive, Histrionic, Passive–Aggressive, Narcissistic, Paranoid, Schizoid, and Antisocial personality disorders. The scale contains the following instructions: “Please read the statements below and rate how much you believe each one. Try to judge how you feel about each statement most of the time”. Respondents are asked to circle a number reflecting how much they believe a statement. Options are 0 “I don’t believe it at all”, 1 “I believe it slightly”, 2 “I believe it moderately”, 3 “I believe it very much”, and 4 “I believe it totally”. Sample items for the five PBQ scales under investigation are as follows: Avoidant, “If people get close to me, they will discover the real me and reject me”; Dependent, “I am needy and weak”; Obsessive–Compulsive, “Flaws, defects, or mistakes are intolerable”; Narcissistic, “I don’t have to be bound by the rules that apply to other people”; and Paranoid, “Other people will try to use me or manipulate me if I don’t watch out”.

The SCID interview establishes personality disorder diagnoses based on DSM criteria. While the large majority of these criteria are behavioral, some refer to psychological constructs such as fears or “lack of confidence”. Two relevant criteria actually represent beliefs: “views self as socially inept, personally unappealing, or inferior to others” (avoidant), and “believes that he or she is ‘special’ and unique . . .” (narcissistic). To avoid redundancy between our dependent and independent variables we did not include PBQ items that assessed these beliefs. Specifically, we dropped from analyses the PBQ Avoidant item “I am socially inept and socially undesirable in work or social situations”, and the PBQ Narcissistic items “I am a very special person” and “Other people should recognize how special I am”.

1.4. Procedure

Subjects signed voluntary consent forms, completed the SCID II Self-Report Questionnaire (First et al., 1995), and were administered the SCID-II Interview (First et al., 1995) by doctoral level diagnosticians. The SCID II Self Report Questionnaire and the PBQ were included in the standard battery of psychiatric tests and rating scales given to all individuals seeking treatment at both treatment settings during the intake procedure. Evaluators were blind to PBQ scores at the time they made their diagnoses.

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3 A specific scale for borderline personality disorder was not included in the PBQ since we saw no strong theoretical basis for assigning a unique set of beliefs to this disorder (see Arntz, Dietzel, & Dreesen, 1999, for an alternative view). In fact, our clinical impression was that borderline patients would score very high on all of the PBQ scales. Thus, we decided to do a separate study in which sets of beliefs would be empirically rather than theoretically derived. Such a study has been carried out and cross-validated (Brown, Beck, Grisham & Butler, 2000).

4 We analyzed our data with and without these items from the Avoidant and Narcissistic PBQ scales. The outcomes of statistical tests were identical.
2. Results

2.1. Inter-correlations and reliability of PBQ scales

Table 1 shows the inter-correlations, reliability estimates, means and standard deviations for each of the PBQ scales among the initial pool of mixed diagnosis subjects. Cronbach’s alpha coefficients were computed for each scale and are displayed on the diagonal. These coefficients indicate that each PBQ scale has at least adequate reliability and the five PBQ scales under current investigation show reliabilities generally near 0.90. The inter-correlations between scales ranged from 0.04 for Schizoid and Dependent scales to 0.65 for Avoidant and Dependent scales; the median inter-correlation was 0.51.

A subset of 15 patients was administered the PBQ eight weeks after the initial administration. Pearson test–retest correlations for the individual PBQ scales on this sample are as follows: Avoidant \( r = 0.57 \), Dependent \( r = 0.63 \), Obsessive–Compulsive \( r = 0.74 \), Narcissistic \( r = 0.81 \), Paranoid \( r = 0.71 \), Histrionic \( r = 0.60 \), Passive–Aggressive \( r = 0.80 \), Schizoid \( r = 0.78 \), and Antisocial \( r = 0.93 \).

2.2. Discriminant validity

A multivariate analysis of variance (MANOVA) was conducted on the five relevant PBQ scales by six personality disorder groups (avoidant, dependent, obsessive–compulsive, narcissistic, paranoid, and no diagnosis). The results indicated a significant overall effect, Wilkes \( F(25, 1480.01) = 12.81, p < 0.0001 \). We next conducted univariate ANOVAs and relevant \( t \)-tests for a priori predictions. Due to the unidirectional predictions being tested, \( t \)-tests were one-tailed.\(^5\)

Table 1
Inter-correlations, reliability estimates, means, and standard deviations for all PBQ scales in a mixed diagnosis sample\(^a\)

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Avoidant</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Dependent</td>
<td>0.69</td>
<td>0.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Obsessive–Compulsive</td>
<td>0.52</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Narcissistic</td>
<td>0.27</td>
<td>0.29</td>
<td>0.41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Paranoid</td>
<td>0.57</td>
<td>0.46</td>
<td>0.53</td>
<td>0.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Histrionic</td>
<td>0.53</td>
<td>0.54</td>
<td>0.52</td>
<td>0.64</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Passive–Aggressive</td>
<td>0.52</td>
<td>0.44</td>
<td>0.51</td>
<td>0.52</td>
<td>0.55</td>
<td>0.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Schizoid</td>
<td>0.25</td>
<td>0.04</td>
<td>0.38</td>
<td>0.39</td>
<td>0.51</td>
<td>0.32</td>
<td>0.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Antisocial</td>
<td>0.33</td>
<td>0.32</td>
<td>0.48</td>
<td>0.60</td>
<td>0.55</td>
<td>0.56</td>
<td>0.54</td>
<td>0.48</td>
<td>0.81</td>
</tr>
<tr>
<td>Mean</td>
<td>18.80</td>
<td>18.00</td>
<td>22.69</td>
<td>10.02</td>
<td>14.62</td>
<td>13.96</td>
<td>19.28</td>
<td>16.29</td>
<td>9.31</td>
</tr>
<tr>
<td>SD</td>
<td>10.92</td>
<td>11.82</td>
<td>11.48</td>
<td>7.60</td>
<td>11.33</td>
<td>9.26</td>
<td>10.47</td>
<td>8.55</td>
<td>6.81</td>
</tr>
</tbody>
</table>

\(^a\) \( N = 756 \). Coefficients in bold on the diagonal are reliability estimates (Cronbach’s alpha). With the exception of the correlation between the Dependent and Schizoid scales, all coefficients are statistically significant at \( p < 0.05 \).

\(^5\) A discriminant function analysis is typically a more appropriate statistical technique than multiple ANOVAs for the type of between-group hypotheses we were testing. However, this technique was not attempted in this study due to low cell sizes in the narcissistic and paranoid groups compared to the other groups.
Alpha was set at 0.0125 for within-group analyses and 0.01 for between-group analyses, using Bonferroni correction for family-wise inflation of Type I error rate. To facilitate interpretation of the findings we display group Z-scores on each of the relevant PBQ scales in Fig. 1. Z-scores were calculated on the initial pool of mixed diagnosis patients \( (N=756) \) and were used in hypothesis testing.

### 2.2.1. Within-group analyses

We predicted that patients with a specific personality disorder would score higher on their corresponding PBQ scale than on other PBQ scales associated with other personality disorders. For example, Avoidant patients should score higher on the PBQ Avoidant scale than on other PBQ scales. To test this prediction, we first selected all avoidant personality disorder patients who did not also have any of the alternative personality disorder diagnoses. The five relevant scale means for Avoidant patients are displayed in the first row of Table 2. An ANOVA comparing these means was highly significant, \( F(4, 512)=16.95, p<0.0001 \).

A priori contrasts were next conducted for avoidant personality disorder patients. Each specific contrast included all avoidant personality disorder patients who did not also have the Axis II diagnosis that corresponded with the other PBQ scale being tested. Results showed that, as predicted, avoidant patients scored significantly higher on the Avoidant scale than they did on the

![Fig. 1. Group means on Personality Belief Questionnaire scales for five personality disorders. Z-score transformations were calculated using a sample of 756 patients of mixed diagnoses prior to computing group means.](image)
Table 2
PBQ Z-score means and standard deviations for five personality disorders and controls

<table>
<thead>
<tr>
<th>Personality disorder</th>
<th>PBQ scale</th>
<th>n</th>
<th>Avoidant</th>
<th>Dependent</th>
<th>Obsessive–Compulsive</th>
<th>Narcissistic</th>
<th>Paranoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidant</td>
<td></td>
<td>130</td>
<td>0.62</td>
<td>0.19</td>
<td>0.11</td>
<td>-0.09</td>
<td>-0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.87)</td>
<td>(0.99)</td>
<td>(1.02)</td>
<td>(0.97)</td>
<td>(1.01)</td>
</tr>
<tr>
<td>Dependent</td>
<td></td>
<td>38</td>
<td>0.30</td>
<td>0.83</td>
<td>-0.39</td>
<td>0.07</td>
<td>-0.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.93)</td>
<td>(1.02)</td>
<td>(0.83)</td>
<td>(1.03)</td>
<td>(0.88)</td>
</tr>
<tr>
<td>Obsessive–Compulsive</td>
<td></td>
<td>94</td>
<td>-0.28</td>
<td>-0.21</td>
<td>0.31</td>
<td>0.03</td>
<td>-0.09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.86)</td>
<td>(0.84)</td>
<td>(1.01)</td>
<td>(0.95)</td>
<td>(0.88)</td>
</tr>
<tr>
<td>Narcissistic</td>
<td></td>
<td>20</td>
<td>-0.23</td>
<td>-0.21</td>
<td>0.14</td>
<td>1.10</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.91)</td>
<td>(0.83)</td>
<td>(1.07)</td>
<td>(1.21)</td>
<td>(1.08)</td>
</tr>
<tr>
<td>Paranoid</td>
<td></td>
<td>17</td>
<td>-0.14</td>
<td>-0.33</td>
<td>-0.28</td>
<td>-0.11</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.83)</td>
<td>(0.94)</td>
<td>(1.23)</td>
<td>(0.96)</td>
<td>(1.29)</td>
</tr>
<tr>
<td>No personality disorder</td>
<td></td>
<td>128</td>
<td>-0.69</td>
<td>-0.49</td>
<td>-0.51</td>
<td>-0.38</td>
<td>-0.55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.74)</td>
<td>(0.82)</td>
<td>(0.81)</td>
<td>(0.72)</td>
<td>(0.79)</td>
</tr>
</tbody>
</table>

a Numbers in bold represent the means of the criterion group for each scale. Z-scores were calculated on the initial pool of mixed diagnosis patients (N=756).

Dependent scale, $t(87)=3.74$, $p<0.0001$, the Obsessive–Compulsive scale, $t(76)=5.12$, $p<0.0001$, Narcissistic scale, $t(92)=8.02$, $p<0.0001$, and the Paranoid scale, $t(89)=5.02$, $p<0.0001$.

Patients with dependent personality disorder also showed significant and predicted differences on their PBQ scores, $F(4, 144)=11.07$, $p<0.0001$. Specifically, their score on the Dependent scale was significantly higher than their score on the Avoidant scale, $t(37)=3.78$, $p<0.001$, the Obsessive–Compulsive scale, $t(37)=5.75$, $p<0.0001$, the Narcissistic scale, $t(36)=3.79$, $p<0.0001$, and the Paranoid scale, $t(37)=5.61$, $p<0.0001$.

An ANOVA testing mean differences for obsessive–compulsive patients was also highly significant, $F(4, 372)=11.49$, $p<0.0001$ and each of the a priori predictions was supported. These patients scored higher on the Obsessive–Compulsive scale than they did on the Avoidant scale, $t(93)=5.85$, $p<0.0001$, the Dependent scale, $t(93)=5.62$, $p<0.0001$, the Narcissistic scale, $t(93)=2.63$, $p<0.01$, and the Paranoid scale, $t(93)=3.96$, $p<0.0001$.

Narcissistic patients showed significant mean differences across the five PBQ scales, $F(4, 76)=10.37$, $p<0.0001$ and all the differences were in the predicted direction. As expected, they scored higher on the Narcissistic scale than they did on the Avoidant scale, $t(93)=5.85$, $p<0.0001$, the Dependent scale, $t(93)=5.62$, $p<0.0001$, the Narcissistic scale, $t(93)=2.63$, $p<0.01$, and the Paranoid scale, $t(93)=3.96$, $p<0.0001$.

Paranoid patients differed on most scales, $F(4, 64)=3.13$, $p<0.05$. These patients scored higher on the Paranoid scale than the Avoidant scale $t(16)=2.66$, $p<0.01$, the Dependent scale $t(16)=2.70$, $p<0.01$, and the Obsessive–Compulsive scale $t(16)=3.28$, $p<0.005$. The difference between their scores on the Paranoid and Narcissistic scales approached significance, $t(16)=1.97$, $p=0.03$ (Bonferroni corrected alpha=0.0125).
2.2.2. Between-group analyses

Our second set of comparisons tested the hypothesis that patients with a specific personality disorder will score higher on the corresponding PBQ scale than patients with alternative personality disorders or no personality disorder. A one-way ANOVA was conducted on each PBQ scale testing for overall group differences. In these analyses, primary Axis II diagnosis was used to define group membership. This is a conservative test since 96 (32%) of those patients with a primary Axis II diagnosis also had a secondary Axis II diagnosis. Each of the univariate F tests was significant (Avoidant $F(5, 404)=32.26, p<0.0001$; Dependent $F(5, 404)=15.02, p<0.0001$; Obsessive–Compulsive $F(5, 404)=8.81, p<0.0001$; Narcissistic $F(5, 404)=9.28, p<0.0001$; and Paranoid $F(5, 404)=8.59, p<0.0001$).

Results for avoidant personality disorder beliefs were as predicted across most scales. Avoidant patients scored higher on the Avoidant scale than did patients with Obsessive–Compulsive, $t(222)=7.71, p<0.0001$, Narcissistic, $t(148)=4.04, p=0.001$, Paranoid, $t(145)=3.40, p<0.001$, and No Personality Disorder, $t(239)=12.41, p<0.0001$. Avoidant patients showed a strong trend toward scoring higher on the Avoidant scale than dependent personality disorder patients, $t(166)=1.92, p=0.025$ (Bonferroni corrected alpha=0.02).

Patients with dependent personality disorder scored significantly higher on the Dependent scale than patients with Avoidant, $t(166)=3.47, p<0.001$, Obsessive–Compulsive, $t(130)=6.05, p<0.0001$, Narcissistic, $t(56)=3.90, p<0.0001$, Paranoid, $t(53)=3.99, p<0.0001$, and No Personality Disorder, $t(147)=7.97, p<0.0001$.

Between-group predictions for obsessive–compulsive beliefs were largely supported. Patients with obsessive–compulsive personality disorder scored significantly higher on the Obsessive–Compulsive scale than patients with Dependent, $t(130)=1.92, p<0.02$, Paranoid, $t(109)=2.17, p<0.01$, and No Personality Disorder, $t(203)=6.47, p<0.0001$. The difference between patients with obsessive–compulsive and avoidant personality disorders on this scale approached significance, $t(222)=1.49, p=0.07$. Patients with obsessive–compulsive personality disorder did not score significantly higher on the Obsessive–Compulsive scale than patients with narcissistic personality disorder, $t(112)=0.68, p=0.50$.

Between-group predictions for narcissistic personality disorder beliefs were uniformly supported. Narcissistic personality disorder patients scored significantly higher on the Narcissistic scale than patients with Avoidant, $t(148)=4.92, p<0.0001$, Dependent, $t(55)=3.39, p=0.001$, Obsessive–Compulsive, $t(112)=4.34, p=0.0001$, Paranoid, $t(35)=3.31, p<0.001$, and No Personality Disorders, $t(129)=7.48, p<0.0001$.

Paranoid personality disorder beliefs discriminated between groups as predicted in most comparisons. Patients with paranoid personality disorder scored significantly higher on the Paranoid scale than patients with Dependent, $t(53)=2.07, p<0.02$, Obsessive–Compulsive, $t(109)=2.39, p<0.01$, and No Personality Disorder, $t(126)=4.66, p<0.0001$. Patients with paranoid personality disorder showed a trend toward scoring higher than patients with avoidant personality disorder, $t(144)=1.34, p=0.09$. Paranoid personality disorder patients did not differ significantly from narcissistic personality disorder patients on the Paranoid scale, $t(35)=0.96, p=0.17$.

We conducted a final set of analyses to examine how well each of the five PBQ scales discriminated its criterion group from the collection of remaining personality disorder patients. We coded a dichotomous diagnosis variable in which ‘1’ represented the criterion personality disorder and ‘0’ represented any personality disorder other than the criterion disorder. Point biserial correlations
between the PBQ scales and their respective diagnosis variables were as follows: Avoidant, \( r=0.42, p<0.0001 \); Dependent, \( r=0.34, p<0.0001 \); Obsessive–Compulsive, \( r=0.16, p<0.005 \); Narcissistic, \( r=0.31, p<0.0001 \); and, Paranoid, \( r=0.10, p<0.05 \); all \( df=321 \). Thus, across all comparisons, patients with a given personality disorder scored higher on the corresponding belief scale than did the collection of patients with other personality disorders.

3. Discussion

3.1. Theoretical and measurement implications

Good internal consistency and test–retest reliability estimates were found for all of the PBQ scales. This replicates the findings of Arntz et al. (1999) with personality disorder patients and normal controls, and Trull et al. (1993) with college students.

A substantial majority of the findings of this study support the cognitive theory of personality disorders as well as the construct validity of five PBQ scales. Patients with a specific personality disorder preferentially endorsed sets of beliefs theoretically consistent with their disorder. Specifically, our within-group analyses confirmed 19 of 20 (95%) of a priori predictions. On tests of belief differences between diagnostic groups, 20 of 25 (80%) of our a priori predictions were confirmed, and an additional 3 tests (12%) approached significance. All of the personality disorders we investigated scored significantly higher on their criterion PBQ scale than psychiatric patients who did not have a personality disorder diagnosis. Taken together, the findings by and large are consistent with cognitive formulations for avoidant, dependent, obsessive–compulsive, narcissistic, and paranoid personality disorders (Beck & Freeman, 1990).

The inter-correlations among many of the PBQ scales were moderate-to-strong. Some of the belief sets may not be as conceptually distinct as proposed by cognitive theory. Alternatively, some shared variance between the belief sets may be due to a general distress factor. To the degree that this is the case, it is noteworthy that our discriminant validity findings were obtained despite this extraneous variable.

3.2. Limitations of the study

Cognitive theory proposes that personality disorder beliefs perpetuate personality disorder behavior. This study represents a preliminary step in testing the theory. Although our findings demonstrate predicted associations between certain beliefs and corresponding personality disorder diagnoses (which are based on behavioral criteria), the study design does not permit conclusions regarding influence of beliefs on behavior or symptoms (and vice versa). This is an important issue for future research to address.

Certain methodological limitations should be kept in mind when interpreting the study results. While we eliminated from analysis any PBQ beliefs that were synonymous with SCID-II “belief” items, some DSM criteria assessed by the SCID-II appear to suggest underlying beliefs in their wording (e.g., “has a sense of entitlement” or “feels helpless when alone”). Thus, despite our efforts, it is likely that there remained some small degree of measurement overlap between the PBQ and SCID-II.
A second study limitation involves the lack of subjects in certain groups. Unfortunately, we did not have sufficient numbers of histrionic, antisocial, schizoid, and schizotypal patients to test the PBQ on these diagnoses (all $n<10$). Thus, the validity of the PBQ scales for these diagnoses is yet to be determined. Moreover, our data do not address the ability of the five PBQ scales we did investigate to discriminate between their criterion populations and patients with these alternative diagnoses. The validity of PBQ profiles in terms of accurately reflecting a patient’s personality belief structure must await further research.

Some general limitations of the PBQ should be noted. The instrument is vulnerable to shortcomings common to all self-report questionnaires, such as individual differences in how the same items are interpreted, the effect of patients’ affective state on responses, and the influence of impression management efforts by patients. Secondly, the PBQ is not designed to provide a definitive diagnosis for a patient, although it may serve as one important source of data for this purpose. Indeed, it is crucial that multiple sources of data be considered when assessing patients’ dysfunctional beliefs and that this process be ongoing throughout therapy (Beck, 1996). Patients’ developmental histories, current problems and symptoms, and interview behaviors all provide clues to a patient’s dysfunctional beliefs. The therapeutic relationship itself may provide a useful context for assessing some key dysfunctional beliefs.

3.3. Clinical implications

With the above caveats in mind, the findings from this study suggest that the five PBQ scales we tested have unique therapeutic value as assessment tools. The identification early in therapy of the key beliefs assessed by the PBQ can help the therapist focus treatment more efficiently. PBQ responses can be reviewed with patients to explore several important areas: for example, how certain beliefs are currently impacting their emotions and behavior and how these beliefs may have been learned and maintained, even in the face of significant contradictory data. Patients can also be guided to assess the relative advantages and disadvantages of holding these beliefs and to develop alternative more adaptive beliefs.

3.4. Implications for future research

Future research is needed to examine the treatment responsiveness of PBQ scores and the PBQ’s ability to predict patients’ response to cognitive therapy. Preliminary data from a small sample of our patients ($n=15$) suggest that meaningful reductions in PBQ scores may require more than eight sessions of cognitive therapy. This is not surprising given that the beliefs assessed by the PBQ are presumed to be personality-based. Future research is needed to test the responsiveness of PBQ scales to the longer term treatment recommended for personality disordered patients (Beck & Freeman, 1990). If such changes are obtained and correspond to actual changes in related Axis II behavioral criteria, the PBQ may prove useful as a therapy outcome measure. Additional studies that investigate the validity of the PBQ with other personality disorders are needed.
4. Conclusions

The cognitive theory of personality disorders states that each personality disorder has a characteristic set of dysfunctional beliefs and that these beliefs are reflected in corresponding personality disorder behaviors. The findings of this study provide support for this contention. The ability to assess the relative strengths of beliefs associated with a variety of personality disorders may be particularly appealing to clinicians and researchers who prefer a dimensional approach to understanding personality dysfunction (cf. Clark, Livesley & Morey, 1997; Widiger & Sanderson, 1995). While further research is needed, our findings suggest that the PBQ has promise as a measure of personality disorder beliefs.

References


