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Psychometric characteristics of the Personality Belief Questionnaire – Short Form

Características Psicométricas do Questionário de Crenças dos Transtornos de Personalidade – Forma Reduzida

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ABSTRACT

This study evaluated the psychometric properties of the Brazilian version of the Personality Belief Questionnaire – Short Form (PBQ-SF). A sample of 700 college students responded to the Brazilian version of the PBQ-SF. The results showed enough to estimate the reliability (Cronbach's alpha) of the PBQ-SF scales, indicating a significant association between the beliefs of each of the scales. The results of factor analysis of the PBQ-SF had an approximate model of its original structure, noting more similarities than contradictions between them. Overall, the findings provide support for the existence of factorial validity for the Brazilian version of the PBQ-SF, suggesting that it is a practical tool for the measurement of dysfunctional beliefs related to personality disorders.

Keywords: Personality disorders; cognitive schemas; Personality Belief Questionnaire – Short Form (PBQ-SF); psychometrics.

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The cognitive theory of personality disorders emphasizes the importance of schemas and core beliefs as organizational structures and mental representations that guide the global information processing and behavior (A. Beck et al., 2005). In personality disorders, individuals have their dysfunctional core beliefs activated in most of the time bringing undesirable consequences in almost all contexts (A. Beck et al., 2005; J. Beck 2005; Young, Klosko, & Weishaar, 2008). For example, people with avoidant personality disorder remain core beliefs such as "I'm socially inept and undesirable" and "I cannot tolerate unpleasant feelings."

In personality disorders, because of the coping behaviors to establish themselves as an uncompromising standard response, the individuals ends up having a reduced number of alternatives for the various demands of life, making them unable to use the most appropriate strategies for each new situation. Consequently, certain patterns of behavior (or behavioral strategies) appear overdeveloped, while others are underdeveloped. People with healthy personalities are able to use effectively various strategies for different contexts (Friedberg & McClure, 2004; J. Beck, 2007; T. Millon, Grossman, C. Millon, Meagher, & Ramnath, 2004; Neenan & Dryden, 2000; Young et al., 2008).

Cognitive factors such as these would be strongly related to the etiology, course and treatment of psychological disorders (A. Beck, 2005a; A. Beck et al., 2005; A. Beck, Rush, Brian, & Emery, 1982; Hawton, Salkovskis, Kirk, & Clark, 1997). From a clinical standpoint, identification of these beliefs is a fundamental starting point during the diagnostic process, case conceptualization, psychological assessment and therapeutic interventions (A. Beck et al., 1993, 2005, J. Beck, 1997; Young et al., 2008; Klosko & Young, 1994).

Specific content of schemas (dysfunctional pattern of beliefs) of each of the personality disorders have been identified through the clinical and theoretical work by Beck and colleagues (A. Beck, et al., 1993, 2005). Under this proposal, the differences between personality disorders would be the content of cognitive schemas (dysfunctional beliefs) present in a specific manner and associated with each disorder.

The Personality Belief Questionnaire (PBQ) was developed by A. Beck and J. Beck (1991) as a clinical and research instrument, designed to assess dysfunctional beliefs associated with personality disorders of Axis II of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, APA, 2002). The central idea of the questionnaire is based on the assumption that the descriptive differences of personality disorders may be based on different patterns of beliefs as much as they are perceived in different clinical symptoms (A. Beck et al., 1993, 2005). Once identified, the maladjusted beliefs reveal conceptual themes that articulate the story of individual development, compensatory strategies, dysfunctional reactions and current situations of the patients. The PBQ has 126 items that, in its initial configuration, assessed nine scales (14 items per scale) that correspond to the nine personality disorders (avoidant, dependent, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, paranoid and schizoid/schizotypal). Several studies have been conducted to evaluate the validity of the PBQ.

Trull, Goodwin, Schopp and Hillenbrand (1993) administered the PBQ to a sample of college students

and found favorable rates of internal consistency of scales and modest correlations with the Personality Disorder Questionnaire-Revised (Hyler, Skodol, Oldham, Kellman, & Doidge, 1992) and the Minnesota Multiphasic Personality Inventory - Personality Disorders (MMPI-PD; Morey, Waugh, & Blashfield, 1985).

Fydrich, Schmitz, and Hennch Bodem (1996) applied the German version of the PBQ on a sample of 282 psychiatric patients and found good reliability of the scales and moderate correlations with the scale for the diagnosis of personality disorders SCID-II (Structured Clinical Interview for DSM -IV-TR Axis II Personality Disorders).

In a large study of 756 psychiatric outpatients, A. Beck et al. (2001) found favorable internal consistency and test-retest reliability for the PBQ. Examination of the criterion validity made by the researchers revealed results that support the fact that the PBQ beliefs are theoretically linked to their specific disorders.

A subsequent study carried out by Butler, Brown, A. Beck, and Grisham (2002) identified a group of 14 beliefs associated with borderline personality disorder. The beliefs were assessed through the application of PBQ that was intended to assess beliefs associated with 9 different personality disorders, although not specifically assess the borderline disorder. The items that were found associated with borderline personality disorder and discriminated it from other disorders emerged from the items that composed the scale dependent, paranoid, avoidant and histrionic of PBQ. The new score composed by the emerging items showed good internal consistency and diagnostic validity among the patients studied. The result of this study allowed the use of the PBQ scale as an aid in diagnosis and therapy also of borderline personality disorder. From this study, the PBQ now has 10 scales (with 14 items per scale) corresponding to the 10 personality disorders and 126 items with the same initial configuration.

Nelson-Gray, Huprich, Kissling, and Ketchum (2004) evaluated the psychometric properties of PBQ in conjunction with a very similar test called Thoughts Questionnaire. The results showed good internal consistency, good test-retest reliability and pointed to the need for further studies to assess the discriminative validity of these instruments.

Butler, A. Beck and Cohen (2007) sought to obtain, through a study in two stages, a more refined and reduced version of the PBQ for clinical purposes and research. In the first stage, they took data from a file of 920 adult psychiatric patients, where were identified seven items that had the highest item-total correlations for each group of 14 items of each scale of the PBQ. These items were then taken to form the experimental reduced scale of PBQ, called Personality Belief Questionnaire - Short Form (PBQ-SF). This scale was tested and the result showed good internal consistency and a favorable correlation with the SCID-II (Structured Clinical Interview for DSM-IV-TR Axis II Personality Disorders), especially for the five personality disorders (avoidant, dependent, obsessive-compulsive, narcissistic and paranoid) for which there were sufficient numbers of patients to take the validity study. In the second stage of the research, Butler et al. (2007) investigated how the experimental scale (PBQ-SF) behaved when applied to a new sample of psychiatric patients. Between 2003 and 2004, 160 adult psychiatric patients were carefully evaluated and diagnosed during the admission

process in the clinic. Besides the PBQ-SF, patients responded to other tests that evaluated factors such as depression, anxiety, psychosocial functioning, dysfunctional attitudes, neuroticism, self-esteem and social support. The data provided support for a good test-retest reliability and good internal consistency and, in general, found that the scales of the PBQ-SF correlated significantly with a number of other clinical variables.

In Brazil, Savoia et al., 2006 adapted the Personality Belief Questionnaire into Portuguese, designating it as *Questionário de Crenças dos Transtornos de Personalidade*. The questionnaire was applied to 21 participants bilingual in English and Portuguese, by proceeding to the evaluation of concordance rates between the two versions for each disorder and by subject. The results indicated a good quality and reliability of the Portuguese version.

As discussed earlier, the PBQ-SF in its process of development was built with the same instructions and questions similar to those used in the original long form. The observation of the complete equivalence between the versions of the questionnaire in its brief (PBQ-SF) and long (PBQ) form, made it possible the use of the existing long version in Brazil (Savoia et al., 2006) for the composition of the reduced version, called *Questionário de Crenças dos Transtornos de Personalidade Forma Reduzida*, object of study of this project.

The aim of this study was to analyze the psychometric properties of the Brazilian version of the Personality Belief Questionnaire - Short Form (PBQ-SF) (Butler et al., 2007; Savoia et al., 2006), covering the verification of internal consistency and achievement factor analysis as an indicator for the construct validity (Anastasi & Urbina, 2000; Hogan, 2006; Pasquali, 2004, 2005).

METHOD

1 – Participants

The study sample consisted of 700 college students from various courses at a public institution of higher education, with 335 male participants (47.9%) and 365 female participants (52.1%), aged 18 years or more, with a mean age of 21.6 years and standard deviation 4.7.

2 – Material

To collect data we used the Brazilian version of the Personality Belief Questionnaire - Short Form (PBQ-SF; Butler et al., 2007; Savoia et al., 2006), with permission of the authors. The PBQ-SF consists of 65 statements and a Likert scale ranging from (0) "I do not believe that" to (4) "I believe fully," for scoring according to the perception of the examinee. Each group of 7 statements consists a scale that corresponds to a personality disorder. In total, 10 scales assess 10 personality disorders: paranoid, schizoid/schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, obsessive-compulsive, passive-aggressive.

The number 65 (not 70) items on the instrument is justified because the borderline personality disorder has only two own questions and five questions shared with other disorders (avoidant, dependent, paranoid), as pointed out the study of Butler et al. (2002). All of the PBQ-SF items are scored in the same direction, where higher scores indicate increasing levels of dysfunction. The score for each personality profile is derived from the sum of the scores of seven items related to each scale.

3 – Procedures

This study was approved by the Ethics Committee on Research of Universidade Federal de Uberlândia (Registration Protocol CEP/UFU 192/11). Participants who agreed to participate signed the Instrument of Consent. The questionnaire application was made in the classroom, individually or collectively, and took approximately 15 minutes on average.

RESULTS

In order to study the psychometric properties of the PBQ-SF, we sought the internal consistency of its 10 scales by Cronbach's alpha and then the factor structure of the PBQ-SF was analyzed through the intercorrelations of the scores of all its items.

1 – Internal consistency or reliability

Table 1 presents the intercorrelations, reliability estimates, means and standard deviations for the 10 scales of the PBQ-SF. The Cronbach's alpha coefficients were calculated for each scale and arranged diagonally.

It can be observed that the scales paranoid and obsessive-compulsive produced alpha equal to or greater than 0.80 indicating a high reliability. The other scales showed rates no lower than 0.64, which although they are closer to the lower limit of acceptability (Hair et al., 2005; Murphy & Davidshofer, 1988), still represent acceptable reliability. The Cronbach's alpha coefficient for the global scale of the PBQ-SF was 0.90 and the average total score was 86.73 (SD = 35.23). The intercorrelations of the scales ranged from 0.15 (between dependent and schizoid/schizotypal scales) to 0.77 (between the dependent and borderline scales) confirming, respectively, strong cognitive opposition and affinity between these cognitive profiles, in accordance with the theoretical model (Beck et al., 1993, 2005). The average of all the intercorrelations of the scales was 0.49 (SD = 0.11). The relatively high intercorrelations of PBQ-SF scales indicate that they share a significant variance between them.

2 – Factor analysis of the scores of all items of the PBQ-SF

To conduct the psychometric study were followed three steps: (a) exploratory data analysis, (b) verification of factorability matrix, (c) estimated number of underlying factors, (d) study the best solution among the possible number of factors to be extracted, (e) analysis and interpretation of the factor structure. The results obtained in each of these steps are described below.

Exploratory data analysis

Exploratory factor analyses were conducted in order to verify the adequacy of data to the general linear model, as pointed out by Tabachnick and Fidell (1989). In general, as critical values established for the criteria of normality (Hair et al., 2005), the indices of asymmetry and flattening found in the analysis pointed to a data distribution close to the normal configuration, showing a favorable distribution to further investigation.

Verification of the matrix factorability

To evaluate the sample adequacy that allows measuring the presence or absence of factors underlying the 65 items of the PBQ-SF scale, the analysis of the following indicators was made, following the guidelines of Hair et al. (2005), Pasquali (2005) and Tabachnick and Fidell (1989): (a) *the sample size*: the amount recommended to perform a factor analysis indicates the need of 5 to 10 participants

Table 1 – Means, standard deviations, internal consistency and intercorrelations of the scales of the PBQ-SF (N = 700).

		PAR	SCH	ANT	BOR	HIS	NAR	AVO	DEP	OBS	PAS
PAR	Paranoid	**.82**									
SCH	Schizoid/Schizotypal	.49	**.68**								
ANT	Antisocial	.65	.46	**.73**							
BOR	Borderline	.65	.38	.55	**.75**						
HIS	Histrionic	.48	.23	.54	.58	**.78**					
NAR	Narcissistic	.50	.38	.62	.50	.56	**.72**				
AVO	Avoidant	.56	.39	.45	.67	.50	.45	**.64**			
DEP	Dependent	.42	.15	.41	.77	.59	.45	.49	**.71**		
OBS	Obsessive-compulsive	.46	.44	.46	.50	.43	.45	.54	.40	**.80**	
PAS	Passive-aggressive	.60	.44	.57	.50	.45	.52	.50	.35	.39	**.68**
Item-total correlation		.73	.50	.72	.78	.65	.67	.69	.60	.61	.65
Mean		9.75	11.93	7.02	6.98	6.92	6.68	10.50	6.97	10.94	9.03
Standard deviation		5.49	5.07	4.63	4.78	4.81	4.42	4.33	4.55	5.44	4.59

Note: The coefficients on the diagonal in bold are the Cronbach's alpha of each scale.

per item. With a sample of 700 participants this criterion was fully met; (b) *the adequacy index Kaiser-Meyer-Olkin (KMO)*: the result was 0.928, which is considered as "wonderful" by Kaiser (cited by Pasquali, 2005), indicating that the database is suitable for treatment factor; (c) *Bartlett's test of sphericity*: the result was significant ($p < 0.001$), indicating the possibility of proceeding with the analysis, (d) *observation of the anti-image correlation matrix*: the values found in the diagonal line (minimum value = 0.672 minimum and maximum value = 0.961) were all greater than 0.5 and the rest of the matrix values, desirably low (maximum of 0,407 found) indicating the existence of satisfactory relationship between the variables to conduct a factor analysis; (e) *the correlation matrix determinant*: the low value (1.50 E-010, almost zero) found for the determinant of the correlation matrix also indicates that its position was less than the number of variables, an indicator of factorability according Pasquali (2005), (f) *the commonalities*: the values varied between the minimum value of 0.359 (for the item AVO33) and the maximum value of 0.676 (for the item DEP44).

Estimated number of underlying factors

The estimated number of factors that could be extracted from the correlation matrix of the PBQ-SF scale was performed using the extraction method of principal components (principal components), using the following criteria (Hair et al., 2005; Pasquali, 2005): (a) *Kaiser's criterion*: it was considered the components with eigenvalues equal or greater than one (eigenvalue ≥ 1.0); (b) *Harman's criterion*: it was considered the components with explained variance equal or greater than 3.0% (VE ≥ 3.0%); (c) *Cattell's criterion*: it was considered the components positioned before the inflection point of the scree plot curve, obtained by visual analysis of the chart.

According to the Kaiser's criterion (cited by Pasquali, 2005), there was the possibility of ex-

traction of 15 factors, explaining approximately 56% of the total variance. By criteria of Harman (1976), a solution with 5 factors, explaining approximately 37% of the variance, was possible, and in accordance with Cattell's (1966), it was found by analysis of the graph, the possibility of extracting 9 factors with an explained variance of approximately 46%.

Considering that the indications on the number of possible factors to be drawn for the structure of the PBQ-SF were different (5, 9 and 15 factors), a comparative study between these three possibilities was made, in order to verify which of the three solutions is more feasible to proceed with the analysis.

Study the best solution among the possible numbers of factors to be extracted

As recommended by Kline (1997) and Tabachnick and Fidell (1989), it was used principal axis factoring method with the purpose of investigating and identifying the best solution for the number of factors obtained among the possibilities. For this, a comparison was made between the percentage of residual correlation (as little as possible is desirable) established in each of the solutions, as directed by Pasquali (2005). Furthermore, it was observed that the solutions would allow the best structure capable of being interpreted (content analysis), according to their load factor distribution.

The results revealed that the extraction with nine factors was statistically more feasible, as had a low residual number of correlations, and also appeared to be the best structure which can be interpreted, according to their load factor distribution and the cognitive model of personality.

Analysis and interpretation of the structure with nine factors

Following the lead of several authors (Brown, 2006; Hair et al., 2005; Pasquali 2005, Tabachnick & Fidell, 1989), the criteria for determining the factors used were: (a) *Factor loading*: a loading value was considered *significant* when its value was found greater than or equal to 0.40 (factor loadings ≥ 0.40); (b) *complex items*: items that had factor loadings distributed in more than one factor were treated by considering the difference between them: for small differences between charges (cross-loadings ≤ 0.10), the item was retained in the factor that most closely matches the original configuration of the PBQ-SF. For large differences between charges (cross-loadings > 0.10), the item was retained in the factor with the highest load as established by the model; (c) *choice of factor loadings matrix*: according to Brown (2006) is not agreed which of the matrices should be used for interpretation of the factorial structure after an oblique rotation: if the pattern matrix (which indicates the contribution of each item for the factor) or the structure matrix (which also indicates the contribution of each item to the factor, also considers the relationship between the factors). According to Brown (2006), the results of the matrix structure tend to be overestimated as the correlations between factors increase, but considering that the correlations between the factors found assumed lower values, there was no impediment to the use of the matrix structure (Brown, 2006; Hair et al., 2005). Thus, the matrix structure was shown to be more suitable for interpreting the obtained factorial configuration.

Table 2 presents the structure of the PBQ-SF as the result achieved by the interpretation of the matrix

structure, obtained by using the method of principal axis factoring (principal axis factoring) to nine factors, applying oblique rotation (direct oblimin).

The name given to each factor was presented in the form of a belief whose meaning includes the common content of the grouped items on the factor. For example, the designation "The other is bad" for Factor 1 attempts to describe briefly the common content of seeing people as being malicious, that is present in the beliefs of these items grouped in this factor.

It was observed that there was a correlation between the factors and the original scales of the PBQ-SF. In all 9 factors were making the appropriate correspondence at all scales of the original PBQ-SF, except to the borderline scale. As most of this scale consists of items shared with other scales and their own items (BOR64 and BOR65) also have common semantic contents to paranoid and dependent scales, respectively, the borderline scale didn't have any correspondence to a specific factor.

FACTOR 1 ("The other is bad"; 11 item; alpha = 0.86) replicated the same structure shown by the original paranoid scale of the PBQ-SF, plus 4 different items (ANT32, ANT38, ANT59, and BOR64). The item PAR24 also emerged in Factor 6 (load = 0.495), but as the difference between the two factor loadings was not significant, we chose to keep the item in Factor 1, keeping the original structure of the questionnaire. The item PAR49 also had factor loading on Factor 4 (load = 0.410), but its load was higher in Factor 1. The proposed explanation for the distribution of Factor 1 is related to the content of these beliefs that link to cognitions such as "the other is malicious" related to behavioral patterns as "suspicion", "distrust", "malevolent interpretation of the others' motive or intentions", "vigilance" and "aggressive defensiveness" (Beck et al., 1993, 2005). These traits, despite being well prominent and characteristic features of paranoid personality, are not just prerogatives of this profile. They are also present, in greater or lesser intensity, or maintained by different motivations, in antisocial and borderline profiles, as outlined by the DSM-IV-TR (APA, 2002) and confirmed through the items grouped by the factorial model.

FACTOR 2 ("I am fragile and unable"; 6 items; alpha = 0.75) grouped 5 items of the original dependent scale of the PBQ-SF, plus a different item (BOR65). The item DEP56 also emerged in the Factor 6 (load = 0.421) but with significant lower load. Items DEP62 and DEP63, original of this scale, were not grouped in this and any other factor. A more detailed analysis of loads in the matrix showed that these items had low factor loadings (below 0.34) distributed in almost all factors, indicating low correlation and reduced discrimination. The configuration of this factor is related to beliefs that link to cognitions such as "I'm fragile and unable" related to behavioral patterns of "insecurity", "perception of weakness", "necessity of help, care and support" and "fear of separation and abandonment" (A. Beck et al., 1993, 2005). Although the item BOR65 be originally belonging to the borderline scale, its content relates perfectly with the content of dependent profile beliefs, being, therefore, a characteristic that both profiles share (APA, 2002), showing the appropriateness of the grouping made by the model.

FACTOR 3 ("I am superior"; 6 items; alpha = 0.78) grouped 5 items of the original narcissistic scale of

Table 2 – Factor analysis results – 9 Factors, 57 items (N = 700).

					Factor Analysis *Principal Axis Factoring – Direct Oblimin Rotation*
Item	Load	h^2	Item-total corr.	*Alpha* if item excluded	Factors
					FACTOR 1 – "THE OTHER IS BAD" 11 items; Eigenvalue = 13.3; V*ariance* = 20.4%; *Alpha* = 0.86
PAR 03	.549	.378	.518	.843	3. If people act friendly, they may be trying to use or exploit me.
PAR 13	.682	.548	.640	.833	13. Others will try to use me or manipulate me if I don't watch out.
PAR 14	.519	.395	.509	.844	14. Other people have hidden motives.
PAR 17	.638	.532	.628	.836	17. Other people will deliberately try to demean me.
PAR 24	.495	.384	.469	.848	24. If other people find out things about me, they will use them against me.
PAR 48	.643	.444	.605	.836	48. People will take advantage of me if I give them the chance.
PAR 49	.634	.527	.643	.833	49. I have to be on guard at all times.
ANT 32	.407	.322	.455	.850	32. We live in a jungle and the strong person is the one who survives.
ANT 38	.521	.377	.513	.846	38. People will get at me if I don't get them first.
ANT 59	.575	.442	.510	.844	59. If I don't push other people, I will get pushed around.
BOR 64	.574	.419	.546	.841	64. I cannot trust other people.
					FACTOR 2 – "I AM FRAGILE AND UNABLE" 6 items; Eigenvalue = 2.5; V*ariance* = 3.9%; *Alpha* = 0.75
DEP 15	.420	.343	.403	.733	15. The worst possible thing would be to be abandoned.
DEP 18	.545	.324	.459	.702	18. I need others to help me make decisions or tell me what to do.
DEP 44	.676	.476	.558	.672	44. I am needy and weak.
DEP 45	.701	.509	.566	.682	45. I am helpless when I'm left on my own.
DEP 56	.582	.460	.503	.691	56. I need somebody around available at all times to help me to carry out what I need to do or in case something bad happens.
BOR 65	.508	.328	.420	.713	65. I can't cope as other people can.
					FACTOR 3 – "I AM SUPERIOR" 6 items; Eigenvalue = 1.9; V*ariance* = 3.0%; *Alpha* = 0.78
NAR 16	-.423	.368	.449	.753	16. Other people should recognize how special I am.
NAR 26	-.634	.478	.574	.707	26. Only people as brilliant as I am understand me.
NAR 27	-.670	.475	.554	.724	27. Since I am so superior, I am entitled to special treatment and privileges.
NAR 46	-.523	.428	.479	.734	46. Other people should satisfy my needs.
NAR 58	-.565	.417	.509	.728	58. Since I am so talented, people should go out of their way to promote my career.
HIS 08	-.601	.465	.537	.718	8. I should be the center of attention.
					FACTOR 4 – "I CANNOT FAIL" 7 items; Eigenvalue = 1.7; V*ariance* = 2.7%; *Alpha* = 0.80
OBS 06	.567	.393	.479	.781	6. Flaws, defects, or mistakes are intolerable.
OBS 09	.478	.327	.466	.784	9. If I don't have systems, everything will fall apart.
OBS 11	.668	.477	.591	.760	11. It is important to do a perfect job on everything.
OBS 19	.442	.304	.458	.784	19. Details are extremely important.
OBS 30	.557	.448	.548	.768	30. It is necessary to stick to the highest standards at all times, or things will fall apart.
OBS 40	.732	.567	.629	.752	40. If I don't perform at the highest level, I will fail.
OBS 57	.631	.527	.530	.772	57. Any flaw or defect of performance may lead to a catastrophe.
					FACTOR 5 – "I CANNOT STAND UNPLEASANT FEELINGS" 4 items; Eigenvalue = 1.4; V*ariance* = 2.2%; *Alpha* = 0.63
AVO 01	.468	.256	.443	.528	1. Being exposed as inferior or inadequate will be intolerable.
AVO 02	.491	.277	.413	.554	2. I should avoid unpleasant situations at all cost.
AVO 05	.434	.294	.343	.602	5. I cannot tolerate unpleasant feelings.
NAR 10	.507	.332	.428	.540	10. It's intolerable if I'm not accorded my due respect or don't get what I'm entitled to.

					FACTOR 6 – "I NEED TO CHARM AND SEDUCE" 7 items; Eigenvalue = 1.0; V*ariance* = 1.6%; *Alpha* = 0.78
HIS 22	.528	.375	.495	.739	22. The way to get what I want is to dazzle or amuse people.
HIS 34	.593	.411	.530	.730	34. If I don't keep others engaged with me, they won't like me.
HIS 37	.587	.394	.549	.731	37. Unless I entertain or impress people, I am nothing.
HIS 52	.451	.399	.419	.761	52. It is awful if people ignore me.
HIS 54	.548	.491	.542	.731	54. In order to be happy, I need other people to pay attention to me.
HIS 55	.515	.392	.512	.735	55. If I entertain people, they will not notice my weaknesses.
ANT 23	.515	.394	.450	.747	23. I should do whatever I can get away with.
					FACTOR 7 – "I RESIST BEING CONTROLLED BY RULES" 7 items; Eigenvalue = 0.93; V*ariance* = 1.4%; *Alpha* = 0.74
PAS 20	.486	.309	.432	.701	20. If I regard people as too bossy, I have a right to disregard their demands.
PAS 21	.459	.286	.421	.707	21. Authority figures tend to be intrusive, demanding, interfering, and controlling.
PAS 41	.493	.342	.459	.695	41. Making deadlines, complying with demands, and conforming are direct blows to my pride and self-sufficiency.
PAS 47	.560	.354	.492	.687	47. If I follow the rules the way people expect, it will inhibit my freedom of action.
PAS 51	.503	.330	.483	.692	51. Rules are arbitrary and stifle me.
AVO 31	.423	.427	.419	.706	31. Unpleasant feelings will escalate and get out of control.
AVO 39	.484	.379	.418	.705	39. Any signs of tension in a relationship indicate the relationship has gone bad; therefore, I should cut it off.
					FACTOR 8 – "I CAN DISRESPECT RULES" 3 items; Eigenvalue = 0.81; V*ariance* = 1.2%; *Alpha* = 0.55
ANT 35	-.458	.290	.327	.499	35. If I want something, I should do whatever is necessary to get it.
ANT 61	-.510	.348	.399	.395	61. Force or cunning is the best way to get things done.
NAR 60	-.422	.288	.357	.448	60. I don't have to be bound by the rules that apply to other people.
					FACTOR 9 – "I PREFER BEING ALONE" 6 items; Eigenvalue = 0.75; V*ariance* = 1.1%; *Alpha* = 0.72
SCH 12	.544	.420	.406	.693	12. I enjoy doing things more by myself than with other people.
SCH 25	.476	.369	.413	.692	25. Relationships are messy and interfere with freedom.
SCH 28	.546	.404	.423	.688	28. It is important for me to be free and independent of others.
SCH 29	.684	.486	.540	.652	29. In many situations, I am better off to be left alone.
SCH 36	.433	.239	.404	.695	36. It's better to be alone than to feel "stuck" with other people.
SCH 50	.588	.423	.534	.658	50. My privacy is much more important to me than closeness to people.
					Global Scale Model (All Factors) *57* items*;* Eigenvalue = 24.4; V*ariance* = 37.5%; *Alpha* = 0.94
					EXCLUDED ITEMS (factorial load less than 0.4)
ANT 42					42. I have been unfairly treated and am entitled to get my fair share by whatever means I can.
DEP 62					62. I must maintain access to him or her at all times.
DEP 63					63. I am basically alone – unless I can attach myself to a stronger person.
SCH 53					53. What other people think doesn't matter to me.
PAS 04					4. I have to resist the domination of authorities but at the same time maintain their approval and acceptance.
PAS 07					7. Other people are often too demanding.
AVO 33					33. I should avoid situations in which I attract attention, or be as inconspicuous as possible.
AVO 43					43. If people get close to me, they will discover the "real" me and reject me.

Note: h2: communality of the item. PAR, Paranoid scale; SCH, Schizoid/Schizotypal scale; ANT, Antisocial scale; BOR, Borderline scale; HIS, Histrionic scale; NAR, Narcissistic scale; AVO, Avoidant scale; DEP, Dependent scale; OBS, Obsessive-compulsive scale; PAS, Passive-aggressive scale.

the PBQ-SF, plus a different item (HIS08). The item NAR46 also had load on Factor 2 (load 0.400), but its load in this factor was higher. Factor 3 groups beliefs like "I'm superior to other" related to behavioral patterns of "grandiosity", "need to be admired" and "lack of empathy" (A. Beck et al., 1993, 2005). The items NAR10 and NAR60 emerged in the factors 5 and 8 respectively, out of the original group. This is explained by the fact that the content of the beliefs of items NAR10 ("intolerance for not receiving deserved treatment") and NAR60 ("supposed right to not to complying with rules") – although they are also beliefs that characterize the narcissistic profile – they are closer to the content associated with the Factor 5 beliefs ("hypersensitivity to unpleasant feelings") and Factor 8 beliefs ("right to disregard rules") respectively than the content of beliefs that emerged in Factor 3 ("sense of superiority and greatness"). The content of the belief of the item HIS08 ("being the center of attention") is a common behavioral pattern of histrionic and narcissistic personalities, though sought for different reasons (APA, 2002). In this sample, the content was associated more with the idea of "superiority" (Factor 3) than the idea of "enchantment and seduction" (Factor 6), as evidenced by the grouping of the factorial model.

FACTOR 4 ("I cannot fail"; 7 items; alpha = 0.80) faithfully replicated the same original structure presented by the obsessive-compulsive scale of the PBQ-SF. The items OBS30 and OBS57 also emerged, respectively, in factor 9 (load = 0.459) and Factor 2 (load = 0.400), but these factors have load values significantly lower than in the original scale factor. The hypothesis for this distribution is presented by the common content of beliefs like "I can not go wrong" that are related to the behavioral patterns of "concern with orderliness," "perfectionism", "control" and "concern with performance" (A. Beck et al., 1993, 2005).

FACTOR 5 ("I cannot stand unpleasant feelings"; 4 items; alpha = 0.63) grouped 3 items original avoidant scale of the PBQ-SF, plus a different item (NAR10). Two items of the original scale (AVO31 and AVO39) were grouped in Factor 7 and the other two (AVO33 and AVO43) were excluded from the model because they have low factor loading. A detailed analysis of the load matrix shows that these two items had low load factor (less than 0.34) distributed in almost all factors, indicating low correlation and reduced discrimination. The beliefs of this group showed beliefs related to a "hypersensitivity to experience negative or unpleasant feelings, usually from negative criticism" that are related to behavioral patterns of "avoidance of unpleasant situations" and "inability to manage unpleasant feelings" (A. Beck et al., 1993, 2005). The presence of the item NAR10 ("*It's intolerable if I'm not accorded my due respect or don't get what I'm entitled to*") in this group can be explained by the fact that the content of the item can be interpreted in the proper context of the avoidant profile. The original proposal for a composition of this item in the narcissistic scale is based on individual's subjective reasons in being intolerant when not receive the due respect and rights *because he/she realizes being superior to others* (APA, 2002). However, the same statement could be based on subjective reasoning "*I don't get due respect because I am defective and inadequate*" tending to a proper avoidant profile interpretation, as evidenced the proposed model.

FACTOR 6 ("I need to charm and seduce"; 7 items; alpha = 0.78) grouped all items of the original his-

trionic scale of the PBQ-SF, except the item HIS08 that emerged in Factor 3, plus 1 different item (ANT23). This setting is related to beliefs that link to cognition such as "I need to entertain, delight and/or seduce people so that they like me", related to behavioral patterns of "attention seeking", "fear of rejection" according to the histrionic dimension (A. Beck et al., 1993, 2005). The ANT23 item ("*I should do whatever I can get away with*") also emerged in Factor 1 (load = 0.401), but its load was significantly higher in Factor 6. The original proposal for setting up this item in the antisocial scale is based on a common strategy of these individuals for seeking a camouflage for their behavior with the subjective reason for taking advantages of the situation or to defend themselves from the alleged evil of others (APA, 2002). The presence of this item in the constellation histrionic may be justified if we consider that the behavioral strategy proposed in the this belief is also possible for a histrionic personality that do not want to be discovered or unmasked in their false compliments to people, as the factor model evidenced. The items HIS52 and HIS55 also emerged in Factor 2 (loads = 0.448 and 0.441 respectively), and the item HIS54 also emerged in Factors 2 and 3 (load = 0.430 and -0.411 respectively). The configuration of the strongest loads on Factor 6 was maintained, reproducing the structure of the original questionnaire.

FACTOR 7 ("I resist being controlled by rules"; 7 items; alpha = 0.74) grouped 5 items of the original passive-aggressive scale of the PBQ-SF, plus two items of the scale avoidance (AVO31 and AVO39). According to the established criteria, we decided to keep the item AVO31 in this factor, since it also emerged in Factor 2 (loading = 0.421) with load value very close to the load on Factor 7. The beliefs of this factor showed contents that express "negative view on the rules and demands of others", which are related to behavioral patterns of "opposition to the authorities", "resistance to comply with rules", "right not to comply with rules or demands" and "search for autonomy and freedom" (A. Beck et al., 1993, 2005). The original proposal for the composition of the item AVO31 ("*Unpleasant feelings will escalate and get out of control*") on the scale avoidance is based on individual's subjective reasons who avoids embarrassment to not experience unpleasant feelings that he believes always increase and escape from their control (APA, 2002). The presence of the item AVO31 along with items of passive-aggressive dimension points to the fact that its contents are subject to interpretation within this cognitive context, for example "Unpleasant feelings will rise and escape my control *if I let myself be controlled by rules*", according to the model. The original proposal for the composition of the item AVO39 ("*Any signs of tension in a relationship indicate the relationship has gone bad; therefore, I should cut it off*") on the avoidant scale is based on individual's subjective reasons that prevents experience situations that promote unpleasant feelings (APA, 2002). The presence of the item AVO39 along with the items of the passive-aggressive scale suggests the individual's subjective reason, for example, of seeking to escape from conflicting relationships by the fact of realizing his/her much desired freedom of action being undermined, as the factor model presented.

FACTOR 8 ("I can disrespect rules"; 3 items; alpha = 0.553) grouped only 2 items of the original antisocial scale of the PBQ-SF, plus an item of the narcissistic scale (NAR60). The beliefs of this factor showed contents that express a "self-centeredness

that justifies the disregard or violation of rules" (A. Beck et al., 1993, 2005). This behavioral pattern is characteristic of antisocial and narcissistic personalities, although established by different motivations (cruelty and sense of superiority, respectively), which justifies the grouping of these items in this factor. According to Hair et al. (2006), this factor did not reveal adequate internal consistency (below the acceptable limit of 0.60). Perhaps due to the small number of grouped items, since alpha is very sensitive to this contingency.

FACTOR 9 ("I prefer being alone"; 6 items; alpha = 0.721) brought together six items of the original schizoid/schizotypal scale of the PBQ-SF. The item SCH25 also emerged in Factor 7 (load = 0.430), but as both factors had very close load value, we chose to keep this item in the higher load factor, keeping the original structure of the PBQ-SF. The beliefs of this factor showed contents that express "preference for being alone or doing things" that are related to behavioral patterns of "social isolation", "disqualification of social relations" and "quest for freedom and independence" (A. Beck et al., 1993, 2005).

DISCUSSION

The results of this study provide support for the reliability of the PBQ-SF, confirming the results reported in other studies with the PBQ (Trull et al., 1993, Beck et al., 2000, Butler et al., 2002) and PBQ-SF (Butler et al., 2007). The total scale showed high internal consistency (alpha = 0.90) and the estimate reliability (Cronbach's alpha) of the PBQ-SF scales showed satisfactory levels.

To date, we found no other factorial study of the PBQ-SF with which it was possible to compare our results. This study did not fully upheld the original structure of the PBQ-SF, showing quakes in construct validity for some personality disorders and some specific items. However, the factor solution with a setting of 9 factors was very close to its original structure, noting more similarities than contradictions between them.

Of the 65 original items from the global scale, 8 items (ANT42, DEP62, DEP63, SCH53, AVO33, AVO43, PAS04 and PAS07) were found non-discriminating for presenting factor loads less than 0.4 distributed among various factors and therefore excluded from the model, and 11 items (ANT23, ANT32, ANT38, ANT59, HIS08, NAR10, NAR60, AVO31, AVO39, BOR64, BOR65) were grouped in categories other than its original configuration. For example, 3 items of the original antisocial scale (ANT32, ANT38, ANT59) were grouped with paranoid scale items whose contents point to a common belief that the other is bad; and 1 item (ANT23) was retained with the items of the histrionic scale whose contents point to common beliefs related to searching of dissimulation through charm and seduction. Analogous interpretation can be made to the results presented by HIS08, NAR10, NAR60, AVO31, AVO39, BOR64, and BOR65 items that were grouped into categories other than their original configuration. The grouping of these items in 11 different sizes of their corresponding original scales can be understood by examining its contents. For example, although the statements of three items ANT32, ANT38, and ANT59 item BOR64 are appropriate to characterize patterns of antisocial and borderline beliefs, respectively, they bring in its core the same general theme of "suspicion" that the paranoid scale items bring in their statements. The existing differences are very subtle and that this se-

mantic proximity between these items was reflected in the result obtained by factor analysis of intercorrelations of the scores of these items, revealing a single and common latent dimension between them. The same reasoning can be applied to other items that were not configured together with the items in their original scale.

Based on these results, it may be appropriate future studies that seek to reformulate the statement of the 8 items excluded from the model and of the 12 items that were grouped into different categories from those provided by the original scales. According to Pasquali (1999), it is essential that the items of a questionnaire meet the criteria of *simplicity* (a single expression idea), *relevance* (expression consistent with the trait) and *precision* (defined and distinct position in relation to other items in the attribute continuum).

The suggestion of existence of some indiscrimination between the original scales of the PBQ-SF can also be observed by the values of the intercorrelations found (min = 0.15 dependent *versus* schizoid/schizotypal, max = 0.77 dependent *versus* borderline), as shown in Table 1, mirroring the results obtained in previous research with the PBQ (Beck et al., 2001, Trull et al., 1993) and PBQ-SF (Butler et al., 2007). As proposed by Trull et al. (1993), it is not uncommon to observe some association between the scales of personality disorders and this may reflect an overlap of features between some disorders (Widiger, 1991). However, the constructs of personality disorders suggest that certain disorders should be relatively independent of each other. For example, one would expect dysfunctional beliefs associated with avoidant *versus* antisocial scales or the dependent *versus* paranoid scales were not significantly correlated (0.45 and 0.42 respectively), contrary to what we found in our study. Furthermore, the score of some disorders, that according to the literature (APA, 2002, Beck et al., 1993; Trull et al., 1993) are considered opposite poles (for example, dependent *versus* paranoid, schizoid *versus* histrionic, schizoid *versus* dependent) was positive and not negatively correlated. Since they are opposite profile poles, it was expected that the direction of their correlations assumed negative signs.

Beck et al. (2001) suggested that the most likely reason for the existence of these moderate-high intercorrelations is the heterogeneity found in the Axis II disorders and the rarity of setting nosological categories in its "idealized" or "pure" form (Clark, 1999; Millon et al., 2004). Often, people do not show traits of a single personality profile, but a composite of several, showing a mixture or combination of beliefs and strategies associated with different disorders. It is therefore conceivable that although the constructs of the personality profiles are relatively independent of each other categories they are not completely isolated and discriminate from each other, but rather they are present and are mixed in various combinations among individuals, so that cognitive characteristics of a distinctive personality profile may well overlap in another profile, although maintained by different motivations or subjective reasons (APA, 2002, Beck et al., 2005; Millon et al., 2004). For example, "although antisocial behavior may be present in some individuals with paranoid personality disorder, it is not usually motivated by a desire for personal gain or to exploit others as in antisocial personality disorder, but rather is more often due to a desire for revenge" (APA, 2002, p.705). It is in this particular overlap

between the characteristics of some personality disorders that are suggested to seek, when possible, greater distinction between the apparent common characteristic features reflected in the contents of the PBQ-SF items excluded from the model and grouped outside their original scale.

Another proposition for the existence of moderate to high shared variance found between the scales of the PBQ and PBQ-SF may be the influence of an extraneous variable, a "general distress factor" (Beck et al., 2001, Butler et al., 2007). This variable is associated with the general elevation of a PBQ-SF profile, while the variability between the scales of the PBQ-SF profile would be associated with specific factors of mental disorders (Butler et al., 2007).

Another reason, as pointed out by Beck et al. (2001) and confirmed by factor analysis of the present study, would rest on the fact that the PBQ-SF is an instrument vulnerable to deficiencies common to all self-report questionnaires. Therefore, a greater or lesser degree, it is conceivable that the PBQ-SF presents limitations on, for example, the participants' falsified willingness to answer the questionnaire, their affective state or mood, the existence of management efforts to cause good/bad impression, and before the individual differences that are reflected in how a same item can be interpreted (Anastasi & Urbina, 2000). Thus, despite all efforts, it is likely that some items of the PBQ-SF scales do not carry all "verbal clarity" needed to differentiate precisely the nosological categories and therefore remained some degree of overlap between the scales of the PBQ-SF, fact that was reflected by the common variance found between their scales.

The psychometric properties investigation of the Brazilian version of PBQ-SF has strengths, including a relatively large sample, and limitations that should be recognized. First, our results are based on a non-clinical sample. Non-clinical participants are less likely to have significant personality pathology than clinical participants are, and it is possible that the scores of the measures are lower and less variation in scores occurs. Minor variances in the measures will adversely affect the size of correlations calculated. According to Beck et al. (2001) the PBQ-SF is designed for use with patients and clinical trials to assess its criterion validity should evaluate their performance with their target public. However, since a personality profile is a way of expressing an operation mode in the world, and only a thin line separates the normal operation from pathological (Clark, 1999; Millon et al., 2004) is important to point out that, besides evaluating the psychopathology aspects of the personality, the PBQ-SF also evaluates, in general, belief profiles. Second, the age of the participants may have limited the diagnostic composition of the sample because the average age of the participants has just entered the risk period for personality disorders, i.e., during a young-adult stage (APA, 2002; Trull, 1993).

CONCLUSION

These findings can be considered preliminary and future studies should investigate the factor structure of the PBQ-SF using clinical samples.

In general, considering the characteristic non-clinical sample of this study, the reliability and validity of results obtained are noteworthy, offering subsidies that demonstrate the existence of validity for

the Brazilian version of the Personality Belief Questionnary – Short Form. The results suggest that the PBQ-SF scales have value as an aid for evaluation and therapeutic intervention. The identification of the fundamental beliefs assessed by the PBQ-SF in a dimensional perspective can help in the focus of therapy and their responses can be reviewed with the patients to explore, for example, how certain beliefs are affecting your emotions and behaviors and how those beliefs may have been learned and maintained. Patients may also be guided to evaluate the advantages and disadvantages of maintaining these beliefs and develop more adaptive alternative beliefs (Beck et al., 2001, Butler et al., 2007).

Additional research is still needed, but our results, added to previous research results, suggest that the PBQ-SF carries the promise of being a practical tool for the measure of dysfunctional beliefs related to personality disorders.

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