



Validation of the Borderline Personality Features Scale for Children (BPFS-C) and for Parents (BPFS-P) for the Portuguese Population

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Abstract

Borderline Personality Disorder (BPD) is a severe disorder characterized by impulsivity, instability, emotional dysregulation and Non-Suicidal Self-Injury (NSSI). These features might be identified in adolescence and develop over time. Early identification is the first step to prevent the development of borderline features to a personality disorder. The purpose of this study was to validate the Portuguese versions of the Borderline Personality Features Scale for Children (BPFS-C) and the Borderline Personality Features Scales for Parents (BPFS-P). The psychometric properties of the scales were tested in two samples of adolescents ($N = 256$; $N = 441$) and a sample of parents ($N = 259$). Each scales' confirmatory factor analysis revealed the same unidimensional structure of the original versions, showing adequate fit indices and an acceptable internal consistency. Correlation results demonstrated satisfactory convergent validity for both versions. Measurement invariance of the BPFS-C across sex showed configural, metric and partial scalar invariance. Overall, the BPFS-C and BPFS-P are both valid and reliable measures to assess borderline features in adolescents. Employing them in clinical and educational settings might contribute to early detection and initial referral to adequate treatment.

Keywords Borderline features · Adolescents · Confirmatory factor analysis · Psychometric properties

Highlights

- The BPFS-C and BPFS-P are valid and reliable measures to assess borderline features in the Portuguese adolescent population.
- Measurement invariance of the BPFS-C across sex revealed configural and metric invariance and partial scalar invariance.
- Both scales complement each other in the assessment of borderline features in adolescents and have the advantage of being short and quick to complete.

Borderline Personality Disorder (BPD) is a severe disorder characterized by a pervasive pattern of impulsivity, instability of interpersonal relationships, self-image, affect and emotional dysregulation (American Psychiatric Association [APA] 2013; Leichsenring et al. 2011). This disorder is associated with Non-Suicidal Self-Injury (NSSI;

Brown et al. 2009; Zanarini et al. 2008), functional impairment, substantial health services utilization (Skodol et al. 2002) and alarming suicide rates ranging between 4 and 10% (Paris et al. 2009). In the general population, the prevalence of BPD is around 1.6% and may be up to 5.9% (APA 2013). As most studies on this disorder have focused on the precursors of BPD in adults, the conclusions about its etiology and development are more difficult to attain.

Since dysfunctional cognitive, affective and behavioral patterns arise under the age of 18 years, studying borderline features in adolescents is crucial (Crick et al. 2005). Several authors suggest that marked borderline features and symptoms can be found in adolescence (Bradley et al. 2005; Sharp and Bleiberg 2007; Chanen et al. 2017; Westen and Chang 2000). In fact, people with borderline traits reported

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asking for help with a mean age of 17.3 years ($SD = 6.2$ years; Zanarini et al. 2006), which emphasizes the importance of studying these features among adolescents to better understand the development of BPD. Considering this evidence and according to the 5th Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA 2013), BPD can be diagnosed in adolescents when there is a clear and recurrent pattern of symptoms occurring for more than a year. The prevalence of BPD in adolescents ranges between 1 and 5% (Sharp and Fonagy 2015).

Zanarini et al. (2006) found that adolescents with higher levels of borderline symptoms presented lower levels of social function and life satisfaction from mid-adolescence and through mid-adulthood. Furthermore, the authors found that borderline symptoms predicted lower academic and occupational achievement, less partner involvement and less attained adult developmental milestones. Borderline symptoms in adolescence were associated with borderline diagnosis, general impairment and services use at the age of 33. Carlson et al. (2009) found that borderline symptoms were significantly associated with emotional dysregulation behaviors and interpersonal relationships impairment in adulthood (e.g., self-harm, dissociation, drug use, dysfunctional relationships, criminal activity, domestic violence, suicidal ideation and history of maltreatment and family disruption). The results suggested that self-functioning disturbances in adolescence may mediate the relationship between early relational disturbance and later personality disorder. In a longitudinal study carried over the course of one year, Sharp et al. (2014) identified experiential avoidance as a predictor of borderline features, while controlling baseline levels of borderline symptoms, anxiety and depression. This study reinforced the importance of exploring underlying psychological processes, such as experiential avoidance, in the development of borderline features. Self-compassion (being kind instead of critical toward oneself, perceiving one's experiences as part of the larger human experience, and holding painful feelings in mindful awareness; Neff 2003, 2016) has been identified as a cognitive-emotional process with benefits for people with BPD (Feliu-Soler et al. 2017; Scheibner et al. 2017).

Given the evidenced severity of borderline features in adolescence, and its impact years later, it is essential to develop instruments to assess and detect these features in adolescents. For a more accurate assessment of borderline features, information about the adolescents might be collected with them and complemented with other significant sources (Morey and Meyer 2014). Parents, caregivers or teachers might be important sources of information about feelings and behaviors of their children and, as result, informant-based questionnaires methods are often used (Morey and Meyer 2014). Siever et al. (as cited in Fossati 2014) concluded that parents of patients diagnosed with BPD in adulthood reported

that their children presented a distinct pattern of unusual sensitivity, moodiness and self-soothing throughout their development, in comparison with their siblings.

Against this background, questionnaires were developed to assess borderline features in youth (Paris 2014). The Borderline Personality Features Scale for Children (BPFS-C; Crick et al. 2005) was initially designed as a dimensional measure of borderline pathology in youth and was tested in a community sample of adolescents. The authors modified the adult measure of Borderline Pathology Subscale (BOR) of the Personality Assessment Inventory (PAI; Morey 1991) and adapted it for use in children aged 9 years and older. This version included 24 age-appropriate items to reflect four domains: affect instability, identity problems, negative relationships and self-harm. Gender differences showed that girls presented higher levels of borderline features comparing to boys. Later, Sharp et al. (2014) tested the original structure with four domains in a community sample and concluded that a unidimensional short-version (with 11 items) of the BPFS-C would be a more reliable and valid measure to assess borderline features in adolescents. A clinical sample was also collected to test construct validity and the BPFS-C-11 showed good sensitivity and specificity. Translation and validation of the BPFS-C are currently underway in multiple languages and countries, which will allow important cross-cultural studies (Crick et al. 2005; Sharp et al. 2010, 2014). The Italian version of the BPFS-C-11, tested in a community sample, presented adequate internal consistency and confirmatory factor analysis supported a bi-factor model with all items significantly loading a general factor. The invariance test revealed gender invariance (Fossati et al. 2019). The version for parents (BPFS-P) developed by Sharp et al. (2010) is similar to the BPFS-C. The items of both scales have similar content but a different subject, which means that adolescents rate the items according to their internal experience, and parents according to what they think about their children's behaviors and feelings. Results showed a modest and positive correlation between BPFS-C and BPFS-P. However, positive and strong correlations were found between BPFS-P and CBCL (Child Behavior Checklist) and moderate and positive correlations between BPFS-P and YSR (Youth Self-Report). The significantly higher score of borderline features reported by youths (BPFS-C), in comparison with the mean of borderline features reported by parents (BPFS-P), indicated that adolescents perceived more difficulties than their parents did. Both BPFS-C and BPFS-P appeared to be useful instruments to detect borderline features.

Therefore, and considering a dearth of questionnaires in Portugal to assess personality pathology in adolescents and specifically borderline features, the present study aimed to translate, adapt and validate the Portuguese versions of the BPFS-C and BPFS-P.

Method

Participants

The sample of this study was composed by 256 Portuguese adolescents from general population who were in the same high school, and 259 parents of adolescents with ages between 14 and 17 years. Adolescents were 146 girls (57%) and 110 boys (43%), with ages between 14 and 18 years. In average, the sample was 15.90 years old ($SD = 1.23$) and had been in school for 9.45 years ($SD = 0.87$). All participants were single and there were non-significant differences regarding age ($t_{(254)} = 0.91, p = 0.36$) and years of schooling ($t_{(254)} = 1.61, p = 0.11$) between boys and girls. Parents were 215 (83%) females and 44 (17%) males and the mean age was 46.2 years ($SD = 5.72$). Around 10% of parents was unemployed and the mean of years of schooling was 12.81 ($SD = 4.3$). The sample of adolescents and parents were non-related. Parents were a convenience sample recruited independently, and inclusion criterion was being a parent of an adolescent with age between 14 and 19 years.

In order to assure a recommended minimum of 200 subject for each group when testing measurement invariance of the BPFS-C across sex, 58 girls and 97 boys were included in the sample of adolescents described above. Invariance analysis was conducted with a group of 204 girls with a mean age of 15.79 ($SD = 1.20$) and a group of 207 boys with a mean age of 15.61 ($SD = 1.13$). Non-significant age differences were found between groups ($t_{(409)} = 1.62, p = 0.11$).

Procedures

A request was sent to the authors of the BPFS-C (Crick et al. 2005; Sharp et al. 2014) and BPFS-P (Sharp et al. 2010) asking permission to validate both scales for the Portuguese population. Once permission granted, a Portuguese native speaker Clinical Psychologist and Researcher proficient in English, translated the original scales for Portuguese language. Subsequently, the translated version was back translated to English by another Portuguese Researcher, also proficient in English. At the end, the paper's authors gathered to review and consensually agreed on a final version to be tested while taking into account the backtranslations and the original scales. A convenience sample of 15 adolescents (ages between 13 and 18 years) responded and provided feedback about the overall scale and identified the need for minor semantic changes to improve understandability. For instance, as suggested by participants, some words were replaced for others more accessible and broadly used amongst adolescents.

Data was collected in May of 2018 in high schools located in the central region of Portugal. Schools' head

teachers, teachers, parents and participants were informed about the goals of the study and gave their informed consent. Questionnaires were completed in classroom and adolescents were informed about aspects of confidentiality and voluntary participation. Researchers and teachers were in the same room with the adolescents to provide clarification and ensure independent responding. In order to collect the parents' sample, a different group of adolescents were asked to hand questionnaires to their parents, which were later collected by researchers at school. These questionnaires' front page clarified the purpose of the study, ethical questions, informed consent, confidentiality, data protection and voluntary participation.

Measures for Adolescents

The Borderline Personality Features Scale for Children (BPFS-C; Crick et al. 2005; Sharp et al. 2014) is composed by 24 items that constitute 4 factors (*Affect Instability, Identity Problems, Negative Relationships and Self-harm*) and assess how participant feel about themselves and others (Sharp et al. 2014, 2015). Items are rated on a 5-point Likert scale from *never true* (1) to *always true* (5). Responses across items are summed, with higher sums indicating a greater level of borderline features. The original study of 24 items presented good internal consistency ($\alpha = 0.76$; Crick et al. 2005), as well as the 11-item version ($\alpha = 0.85$; Sharp et al. 2014). The psychometric properties of the Portuguese version are further discussed in this study.

The Depression Anxiety Stress Scale (DASS-21; Lovibond and Lovibond 1995; Portuguese version by Pais-Ribeiro et al. 2004) has 21 items to assess depression, anxiety and stress, rated on a 4-point Likert scale from *did not apply to me at all* (0) to *applied to me very much, or most of the time* (3). Higher scores indicate higher negative affect. The original version revealed good internal consistency ($\alpha = 0.91$ for *Depression*, $\alpha = 0.84$ for *Anxiety*, $\alpha = 0.90$ for *Stress*). The Portuguese version also presented good internal consistency ($\alpha = 0.85$ for *Depression*, $\alpha = 0.74$ for *Anxiety* e $\alpha = 0.81$ for *Stress*). In this study the Cronbach's alpha was 0.87 for *Depression*, 0.75 for *Anxiety* and 0.82 for *Stress*.

The Fear of Compassion Scale (FCS; Gilbert et al. 2010; Portuguese version for adolescents by Duarte et al. 2014) is composed of 38 items rated on a 5-point Likert scale from *don't agree at all* (0) to *completely agree* (4). Items are divided into three subscales: *Fear of Compassion for Others* (10 items assessing the fear of expressing compassion for others; e.g. "Being too compassionate makes people soft and easy to take advantage of"), *Fear of Compassion from Others* (13 items measuring the fear of responding to the expression of compassion from others; e.g., "If people are kind I feel they are getting too close") and *Fear of Compassion for Self* (15 items assessing the fear of expressing

kindness and compassion towards the self; e.g., “I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief”). The Portuguese version showed good internal consistency: $\alpha = 0.88$ for *Fear of Compassion from Others*; $\alpha = 0.86$ for *Fear of Compassion for Others*, and $\alpha = 0.93$ for *Fear of Compassion for Self* (Duarte et al. 2014). In this study, Cronbach’s alpha was 0.83 for *Fear of Compassion from Others*, 0.88 for *Fear of Compassion for Others* and 0.92 for *Fear of Compassion for Self*.

The Self-Compassion Scale (SCS; Neff 2003; Portuguese version for adolescents by Cunha et al. 2016) was designed to assess self-compassion, which can be defined as the capacity to be kind and understanding towards oneself in difficult moments. The 26 items constitute 6 subscales: *Self-kindness* (5 items; e.g., “I’m kind to myself when I’m experiencing suffering.”), *Isolation* (4 items; e.g., “When I’m really struggling I tend to feel like other people must be having an easier time of it.”), *Common Humanity* (4 items; e.g., “When I’m down and out, I remind myself that there are lots of other people in the world feeling like I am.”), *Self-judgment* (5 items; e.g., “I’m disapproving and judgmental about my own flaws and inadequacies”), *Mindfulness* (4 items; e.g., “When I’m feeling down I try to approach my feelings with curiosity and openness.”) and *Over-identification* (4 items; e.g., “When I’m feeling down I tend to obsess and fixate on everything that’s wrong.”). Items are rated on a 5-point Likert scale from *almost never* (1) to *almost always* (5). A total score is obtained by reversing the scores of *Isolation*, *Self-judgment* and *Over-identification* subscales and then calculating a total mean with the 6 subscales. Higher scores reflect higher level of self-compassion. SCS presented good internal consistency in the original version ($\alpha = 0.92$) and in the Portuguese version ($\alpha = 0.85$). In the current study, Cronbach’s coefficient for the total scale was $\alpha = 0.89$.

The Social Safeness and Pleasure Scale (SSPS; Gilbert et al. 2009; Portuguese version for adolescents by Dinis et al. 2008) assesses how people feel in several social interactions. It is composed of 11 items, rated on a 5-point Likert scale from *almost never* (1) to *almost all the time* (5). The original version presented very good internal consistency ($\alpha = 0.91$), as well as the Portuguese version ($\alpha = 0.92$). In the present study, Cronbach’s alpha was 0.93.

Measures for Parents

The Borderline Personality Features Scale for Parents (BPFS-P; Sharp et al. 2010) was designed to assess borderline features in adolescents according to the parents’ perspective. The scale is composed of 24 items rated on a 5-point Likert scale from *never true* (1) to *always true* (5) and higher scores reflect higher levels of adolescents’ borderline

features. Psychometric properties of the Portuguese version are presented in this study.

The Strengths and Difficulties Questionnaire—for Parents (SDQ-Por; Goodman, 1997; Portuguese version by Fleitlich et al. 2005) was developed to assess psychological adjustment of children and youths from parents’ perspective. The 25 items are rated on a 3-point Likert scale from *not true* (0) to *certainly true* (2) and compose 5 subscales (*Emotional Symptoms*, *Conduct Problems*, *Hyperactivity-Inattention*, *Peer Problems*, *Prosocial Behavior*). Total difficulties are calculated with a sum of all subscales except for prosocial behavior. Goodman (2001) found good internal consistency for the SDQ—for parents, with a Cronbach’s coefficient of 0.82 for total difficulties. In the present study, Cronbach’s coefficient for total difficulties was 0.77.

Data Analyses

The present study intended to translate and adapt the Portuguese version of the BPFS-C and BPFS-P, with the ultimate goal of establishing its psychometric properties through (a) confirming its unidimensional factor structure; (b) examining reliability; and (c) analyzing convergent validity.

Confirmatory factor analysis (CFA) is a common statistical test used to investigate construct validity. Specifically, a CFA tests whether the data fit a theorized measurement model focusing on modeling the relationship between manifest indicators and underlying latent factors (Gallagher and Brown 2013). We conducted a CFA for the BPFS-C and BPFS-P using MPLUS software version 6.2 (Muthén and Muthén 1998–2011). Chi-square was used to test model fit. The following recommended fit indexes were used: Tucker–Lewis Index (TLI); Comparative Fit Index (CFI); Standardized Root Mean Residual (SRMR); Root Mean Square Error of Approximation (RMSEA). Model fit was considered adequate using the cut-offs suggested by Hair et al. (1998): RMSEA < 0.07; CFI > 0.90; TLI > 0.90; SRMR < 0.08. Measurement invariance is conducted to examine the equivalence of a construct across heterogeneous groups. In other words, to demonstrate whether an instrument presents the same psychometric properties to different groups (Putnick and Bornstein 2016). We tested measurement invariance of the BPFS-C across sex through a sequence of increasingly restrictive models: equally requiring number of factors between boys and girls (configural invariance), then equally requiring item factor loadings (metric invariance) and equally requiring item intercepts (scalar invariance). We used the recommended criterion of a -0.01 change in CFI, combined with changes in RMSEA of 0.015 and SRMR of 0.030 (for metric invariance) or 0.015 (for scalar invariance; Chen 2007).

Descriptive statistics, Pearson correlations and comparison between males and females (Student's *t* test) were analyzed with IBM SPSS Statistics version 23. Reliability was examined through Cronbach's alpha (overall correlation between the items), item-total correlations and alpha change (particularly increase) if an item was deleted. Composite reliability was also examined (Peterson and Kim 2013). We considered good reliability when Cronbach's alphas were above 0.70 (Field 2013). Additionally, convergent validity was assessed through Pearson correlation coefficients between the BPFSC and BPFSC-P scores and other related constructs. According to Dancey and Reidy (2017), Pearson correlation coefficients between 0.10 and 0.39 were considered weak, between 0.40 and 0.69 moderate and above 0.70 strong. Student's *t* test were conducted to examine sex differences and effect sizes were analyzed according to Cohen (1988) considering *d* values between 0.20 and 0.49 small, between 0.50 and 0.79 medium, and above 0.80 large.

Results

Descriptive Results

Univariate outliers were identified, and analyses were conducted with and without these cases. Since no significant changes were found, we decided to keep the outliers. Skewness and Kurtosis were analyzed, and no severe violations were found in both samples ($|Sk| < 3$ and $|Kul| < 8$; Kline 2011). Due to the use of Structural Equation Modeling (SEM), multivariate normality was examined. In both samples, data did not follow a normal distribution. For adolescents, Mardia's multivariate skewness statistic was 92.53 ($p < 0.001$) and Mardia's multivariate kurtosis statistic was 684.04 ($p < 0.001$). For parents, Mardia's multivariate skewness statistic was 119.25 ($p < 0.001$) and Mardia's multivariate kurtosis statistic was 734.89 ($p < 0.001$). Thus, we opted to use the Robust Maximum Likelihood (MLR) estimation method for CFA. As recommended, items presenting crossloading values greater than 0.32 were excluded (Tabachnick and Fidell 2013). Parametric tests were performed since they are robust to normality assumption violations and both samples have an acceptable size (Marôco 2010).

Confirmatory Factor Analysis of BPFSC

A CFA with the original 24 items divided into 4 subscales proposed by Crick et al. (2005), was conducted and results revealed an unacceptable adjustment, as obtained by Sharp et al. (2014). In our data, fit indexes were RMSEA = 0.07; CFI = 0.79; TLI = 0.77; SRMR = 0.07. Then, the

Table 1 Mean (M), standard deviation (SD), item-total correlation (*r*), Cronbach's alpha if item deleted (α) and standardized factor loadings (λ) of the 11 items of BPFSC-C ($N = 256$)

Items (abbreviated content)	M	SD	<i>r</i>	α	λ
2. Feel very lonely	2.27	0.96	0.38	0.75	0.50*
6. Let people know... hurt me	3.04	1.28	0.36	0.76	0.38*
8. Feelings are strong	3.26	1.04	0.30	0.76	0.33*
9. Something important missing	2.89	1.14	0.56	0.73	0.68*
11. Careless with things	2.23	0.99	0.36	0.76	0.40*
13. People... let me down	2.71	1.04	0.54	0.73	0.65*
14. Back and forth between feelings	2.68	0.97	0.57	0.73	0.61*
15. Get into trouble... do without thinking	2.12	0.98	0.39	0.75	0.41*
16. Worry that people will leave...	3.90	1.11	0.34	0.76	0.39*
18. How I feel about myself changes	2.85	1.03	0.57	0.73	0.57*
20. Friends and I are mean to each other	2.27	0.96	0.38	0.75	0.50*

Bold items indicate the items maintained to the final version

* $p < 0.001$

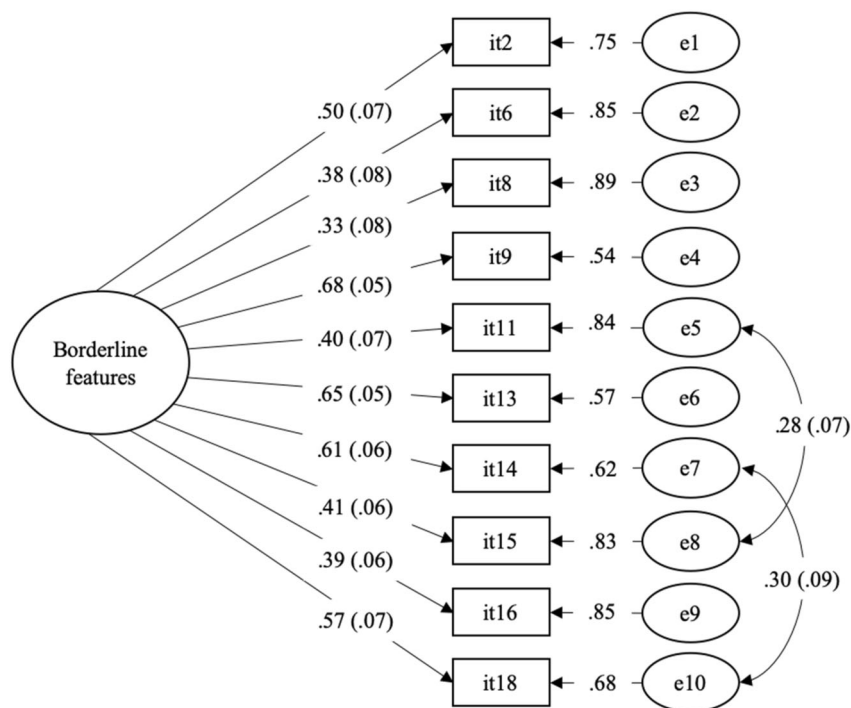
unidimensional model proposed by Sharp et al. (2014) was tested (Table 1). Using the 11 items of the BPFSC-11, chi-squared test presented a significant result ($\chi^2(44, N = 256) = 111.54, p < 0.001$). Other fit indexes for the unidimensional model also showed unacceptable fit (RMSEA = 0.08; CFI = 0.85; TLI = 0.81; SRMR = 0.06). Internal consistency would not increase if any item was deleted, however item 20 ("Lots of times, my friends and I are really mean to each other.") presented a loading of 0.28 (under the recommended 0.32; Tabachnick and Fidell 2013), and so it was removed. Considering the modification indexes, error of item 11 was correlated with error of item 15 (both have content about impulsivity) and error of item 14 was correlated with error of item 18 (both evaluate emotional lability).

In the final solution of 10 items (Fig. 1), chi-squared test was significant ($\chi^2(33, N = 256) = 61.94, p = 0.002$), as well as all factor loadings ($p < 0.001$). Fit indexes revealed a better adjustment (RMSEA = 0.06; CFI = 0.93; TLI = 0.90; SRMR = 0.05) when compared with the 11-item solution. Results showed that the BPFSC had an acceptable construct validity.

Reliability of BPFSC

In Table 1 are presented means of the items, standard-deviations, item-total correlations, Cronbach's coefficient and Cronbach's coefficient if item is deleted. Generally, results revealed an adequate reliability, with a Cronbach's alpha coefficient of 0.77. Item-total correlations ranged

Fig. 1 CFA results for the BPFS-C ($N = 256$). Standardized coefficients and measurement errors are presented



between 0.30 and 0.57, which can be considered weak and moderate according to Dancy and Reidy (2017). Composite reliability obtained for the total scale was 0.77.

Convergent Validity of BPFS-C

Convergent validity was tested through correlations between borderline features (BPFS-C) and other related constructs such as depression, anxiety, stress, self-compassion, fears of compassion and social safeness (Table 2). Pearson coefficients were significant ($p < 0.01$), as expected. Results showed moderate positive correlations between borderline features (BPFS-C) and depression, anxiety and stress (DASS-21); weak positive correlations with fear of compassion for others (FSC) and fear of compassion for self (FCS), moderate positive correlations with fears of compassion from others (FSC); moderate negative correlations with self-compassion (SCS) and weak negative correlations with social safeness (SSPS).

Borderline Features, Gender and Age

Differences in borderline features between boys and girls were explored through a student’s t test. Results ($t_{(254)} = 3.15, p < 0.01$) showed that adolescent girls reported higher levels of borderline features ($M = 28.98, SD = 5.90$) in comparison to adolescent boys ($M = 26.62, SD = 5.94$), with a small effect size ($d = 0.40$). A nonsignificant correlation was found between borderline features and age ($r = 0.00, p = 0.97$).

Table 2 Pearson correlations BPFS-C and other variables in study ($N = 256$)

	Borderline features (BPFS-C)
Self-compassion (SCS)	−0.58*
Depression (DASS-21)	0.55*
Anxiety (DASS-21)	0.53*
Stress (DASS-21)	0.60*
Fear of compassion for others (FSC)	0.24*
Fear of compassion for self (FCS)	0.38*
Fears of compassion from others (FSC)	0.50*
Social safeness (SSPS)	−0.31*

SCS Self-Compassion Scale, DASS-21 Depression Anxiety Stress Scale, FSC Fear of Compassion Scale, SSPS Social Safeness and Pleasure Scale

* $p < 0.001$

Invariance Analysis

Measurement invariance of the BPFS-C across sex was tested. Configural invariance was established based on acceptable fit indexes attained in the group of boys ($N = 207$; CFI = 0.94, RMSEA = 0.06, SRMR = 0.05) and girls ($N = 204$; CFI = 0.95, RMSEA = 0.06, SRMR = 0.05) separately. Then, metric invariance was tested, and results supported metric invariance, with item factor loadings equivalence constraints only producing minimal decrease in model fit ($\Delta CFI = 0.00, \Delta RMSEA = 0.00, \Delta SRMR = 0.01$). Partial scalar invariance was achieved after allowing

the intercepts of items 4, 5 and 8 ($\Delta CFI = 0.01$, $\Delta RMSEA = 0.00$, $\Delta SRMR = 0.00$) to vary between groups.

Confirmatory Factor Analysis of BPFS-P

A CFA with the 24 items of the BPFS-P was performed using the Maximum Likelihood Robust estimation method. In this model, chi-squared test presented a significant result ($\chi^2 (252, N = 259) = 739.90, p < 0.001$) and fit indexes indicated a poor fit to the empirical data ($RMSEA = 0.09$; $CFI = 0.70$; $TLI = 0.67$; $SRMR = 0.09$). All items with loadings under 0.32 (Tabachnick and Fidell 2013) were removed and a 11-item solution was obtained. Given the modification indexes, some items were correlated in the model. Item 19 was correlated with item 17, which is acceptable given that both relate to impulsivity and difficulties in controlling behaviors. Item 18 was correlated with item 14 because both evaluate emotional lability and oscillation between different feelings.

In the final 11-item solution (Fig. 2), chi-squared test was significant ($\chi^2 (42, N = 259) = 82.03, p < 0.001$). Fit indexes revealed good adjustment ($RMSEA = 0.06$; $CFI = 0.95$; $TLI = 0.93$; $SRMR = 0.05$) and all factor loadings were significant ($p < 0.001$). Results showed that the BPFS-P had an acceptable construct validity.

Reliability of BPFS-P

Cronbach’s coefficient for the BPFS-P of 11 items was good ($\alpha = 0.88$). In Table 3 are presented means of the items, standard-deviations, item-total correlations, and Cronbach’s coefficient if item is deleted. All item-total correlations ranged between 0.53 and 0.68. Composite reliability was 0.88 for total scale.

Convergent Validity of BPFS-P

Convergent validity was analyzed testing the correlation between borderline features (BPFS-P) and total difficulties (SDQ-for Parents), which includes items about emotional symptoms, conduct problems, hyperactivity-inattention and peer problems. It was found that borderline features had a significant, moderate and positive correlation with total difficulties ($r = 0.50; p < 0.001$).

Discussion

The current study aimed to translate, adapt and validate the BPFS-C and BPFS-P for the Portuguese population. Based on our bibliographic review, there was no instrument in Portugal to assess borderline features in people under the

Fig. 2 CFA results for the BPFS-P ($N = 259$). Standardized coefficients and measurement errors are presented

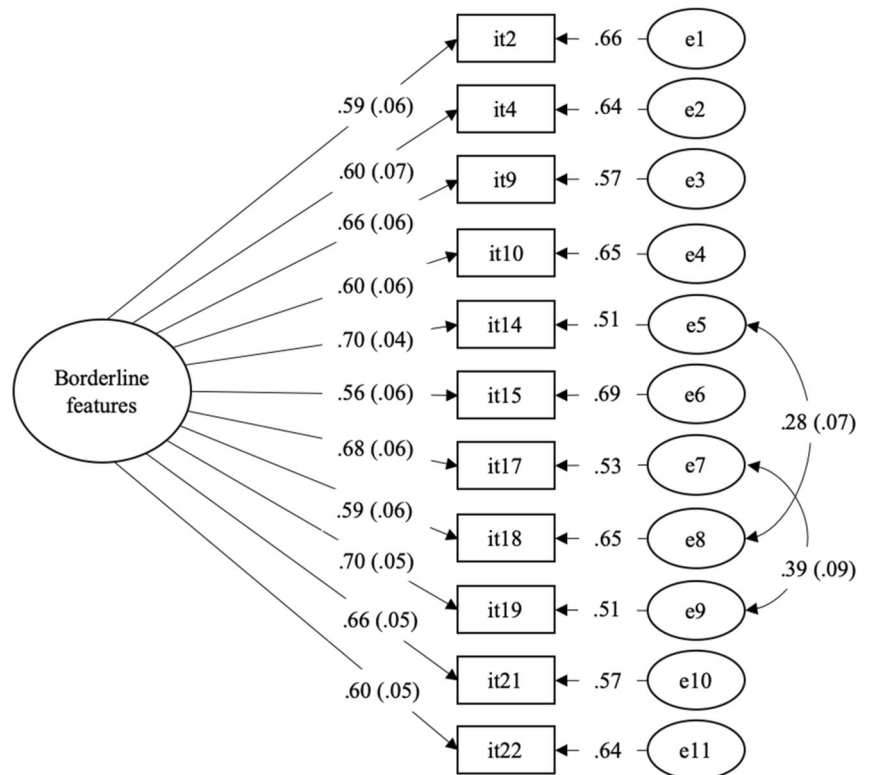


Table 3 Mean (M), standard deviation (SD), item-total correlation (r), Cronbach's alpha if item deleted (α) and standardized factor loadings (λ) of all items of the BPFSS-P ($N = 259$)

Items (abbreviated content)	M	SD	r	α	λ
2. Feel very lonely	1.92	0.92	0.54	0.87	0.59*
4. Do things... wild/out of control	1.61	0.88	0.57	0.87	0.60*
9. Something important missing	2.27	1.15	0.60	0.87	0.66*
10. Friends... treated him/her badly	1.50	0.80	0.54	0.87	0.60*
14. Back and forth between feelings	1.97	0.97	0.68	0.86	0.70*
15. Get into trouble... do without thinking	1.41	0.72	0.53	0.87	0.56*
17. When mad, can't control what he/she does	1.85	1.02	0.66	0.86	0.68*
18. How he/she feels about him/herself changes	2.02	0.97	0.58	0.87	0.59*
19. Upset, he/she does things... aren't good	1.56	0.84	0.68	0.86	0.70*
21. Get so mad, he/she can't let all anger out	1.65	0.89	0.62	0.87	0.66*
22. He/she gets bored very easily	2.08	1.02	0.55	0.87	0.60*

* $p < 0.001$

age of 18. Hence, these new scales add an important contribution, especially for early detection of borderline traits.

The 24-item BPFSS-C with four domains developed by Crick et al. (2005) was tested in the current study and showed an unstable factor structure. Thus, a unidimensional version of 11 items suggested by Sharp et al. (2014), was tested and confirmed through a CFA. The final solution resulted in a 10-item scale with adequate construct and convergent validity and satisfactory internal consistency. As we intended to validate a measure with robust psychometric quality, the item "Lots of times, my friends and I are really mean to each other" was removed for showing a poor factor loading. The original author of the 11-item version did not oppose this decision. The correlations between the errors of items 11 and 15 (both having content about impulsivity) and 14 and 18 (both evaluating emotional lability) was not considered an issue due to the similar content of the items (Brown 2015). All items presented acceptable factor loadings and they are representative of thoughts, feelings and behaviors related to borderline features. Measurement invariance across sex was tested, and results showed that the basic organization of the BPFSS-C was supported for boys and girls (configural invariance) and each item contributed similarly to the latent construct (metric invariance). Partial scalar invariance was attained after allowing three item intercepts to vary between groups, which means that seven of the ten factor loadings and intercepts are equal for boys and girls. These results support a general measurement invariance of the BPFSS-C across sex, similar to the Italian version (Fossati et al. 2019), which means that it does not require gender-specific adaptations.

In terms of convergent validity, results demonstrated significant correlations between the BPFSS-C and negative affect, aligning with previous studies (Hepp et al. 2018; Sharp et al. 2014). Our results showed moderate and significant correlations between borderline features and depression, anxiety and stress. Self-compassion was negatively and significantly associated with borderline features, which support previous research about the benefits of self-compassion in BPD (Feliu-Soler et al. 2017; Scheibner et al. 2017) and in adolescents with non-suicidal self-injury (Xavier et al. 2016). Additionally, results showed that adolescents with high levels of borderline features tend to fear compassion in different forms: they fear being compassionate to other people, fear to be compassionate with themselves and, above all, they fear compassion from others. This last point may be related to the negative relationship between borderline features and social functioning (Zanarini et al. 2006). Adolescents with high borderline features may experience the world as unsafe and have difficulties in establishing intimate relationships with other people, and seem resistant to kind and warm social interactions.

As previously discussed in some studies, females presented higher borderline features in comparison to males in adolescence (Chabrol et al. 2001; Crick et al. 2005; Haltigan and Vaillancourt 2016) and adulthood (Trull et al. 2010). Our results showed the same tendency, with girls showing higher levels of borderline features. Moreover, according to DSM-5 (APA 2013), women are three times more diagnosed with BPD than men, however there is no solid consensus since some studies have found no gender differences in BPD (Grant et al. 2008). Although the age-range of the adolescents' sample was narrow (between 14 and 18 years old), the relationship between age and borderline features was explored, showing a non-significant correlation.

Concerning the BPFSS-P, a similar process was conducted, and the 24-item scale proposed by Crick et al. (2005) was tested through a CFA. Having eliminated some items with unacceptable factor loadings and correlating error of item 17 with error of item 19 and error of item 14 with error of item 18, a final 11-item solution was achieved. The correlations between these errors were not deemed problematic due to their similar content. We hypothesized that some of the covariance not explained by the latent variable was dependent on a common external cause (Brown 2015). Content of item 17 and 19 are both related to impulsivity and struggles to control dysfunctional behaviors, and items 14 and 18 relate to emotional lability and instability. The final model presented good fit indexes and construct validity, acceptable convergent validity and very good internal consistency.

Borderline features reported by parents were associated with adolescents' general difficulties, namely emotional

symptoms, conduct problems, hyperactivity-inattention and peer problems. These results corroborate that the higher the levels of borderline features, the higher the difficulties. As discussed above, negative affect is associated with borderline traits, and so are the emotional symptoms (fears, worries, dependence and unhappiness), conduct problems (fights, tempers, lies, steals and disobedience), hyperactivity-inattention (distractibility, low persistence and reflection, restlessness and fidgetiness) and peers problems (interpersonal issues).

Overall, our results suggest that the short form versions of the BPFS-C and BPFS-P are psychometrically reliable and valid measures for assessing borderline features in adolescents. Although both versions assess adolescents' borderline features, we noticed that different content is assessed by the BPFS-C and BPFS-P. The version for adolescents has more items related to thoughts and feelings, which entails the intrapersonal experiences of borderline features. On the other hand, the version for parents includes items with a more observable content, such as behaviors and feelings expression, indicating that it is probably easier for parents to accurately rate items about what they can observe in their children. It appears that the two scales can complement each other by giving more information regarding the adolescents. Therefore, using both instruments is encouraged to attain a more accurate and complete assessment, in clinical and educational settings. Early detection and initial referral to adequate intervention of adolescents with borderline features may contribute to prevent the development of these features. A good advantage of the two versions is their short length and quick response time.

Limitations

Some limitations of this study are acknowledged to help guide future research. Firstly, it is important to evaluate the temporal reliability of Portuguese versions of the BPFS-C and BPFS-P through a test-retest analysis. While this has been done in other samples (e.g., Fossati et al. 2019), it needs to be addressed in the newly developed Portuguese versions. Additionally, convergent validity was examined in an acceptable but sub-optimal way due to our sample size, and there was no other measure in Portugal to assess borderline features to include in the convergent validity analysis. Secondly, this study's adolescent community-based sample does not allow to draw conclusions about the validity of the Portuguese version in clinical samples; therefore, future studies are encouraged to analyze the psychometric properties of the BPFS-C and BPFS-P in clinical samples and to explore their sensitivity and specificity. The fact that these instruments are available in different languages allow the realization of transcultural

studies, which could make important contributions to a better understanding of the expression of borderline features among adolescents from different cultures. Additionally, parents and adolescents who participated in the current study did not have a kinship bond, so we could not test cross-informant concordance (child self-report vs. parent-report). Since these data was collected in a suboptimal controlled environment without the direct interaction between researchers and parents, future research might address this shortcoming.

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Author Contributions D.C.: collected data, conducted the data analyses, and wrote the paper. M.L.: collaborated with the data collection and writing of the paper. M.C.: reviewed the final manuscript. C.S.: reviewed the final manuscript. P.C.: collaborated with the design and reviewed the final manuscript

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed were in accordance with the ethical standards of the Ministry of Education and the National Commission for Data Protection of Portugal (number: 6713/2018) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Written informed consent was obtained from all individual participants and their parents.

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