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Psychometric Properties of the Borderline Personality Features Scale for Children-11 (BPFSC-11) in a Sample of Community Dwelling Italian Adolescents

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Abstract: The aims of the current study were to assess the psychometric properties of the Borderline Personality Features Scale for Children-11 (BPFSC-11) in adolescence. In particular, we aim at evaluating: the internal consistency and six-month test-retest reliability of the Italian translation of the BPFSC-11, its factor structure, and its convergent validity. Eight hundred five community dwelling adolescents were administered the Italian translations of the BPFSC-11 and Personality Diagnostic Questionnaire-4+(PDQ-4+) Borderline Personality Disorder (BPD) scale. The BPFSC-11 showed adequate internal consistency (Cronbach's α = .78) and moderate six-month test-retest stability. Although confirmatory factor analysis did not support a one-factor model of the BPFSC-11 items, a bi-factor model (RMSEA = .04) showed that all BPFSC-11 items loaded significantly onto a general common factor, with two specific factors capturing largely residual variance due to distribution artifacts. In this study, the bivariate correlation between the BPFSC-11 and the PDQ-4+BPD scale was .64 ($p < .001$). Finally, the BPFSC-11 showed gender invariance across items. In summary, our findings support the reliability and validity of the BPFSC-11 as a measure of self-reported borderline personality features in community dwelling adolescents.

Keywords: BPFSC-11, Italian version, reliability, validity, adolescence

Borderline Personality Disorder (BPD) is a debilitating disorder that occurs in approximately 1–3% of the general population (Leichsenring, Leibing, Kruse, New, & Leweke, 2011) and is associated with heightened risk for a number of self-destructive behaviors (American Psychiatric Association, 2013; Leichsenring et al., 2011). Given the significant costs associated with adult BPD, there has been an increase in research examining BPD in adolescence (e.g., Sharp, Ha, Michonski, Venta, & Carbone, 2012). Psychometric data clearly indicate that BPD can be reliably diagnosed in adolescence using descriptive diagnostic criteria (e.g., Michonski, Sharp, Steinberg, & Zanarini, 2013).

Valid and reliable instruments that are both time and cost effective would greatly assist clinicians in the assessment of BPD features in adolescence (Sharp et al., 2012). Crick, Murray-Close, and Woods (2005) developed the Borderline Personality Features Scale for Children (BPFSC); originally,

the BPFSC was a 24-item, Likert-type self-report questionnaire which was developed by modifying the borderline scale of the Personality Assessment Inventory (PAI; Morey, 1991), which is a reliable and valid tool used to assess borderline personality features among adults. Although an adolescent version of the PAI was developed, its items remained largely unchanged from the adult version. The BPFSC items were age-appropriate in terms of item content and wording, and aimed to reflect the original four domains of the PAI (affective instability, identity problems, negative relationships, and self-harm). BPFSC scores were shown to converge with interview-based measures of BPD in adolescent inpatients (Chang, Sharp, & Ha, 2011) and to have concurrent validity in a community sample of boys (Sharp, Mosko, Chang, & Ha, 2011). Despite these encouraging findings, Sharp, Steinberg, Temple, and Newlin (2014) did not find support for the hypothesized 4-factor structure of the 24-item BPFSC in a community sample of

964 adolescents. Item Response Theory (IRT) analysis showed instances of local dependence among selected item pairs; as a consequence, items were eliminated, creating an 11-item version of the BPFSC (BPFSC-11). Sharp and colleagues (2014), using a different sample of 371 inpatient adolescents, demonstrated similar indices of construct validity as observed for the BPFSC total score with the BPFSC-11 scores and found evidence for good criterion validity. To our knowledge, no study on the psychometric properties of the BPFSC-11 in adolescent samples has been carried out beyond Sharp and colleagues' validation study, and no study tested the BPFSC-11 in a cultural context different from the U.S. Moreover, although the most discriminating BPD features (i.e., core diagnostic features) in adolescence may be different between female and male adolescents (e.g., Fossati, 2014), few studies examined the invariance of the factor model of BPD scales across subgroups based on gender (e.g., Michonski et al., 2013), and none of them relied on the BPFSC-11.

Reliable and valid self-report measures for the assessment of BPD during adolescence are currently available in their Italian translations: for example, the Personality Diagnostic Questionnaire-4+BPD Scale (PDQ-4+; Fossati, Gratz, Maffei, & Borroni, 2013; Hyler, 1994) and the Borderline Personality Inventory (BPI; Fossati, Feeney, Maffei, & Borroni, 2014; Leichsenring, 1999). However, none of these instruments currently validated in Italy were developed specifically to assess BPD in adolescence, and the availability of measures specifically designed to capture BPD features as they manifest themselves during adolescence would be of significant help to clinicians for detecting BPD (Sharp et al., 2014). Against this background, the major aim of the present study was to assess the psychometric properties of the BPFSC-11 in a large sample of Italian community dwelling adolescents. In particular, in the present study, we aim at evaluating:

(a) the internal consistency and six-month test-retest reliability of the Italian translation of the BPFSC-11;
(b) the factor structure of the BPFSC-11;
(c) the gender invariance of the BPFSC-11 factor structure;
(d) the convergent validity of the BPFSC-11 total score with another self-report measure of BPD features based on *DSM-IV/DSM-5* Section II (APA, 2000, 2013) criteria.

Method

Participants

In order to participate in the present study, participants needed to be adolescent high school students. Participants

were 817 adolescents who were attending a public high school in Rome, Italy metropolitan area with specialization in teacher training or social sciences; 525 participants (64.3%) were female (mean age = 16.43 years, $SD = 1.40$ years, range: 14–20 years), and 292 (35.7%) were male (mean age = 16.41 years, $SD = 1.48$ years, range: 14–20 years). Data were incomplete for 12 participants (1.5%; questionnaires were considered incomplete if any of the items of given scales was not answered) and these participants were excluded from the final sample. Participants with incomplete questionnaires did not differ from participants with complete questionnaires on gender, $\chi^2(1) = 1.93$, $p > .10$, $\varphi = .05$, and age, $t(815) = 0.22$, $p > .70$, $d = 0.06$.

The final sample was comprised of 805 high school students: 515 (64.0%) were female (mean age = 16.42 years, $SD = 1.47$ years, range: 14–20 years) and 290 (36.0%) were male (mean age = 16.43 years, $SD = 1.39$ years, range: 14–20 years). Participants' mean age was 16.43 years, $SD = 1.42$ years, range: 14–20 years. The gender composition of the sample closely reflected the gender-based preference of the school.

In order to participate in the present study, participants were required to speak Italian as their first language in order to avoid cultural and lexical bias in questionnaire responses. After obtaining Institutional Review Board approval from the university and the principals of the schools, researchers recruited adolescents from classrooms. Written informed parent consent and adolescent assent were obtained prior to study participation.

The BPFSC-11 six-month test-retest reliability was evaluated in a subsample of 471 (58.5%) adolescent participants (male = 285, female = 186, mean age = 16.30 years, $SD = 1.39$ years). When compared to participants who did not participate, the retest subsample adolescents were significantly younger than adolescents who did not participate in the test-retest study, $t(803) = -2.97$, $p < .01$, $d = -0.21$, and showed a significantly higher proportion of female participants, $\chi^2(1) = 5.92$, $p < .05$, $\varphi = .09$, although the effect size indices for these differences were small by conventional standards (Cohen, 1988). Interestingly, test-retest participants did not show any significant difference from participants who did not take part in the test-retest study on the BPFSC-11 total score at the baseline, $t(803) = -1.02$, $p > .30$, $d = -0.07$.

Measures

Borderline Personality Features Scale-11 (BPFSC-11; Sharp et al., 2014)

The BPFSC-11 consists of 11 items measuring borderline personality features in childhood (for ages 9 and older, including adolescents). Items in the BPFSC-11 comprise

behavior reflective of core BPD features, namely, affective instability, identity problems, and negative relationships. No "self-harm" item has been included in the BPFSC-11. Sample items include "How I feel about myself changes a lot" and "I want to let some people know how much they've hurt me." These items assess how participants feel about themselves and other people, and are rated on a 5-point Likert-type scale ranging from *not true at all* to *always true*. The BPFSC-11 yields a total score (range: 11–55) measuring the overall level of borderline characteristics; the higher the BPFSC-11 total score, the greater the intensity of BPD features. The BPFSC-11 has shown adequate psychometric properties (Cronbach's α = .85) in a sample of adolescent inpatients (Sharp et al., 2014).

Participants were administered the BPFSC-11 in its Italian translation. Equivalence with the original meaning of the items was the guiding principle in the translation process (Denissen, Geenen, van Aken, Gosling, & Potter, 2008).

Personality Diagnostic Questionnaire–4+ Borderline Personality Disorder (BPD) Scale (PDQ-4+; Hyler, 1994)

The PDQ-4+ is a self-report questionnaire with 99 true/false items and is designed to measure the 10 personality disorders included in *DSM-IV* axis II/*DSM-5* Section II and the two personality disorders (PDs) proposed for further research in the *DSM-IV*. The PDQ-4+ has one item for each *DSM-IV*/*DSM-5* personality disorder criterion, which is separately summed to generate the total scores for each scale. Since the present study focused on BPD, participants were administered only the 9-item BPD scale. The Italian translation of the PDQ-4+ BPD scale has been found to have adequate psychometric properties (Cronbach's α = .70) among Italian adult clinical participants (Fossati et al., 1998) and Italian high school students (e.g., Fossati et al., 2013).

Owing to space consideration we included a detailed description of the translation procedures and an extensive description of data analysis as Electronic Supplementary Material, ESM 1.

Results

BPFSC-11 Descriptive Statistics and Internal Consistency Analyses

BPFSC-11 descriptive statistics, Cronbach's alpha value, item analyses in the whole sample and by gender, as well as gender comparisons are listed in Table 1.

BPFSC-11 Six-Month Test-Retest Reliability

Both Pearson *r* coefficient and interclass correlation (ICC) coefficient for absolute agreement based on one-way random effect ANOVA were computed in order to evaluate the six-month test-retest reliability of the BPFSC-11 total score. Among the 471 adolescents who agreed to participate in the six-month test-retest study, no significant difference was observed between the mean BPFSC-11 total score at the baseline (*M* = 28.08, *SD* = 6.47), and the mean BPFSC-11 total score at follow-up (*M* = 27.94, *SD* = 6.56), paired-sample *t*(470) = 0.46, *p* > .50, *d* = 0.02; rather, the six-month test-retest correlation between the two sets of BPFSC-11 scores was highly significant, *r* = .50, *p* < .001. When ICC coefficient for absolute agreement between baseline and six-month retest scores was computed based on one-way random effect ANOVA, almost identical findings were observed; ICC value was .50, 95% confidence interval (CI) [.43, .57], *p* < .001.

Factor Structure of the Italian Translation of the BPFSC-11

Confirmatory factor analysis (CFA) was used in order to test the hypothesis that the covariation that was observed among the BPFSC-11 items could be explained by a single latent factor. Since BPFSC-11 items are measured on an ordinal scale, a polychoric correlation matrix was computed; accordingly, a weighted least square mean and variance adjusted (WLSMV) algorithm was used in CFA. WLSMV CFA results provided evidence of marginal fit of the one-factor model of the BPFSC-11 items, $\chi^2(44) = 268.01$, *p* < .001, RMSEA = .08, 90% CI for RMSEA [.07, .09], test of close fit (i.e., RMSEA $\leq$ .05) *p* < .001, TLI = .89, CFI = .91, WRMR = 1.39.

Minimum average partial statistic (MAP; Zwick & Velicer, 1986) and quasi-inferential parallel analysis (Buja & Eyuboglu, 1992) were computed in order to assess the dimensionality of the BPFSC-11 item polychoric correlation matrix. In this sample, MAP statistic values after the extraction of the first four principal components of the BPFSC-11 item polychoric correlation matrix were .02, .05, .14, and 1.00, respectively, thus supporting a one-factor model of the BPFSC-11 items. The first four eigenvalues of the BPFSC-11 item polychoric correlation matrix were 3.59, 1.24, 1.07, and 0.90, respectively, whereas the 95th percentile values of the corresponding random eigenvalues were 1.26, 1.19, 1.14, and 1.10, respectively; indeed, the first two eigenvalues of the BPFSC-11 clearly exceeded 95% of the distribution of the corresponding random eigenvalues.

Table 1. Borderline Personality Features Scale-11: Cronbach's α and average inter-item polychoric correlation values, descriptive statistics, and item-total correlations corrected for part-whole overlap in the whole sample and broken down by gender (N = 805)

BPFSC-11 items	Whole sample (N = 805)				Male adolescents (n = 290)				Female adolescents (n = 515)			
	M	Mdn	SD	r_{i-t}	M	Mdn	SD	r_{i-t}	M	Mdn	SD	r_{i-t}
1. I feel very lonely.	2.30	2.00	1.08	.53	1.96[a]	2.00	1.01	.49[a]	2.50[b]	2.00	1.07	.50[a]
2. I want to let some people know…	2.93	3.00	1.23	.38	2.56[a]	3.00	1.16	.44[a]	3.14[b]	3.00	1.22	.29[a]
3. My feelings are very strong…	3.70	4.00	1.06	.21	3.46[a]	4.00	1.06	.31[a]	3.84[b]	4.00	1.04	.11[a]
4. I feel that there is something important…	2.91	3.00	1.26	.46	2.74	3.00	1.22	.41[a]	3.00	3.00	1.28	.47[a]
5. I'm careless with things that are important to me.	2.05	2.00	1.10	.32	2.17	2.00	1.11	.40[a]	1.99	2.00	1.08	.33[a]
6. People who were close to me have let me down.	2.54	3.00	0.96	.42	2.29[a]	2.00	0.86	.44[a]	2.68[b]	3.00	0.99	.37[a]
7. I go back and forth between different feelings…	2.92	3.00	1.21	.57	2.52[a]	2.00	1.16	.59[a]	3.15[b]	3.00	1.18	.52[a]
8. I get into trouble because I do things…	2.27	2.00	1.13	.37	2.32[a]	2.00	1.11	.36[a]	2.24[a]	2.00	1.13	.41[a]
9. I worry that people I care about will leave…	3.03	3.00	1.39	.44	2.52[a]	2.00	1.38	.41[a]	3.32[b]	3.00	1.31	.40[a]
10. How I feel about myself changes a lot.	2.62	3.00	1.19	.46	2.30[a]	2.00	1.14	.42[a]	2.80[b]	3.00	1.19	.45[a]
11. Lots of times, my friends and I are really…	1.80	2.00	0.97	.27	1.91	2.00	1.00	.26[a]	1.73	1.00	0.95	.34[a]
BPFSC-11 total score	29.07		6.81		26.76[a]		6.80		30.37[b]		6.55	
BPFSC-11 Cronbach's α (average inter-item r)	.78 (.24)				.79 (.25)				.76 (.22)			

Notes. BPFSC-11 = Borderline Personality Features Scale for Children-11; average inter-item r = average inter-item polychoric correlation; Mdn = Median; r_{i-t} = item-total correlation corrected for part-whole overlap. Means with different superscripts are significantly different at Bonferroni corrected *p*-value (i.e., *p* < .0045) in male participants and in female participants; Mann-Whitney *U* test was used for testing gender differences in BPFSC-11 item scores, whereas Student *t*-test was used to assess the presence of significant gender differences on BPFSC-11 mean total score. Item-total correlation coefficients with different superscripts are significantly different at Bonferroni corrected *p*-value (i.e., *p* < .0045) in male subgroup and in female subgroup according to *z*-test for correlation coefficient homogeneity.

When we tried to extract the first two factors from the BPFSC-11 item polychoric correlation matrix (using unweighted least square [ULS] method for factor extraction), all BPFSC-11 items showed substantial loadings (i.e., factor loadings > .30) on the first unrotated factor (mean factor loading value = .53, median factor loading value = .52, *SD* = .10, range: .38–.70), with the exception of item 3 which showed modest factor loading values on both unrotated factors (BPFSC-11 item 3 loaded .24 and −.11 on Factor 1 and Factor 2, respectively). In other terms, according to ULS factor analysis all BPFSC-11 items seemed to tag a single latent dimension, although with different levels of accuracy.

Based on dimensionality analysis results and on Sharp and colleagues' (2014) findings, a bi-factor model with a general latent dimension and two specific factors was fitted using WLSMV Exploratory Structural Equation Modeling (ESEM; Marsh, Morin, Parker, & Kaur, 2014). The bi-factor model (Gibbons & Hedeker, 1992) specifies a general factor measured by all test items as well as specific factors accounting for the residual variance shared by subsets of items. Indeed, the BPFSC-11 was not designed to yield theoretically (or clinically) meaningful information on sub-domains of the BPD realm. The bi-factor model showed adequate goodness-of-fit indices, $\chi^2(25)$ = 64.47, *p* < .001, RMSEA = .04, 90% CI for RMSEA [.03, .06], test of close fit (i.e., RMSEA ≤ .05) *p* > .70, TLI = .97, CFI = .98, WRMR = 0.60.

Standardized factor loadings for the bi-factor model of the BPFSC-11 items are listed in Table 2; for ease of presentation, only significant (i.e., *p* < .05) factor loadings are displayed.

Gender Invariance of the BPFSC-11 Factor Structure

When we tested the invariance of the bi-factor model across subgroups based on gender using multigroup WLSMV ESEM, we observed adequate values of fit statistics even for the most restrictive model (invariance of thresholds and invariance of factor loadings), $\chi^2(104)$ = 188.26, *p* < .001, RMSEA = .05, 90% CI for RMSEA [.03, .06], test of close fit *p* > .70, TLI = .96, CFI = .97. When we relaxed the assumption of equality of factor loadings and thresholds in male adolescents and female adolescents, the model fit improved significantly, difference testing $\chi^2(24)$ = 56.63, *p* < .001, goodness-of-fit $\chi^2(69)$ = 126.82, *p* < .001, RMSEA = .05, 90% CI for RMSEA [.03, .06], test of close fit *p* > .70, TLI = .96, CFI = .98, although RMSEA, TLI, and CFI values were not markedly different from those that were observed for the competing model.

Standardized factor loadings of the BPFSC-11 items for the general factor and the two specific factors in male adolescents and female adolescents are listed in Table 2.

Table 2. Bi-factor model of the Borderline Personality Features Scales for Children-11 based on weighted least square mean and variance adjusted exploratory structural equation modeling: Standardized factor loadings in the whole sample and broken down by gender (N = 805)

BPFSC-11 items	Whole sample (N = 805)			Male adolescents (n = 290)			Female adolescents (n = 515)		
	G	F1	F2	G	F1	F2	G	F1	F2
1. I feel very lonely.	.73			.59	.29	−.25	.66		−.18
2. I want to let some people know…	.37	.59		.40	.52		.34	.40	
3. My feelings are very strong…	.16	.33	−.14	.36		.24		.47	
4. I feel that there is something important…	.63			.64		−.32	.63		
5. I'm careless with things that are important to me.	.43	−.16	.28	.65	−.23		.47	−.20	.24
6. People who were close to me have let me down.	.49	.22		.48	.34		.53		
7. I go back and forth between different feelings…	.68	.14		.65	.28		.64		
8. I get into trouble because I do things…	.42		.70	.46		.61	.51		.34
9. I worry that people I care about will leave…	.46	.32		.48			.40	.27	
10. How I feel about myself changes a lot.	.58	.12		.36	.56		.61		
11. Lots of times, my friends and I are really…	.36		.21	.27	.23		.47		.38

Notes. BPFSC-11 = Borderline Personality Features Scale for Children-11; G = general factor; F1 = specific factor 1; F2 = specific factor 2. For ease of presentation, only significant (i.e., p < .05) factor loadings are displayed.

The standardized factor loadings for the general factor were consistent across the two subgroups based on gender (congruence coefficient [CC][1] value = .96), although item 3 showed a substantial loading on the general factor only among male adolescents. Rather, the specific factors showed factor loading patterns that were not consistently replicated across male participants and female participants (CC values were .39 and .68 for Factor 1 and Factor 2, respectively).

Convergent Validity of the BPFSC-11 Total Score With the PDQ-4+ BPD Scale Score

In the present study, the Cronbach's α coefficient of the PDQ-4+ BPD scale was .74 (average inter-item tetrachoric r = .24); the average score of the PDQ-4+ BPD scale was 3.80, SD = 1.97 (range: 0–9). The PDQ-4+ BPD scale did not correlate significantly with participants' age, r = .01, p > .80. Female adolescents (M = 4.12, SD = 1.90) scored on average significantly higher than male adolescents (M = 3.22, SD = 1.98) on the PDQ-4+ BPD scale, t(803) = 6.36, p < .001, d = 0.45.

For the full sample, the BPFSC-11 total score showed a significant correlation with the PDQ-4+ BPD scale score, r = .64, p < .001; when it was corrected for the attenuation due to measurement error, the value of the correlation coefficient between the two self-report scales became .84. Almost identical raw bivariate correlations between the

BPFSC-11 total score and the PDQ-4+ BPD scale score were observed in the male subgroup, r = .62, p < .001, and in the female subgroup, r = .62, p < .001, z = .02, p > .80. The correlation coefficients corrected for measurement error between the BPFSC-11 total score and the PDQ-4+ BPD scale score were .80 and .85 among male adolescents and female adolescents, respectively.

Discussion

Confirming and extending previous findings (Sharp et al., 2014), the BPFSC-11 seemed to represent a reliable self-report measure of borderline personality features when administered to Italian community dwelling adolescents. Indeed, the current study represents the first providing evidence for the utility of the Italian translation of the BPFSC-11.

Reliability of the Italian Translation of the BPFSC-11

The internal consistency of the BPFSC-11 total score was adequate also in the Italian translation of the scale, although the Cronbach's α value that was observed in this study for the BPFSC-11 total score (i.e., .78) was somewhat lower than the .85 value that was reported by Sharp and

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[1] The replicability of the factor solution across subgroups defined by participants' gender was evaluated by computing congruence coefficients (Gorsuch, 1983). Lorenzo-Seva and ten Berge (2006) suggested that CC values in the range .85–.94 correspond to a fair similarity, with values higher than .95 implying that the two factors compared can be considered equal.

colleagues (2014) in a clinical adolescent sample. Sample characteristics (i.e., high school students vs. inpatients) may be one of the reasons for the lower Cronbach's α value of the Italian translation of the BPFSC-11. Despite the significant, moderate ($d = 0.53$) difference in BPFSC-11 average total score that was observed between female adolescents and male adolescent, Cronbach's α values for the BPFSC-11 total score were fairly consistent across gender subgroups.

In our study, median values for the BPFSC-11 items were usually 2.00 (i.e., "Hardly ever true") or 3.00 (i.e., "Sometimes true"), with the exception of BPFSC-11 item 3 which evidenced a higher median value (i.e., "Often true"). Thus, with the exception of item 3 ("My feelings are very strong. For instance, when I get mad, I get really really mad. When I get happy, I get really really happy"), BPFSC-11 items seem to assess ways of feeling, relating, and thinking which are not commonly observed in adaptive adolescence.

In our sample, all BPFSC-11 items performed moderately well in terms of item-total correlations (corrected for part-whole overlap) in both male adolescents and female adolescents, with the partial exception of Item 3. The relatively poor performance of item 3 was somewhat expected, considering that our sample was composed of high school students who reported high frequency of high scores (i.e., "Often True" or "Always True") on this item. In other words, this BPFSC-11 item seemed to discriminate better at the lower end of the distribution of BPD features than the upper end, that is, if an individual scores low on item 3, s/he is highly unlikely to be at high end of the distribution of borderline traits, but scoring high on item 3 does not imply scoring high on the BPD latent trait. It may be argued that we should have relied on IRT for item analyses, consistent with Sharp and colleagues' (2014) approach. It should be observed that our study did not aim to refine a measure identifying the items which performed best in terms of discriminant validity; rather, we aimed at testing the reliability of a sample of fallible observable indicators (i.e., the BPFSC-11 items) of borderline personality pathology. In this case, the adoption of a psychometric approach based on domain-sampling model (i.e., classical test theory; Nunnally & Bernstein, 1994) seemed to be appropriate.

Although six-month test-retest reliability was assessed only on a subgroup ($n = 471$) of adolescents who significantly differed on age and female-to-male ratio from adolescents who did not participate in the test-retest study, our findings suggest high mean-level consistency (i.e., lack of significant changes in mean score) and moderate rank-order consistency of the BPFSC-11 total score among Italian community dwelling adolescents. The moderate six-month temporal stability of the BPFSC-11 total score that was observed in this study is consistent with available literature indicating that BPD diagnosis itself is likely to be less stable

(even in the short period) than it was previously thought both in adolescence and adulthood (e.g., Venta, Herzoff, Cohen, & Sharp, 2014). In our study, test-retest correlation values were replicated across subgroups of male adolescents and female adolescents.

Factor Structure and Gender Invariance of the Italian Translation of the BPFSC-11

Factor analyses of the BPFSC-11 items yielded findings which were largely consistent with Sharp and colleagues' (2014) results. Although WLSMV CFA provided only marginal support for a unidimensional structure of the BPFSC-11 items, WLSMV ESEMs showed that all BPFSC-11 items belonged to a common latent dimension (i.e., they loaded on a single general factor); residual covariances (actually, residual polychoric correlations) among selected BPFSC-11 items could be explained in terms of distribution artifacts (e.g., skewness values) rather than in terms of shared latent construct. Indeed, descriptively the BPFSC-11 item loadings on the general factor were highly similar in the male subgroup and in the female subgroup (the CC value was .96), although item 3 loaded significantly on the general factor only in the male subgroup; rather, none of the specific factors seemed to be safely replicated across subgroups based on participant's gender. Thus, consistent with previous results (Sharp et al., 2014), our study suggests that the BPFSC-11 represents a unidimensional measure of a latent variable putatively assessing BPD features. The differences in the structure of the specific factors that was observed in our study when compared to Sharp and colleagues' (2014) study may reflect a number of methodological factors, ranging from sampling issues to the well-known fact that full-information maximum likelihood IRT factoring and ESEM show differences at theoretical level and practical levels (e.g., Reise, Widaman, & Pugh, 1993). The invariance of the factor structure of the BPFSC-11 items across subgroups based on gender suggested that the BPFSC-11 total score could be used with both boys and girls without gender-specific adaptation.

Convergent Validity of the BPFSC-11

In our study, when the BPFSC-11 total score was correlated with the PDQ-4+ BPD scale score, we observed a positive and significant correlation with a "large" effect size (Cohen, 1988); when this raw bivariate correlation coefficient was corrected for attenuation due to measurement error, the Pearson r estimate rose even further. In our opinion, these findings support the convergent validity of the BPFSC-11 as a measure of BPD features with respect to a self-report

measure of *DSM-IV/DSM-5* Section II BPD symptoms. Indeed, none of the correlation coefficients were large enough to suggest that the BPFSC-11 and PDQ-4+BPD scales represent linearly interchangeable measures of the same construct; however, it should be observed that many BPD symptoms which are measured by selected PDQ-4 +BPD items – for example, suicidal behaviors – have no counterpart in the BPFSC-11 items. In a sense, the BPFSC-11 seems to allow for assessing BPD without confronting adolescents with psychiatric symptoms or "socially undesirable" behaviors.

Limitations and Future Directions

Despite positive findings, there are several limitations that should be acknowledged. Although the current study included a moderately large number of participants (*N* = 805), it was based on community dwelling adolescents; our sample represented a convenient study group rather than a sample representative of the Italian population. Moreover, all participants in our study were community dwelling adolescents; thus, our findings should not be extended to adolescents from clinical or forensic setting. Most importantly, mental health state or previous treatments and further demographical and personal information (e.g., family status, alcohol and drug use, medications) were not formally assessed. In our study, the sample was characterized by an unequal female-to-male ratio; unequal sample sizes might affect changes in goodness-of-fit indices in measurement invariance analysis (e.g., Chen, 2007). In the present study, we relied only on self-report measures; indeed, this may have led to spurious increase of the associations between the BPFSC-11 total score and the external measures because of shared method variance. We administered only the PDQ-4+BPD scale in order to assess the convergent validity of the BPFSC-11; thus, our findings should not be extended to other BPD measures, particularly to those based on semi-structured interviews.

As a whole, these considerations limit the generalizability of our findings and stress the need for further studies before finally accepting our conclusions. For instance, future studies would involve additional instruments measuring borderline personality features (e.g., interviewed-based studies) and/or include different cultures. Moreover, the inclusion of different samples (e.g., clinical samples, samples from different cultures) may also be useful in better understanding the role of item 3. Despite these limitations in mind, our data confirm and extend Sharp and colleagues' (2014) results, suggesting that the BPFSC-11 show adequate psychometric properties also in a sample Italian community dwelling adolescents.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at http://dx.doi.org/10.1027/1015-5759/a000377

ESM 1. Text (PDF).
Additional procedures and results.

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