



# Preliminary Psychometric Properties of the Portuguese Version of the Personality Belief Questionnaire—Short Form in a Community Sample

Bruno Faustino<sup>1,3</sup>  · António Branco Vasco<sup>1</sup> · Ana Nunes da Silva<sup>1,2</sup> · Marta Matos<sup>4</sup>

Accepted: 15 February 2022 / Published online: 20 March 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

## Abstract

Personality Belief Questionnaire is an instrument based on cognitive behavioral theory, focused on core beliefs associated with personality disorders. This paper reflects a preliminary psychometric study of the (European) Portuguese version of the Personality Belief Questionnaire-Short Form (PBQ-SF-PT) in a non-clinical sample. In a cross-sectional design 344 individuals (M age = 32.56, SD = 11.28) were assessed with self-report instruments. Two studies were performed: one based on an Exploratory Factor Analysis (EFA) and another based on theoretical PBQ-SF subscales. Results showed to be similar. Factorial structure of PBQ-SF showed seven factors combining different subscales in the same factor. Dependent, Avoidant and Borderline items loaded in the same factor and Narcissistic, Histrionic and Anti-social items loaded in the same factor. Convergent validity was studied with correlations between PBQ-SF-PT subscales and early maladaptive schemas. The results suggest that the Portuguese version of the questionnaire is acceptable and can be used as a useful measure for the assessment of personality beliefs in the Portuguese population. However, more research is required to explore psychometric features of the PBQ-SF in clinical samples.

**Keywords** Personality belief questionnaire-short form · Psychometrics · Factor analysis · Convergent validity

---

✉ Bruno Faustino  
brunofaustino.research@gmail.com

<sup>1</sup> Faculdade de Psicologia da Universidade de Lisboa, Lisboa, Portugal

<sup>2</sup> CICPSI - Centro de Investigação Em Ciência Psicológica, Lisboa, Portugal

<sup>3</sup> HEI-Lab, Lusófona University, Lisboa, Portugal

<sup>4</sup> Instituto Universitário de Lisboa (ISCTE-IUL), CIS-ISCTE, Lisboa, Portugal

## Introduction

The cognitive theory of personality disorders states that core beliefs play a fundamental role in our emotions and behaviors (Beck et al., 2004; Butler et al., 2007). Core beliefs, when dysfunctional, are responsible for sets of maladaptive thoughts and behaviors, as well as disruptive affective states that promote suffering, distress and psychological disorders (Beck & Freeman, 1990; Beck, et al., 2004). These core beliefs can be described as fundamental cognitive schemas in the individual's mental architecture, which function as a network articulated around a recurring theme with a representational character. These core beliefs form a cognitive pattern of the individual's mental processing, guiding and selecting the treatment of multimodal information (cognitive, emotional/affective and behavioral). These are the schemas that, through the attribution of meaning, trigger chain reactions, that can be observed as behavior—which is the visible expression of personality traits, such as beliefs or latent schemas (Beck et al., 2004). In this sense, Beck and Freeman (1991), defended that each personality disorder contains a set of typical beliefs that can be clinically evaluated, and be targeted in psychotherapeutic intervention.

With this in mind, Beck (Beck & Beck, 1991) developed the Personality Beliefs' Questionnaire (PBQ) in order to assess the hypothetical central beliefs underlying the personality disorders identified at the time.

The assessment of dysfunctional personality contents and patterns is a hallmark in psychological assessment guiding not only the case conceptualization process, but also the clinical decision-making (Faustino & Vasco, 2020a, 2020b, 2020c; Faustino et al., 2021a). In this sense, the use of validated instruments to assess dysfunctional core beliefs about the self and other, facilitates information gathering helping clinicians to elaborate a specific personality profile based on the cognitive thematic content of each individual. Therefore, the PBQ is an ideal instrument to assess dysfunctional personality beliefs that individuals use to interpret the world (Beck et al., 2004). The PBQ contains 126 items, distributed by nine scales (14 items per scale). Each item consists of an affirmation corresponding to a personality belief associated with a typical cognitive profile. For example, for Narcissistic personality disorder there are statements such as "As I am so superior, I have the right to special treatment and privileges", or for Histrionic personality disorder there are statements such as "I must be the center of attention". The answer format fits the question: "How much do you believe in the statement?". Respondents should rate each statement on a Likert scale: 4—I totally believe, 3—I believe a lot; 2—I believe moderately; 1—I believe little and 0—I don't believe. Each scale corresponds to the beliefs associated with personality disorders related to Axis II of DSM IV (APA, 1994), namely: Paranoid, Schizoid, Narcissistic, Histrionic, Obsessive–Compulsive, Anti-social, Dependent, Avoidant and Passive-aggressive. A 10th scale referring to Borderline personality disorder was added later, by combining beliefs of Avoidant, Dependent, Paranoid and Passive-aggressive personality disorders (Butler et al., 2002). The instrument showed good internal consistency in several investigations, namely in healthy and psychiatric patients, as well as good indexes of test–retest temporal stability ( $r=0.56$  of the Avoidant scale= $0.93$  of the Anti-social scale) referring to

outpatient psychiatric patients (Bhar et al., 2012). The PBQ has also been shown to be able to differentiate patients with different diagnoses of personality disorder (Beck et al., 2001). Recently, Fournier, DeRubeis and Beck (2012) analyzed the factor structure of the PBQ in 1121 participants, having found seven factors where beliefs about Dependent and Avoidant personality disorders saturated in the same factor. The same happened with Narcissistic and Anti-social personality disorders. The factor related to the personality beliefs of Borderline disorder was also not evident in this analysis (Fournier et al., 2012).

Butler and colleagues (2007) referred to the need to develop a smaller and more refined instrument for both clinical practice and research. In this sense, the development of the Personality Beliefs Questionnaire—Short Form (PBQ—SF), was advanced in two phases. First, nine experimental scales referring to personality disorders were constructed, using the highest item–total correlations in a sample of 920 psychiatric patients, (M age = 36.4 SD = 11.1), 55% female (see Table 2). This sample contained enough individuals with personality disorder to study the criterion validity of five scales: Avoidant (n = 79), Dependent (n = 26), Obsessive–compulsive (n = 58), Narcissistic (n = 26) and Paranoid (n = 27) (Butler et al., 2007). Each scale had only seven items, with the PBQ—SF having 65 items in total. In the second phase, the PBQ—SF was applied to a sample of outpatient psychiatric patients (n = 160, M age = 39.8, SD = 14.2 and 58% female). Internal consistency, construct validity and test–retest stability were analyzed in this sample. The internal consistency indexes were quite acceptable (Butler et al., 2007). The construct validity was assessed by comparing the PBQ—SF scales with instruments that target other clinical variables, namely: anxiety, depression, neuroticism, dysfunctional attitudes, self–esteem and psychosocial functioning. For example, the PBQ—SF Avoidant scale correlated negatively with a measure of self-esteem and positively with measures of anxiety and depression. On the other hand, the PBQ—SF Narcissistic scale correlated with the same variables but in an opposite way (Bhar et al., 2012). Finally, test–retest stability obtained high values from 0.57 on the antisocial scale to 0.82 on the Obsessive–compulsive scale (Butler et al., 2007).

The construct of early maladaptive schemas is similar to the construct of core beliefs. Early maladaptive schemas are described as the lifelong self-defeating patterns of cognitions, emotions, memories and bodily sensations about the self and others (Young et al., 2003). The authors defined eighteen early maladaptive schemas organized into five domains, namely, disconnection and rejection, impaired autonomy and performance, other-directedness, impaired limits, and overvigilance and inhibition. Previous research supports the dysfunctional role of early maladaptive schemas in mental health (Faustino & Vasco, 2020a; Bishop et al., 2021; Nicol et al., 2020) and emphasize the disconnection and rejection and impaired autonomy domains has the most severe schema domains (Faustino & Vasco, 2020b; Renner et al., 2012). One major difference between core beliefs and early maladaptive schemas is that the first was defined to match specific beliefs of DSM criteria for personality disorders, while the second was developed with a developmental perspective (Young et al., 2003). However, despite these two different conceptual approaches to the concept of schemas, they may share some commonalities (e.g., the cognitive compound of both concepts), which is why that early maladaptive schemas may be

used to explore convergent validity of the PBQ-SF. In other words, both constructs encompass cognitive thematic representations regarding self (e.g., I am a failure), others (e.g., Other will abuse me) and the world (e.g., The world is a dangerous place). Therefore it is expected that personality beliefs correlate with five schema domains. Specifically, it is expected that disconnection and rejection domain would correlate with all PBQ-SF subscales along with impaired domain. Finally, the aim of the present study is to conduct a preliminary psychometric study of the Personality Beliefs Questionnaire-Short Form (PBQ-SF) in a non-clinical sample of the Portuguese population.

## Method

### Participants

The total sample consisted of 344 Portuguese participants, with mean age of approximately 32 years ( $SD = 11.28$ ), with the following academic qualifications, 9 (2.6%) with 9<sup>o</sup> year of study or equivalent, 143 (41.6%) with 12<sup>o</sup> years of study, 103 (29.9%) with master's degree and 12 (23.5%) with PhD or post-doctoral degree. Of the 344 participants, 60 were male (17.4%) and 284 (82.6%) were female—see Table 1.

### Instruments

#### Personality Belief Questionnaire—Short Form (PBQ-SF)

Butler and collaborators (2007) developed a reduced version of the Personality Belief Questionnaire (PBQ) based on the need for a smaller and more refined instrument for both clinical practice and research. The PBQ-SF is a self-report questionnaire aiming to assess dysfunctional personality beliefs theoretically congruent with DSM-IV personality disorder diagnostic criteria. It has a 5 point Likert scale, ranging from 0 (I don't believe it at all) to 4 (I believe it totally). The development of the PBQ-SF took several steps. First, 9 theoretical scales referring to personality disorders were constructed, using the highest item-total correlations of a sample of 920 psychiatric patients,  $M = 36.4$   $DP = 11.1$ , 55% female. In the study conducted by Butler et al (2007), there were enough individuals with personality disorder to study the criterion validity of five scales: Avoidant ( $n = 79$ ), Dependent ( $n = 26$ ), Obsessive-compulsive ( $n = 58$ ), Narcissistic ( $n = 26$ ) and Paranoid ( $n = 27$ ) (Butler et al., 2007). Each subscale was reduced to 7 items, with the PBQ-SF as a whole with 65 items. In the second phase, the PBQ-SF was applied to a sample of psychiatric patients in an outpatient clinic ( $n = 160$ ,  $M = 39.8$ ,  $DP = 14.2$  and 58% female). Cronbach alphas in the present study are described in the results section.

**Table 1** Descriptive statistics of the sample

N	344
<i>Age</i>	
M	32.56
SD	11.28
Minimum	18
Maximum	67
<i>Sex</i>	
Male	60 (17.4%)
Female	284 (82.6%)
<i>Scholarship</i>	
9 <sup>o</sup> year or equivalent	9 (2.6%)
12 <sup>o</sup> year	143(41.6%)
Master degree	103 (29.9%)
PhD	12 (23.5%)
<i>Psychotherapy</i>	
Yes	74 (21.5%)
No	270 (78.5%)
Undefined	9 (4%)

### Young Schema Questionnaire (YSQ-S3)

Early Maladaptive Schemas were assessed by the YSQ-S3 (Young, 2005, translated and adapted for Portuguese Population by Rijo, 2017). The YSQ-S3 is a self-report measure with 90 items aimed to assess 18 maladaptive schemas, divided in five domains: disconnection and rejection, impaired autonomy and performance, other-directedness, impaired limits, and overvigilance and inhibition. It has a response format in 6-point Likert scale ranging from 1 (does not describe me at all), to 6 (describe me totally). The scale also has a general index. Rijo (2017), described satisfactory psychometric properties in the validation study of the YSQ-S3 for the Portuguese population ( $N=1226$ ). An adequate model fit with 18 factors ( $\chi^2=2430.234$ ;  $p=0.000$ ) with adequate values of Cronbach's alphas which ranged from weak in impaired self-control schema ( $\alpha=0.65$ ) to strong in failure schema ( $\alpha=0.86$ ). Moreover, all schemas correlated positively with Beck Depression Inventory (BDI, Beck, 1976) ( $p<0.001$ ), which may be viewed as evidence of convergent validity (Rijo, 2017). In the present study the general index was used which showed an excellent internal consistency ( $\alpha=0.97$ ). Internal consistency of the subscales ranged from good in impaired limits composite subscale ( $\alpha=0.82$ ) to very good ( $\alpha=0.95$ ) in disconnection and rejection composite subscale.

### Brief Symptoms Inventory—53 (BSI-53)

Brief Symptoms Inventory (BSI, Derogatis, 1993, adapted for the Portuguese population by Canavarro, 1999). It is a 53-item self-report, constituting a reduced version

of the SCL-90, in which participants rate the extent to which they have been disturbed in the past week by several symptoms on a scale from 0 (not at all) to 4 (extremely). The BSI has nine subscales designed to assess individual symptom groups (e.g., somatization, depression, anxiety). The Portuguese version (Canavarro, 1999) showed good psychometric properties—alphas ranging from 0.70 to 0.80. In a sample of non-clinical participants, the GSI average was 0.48 (SD=1.430) and test retest reliability of 0.79. In a clinical sample, the author obtained an average of 1.43 (SD=0.943). A value  $\geq$  to 1.7 may point to an emotion disturbance (Canavarro, 1999). In the present study, the total score ( $\alpha=0.97$ ) showed high internal consistency and all the subscales showed from acceptable to good internal consistency: (1) Somatization ( $\alpha=0.84$ ); (2) Obsessive–compulsive ( $\alpha=0.85$ ); (3) Interpersonal Sensivity ( $\alpha=0.83$ ); (4) Depression ( $\alpha=0.92$ ); (5) Anxiety ( $\alpha=0.87$ ); (6) Hostility ( $\alpha=0.85$ ); (7) Phobic Anxiety ( $\alpha=0.81$ ); (8) Paranoid Ideation ( $\alpha=0.83$ ); (9) Psychoticism ( $\alpha=0.72$ ).

## Procedure and Statistical Analysis

Individuals were recruited from the general population through online social media (e.g., Facebook, LinkedIn), through a post that presented a link that led to the questionnaire. To participate, individuals had to click on the link which re-directed them to the online Qualtrics platform with the informed consent. After providing their consent to participate, individuals had to complete the instruments described previously. This research was approved by the ethics committee Faculty of Psychology of the University of Lisbon. Factor structure of the Portuguese version of the PBQ—Short Form was explored through an exploratory factor analysis (EFA). Pearson correlations were used to explore convergent validity and associations with symptomatology. All statistical analysis were performed with the IBM SPSS Statistics version 25.

## Results

### Translation and Back-Translation

Several steps were taken to carry out the validation process, which was aligned with Beaton et al. (2000) guidelines to cross-cultural adaptation of self-report measures. First, an authorization was required from Beck Institute, which was given. Second, the PBQ—Short Version was translated into Portuguese by a bilingual speaker (Portuguese–English) then the back-translation was performed by another bilingual speaker. Third, the original English version and the English retroversion were compared by the authors. Some minor vocabulary adjustments had to be made in the translated version to maintain semantic coherence with the original version. Four, a pre-test of the approved translated version was performed by presented the PBQ—Short Form to 20 individuals, which were unfamiliar with this questionnaire. The aim of the pre-test was to confirm if it was clear and easy to understand, concerning

the vocabulary, sentence structure and comprehensiveness of the items. The comprehensiveness, item structure and clarity of the sentences were asked individually to each participant of the pre-test. Five, after this initial process the PBQ—Short Form was ready to be tested in the general population.

### Study 1: Psychometrics Using the Exploratory Factor Analysis of PBQ—SF sub-scales

**Exploratory Factor Analysis** Exploratory Factor Analysis (EFA) was conducted to explore the PBQ—Short Form in the Portuguese population. All factors with eigenvalues higher than 1 were extracted in the Principal Axis with a varimax rotation procedure and 11 iterations. Ten factors explained 64.3% of the variance. Items that loaded below 0.40 were removed. Kaiser-Meyer-Olkin value was 0.941 and the Bartlett sphericity test was statistically significant, ( $\chi^2(13,585, 103)=2080, p < 0.001$ ), indicated that the sample was adequate (Tabachnick & Fidell, 2013).

The first factor (F1) accounted for 30.9% of the variance and was composed of 17 items, namely: 45, 65, 44, 56, 18, 31, 63, 62, 5, 43, 15, 2, 39 (cross loading with F2), 17 (cross loading with F3), 24 (cross loading with F3), 57 (cross loading with F4) and 37 (cross loading with F7), clustering *dependent*, *avoidant* and *borderline* subscales. The second factor (F2) explained 5.68% of the variance and was composed of 12 items, namely, 39 (cross loading with F1), 27, 58, 26, 38, 46, 8, 16, 59, 60, 22 (cross loading with F7) and 23 (cross loading with F9), matching *narcissism*, *histrionic antisocial* and *avoidant* subscales. The third factor (F3) accounted for 4.83% of the variance and was composed with 8 items, namely, 13, 14, 48, 3, 49, 17, 64 and 24 matching *paranoid* and *borderline* subscales. The fourth factor (F4) explained 3.01% of the variance with six items, namely, 40, 11, 30, 6, 57 (cross loading with F1) and 19, matching the *obsessive-compulsive* subscale. The fifth factor (F5) explained 2.21% of the variance with six items, namely, 29, 50, 12, 36, 28 and 53, matching schizoid subscale. The sixth factor (F6) explained 2.13% of the variance with five items, namely, 47, 41, 51, 21 matching the *passive-aggressive* subscale. The seventh factor (F7) accounted for 1.61% of the variance with four items, namely, 34, 22, 37, 55 and 52 matching *histrionic* subscale. The eighth factor (F8) explained 1.54% of the variance with three items, namely, 52, 54 and 1 matching *histrionic* and *avoidant* subscales. The ninth factor (F9) explained 1.37% of the variance with three items, namely, 35, 23 (cross loading with F2) and 42, matching the *antisocial* subscale. Finally, the tenth factor explained 1.01% of the variance with only one item 33 matching the *avoidant* subscale—see Table 2. Items 25, 10, 61, 32, 4, 9 and 20 did not saturate in any factor and were removed.

**Internal Consistency** Cronbach's  $\alpha$  for EFA version of PBQ-SF subscales can be found in Table 3.

**Correlational Analysis with Early Maladaptive Schemas and Symptomatology** Convergent validity was explored through Pearson correlations between PBQ-SF total score and subscales with early maladaptive schemas (YSQ-S3) and symptomatology (BSI-53). As stated in the introduction core beliefs and early maladaptive schemas are

very similar constructs, because both encompass cognitive thematic representations regarding self, others and the world. In this sense, it was expected that personality beliefs were correlated with five schema domains that encompass the eighteen early maladaptive schemas. Specifically, it was expected that disconnection and rejection domain would correlate with all PBQ-SF subscales along with impaired domain.

Low to medium positive correlations were found between PBQ-SF total score and subscales with early maladaptive schemas (YSQ-S3). PBQ-SF total score correlated with YSQ-S3 total score ( $r=0.42$ ,  $p<0.01$ ). Almost all correlations were in the expected direction. As example, Dependent, Avoidant and Borderline cluster correlated with disconnection and rejection ( $r=0.36$ ,  $p<0.01$ ), impaired autonomy ( $r=0.27$ ,  $p<0.01$ ), impaired limits ( $r=0.29$ ,  $p<0.01$ ), other's domain ( $r=0.21$ ,  $p<0.01$ ), and overvigilance and inhibition ( $r=0.28$ ,  $p<0.01$ )—see Table 4.

Low to medium positive correlations were found between PBQ-SF total score and its subscales and symptomatology (BSI-53). PBQ-SF total score correlated with GSI ( $r=0.29$ ,  $p<0.01$ ). Almost all correlations were in the expected direction. As example, Dependent, Avoidant and Borderline cluster correlated with somatization ( $r=0.38$ ,  $p<0.01$ ), obsessive–compulsive ( $r=0.34$ ,  $p<0.01$ ), interpersonal sensitivity ( $r=0.30$ ,  $p<0.01$ ), depression ( $r=0.45$ ,  $p<0.01$ ), anxiety ( $r=0.35$ ,  $p<0.01$ ), hostility ( $r=0.40$ ,  $p<0.01$ ), phobic anxiety ( $r=0.42$ ,  $p<0.01$ ), paranoid ideation and ( $r=0.42$ ,  $p<0.01$ ) and psychoticism ( $r=0.31$ ,  $p<0.01$ )—see Table 5.

**Regression Analysis with Early Maladaptive Schemas and Symptomatology** Through Stepwise regression analysis was explored the predictive value of all PBQ-SF subscales on symptomatology (BSI-53) and early maladaptive schemas (YSQ-S3). Two significant hierarchical models were found. The first model identified/had? three significant predictors, namely, dependent, avoidant and borderline, narcissistic, histrionic and antisocial and schizoid ( $b=1.95$ ,  $p<0.01$ ), explaining 19% of the variance of symptomatology (BSI-53). The second model had two significant predictors, namely, passive-aggressive and obsessive–compulsive ( $b=5.09$ ,  $p<0.01$ ), explaining 21% of the variance of early maladaptive schemas (YSQ-S3)—see Table 6.

## Study 2: Psychometrics Using the Original PBQ-SF Sub-scales

**Scales Rearrangement—Content Analysis** Factor structure deviated from theoretical assumptions and some factors were mixed. One important issue is that the present sample is from the general population, which may contribute to the present factor structure. The PBQ-SF was developed to be applied in clinical populations with personality disorders and this would likely influence the EFA. The present preliminary study aims to maintain the scale structure closely to the original subscale. Therefore, some factors were rearranged based on content analysis to match the original PBQ-SF format, with “pure” items resembling each specific personality disorder.

First, F1 was redesigned by removing items 2, 5, 31, 43 and 39 which belong to the avoidance subscale (these items were added to F10). Then other items were removed: 17, 24 (paranoid), 57 (obsessive compulsive), 47 (histrionic) and 65 (borderline). Finally, F1 remained with seven items and was designated the *dependent* subscale. F2 was redesigned by removing items 39 (avoidant), 8, 22 (histrionic) and



**Table 2** Exploratory Factor Analysis (EFA) of the PBQ-SF (N = 344)

	1	2	3	4	5	6	7	8	9	10
SF45_DEPENDENT	.759									
SF65_BORDERLINE	.746									
SF44_DEPENDENT	.702									
SF56_DEPENDENT	.696									
SF18_DEPENDENT	.665									
SF31_AVOIDANT	.655									
SF63_DEPENDENT	.615									
SF62_DEPENDENT	.558									
SF5_AVOIDANT	.557									
SF43_AVOIDANT	.530									
SF15_DEPENDENT	.443									
SF2_AVOIDANT	.442									
SF39_AVOIDANT	.442	.409								
SF27_NARCISS		.796								
SF58_NARCISS		.734								
SF26_NARCISS		.710								
SF38_ANTISOC		.692								
SF46_NARCISS		.650								
SF8_HISTRIONIC		.604								
SF16_NARCISS		.597								
SF59_ANTISOC		.567								
SF60_NARCISS		.489								
SF25_SCHIZOID										
SF10_NARCISS										
SF61_ANTISOC										
SF13_PARANOID			.759							
SF14_PARANOID			.698							
SF48_PARANOID			.678							
SF3_PARANOID			.654							
SF49_PARANOID			.641							
SF17_PARANOID	.429		.587							
SF64_BORDERLI			.539							
SF24_PARANOID	.405		.509							
SF32_ANTISOC										
SF4_PASS_AGRES										
SF40_OBS_COMP				.774						
SF11_OBS_COMP				.694						
SF30_OBS_COMP				.641						
SF6_OBS_COMP				.640						
SF57_OBS_COMP	.415			.540						
SF19_OBS_COMP				.470						

**Table 2** (continued)

	1	2	3	4	5	6	7	8	9	10
SF9_OBS_COMP										
SF29_SCHIZOID					.735					
SF50_SCHIZOID					.645					
SF12_SCHIZOID					.602					
SF36_SCHIZOID					.534					
SF28_SCHIZOID					.490					
SF53_SCHIZOID					.410					
SF47_PASS_AGRES						.671				
SF41_PASS_AGRES						.553				
SF51_PASS_AGRES						.511				
SF21_PASS_AGRES						.465				
SF7_PASS_AGRES						.402				
SF_34_HISTRIONIC							.598			
SF22_HISTRIONIC		.406					.575			
SF37_HISTRIONIC	.400						.531			
SF55_HISTRIONIC							.450			
SF52_HISTRIONIC								.580		
SF54_HISTRIONIC								.504		
SF1_AVOIDANT								.458		
SF35_ANTISOC									.533	
SF23_ANTISOC		.423							.503	
SF42_ANTISOC									.422	
SF33_AVOIDANT										.546
SF20_PASS_AGRES										

F1 = Dependent, Avoidant and Borderline; F2 = Narcissistic, Histrionic and Antisocial; F3 = Paranoid and Borderline; F4 = Obsessive–compulsive; F5 = Schizoid; F6 = Passive-aggressive; F7 = Histrionic; F8 = Histrionic and Avoidant; F9 = Antisocial; F10 = Avoidant

23, 38, 59 (antisocial). F2 remained with six items and was designed the *narcissism* subscale. In F3 only item 64 (borderline) was removed, and this factor remained with seven items being named the *paranoid* subscale. F4 remained the same with six items, being defined as the *obsessive–compulsive* subscale. F5 remained the same with six items, being defined as the *schizoid* subscale. F6 remained the same with five items, being defined as the *passive-aggressive* subscale. F7 and F8 were clustered to match the *histrionic* subscale, having six items (item 1—*avoidant*, was removed). F9 had three items representing the *antisocial* subscale. In this sense the items 23, 38 and 59 (which represents antisocial beliefs), were added to this subscale, remaining with six items. Items 2, 5, 31, 43 and 39 were included in F10 along with item 33, which was defined as the *avoidance* subscale. This subscale remained with 6 items. Finally, the *borderline* subscale was elaborated based on Butler et al. (2002) criteria, with items 31, 44, 45, 56, 49, 64 and 65. This was the only composite scale.

**Internal Consistency** Cronbach alpha for total scale was considered good. And for the PSQ-SF subscales the internal consistency was as follows: F1, Dependent ( $\alpha=0.87$ ); F2, Narcissistic ( $\alpha=0.85$ ); F3, Paranoid ( $\alpha=0.92$ ); F4, Obsessive–compulsive ( $\alpha=0.85$ ), F5, Schizoid ( $\alpha=0.76$ ), F6, Passive-aggressive ( $\alpha=0.81$ ); F7, Histrionic ( $\alpha=0.81$ ), F8 – Borderline ( $\alpha=0.86$ ), F9, Antisocial ( $\alpha=0.67$ ) and F10, Avoidant ( $\alpha=0.83$ ). The total scale showed an excellent ( $\alpha=0.96$ ) Cronbach alpha. – see Table 7.

**Correlational Analysis with Early Maladaptive Schemas and Symptomatology** Convergent validity was explored through Pearson product-moment correlations between PBQ-SF total score and subscales with early maladaptive schemas (YSQ-S3) and symptomatology (BSI-53). Similar with the previous section, it was expected that personality beliefs were correlated with five schema domains and specifically, that disconnection and rejection and impaired autonomy domain correlate with all PBQ-SF subscales because they tend to be referred to as one of the most pervasive schema domains (Faustino & Vasco, 2020a, 2020b).

Low to medium positive correlations were found between PBQ-SF total score and subscales with early maladaptive schemas (YSQ-S3). PBQ-SF total score correlated with YSQ-S3 total score ( $r=0.39$ ,  $p<0.01$ ), disconnection and rejection ( $r=0.38$ ,  $p<0.01$ ), impaired autonomy ( $r=0.33$ ,  $p<0.01$ ), impaired limits ( $r=0.34$ ,  $p<0.01$ ), other's domain ( $r=0.27$ ,  $p<0.01$ ), overvigilance and inhibition ( $r=0.35$ ,  $p<0.01$ ). Narcissistic PBQ-SF subscale only correlated with YSQ-S3 total score ( $r=0.25$ ,  $p<0.01$ ), impaired autonomy ( $r=0.20$ ,  $p<0.01$ ) and overvigilance and inhibition ( $r=0.22$ ,  $p<0.01$ )—see Table 8.

Low to medium positive correlations were found between PBQ-SF total score and subscales and symptomatology (BSI-53). PBQ-SF total score correlated with GSI ( $r=0.49$ ,  $p<0.01$ ), somatization ( $r=0.38$ ,  $p<0.01$ ), obsessive–compulsive ( $r=0.33$ ,  $p<0.01$ ), interpersonal sensitivity ( $r=0.27$ ,  $p<0.01$ ), depression ( $r=0.43$ ,  $p<0.01$ ), anxiety ( $r=0.32$ ,  $p<0.01$ ), hostility ( $r=0.37$ ,  $p<0.01$ ), phobic anxiety ( $r=0.39$ ,  $p<0.01$ ), paranoid ideation and ( $r=0.40$ ,  $p<0.01$ ) and psychoticism ( $r=0.34$ ,  $p<0.01$ ) – see table. Similar to the previous analysis, Narcissistic PBQ-SF subscale only correlated with GSI ( $r=0.49$ ,  $p<0.01$ ), somatization ( $r=0.38$ ,  $p<0.01$ ), depression ( $r=0.43$ ,  $p<0.01$ ) and paranoid ideation and ( $r=0.40$ ,  $p<0.01$ ) – see Table 9.

**Regression Analysis with Early Maladaptive Schemas and Symptomatology** Stepwise regression analysis was used to explore the predictive value of all PBQ-SF subscales on symptomatology (BSI-53) and early maladaptive schemas (YSQ-S3). Two significant hierarchical models were found. The first model had four significant predictors ( $b=0.10$ ,  $p<0.01$ ), explaining 33% of the variance of symptomatology (BSI-53). The second model had three significant predictors ( $b=1.16$ ,  $p<0.01$ ), explaining 23% of the variance of early maladaptive schemas (YSQ-S3)—see Table 10.

**Table 3** Scale-level descriptive statistics and Cronbach's Alpha for PBQ-SF (N = 344)

	$\alpha$	Mean	SD	Skewness	Kurtosis
Dependent, Avoidant and Borderline	.92	3.19	.17	- 1.202	1.330
Narcissistic, Histrionic and Antisocial	.89	4.43	.24	- 2.564	8.901
Paranoid and Borderline	.92	3.19	.12	- .659	- .128
Obsessive-compulsive	.85	3.27	.32	- .202	- .824
Schizoid	.77	3.08	.33	.009	- .395
Passive-aggressive	.82	3.67	.07	- .546	- .358
Histrionic	.83	4.20	.02	- 1.393	1.797

$\alpha$  = Cronbach Alpha; SD = Standard Deviation

## Discussion

The present study aimed to conduct a preliminary psychometric study of the European-Portuguese version of the Personality Beliefs Questionnaire-Short Form (PBQ-SF; Butler et al., 2007) in a non-clinical sample. These are the first steps to fully validate the PBQ-SF-PT, which is regarded as a long-standing need in the assessment of dysfunctional beliefs in the Portuguese population.

Two studies were conducted: one based on the original subscales of the PBQ-SF developed by Butler and associates (2007), and another based on the exploratory factor analysis (EFA). Despite being two studies, results were very similar. Therefore, discussion will be integrated and some considerations are described.

EFA revealed a factor structure different from the theoretical assumptions (Butler et al., 2007). EFA revealed a factor structure composed by ten factors where some items from different subscales clustered in different expected factors. For example, items from dependent, avoidant and borderline subscales clustered together, as well as items from narcissistic, histrionic and antisocial subscales, which is similar to the study from Fournier, & associates (2012). The authors found a seven factor structure where items loaded on a single factor, as well as items from narcissistic and antisocial subscales. Another aspect is that items from borderline and paranoid subscales loaded mostly on a single factor. These findings suggest an overlap between beliefs individuals tend to hold that are not exclusively to one personality disorders which is in line with dimensional approaches to personality pathology (Faustino & Vasco, 2020a). The sample under study is not a clinical sample, which means that individuals may have higher levels of psychological flexibility encompassing less rigid beliefs and core schemas (Faustino et al., 2021b; Faustino, 2022).

Another aspect was that the schizoid factor emerge similarly to theoretical predictions (Butler et al., 2007). In the study from Fournier and associates (2012), this factor did not emerged, which means that maybe this subscale needs to be revised in order to achieve standardization across different populations. Despite the EFA results, in study two, subscales were computed based on the standard procedure from Butler et al., (2007). This is a preliminary study of the PBQ-SF in the Portuguese population and therefore more research is required to explore if the factorial structure is replicated. In this sense, the original structure of the PBQ-SF-PT was

**Table 4** Pearson correlations between PBQ-SF subscales and YSQ-S3 schema domains (N = 283)

	YSQ-S3	Disconnection and Rejection	Impaired Autonomy	Impaired Limits	Other's domain	Overvigilance and Inhibition
PBQ-SF	.42**	.38**	.33**	.34**	.27**	.35**
Dependent, Avoidant and Borderline	.30**	.37**	.27**	.29**	.21**	.28**
Narcissistic, Histrionic and Antisocial	.26**	.07	.21**	.11*	.06	.21**
Paranoid and Borderline	.34**	.35**	.25**	.35**	.27**	.35**
Obsessive-compulsive	.30**	.26**	.30**	.33**	.29**	.33**
Schizoid	.26**	.29**	.11*	.17**	.17**	.27**
Passive-aggressive	.45**	.38**	.23**	.27**	.17**	.29**
Histrionic	.17**	.21**	.23**	.20**	.17**	.20**

\* $p = .05$ ; \*\* $p = .01$ ;

**Table 5** Pearson correlations between PBQ-SF subscales and BSI-53 subscales (N = 283)

	GSI	Somatization	Obsessive- Compul- sive	Inter- personal Sensitivity	Depression	Anxiety	Hostility	Phobic Anxiety	Paranoid Ideation	Psychoticism
PBQ-SF	.29**	.34**	.33**	.26**	.40**	.31**	.35**	.36**	.37**	.35**
Dependent, Avoidant and Border- line	.37**	.38**	.34**	.30**	.46**	.33**	.40**	.42**	.42**	.31**
Narcissistic, Histrionic and Anti- social	.04	.14*	.05	.05	.20**	.04	.10	.06	.13*	.11
Paranoid and Borderline	.29**	.32**	.31**	.24**	.38**	.27**	.28**	.34**	.35**	.31**
Obsessive-compulsive	.24**	.24**	.23**	.23**	.31**	.24**	.26**	.32**	.30**	.22**
Schizoid	.20**	.25**	.31**	.18**	.14*	.20**	.29**	.26**	.22**	.27**
Passive-aggressive	.21**	.41**	.30**	.24**	.39**	.34**	.39**	.34**	.37**	.36**
Histrionic	.21**	.26**	.15**	.16**	.31**	.19**	.18**	.21**	.25**	.22**

\* $p = .05$ , \*\* $p = .01$ ;

**Table 6** Hierarchical regression analysis with PBQ-SF subscales as predictors of symptomatology and early maladaptive schemas (N = 283)

	$R^2$	$B$	$SE B$	$\beta$	$t$	$p$	$VIF$
<i>Symptomatology (BSI-53)</i>							
Dependent, Avoidant and Borderline	.139	.550	.073	.452	7.523	.000	1.390
Narcissistic, Histrionic and Antisocial	.168	.305	.086	.212	3.551	.000	1.370
Schizoid	.189	.186	.065	.148	2.840	.005	1.049
<i>Early Maladaptive Schemas (YSQ-S3)</i>							
Passive-aggressive	.203	.635	.092	.397	6.935	.000	1.264
Obsessive-compulsive	.214	.186	.091	.117	2.046	.042	1.264

Symptomatology (BSI-53) as dependent variable; Early Maladaptive Schemas (YSQ-S3) as dependent variable

**Table 7** Scale-level descriptive statistics and Cronbach's Alpha for PBQ-SF (N = 344)

	Number of items	$\alpha$	Mean	SD	Skewness	Kurtosis
Dependent	15, 18, 44, 45, 56, 62, 63	.87	3.99	0.89	- 1.17	1.25
Narcissistic	16, 26, 27, 46, 58, 60	.85	4.44	0.73	- 2.33	7.23
Paranoid	3, 13, 14, 17, 24, 48, 49	.92	3.72	0.97	- 0.63	- 0.15
Obsessive-compulsive	6, 11, 19, 30, 40, 57	.85	3.27	0.92	- 0.20	- 0.82
Schizoid	12, 28, 29, 36, 50, 53	.76	2.94	0.82	0.01	- 0.40
Passive-aggressive	7, 21, 41, 47, 51	.81	3.67	0.91	- 0.55	- 0.36
Histrionic	22, 34, 37, 52, 54, 55	.81	4.50	0.93	- 1.05	1.26
Borderline (added)	64, 65	.55	4.00	1.00	- 1.11	0.87
Antisocial	23, 35, 42, 23, 38, 59	.75	3.41	0.62	- 1.26	1.90
Avoidant	2, 5, 31, 33, 39, 43	.83	3.73	0.87	- 0.88	0.57

$\alpha$  = Cronbach Alpha; SD = Standard Deviation

kept and the 10 sub-scales were computed matching the DSM-IV criteria for personality disorders.

Convergent validity was explored by testing correlations between PBQ-SF subscales and early maladaptive schematic domains. Early maladaptive schemas are clusters of memories, cognitions, emotions and bodily sensations developed in early infancy or adolescent in regard to the frustration of core psychological needs (Faus-tino & Vasco, 2020c; Young et al., 2003). These schemas contain self and other generalized beliefs about the world thematically related, with some theoretical overlapping with the original cognitive theory of personality disorders (Beck & Freeman, 1990). Almost all PBQ-SF subscales were correlated with theoretical schematic domains, which strengthens this theoretical assumption. However, in the original PBQ-SF subscales, the narcissistic subscale did not correlate with impaired limits domain, which is theoretically related with psychological entitlement, a trait associated with narcissist personality disorder.

**Table 8** Pearson correlations between PBQ-SF subscales and YSQ-S3 schema domains (N=283)

	YSQ-S3	Disconnection and Rejection	Impaired Auton- omy	Impaired Limits	Other's domain	Overvigilance and Inhibition
PBQ-SF	.39**	.38**	.33**	.34**	.27**	.35**
Dependent	.24**	.31**	.24**	.26**	.20**	.19**
Narcissistic	.25**	.05	.20**	.11	.05	.22**
Paranoid	.32**	.34**	.26**	.36**	.28**	.34**
Obsessive– compulsive	.29**	.25**	.30**	.32**	.29**	.32**
Schizoid	.26**	.29**	.11*	.16**	.17**	.26**
Passive- aggressive	.45**	.38**	.23**	.26**	.17**	.29**
Histrionic	.19**	.22**	.37**	.22**	.18**	.17**
Borderline (added)	.36**	.36**	.25**	.30**	.21**	.34**
Antisocial	.29**	.20**	.17**	.20**	.14*	.11
Avoidant	.28**	.38**	.25**	.28**	.22**	.30**

\*.05; \*\*.01

The original version and the EFA version of the PBQ-SF-PT both were correlated with symptomatology, which is in line with previous empirical findings (Butler et al., 2007; Fournier et al., 2012; Ryan et al., 2015). According to cognitive theory of personality disorders, inflexible, long-standing and generalized beliefs embed deeply in core schemas about the self, others, world and future lie at the core of personality disorders (Beck & Freeman, 1990; Young et al., 2003). These results emphasize associations between dysfunctional beliefs and several symptomatic domains, such as depression, anxiety and hostility. Also, Butler, and colleagues (2007), stated that the PBQ-SF may also be associated with symptomatology because it may reflect a general distress factor, which is consistent with elevation in personality pathological profile (higher number of dysfunctional beliefs). The narcissistic subscale only correlated with somatization, depression and paranoid ideation. Also, the lack of associations between impaired limits and narcissism, suggests than a content analysis should be made to explore if the PBQ-SF is more associated with grandiose narcissism and/or vulnerable narcissism. Grandiose narcissism is characterized by a tendency to overestimate one's capabilities, high self-esteem and interpersonal dominance, while vulnerable narcissism, is characterized by a tendency to be insecure, hypersensitive and focused on criticism (Wink, 1991). Controversies in the assessment of narcissism are well documented in literature. Specifically, Miller and colleagues (2017) suggested that grandiose narcissism seems to captures the prototype manifestation of narcissism with higher levels of antagonism (e.g., grandiosity, selfishness and callousness) and agentic extraversion (i.e., assertiveness, high and attention seeking/exhibitionism). Vulnerable narcissism seems to capture higher levels of antagonistic traits (e.g., distrust, selfishness deceitfulness and callousness) and a tendency to experience negative affect (i.e., anxiety, depression, self-consciousness,



and vulnerability). These two dimensions may have different etiological factors (e.g., lack of discipline/overvaluation vs pervasive emotional neglect/lower self-esteem) that confound the assessment of narcissism because they rely on different motivational tendencies (Miller et al., 2017). Taken together these results suggest that the narcissistic subscale of PBQ-SF seems to measure the vulnerable narcissism beliefs rather than grandiose narcissism beliefs. Finally, borderline, schizoid, narcissistic and passive-aggressive subscales were the best predictors of symptomology. Thus, borderline personality disorder tends to be regarded as one of the most pervasive personality disorder and in this study, may help to support this claim because it was the stronger predictor of symptomatology.

Despite the similar correlational patterns of the subscales, it is possible to delineate some differences. Each PBQ-SF-PT subscale suggests differential associations in terms of intensity with schemas and symptoms. Some examples can be given. The dependent, paranoid, passive-aggressive, borderline and avoidance subscales correlated with greater intensity in the disconnection and rejection schema domain than the other subscales, suggesting that individuals with schemas in this domain may manifest dependency, borderline and avoidance beliefs. Another example, regarding the correlational pattern with symptoms may be given. The dependent, paranoid, passive-aggressive, borderline and avoidance subscales correlated strongly with depression and anxiety than the narcissistic, schizoid and antisocial. This pattern suggests that individuals with beliefs associated dependency and avoidance may experience stronger symptoms of sadness, depression and anxiety than individuals with narcissistic, schizoid and antisocial beliefs. Taken together these results seem to point out that each subscale of the PBQ-SF-PT may reflect different cognitive profiles in terms of schema development, core beliefs and symptomatology.

According to these results, both versions of the PBQ-SF-PT seem to be psychometrically reliable and potentially useful in clinical practice. The EFA-derived version of the PBQ-SF-PT seems to capture the dimensional nature of the personality functioning which is aligned with dimensional approach to personality disorders. Thus, a careful inspection of the clustered items reveals that factor one and factor two gathered items that resembles the cluster C (anxious and fearful) and cluster B (dramatic, emotional, erratic) domain of the personality disorder criteria (DSM-5, 2013). In this sense, maybe in non-clinical populations personality beliefs associated with narcissism, histrionic and antisocial personality disorders may tend to cluster together, instead of cluster separately. Thus, this EFA-derived version of the PBQ-SF-PT seems to be aligned with the dimensionally oriented DSM-5 alternative model of personality disorders (AMPD), where personality pathology is defined from indices of personality functioning (criterion A in the AMPD) and maladaptive personality traits (criterion B in the AMPD). Thus, this also raises the question if the PBQ-SF-PT, which is based on dysfunctional beliefs, may be useful in assessing personality disorders from a dimensional perspective. This issue should be answered in the future. Moreover, theoretically-derived PBQ-SF-PT seems to reflect a traditional categorical perspective on personality disorders by dividing each disorder from the others. In this sense, clinicians can choose the version he/she intends to use depending on the purpose of the assessment and the population. Probably, the EFA version can be used to characterize the profile of personality traits in the non-clinical

**Table 9** Pearson correlations between PBQ-SF subscales and BSI-53 subscales (N = 283)

	GSI	Somatization	Obsessive–Compulsive	Inter-personal Sensitivity	Depression	Anxiety	Hostility	Phobic Anxiety	Paranoid Ideation	Psychoticism
PBQ-SF	.49**	.38**	.33**	.27**	.43**	.32**	.37**	.39**	.40**	.34**
Dependent	.44**	.31**	.30**	.26**	.41**	.29**	.34**	.37**	.36**	.26**
Narcissistic	.12*	.15**	.04	.02	.20**	.03	.10	.06	.12*	.09
Paranoid	.43**	.31**	.29**	.24**	.37**	.26**	.26**	.33**	.35**	.30**
Obsessive–compulsive	.35**	.23**	.23**	.22**	.30**	.23**	.26**	.32**	.29**	.22**
Schizoid	.29**	.25**	.31**	.17**	.14*	.20**	.29**	.26**	.21**	.26**
Passive-aggressive	.41**	.41**	.29**	.24**	.39**	.34**	.39**	.33**	.37**	.36**
Histrionic	.31**	.20**	.14*	.14**	.28**	.20**	.18**	.23**	.24**	.22**
Borderline (cs)	.38**	.40**	.38**	.27**	.49**	.34**	.41**	.44**	.41**	.30**
Antisocial	.22**	.13*	.11*	.13*	.20**	.12*	.11*	.08	.17**	.17**
Avoidant	.48**	.40**	.35**	.31**	.44**	.33**	.39**	.39**	.43**	.33**

\* .05; \*\* .01; c = composite scale

**Table 10** Hierarchical regression analysis with PBQ-SF subscales as predictors of symptomatology and early maladaptive schemas, which are dependent variables (N=283)

	$R^2$	$B$	$SE B$	$\beta$	$t$	$p$	$VIF$
<i>Symptomatology (BSI-53)</i>							
<i>Borderline (cs)</i>	.26	.41	.05	.479	8.07	.000	1.78
<i>Schizoid</i>	.29	.12	.04	.133	2.74	.006	1.19
<i>Narcissistic</i>	.31	-.22	.05	-.217	-4.09	.000	1.41
<i>Passive-aggressive</i>	.33	.14	.05	.167	2.70	.007	1.93
<i>Early Maladaptive Schemas (YSQ-S3)</i>							
<i>Passive-aggressive</i>	.20	.55	.10	.34	5.31	.000	1.65
<i>Borderline (cs)</i>	.21	.67	.19	.41	3.39	.001	5.79
<i>Dependent</i>	.23	-.48	.18	-.29	-2.66	.008	4.81

CS=composite scale; Symptomatology (BSI-53) as dependent variable; Early Maladaptive Schemas (YSQ-S3) as dependent variable

population, while the theoretical version can be used to diagnose pathological personality traits compatible with the categorical view of personality disorder in clinical populations. Nevertheless, more research is required to explore if both versions of PBQ-SF-PT have similar psychometric qualities with non-clinical and clinical populations.

To our knowledge there are not many studies of the PBQ EFA with non-clinical samples. Usually, a confirmatory analysis is conducted. However, the factorial structure of PBQ-SF in non-clinical and clinical samples seems to vary. For the sake of the present study only studies with EFA in non-clinical samples will be described. EFA showed a similar result with the study of Trull and colleagues (1993). In a non-clinical sample of college undergraduates, authors explored an EFA of nine PBQ subscales finding a two factor solution. Factor 1 marked by the Antisocial and Narcissistic subscales was labeled interpersonal dominance and Factor 2 marked by the Avoidant and Dependent subscales was labeled anxious attachment. Another study in a non-clinical Brazilian sample, revealed a 9 factors with mixed pool of items that were hard to interpret. As an example, factor 1 was composed of items from Paranoid, Antisocial and Borderline subscales and was labeled "The other is bad". Factor 2 was composed with items from Dependent and Borderline subscales and was labeled "I am fragile and unable" (Leite et al., 2012). Nevertheless, Factor 3 (I am superior), with items from narcissism and histrionic subscales and factor 4 (I cannot fail), with items of obsessive-compulsive subscale were similar with the present study. Thus, narcissism and histrionic beliefs tend to cluster together as they reflect an internal tendency to be the center of attention and admiration from others.

Results from the divergent/discriminant validity of the EFA-derived version of the PBQ-SF-PT seems to suggest that all subscales have similar associations with symptomatology and early maladaptive schemas. Only the narcissistic, histrionic and antisocial factor of the EFA-derived version and the narcissistic and antisocial subscales of the theoretically-derived version of the PBQ-SF-PT showed a different correlational pattern from the other subscales. With low-medium correlations

with schemas and symptoms, these subscales seem to capture beliefs associated with an externalizing motivational tendency. Individuals with beliefs associated with Narcissistic, Histrionic and Antisocial Personality disorders tend to be externally focused and oriented towards the others, because the others are the means to achieve the gratification of their emotional needs (e.g., admiration, praise, attention and/or exploitation). Because they have an external locus of control, they may lack the required insight skills to acknowledge symptoms and/or vulnerable side of the self. This may explain the correlational pattern of the factor. This factor behaves differently than the other factors, however, this is consistent with cognitive theory of personality disorders (Beck & Freeman, 1990; Young et al., 2003). Moreover, all other subscales seem to have a similar correlational pattern with symptomatology and early maladaptive schemas which suggests a modest preliminary divergent/discriminant validity. It was expected that all PBQ-SF-PT subscales were positively correlated with these two constructs because, previous empirical data suggested that dysfunctional personality beliefs tend to be associated with psychopathological symptoms (Bhar et al., 2012). Therefore, these subscales seems to measure cognitive themes associated with other cognitive-affective structures (schemas) and symptoms that are clinically significant.

Both versions of the PBQ-SF-PT seem to support previous assumptions where dysfunctional beliefs are associated and predict psychopathological symptomatology. In this sense, addressing maladaptive beliefs in case conceptualization may enhance clinical decision making, especially when it comes to address cognitive structures underlying a widespread cluster of symptoms. Another aspect concerns the notion that in non-clinical samples individuals may have several personality beliefs that are not exclusive to a specific personality disorder profile. This may be due to higher levels of psychological flexibility (Faustino et al., 2021b). Clinicians may adopt an open mind when it comes to the assessment of a cognitive personality profile in patients who are in distress but do not belong to a specific diagnostic domain. The results of this study suggest that individuals may hold several beliefs that may not fit specific diagnostic criteria. However, they are significant when it comes to subjective emotional suffering which is signaled through psychopathological symptoms. In this sense, it would be interesting to explore how personality beliefs may relate with emotional schemas, which are also associated with symptomatology (Faustino et al., 2020; Faustino & Vasco, 2021). Finally, the associations between personality beliefs and early maladaptive schemas suggest close relationship between beliefs and schemas. Conceptually, a clear distinction is still lacking. But clinically, it can be stated that personality beliefs are embedded in the dysfunctional schematic structure which was developed through the repetition of the frustration of core emotional needs in the childhood and adolescent (Young et al., 2003). In this sense, individuals who developed early maladaptive schemas may also develop several dysfunctional beliefs about the self and others which can be assessed through the PBQ-SF-PT. Also, previous findings suggested that early maladaptive schemas are not attached directly with Axis II personality disorder (Beck et al., 2001). They seem to have a dimensional intrinsic feature proving to be a transdiagnostic construct which is supported by previous empirical findings (Faustino, 2022). Also, schema development may be viewed as a dialectical set of processes

where individuals elaborate on past and current emotional experiences and construct both adaptive and maladaptive views of the self and other than lie on a continuum (Faustino, 2022). This may also help to explain why the EFA-derived version of the PBQ-SF-PT may be associated with a dimensional, rather than categorical perspective of the personality functioning.

## Limitations and Future Directions

Despite some interesting results some limitations may be described. This study was conducted in a non-clinical sample, which limits the extrapolation to clinical individuals. Thus, the PBQ-SF may be better suited to assess personality disorder in clinical samples. Thus, the identification of dysfunctional beliefs may be difficult because individuals with deeply entrenched dysfunctional may see them as natural and consistent with the way they see themselves and the world. The sample under study had more women than men participants which may introduce some biases in the results. Not having a similar sample distribution of participants sociodemographic characteristics may lead to over or under representation of responses which may confound psychometric data. Therefore, these results may be interpreted with caution. This study was conducted on-line, which may have some limitations regarding the attention and commitment that individuals have when responding to questionnaires. A confirmatory factor analysis (CFA) was not performed, because an empirically factor structure of PBQ-SF in the Portuguese Population was missing. Previous findings suggested that factorial structure of PBQ-SF may differ from the proposed theory (Butler et al., 2007). In this sense, it is required to first conduct and EFA and then a CFA to test if the same factorial structure is confirmed in the Portuguese population. This study is currently in development. Thus, in the future PBQ-SF psychometrics should be studied in clinical samples to explore if the factorial structure remains stable. Rash analysis is also a procedure that would be applied to this instrument (Faustino et al., 2019). The PBQ-SF-PT should be tested with the Brief Core Schemas Scale (BCSS, Fowler et al., 2006) to deepen convergent validity. Test-retest reliability should be performed in the future to explore the stability of the PBQ-SF-PT in non-clinical and clinical samples. Also, content analysis should be considered to augment scale refinement in order to explore if some items may be rewritten to better match the Portuguese lexicon.

**Funding** None.

## Declarations

**Conflict of interest** The author states that there is no conflict of interest.

**Informed Consent** Informed consent was obtained by all individuals.

**Data Availability** Data is not available.

**Ethical Approval** This study was approved by Ethics committee of the Faculty of Psychology of the University of Lisbon.

## References

- American Psychiatric Association. (2000). DSM-IV-TR—Diagnostic and Statistical Manual for Mental Disorders. (4thEd.). Washington: American Psychiatric Association.
- American Psychiatric Association. (2013). DSM-5—Diagnostic and Statistical Manual of Mental Disorders. (5thEd). Washington, DC: American Psychiatric Association.
- Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, *25*(24), 3186–3191.
- Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York, NY: International Universities Press.
- Beck, A. T., & Freeman, A. M. (1990). *Cognitive therapy of personality disorders*. Guilford Press.
- Beck, A. T., & Beck, J. S. (1991). *The Personality Belief Questionnaire*. Unpublished manuscript, University of Pennsylvania.
- Beck, A. T., Butler, A. C., Brown, G. K., Dahlsgaard, K. K., Newman, C. F., & Beck, J. S. (2001). Dysfunctional beliefs discriminate personality disorders. *Behaviour Research and Therapy*, *39*(10), 1213–1225.
- Beck, A. T., Freeman, A., Davis, D. D., & Associates. (2004). *Cognitive therapy of personality disorders* (2nd ed.). New York: The Guildford Press.
- Bhar, S. S., Beck, A. T., & Butler, A. C. (2012). Beliefs and personality disorders: An overview of the personality beliefs questionnaire. *Journal of Clinical Psychology*, *68*(1), 88–100.
- Bishop, A., Younan, R., Low, J., & Pilkington, P. D. (2021). Early maladaptive schemas and depression in adulthood: A systematic review and meta-analysis. *Clinical Psychology and Psychotherapy*. <https://doi.org/10.1002/cpp.2630>
- Butler, A. C., Beck, A. T., & Cohen, L. H. (2007). The personality belief questionnaire-short form: Development and preliminary findings. *Cognitive Therapy and Research*, *31*(3), 357–370.
- Butler, A. C., Brown, G. K., Beck, A. T., & Grisham, J. R. (2002). Assessment of dysfunctional beliefs in borderline personality disorder. *Behaviour Research and Therapy*, *40*(10), 1231–1240.
- Canavaro, M. C. (1999). Inventário de sintomas psicopatológicos—BSI. In M. R. Simões, M. Gonçalves, & L. S. Almeida (Eds.), *Testes e Provas Psicológicas em Portugal* (Vol. II) (pp. 95–109). Braga: APPORT/SHO
- Derogatis, L. R. (1993). *BSI: Brief symptom inventory* (3rd ed.). National Computers Systems.
- Faustino, B. (2022). Confirmatory factor analysis of the European Portuguese version of the Brief Core Schemas Scale. *Psychological Reports*. <https://doi.org/10.1177/00332941211063602>
- Faustino, B., Lopes, P., Oliveira, J., Campaioli, G., Rondonone, M., Bomfim, H., & Germano, L. (2019). Psychometric and rash analysis of the UCLA loneliness scale-16 in Portuguese sample of older adults. *Psychological Studies*, *64*(2), 140. <https://doi.org/10.1007/s12646-019-00483-5>
- Faustino, B., & Vasco, A. B. (2020a). Schematic functioning, interpersonal dysfunctional cycles, and cognitive fusion in the complementary paradigmatic perspective: Analysis of a clinical sample. *Journal of Contemporary Psychotherapy*, *1*, 47–55. <https://doi.org/10.1007/s10879-019-09422-x>
- Faustino, B., & Vasco, A. B. (2020b). Early maladaptive schemas and cognitive fusion on the regulation of psychological needs. *Journal of Contemporary Psychotherapy*, *1*, 105–112. <https://doi.org/10.1007/s10879-019-09446-3>
- Faustino, B., & Vasco, A. B. (2020c). Relationships between emotional processing difficulties and early maladaptive schemas on the regulation of psychological needs. *Clinical Psychology and Psychotherapy*. <https://doi.org/10.1002/cpp.2464>
- Faustino, B., & Vasco, A. B. (2021). Emotional schemas mediate the relationship between emotion regulation and symptomatology. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01560-7>
- Faustino, B., Vasco, A. B., Dimaggio, G., Nunes da Silva, A., & Seromenho, S. (2021a). Self-assessment of patterns of subjective experience: Development and psychometric study of the States of Mind Questionnaire. *Research in Psychotherapy: Psychopathology, Process and Outcome*, *23*(3). <https://doi.org/10.4081/ripppo.2020.465>

- Faustino, B., Branco Vasco, A., Farinha-Fernandes, A., & Delgado, J. (2021b). Psychological inflexibility as a transdiagnostic construct: Relationships between cognitive fusion, psychological well-being and symptomatology. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01943-w>
- Faustino, B., Vasco, A. B., Silva, A. N., & Marques, T. (2020). Relationships between emotional schemas, mindfulness, self-compassion and unconditional self-acceptance on the regulation of psychological needs. *Research in Psychotherapy: Psychopathology, Process and Outcome*, 23(2), 145–156. <https://doi.org/10.4081/ripppo.2020.442>
- Fournier, J. C., DeRubeis, R. J., & Beck, A. T. (2012). Disfuncional cognitions in personality pathology: The structure and validity of the personality questionnaire. *Psychological Medicine*, 40(2), 795–805.
- Fowler, D., Freeman, D., Smith, B., Kuipers, E., Bebbington, P., Bashforth, H., Coker, S., Hodgekins, J., Gracie, A., Dunn, G., & Garety, P. (2006). The Brief Core Schema Scales (BCSS): Psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. *Psychological Medicine*, 36(6), 749–759. <https://doi.org/10.1017/S0033291706007355>
- Leite, D. T., Lopes, E. J., & Lopes, R. F. F. (2012). Psychometric characteristics of the Personality Belief Questionnaire—Short Form. *Revista Brasileira De Terapia Comportamental e Cognitiva*, 14(3), 70–87.
- Magalhães, E., Salgueira, A., Gonzalez, A. J., Costa, J. J., Costa, M. J., Costa, P., & Lima, M. P. (2014). NEO-FFI: Psychometric properties of a short personality inventory in portuguese context. *Psicologia: Reflexão e Crítica*, 27(4), 642–657. <https://doi.org/10.1590/1678-7153.201427405>
- Miller, J. D., Lynam, D. R., Hyatt, C. S., & Campbell, W. K. (2017). Controversies in Narcissism. *Annual Review of Clinical Psychology*, 13, 291–315. <https://doi.org/10.1146/annurev-clinpsy-032816-045244>
- Nicol, A., Mak, A. S., Murray, K., Walker, I., & Buckmaster, D. (2020). The relationships between early maladaptive schemas and youth mental health: A systematic review. *Cognitive Therapy and Research*, 44(4), 715–751. <https://doi.org/10.1007/s10608-020-10092-6>
- Renner, F., Lobbestael, J., Peeters, F., Arntz, A., & Huibers, M. (2012). Early maladaptive schemas in depressed patients: Stability and relation with depressive symptoms over the course of treatment. *Journal of Affective Disorders*, 136(3), 581–590. <https://doi.org/10.1016/j.jad.2011.10.027>
- Rijo, D. (2017). *O questionário de esquemas de Young (YSQ-S3)*. In Gonçalves, M., Simões, M. R., & Almeida, L. (Eds.), *Psicologia clínica e da saúde: instrumentos de avaliação* (pp. 159–173). Lisboa: PACTOR
- Ryan, R. B., Kumar, V. K., & Wagner, K. (2015). The Personality Beliefs Questionnaire-Short-Form: Relationship of personality disorders schemata with entitlement and dysfunctional thoughts. *Current Psychology*, 34(2) 239–247. <https://doi.org/10.1007/s12144-014-9254-1>
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston, MA: Pearson.
- Trull, T. J., Goodwin, A. H., Schopp, L. H., Hillenbrand, T. L., & Schuster, T. (1993). Psychometric properties of a cognitive measure of personality disorders. *Journal of Personality Assessment*, 61(3), 536–546. [https://doi.org/10.1207/s15327752jpa6103\\_10](https://doi.org/10.1207/s15327752jpa6103_10)
- Wink, P. (1991). Two faces of narcissism. *Journal of Personality and Social Psychology*, 61(4), 590–597. <https://doi.org/10.1037//0022-3514.61.4.590>
- Young, J. (2005). *The Young Schema Inventory, Standardized Items (3rd version)*. Schema Therapy Institute.
- Young, J. E., Klosko, J. S., & Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. Guilford Press.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.