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Validating the Italian version of the Level of Personality Functioning Scale - Brief Form 2.0 (LPFS-BF 2.0): internal structure, temporal stability and construct validity

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Abstract

Background Contemporary models of personality assessment emphasize a dimensional rather than a categorical framework for measuring an individual's level of personality functioning. This viewpoint has also been incorporated into official diagnostic manuals, such as the Alternative DSM-5 Model for Personality Disorders (AMPD). Assessment instruments for personality functioning according to the AMPD are increasingly being developed and used, but controversies remain regarding the two-factor (vs. one-factor) structure and psychometric properties of such instruments in different countries.

Methods To help fill these gaps in the literature, in this study we tested the internal structure, temporal stability, and construct validity of the Level of Personality Functioning Scale-Brief Form 2.0 (LPFS-BF 2.0), a convenient self-report screening questionnaire of the AMPD level of personality functioning, on a final sample of 482 non-clinical adults (369 females, 112 males, one non-binary; age range = 18–83, $M = 34.6$, $SD = 16.4$). Internal structure of the Italian LPFS-BF 2.0 was tested by Confirmatory Factor Analysis. Temporal stability and construct validity of the total score and of the Self and Interpersonal functioning subscale scores were tested using Pearson's correlations and Steiger's Test.

Results A two-factor structure for the LPFS-BF 2.0 was supported, and correlation analyses provided convergent and discriminant validity evidence for the total and the two Self and Interpersonal subscale scores against external self-report measures of problematic self and interpersonal functioning, overall personality dysfunction, general psychological symptoms and lower quality of life. As such, the total score and the two Self and Interpersonal subscales yielded correlations with external criteria of medium to large effect sizes (i.e., Pearson's r), all significant at the $p < .001$ level. Finally, the present study provides the first empirical assessment of the LPFS-BF 2.0 temporal stability over an interval of 11.5 weeks, demonstrating a high temporal stability for both the total scale and the two subscales (r s above .70 for all three, $ps < .001$).

Conclusions The Italian version of the LPFS-BF 2.0 yielded similar psychometric properties to the original scale and other international adaptations, suggesting its utility for personality assessment research and practice.

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Keywords Level of personality functioning, AMPD criterion A, LPFS-BF 2.0

Introduction

A major recent innovation in both main classification systems for personality disorders (PD) [1, 2] is the inclusion of a generalized dimension of severity. This shift from a categorical towards a dimensional diagnostic framework [3, 4] follows findings supporting a generic, transdiagnostic continuum encompassing gradual variations of healthy and disordered personality functioning as opposed to a binary division between healthy personality functioning and PD [5]. The importance of such a general factor of personality pathology (also denoted as g-PD) has been widely discussed in the last decade [6, 7] and is reflected in its predictive power towards a range of present and future outcomes, making the assessment of ‘severity of personality pathology’ highly informative for prognosis and treatment planning [8]. The Level of Personality Functioning Scale – Brief Form 2.0 (LPFS-BF 2.0) is a brief self-report measure that was developed to assess this severity dimension [9] in a straightforward and rapid manner. Recently, the International Consortium for Health Outcomes Measurement (ICHOM) has included the LPFS-BF 2.0 in the proposed standardized minimum set of outcome measures for PD that were selected to use across different cultural and geographical settings [10]. However, the instrument is still relatively novel and there is only a limited number of studies available that have investigated its psychometric qualities. The present study adds to the existing literature on the LPFS-BF 2.0 by evaluating its factor structure in an Italian sample, investigating its temporal stability for the first time, and examining its construct validity.

Alongside the traditional categorical model of PD, the DSM-5 included in Section III the Alternative DSM-5 Model for Personality Disorders (AMPD), which combines a continuous measure of impairment in personality functioning (Criterion A) with a trait-based assessment of personality [1]. To operationalize and assess Criterion A in clinical practice, the AMPD provides the Level of Personality Functioning Scale (LPFS). The LPFS conceptualized the general dimension of severity as expressed in two broad areas of personality functioning: self and interpersonal functioning. These two broad areas in turn were defined by four components (i.e., identity, self-direction, empathy, and intimacy) and twelve subcomponents (e.g. unique sense of self, stable and positive self-esteem, understanding others, etc.). Ratings of personality functioning in such areas are made across five levels of impairment (ranging from “little or no impairment” to “extreme impairment”). Notably, both the idea of a general dimension of severity and the delineation of specific levels of severity resemble psychodynamic thinking

and concepts, showing remarkable convergence with the theories of Kernberg [11], as well as with diagnostic approaches such as the Operationalized Psychodynamic Diagnosis [12, 13] and the Psychodynamic Diagnostic Manual [14]. The transtheoretical relevance of the LPFS extends beyond psychodynamic paradigms, such as social-cognitive, interpersonal, and attachment models [15]. As such, the LPFS attempts to integrate a rich clinical tradition within a more accessible and feasible diagnostic framework.

In the meantime, several self-report measures have been developed to facilitate the assessment of Criterion A in research and practice [16, 17]. The LPFS-BF took a simple approach to assessing personality functioning by formulating one item for each of the twelve subcomponents, resulting in a brief self-report measure of twelve items. The updated LPFS-BF 2.0 kept the brief format, but changed some items to improve reliability, and changed the initial binary yes/no response scale to a Likert scale (1–4) to improve its potential sensitivity to change and thereby making the measure better suited for outcome studies [9].

To date, at least eleven international studies analyzed the psychometric properties of the LPFS-BF 2.0 across different types of populations [9, 18–27]. Although with some exceptions that will be discussed below, previous studies have supported a two-factor structure of the LPFS-BF 2.0 as being superior to a one-dimensional factor solution [9, 18, 25]. Both factors have been interpreted as referring to impairments in self and interpersonal functioning, in accordance with the original LPFS. Supporting the existence of a generalized dimension of personality dysfunction of severity, the two factors consistently show high correlations across community, clinical, and forensic samples (i.e., ≥ 0.65 in [18, 21, 26], albeit the correlations of 0.44 and 0.48 found in [20] and [9]). Internal consistency of the total scale was good to excellent across studies, with Cronbach’s alpha and McDonald’s omega values ranging from 0.79 to 0.94 in community samples [25, 26]. Considering the two LPFS-BF 2.0 subscales, internal consistency spanned from good to excellent for Self functioning [25, 26] and from acceptable to excellent for Interpersonal functioning [23, 25].

Regarding construct validity of the total score, all studies show a consistent pattern of associations with related measures of personality problems, although the number of studies that have included sufficient associated measures is still limited. Taken together, moderate to high associations with proxies of self-reported PD severity, wellbeing, and a range of behavioral and emotional patterns (i.e., dysfunctional schema modes) were found

across studies of different groups of participants such as adult and elderly community-dwelling individuals, psychiatric outpatients and incarcerated addicts (e.g., [9, 18, 28]). For instance, Spitzer and colleagues [25] demonstrated very high associations between the LPFS-BF 2.0 and the (more comprehensive) Level of Personality Functioning Scale–Self Report (LPFS-SR), with a correlation between the total scores of $r=0.81$, showing that both scores capture the same construct and suggesting a proper concurrent validity for the LPFS-BF 2.0. Furthermore, Weekers and colleagues [9] showed that the total score revealed moderate associations with other proxies of the severity of PD, like the number of PD criteria (correlations ranging from $r=0.30$ to 0.38) and SIPP-60 scores of personality problems (correlations ranging from -0.25 to -0.66 , with high scores on the SIPP-60 indicating better adaptive functioning). Correlations remained significant even when controlling for general psychopathology as assessed by the Brief Symptom Inventory [9]. Additionally, the LPFS-BF 2.0 incrementally predicted a range of maladaptive outcomes, including (low) wellbeing and unhealthy schema modes, beyond scores of the Personality Inventory for DSM-5 (PID-5) [18].

As mentioned above, empirical evidence on the factor structure of the LPFS-BF 2.0 more often supported a two-factor model with highly intercorrelated Self and Interpersonal functioning factors, and this was true also for other self-report and expert ratings measures of personality functioning [25, 29, 30]. Although support for a one-factor model has been provided as well [31], the two-dimensional structure of the LPFS-BF 2.0 was overall confirmed through Multi Group Confirmatory Factor Analysis across seven countries (namely: Canada, Chile, Denmark, Italy, Germany, UAE, and USA) in nonclinical samples [22]. Distinguishing the two components of the LPFS-BF 2.0 might also have the advantage of highlighting the different associations that they entail with external relevant psychological constructs (e.g., both adaptive and maladaptive personality traits and impairments in quality of life). For instance, preliminary evidence on both clinical and community adult samples [21, 23] suggests distinct associations of the Self component with Negative Affect (from both the AMPD and ICD-11 PD model) and Psychoticism (from the AMPD), whereas the Interpersonal functioning component tends to be significantly associated with Detachment (from both AMPD and ICD-11 PD model). Moreover, the Self functioning component seems to contribute to psychosocial impairment more strongly than the total number of PD criteria [32]. However, evidence on the most suitable structure for the LPFS-BF 2.0, and on the distinct associations of the two components in case a two-factor model is retained, is still limited and needs further investigation.

Moreover, using the LPFS-BF 2.0 pre and post treatment revealed a high sensitivity to treatment change for the total score and the Self component [9], with ds of 1.05 and 1.22 respectively after 3 months of residential psychological treatment. Although this suggested the potential usefulness of the questionnaire as a quick outcome measure, the subsample of participants was small ($n=37$) and, more importantly, the study dealt with sensitivity to treatment change, rather than with rank-order stability of the scores. However, studying the short-term stability in nonclinical groups is an essential step of psychometric validation, in order to ensure that detected differences in scores are due to replicable differences between people and not to measurement error. To date, to the best of the author's knowledge, no study has systematically analyzed the temporal stability of the LPFS-BF 2.0 scores.

Taken together, initial studies using the LPFS-BF 2.0 support 1) the factor structure of the LPFS-BF 2.0 including two highly correlated dimensions of self- and interpersonal functioning; 2) the internal consistency of its total and subscale scores; 3) the construct validity of its total score; 4) its promise as a measure to routinely assess outcome. However, more research is needed to further support its psychometric properties and its utility as a screener for detecting potential personality problems and as a valid (outcome) measure for assessing (changes in) personality functioning. As noted, no study so far has tested the short-term stability of the scores. Being a measure to assess a relatively stable construct (i.e., personality functioning), the scores of the instrument are expected to have considerable short-term stability next to already demonstrated sensitivity to change during treatment. Moreover, further construct validation is warranted, more specifically by studying associations of the LPFS-BF 2.0 with conceptually similar measures used to operationalize the construct of severity of personality dysfunction, for example through the level of personality organization (Kernberg) and the level of interpersonal functioning. These findings may help to establish the validity of this instrument and thereby its utility as a brief instrument for screening and outcome purposes, but also as a measure of personality functioning to be included in a range of studies in related domains of mental health care.

The present study

In the present study, we assessed the LPFS-BF 2.0 factor structure and its short-term temporal stability in a large and demographically diversified community sample from Italy. Furthermore, the convergent and discriminant validity of the LPFS-BF 2.0 total score and its subscales was examined through the analysis of the correlations with a set of putatively associated psychological constructs (i.e., personality organization, interpersonal

problems) and less proximal psychological variables (psychiatric symptomatology and overall wellbeing) measured via self-report methods.

We formulated a series of hypotheses with the overall aim of providing an empirical account for the Italian LPFS-BF 2.0 reliability and validity. Firstly, the two-factor structure of the LPFS-BF 2.0 consistently found across international samples [18, 25, 26] was expected to be replicated for the Italian adaptation of the instrument. Being the first study that, to the authors knowledge, tested the temporal stability of the measure, expectations in this regard were based on previous evidence of substantial stability over a short-term interval obtained for longer AMPD Criterion A self-report instruments, such as the LPFS-SR [33, 34].

The number of studies that examined the construct validity of the LPFS-BF 2.0 is still limited as is the array of convergent validity measures considered so far, hence we based our predictions on works that used similar instruments (e.g., [26]) to detect interpersonal issues. As such, we predicted large positive correlations with measures of PD severity for the total score and both the Self and Interpersonal subscales scores, and more pronounced associations with measures of maladaptive personality organization and interpersonal problems for LPFS-BF 2.0 Self and Interpersonal, respectively. Although some positive associations with general emotional distress and with psychopathological symptoms are expected for the LPFS-BF 2.0 and its subscales [25], it was predicted that these would have been lower than the associations with the aforementioned personality constructs, suggesting adequate discriminant validity.

Method

Participants

Participants were recruited through snowball sampling, posts on main social networks and advertisement of the study in undergraduate Psychology classes. The assessment battery, comprising demographic questions, the LPFS-BF 2.0, and measures included for exploring validity, was completed by participants on the Qualtrics platform. A total of 538 participants completed the test battery. 54 cases were excluded because they failed to complete more than the 50% of the assessment battery and did not entirely fill-in the LPFS-BF 2.0. In order to maximize the generalizability of the findings, no inclusion criterion other than 18 years of age was used. To minimize response bias due to inaccurate responding, participants with a score equal to or greater than 4 at the Infrequency scale of the Elemental Psychopathy Assessment (EPA; [35]) were excluded from the analyses (i.e., $n = 1$). To further ensure accuracy of the data collected, we checked the response times of the participants to identify potential excessively rapid response times

(i.e., lower than 1 s per item) and analytically inspected the responses of participants with possibly inaccurate responding patterns (e.g., more than 50% of items responded as “0”) crosschecking their responses to items assessing similar constructs. No participant had excessively low response times or atypical responding patterns. One participant was removed because s/he reported to be younger than 18 years, which is the Italian age of majority. The final sample thus included 482 cases (369 females, 112 males, one non-binary; age range = 18–83, $M = 34.6$, $SD = 16.4$).¹ The educational level composition of the sample was as follows: 245 participants (50.83% of the sample) reported to have completed High School, 100 (20.75%) had a Bachelor’s Degree, 81 (16.80%) a Master’s Degree, and the remaining 46 (9.54%) and 10 (2.07%) participants had completed a postgraduate education or only a Primary School (5 years of education in the Italian system) respectively. In terms of marital status, 284 (58.92%) participants identified themselves as single, 123 (25.52%) as married, 54 (11.20%) were living together with their partner, 8 (1.66%) reported to be separated and 9 (1.87%) divorced, whereas 4 (0.83%) were widowed.

All participants whose data were used in the analyses provided a valid written informed consent, and the study was approved by the Institutional Review Board of the University of Padua (Protocol No. 3953 masked for anonymous review).

Measures

Level of personality functioning – Brief Form 2.0 (LPFS-BF 2.0; [9]) The LPFS-BF 2.0 is a 12-item self-report instrument assessing level of personality functioning as described in Section III of the DSM-5. The instrument yields two subscales: Self- functioning and Interpersonal functioning. Participants are asked to rate the 12 items on a 4-point Likert scale from 1 (completely untrue) to 4 (completely true). The Italian version of the LPFS-BF 2.0 is available at the following [link](#) or contacting the first author. To produce an equivalent version of the LPFS-BF 2.0 to use in the Italian population, a “back-translation” method [36–38] was used. Accordingly, the LPFS-BF 2.0 was initially translated from English, the source language, into Italian, the target language, by a bilingual individual and then back-translated into English by a second bilingual individual blind to the original questionnaire. Finally, the two English versions of the LPFS-BF 2.0 were compared with each other to address any possible inconsistencies. When found, the latter were resolved via discussion between the two translators and by requesting

¹ The sample was also used in the paper by Natoli et al. [22]. However, in that paper, the sample was split into student and community participants and, in combination with data from other countries, was only analyzed with regard to the factorial structure. The analyses of convergent and discriminant validity as well as temporal stability presented here are completely new.

feedback from the author of the original measure. No significant inconsistencies emerged in any of the items.

Inventory of personality organization (IPO; [39, 40]) The IPO is a self-report questionnaire for assessing personality organization from an object-relation model perspective. The 57 items of the instrument are rated using a 5-point Likert scale spanning from 1 (Never true) to 5 (Always true). Various factor solutions and corresponding scale structures have been presented in the literature starting from the 3-dimension solution originally proposed by Lenzenweger and colleagues [39] that includes Identity Diffusion, Primitive Defenses, and Reality Testing. More recently, a 4-factors solution was introduced by Ellison and Levy [41], proposing the following factors: Instability of sense of self/others, Instability of goals, Instability of behaviors, and Psychosis. Given that internal consistency of the IPO total score was excellent in the present sample ($\alpha = 0.95$), and according to previous literature documenting the existence of a reliable single factor in the extended 83-items version of the instrument [42] that was more appropriate for the aims of the present study, the total score was used in the analyses in order to capture a general level of impairment in personality functioning.

Inventory of interpersonal problems-32 (IIP-32; [43, 44]) The IIP-32 is a 32-item self-report instrument presenting a series of distressing interpersonal behaviors the respondent identifies as “hard to do” (i.e., behavioral inhibitions) or “does too much” (i.e., behavioral excesses) on a 0 (not at all) to 4 (extremely) Likert scale. Alongside 8 subscales describing specific maladaptive interpersonal styles (e.g., Domineering/Controlling; Vindictive/ Self-centered, etc.) the questionnaire provides an overall score representing general interpersonal dysfunctional behavior. The internal consistency for the total scale was excellent in the present sample ($\alpha = 0.90$).

Personality Inventory for DSM-5 – Brief Form Plus Modified (PID5BF + M; [45]) The PID5BF + M is a self-report questionnaire that measures the five AMPD maladaptive personality traits and respective facets together with Anankastia from ICD-11 [2]. The 36 items are derived from the PID-5 [46] and are arranged on a 4-point Likert scales ranging from 0 (“very false or often false”) to 3 (“very true or often true”). The relatively brief questionnaire entails satisfying psychometric characteristics and has been used across international samples [45]. For the present study, the total average score was considered as a proxy for the severity of personality pathology (see [28]). Internal consistency of the total score was good ($\alpha = 0.88$).

Brief symptom inventory – 18 (BSI-18; [47]) The BSI-18 is a short inventory empirically derived from the SCL-90-R that requires the respondent to evaluate on a 5-point Likert scale ranging from 0 (“Not at all”) to 4 (“Extremely”) if and to what extent has suffered of psychopathological symptoms in the previous week. The scoring of the BSI-18 yields a total score and three subscales that include Somatization, Anxiety/Phobia, and Depression. In this sample, internal reliability at total scale level was good ($\alpha = 0.91$). The items of the BSI-18 are derived from the original SCL-90-R and as such the Italian translation [48] was used for this data collection. Previous studies documented the good psychometric properties and clinical utility of the BSI-18 in Italian samples [49].

DSM-5 self-rated level 1 cross-cutting symptom measure [1] The scale is a 23-items screening tool for overall psychopathology organized across 13 clinical domains (namely: depression, anger; mania; anxiety; somatic symptoms; suicidal ideation; psychosis; sleep problems; memory; repetitive thoughts and behaviors; dissociation; personality functioning; substance use). The items are rated on a 4-point Likert-type scale ranging from 0 (“Very false or often false”) to 3 (“Very true or often true”) to be evaluated referring to the last two weeks. The Italian version of the instrument has been successfully used in previous studies to dimensionally measure psychopathological symptoms in the general population [50] and the total scale used in the present study had a good internal consistency ($\alpha = 0.87$).

General Health Questionnaire – 12 (GHQ-12; [51, 52]) The self-report instrument contains 12 items on a 4-point Likert type scale ranging from “More than usual” to “Much less than usual” and detects general well-being both in general practice settings and in the community. The GHQ-12 has been translated into Italian and has excellent validity and reliability [52]. The Likert scoring method (0, 1, 2 or 3) was used [53] for this study. A high score indicates high levels of dissatisfaction with the respondent’s current mental status or distress.

Procedure

All participants completed a common research battery including the LPFS-BF 2.0, PID5BF + M, IPO, IIP-32, BSI-18, DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure, and GHQ-12. A follow-up test of the LPFS-BF 2.0 was carried out approximately 11.5 weeks after the participants had completed the LPFS-BF 2.0 at baseline (Mean number of days = 80.7, $SD = 16.5$). The second test could be performed on the subsample of the participants who had provided their contact information at the baseline questionnaire. The final dataset of participants who completed the retest procedure consisted of 140 cases

(Mean age: 34.76 years, $SD = 17.4$; 106 females). Experimenters were unaware of participants' baseline scores when recruitment and follow-up testing were taking place.

Statistical analyses

Confirmatory factor analysis of the LPFS-BF 2.0 Italian version The factor structure of the LPFS-BF 2.0 items was inspected using Confirmatory Factor Analysis (CFA). Three possible models for the LPFS-BF 2.0 structure were considered: 1) a two-factor model with correlated Self and Interpersonal factors, 2) a one-factor model with a general personality functioning factor, and 3) a bifactor model with a general personality functioning factor and specific Self and Interpersonal factors.

Each model was estimated using WLSMV estimation based on the polychoric correlation matrix (i.e., treating the items as ordinal indicators). Results using Maximum Likelihood estimation for CFA with continuous indicators are reported in Supplementary Table 1. Model fit was evaluated using fit indices based on the scaled and shifted test statistic, including the root mean square error of approximation (RMSEA), the comparative fit index (CFI) and the Tucker–Lewis index (TLI), as well as the standardized root mean square residual (SRMR). We interpreted model fit according to common guidelines, such as RMSEA and SRMR values lower than 0.08 and 10 respectively suggesting acceptable fit, as well as CFI and TLI values of higher than 0.95 [54, 55]. In order to assess the internal structure and reliability of the measure, we computed model-based reliability (i.e., McDonald's Omega) following Flora's guidelines [56].

Temporal stability and construct validity of the LPFS-BF 2.0 After the factor structure of the LPFS-BF 2.0 was inspected, temporal stability of the total score and of the two subscales over the interval between the first and second administration was examined. Next, validity of the LPFS-BF 2.0 was tested by means of Pearson's correlations with target variables from the assessment battery.

In particular, the IPO and IIP-32 were used as measures of self and interpersonal functioning respectively, and the PID5BF + M as a broad measure of personality disfunction, to assess convergent validity of the LPFS-BF 2.0 and its subscales. The remaining instruments were employed to assess discriminant validity of the LPFS-BF 2.0 with constructs less closely implicated in personality functioning (e.g., general symptom distress). All analyses were performed using R version 4.1.2 [57] lavaan package [58]. Data used in this study have been uploaded on a secure public repository (i.e., www.osf.io) currently accessible through a private weblink. The latter, together with analysis code and research materials will be made available upon reasonable request to the corresponding author.

Results

Table 1 reports descriptive statistics for the LPFS-BF 2.0 scales. None of the scale scores showed substantial deviations from normality, as indicated by values of skewness and kurtosis smaller than one. The intercorrelation found for the LPFS-BF 2.0 subscales ($r = 0.50$, $p < 0.001$) was consistent with previous evidence and AMPD's conceptualization of personality functioning as a main overarching dimension involving two distinct but related expressions [18, 26].

Confirmatory factor analysis of the LPFS-BF 2.0 Italian version

Table 2 presents the fit indices for each model tested. Consistent with previous evidence on the two-factor structure of the LPFS-BF 2.0 [9, 20, 21, 24], the best (and generally at least close to acceptable) fit was obtained for the model with two correlated factors, and with item loadings expected on the hypothesized direction (i.e., items 1–6 loading onto the first “Self functioning” factor, items 7–12 onto the second “Interpersonal functioning” factor) (see Fig. 1). The internal consistency of the total Italian LPFS-BF 2.0 scale was good (Cronbach alpha = 0.82). Model based McDonald's Omega was 0.850 and 0.635 for the Self and Interpersonal factors

Table 1 Descriptive statistics of the LPFS-BF 2.0 scales and the other target variables

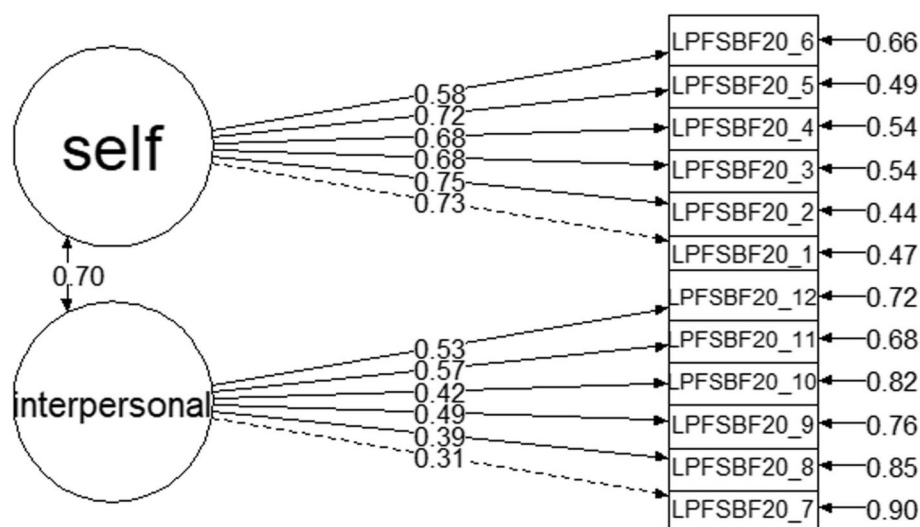
	M	SD	Skewness	Kurtosis
LPFS-BF 2.0 Self-functioning	2.13	0.74	0.27	−0.67
LPFS-BF 2.0 Interpersonal functioning	1.84	0.49	0.58	0.55
LPFS-BF 2.0 Total	1.99	0.53	0.34	−0.03
IPO Total	1.94	0.51	0.80	0.90
IIP-32 Total	1.00	0.54	0.64	0.09
PID5BF + M Total	0.90	0.37	0.18	−0.19
GHQ Total	1.56	0.48	0.04	−0.16
DSM-5 Symptoms Total	0.96	0.62	0.79	0.55
BSI-18 Total	0.94	0.68	0.88	0.37

For LPFS-BF 2.0, $N = 482$; for GHQ-12 (General Health Questionnaire – 12), $N = 470$; for DSM-5 Symptoms (DSM – 5 Self-Rated Level 1 Cross-Cutting Symptom Measure), $N = 467$; for BSI-18 (Brief Symptom Inventory-18), IPO (Inventory of Personality Organization), and IIP32 (Inventory of Interpersonal Problems-32), $N = 471$; for PID5BF + M (Personality Inventory for DSM-5 – Brief Form Plus Modified), $N = 477$

Table 2 Italian LPFS-BF 2.0: CFA fit indices for alternative model specifications

Model	(Scaled and shifted) χ^2	d. f	RMSEA	90% CI	SRMR	CFI	TLI
Model 1 (final model with Two-factors)	193.386	53	.074	.063—.086	.061	.950	.938
Model 2 (One-factor)	309.034	54	.099	.089—.110	.077	.909	.889

Models tested with Weighted Least Squares Means and Variances adjusted (WLSMV) estimation based on the polychoric correlation matrix

**Fig. 1** Confirmatory Factor Analysis (CFA) model with two factors on the LPFS-BF 2.0 items. Note. Standardized factor loadings, residual variances and factor intercorrelation of the two-dimensional model

respectively, indicating good internal consistency for the Self factor, but insufficient internal consistency for the Interpersonal factor. For the bi-factor model estimation problems occurred and therefore no results were reported.

For the sake of completeness, the same models were tested treating items as continuous indicators. These models generally led to worse model fit (see Supplementary Table 1).

Temporal stability and construct validity of the LPFS-BF 2.0

Before computing correlations for the LPFS-BF 2.0 items and scale scores between the test and retest samples, potential baseline differences between the two samples were inspected to detect any selection bias. As such, demographic variables (i.e., sex, marital status, education level, and family income) and LPFS-BF 2.0 items were compared in the two samples. Pearson's Chi-squared test (with Yates' continuity correction applied where necessary) were computed for discrete variables and Welch t-test for continuous variables. No significant differences were found between the two samples except for the item number 1 of the LPFS-BF 2.0 that has a slightly higher mean score in the retest group ($M=2.05$, $SD=0.98$) compared to the baseline sample ($M=1.83$, $SD=0.96$; $t(252.92)=-2.27$, $p=0.024$). Considering that no valid reason can be found for a difference in just one specific LPFS-BF 2.0 item, this was considered irrelevant. After

these preliminary checks, temporal stability was found to be high for both the two subscales and the total score of the Italian LPFS-BF 2.0. In particular, all correlations between the first and second administration scores were large: 0.79 for LPFS-BF 2.0 Self, 0.73 for Interpersonal, and 0.83 for the total score (all $ps < 0.001$).

Pearson's correlations of the Italian LPFS-BF 2.0 with scales and external measures selected to assess their convergent (i.e., IPO Total, IIP-32 Total, PID5BF + M Total) and discriminant (i.e., GHQ Total, DSM -5 Self-Rated Level 1 Cross-Cutting Symptom Measure, and the BSI-18 Total) validity are shown in Table 3. Albeit with some exceptions that will be discussed hereafter, the pattern of associations of the total score and the two Self and Interpersonal subscales with external measures resulted to be in the anticipated direction, with medium to large effect sizes (i.e., Pearson's r) and correlations were all significant at the $p < 0.001$ level.

As expected, the LPFS-BF 2.0 total scale correlated positively and significantly with both self-report measures of problematic self and interpersonal functioning, with overall personality dysfunction, and with general psychological symptomatology and lower quality of life. In regard to the total score, correlations tended to be higher with external measures of self, interpersonal, and personality dysfunction ($rs \geq 0.66$) than with measures of overall psychological difficulties and general distress ($0.38 \leq rs \leq 0.63$). Within the latter group of measures, the

Table 3 Convergent and Discriminant Validity of LPFS-BF 2.0 scores of the Italian LPFS-BF 2.0 scales

	LPFS-BF 2.0 Self-functioning	LPFS-BF 2.0 Interpersonal functioning	LPFS-BF 2.0 Total
IPO Total	.67***	.51***	.70***
IIP-32 Total	.61***	.52***	.66***
PID5BF + M Total	.62***	.55***	.68***
GHQ Total	.47***	.13**	.38***
DSM-5 Symptoms Total	.66***	.39***	.63***
BSI-18 Total	.68***	.31***	.61***

Note. For LPFS-BF 2.0, $N=482$; for GHQ-12 (General Health Questionnaire – 12), $N=470$; for DSM-5 Symptoms (DSM – 5 Self-Rated Level 1 Cross-Cutting Symptom Measure), $N=467$; for BSI-18 (Brief Symptom Inventory-18), IPO (Inventory of Personality Organization), and IIP32 (Inventory of Interpersonal Problems-32), $N=471$; for PID5BF + M (Personality Inventory for DSM-5 – Brief Form Plus Modified), $N=477$

* $p < .05$, ** $p < .01$, *** $p < .001$

association with the LPFS-BF 2.0 total score was particularly small for the GHQ Total ($r = 0.38$).

The Self-functioning subscale of the LPFS-BF 2.0 yielded positive and statistically significant correlations with external measures, with the lowest being with the GHQ Total score. In this sense, issues in personality functioning described by the LPFS-BF 2.0 Self-functioning scale items seem to be different from more general clinical symptomatology measured by the DSM-5, SCL and BSI (e.g., somatization, depressive and anxiety symptoms), but the difference is not so marked. The Interpersonal functioning subscale of the LPFS yielded a more differentiated and articulated array of correlations with the selected construct validity measures. In fact, correlations with other self/interpersonal, and overall personality functioning fell in the large range (all r s $> .50$), whereas those with general clinical symptomatology were of medium size ($0.31 \leq r \leq 0.39$), and the one with overall distress and quality of life were small ($r = 0.13$). This suggests that the LPFS Interpersonal-functioning scale can more distinctively identify, compared to the Self-functioning and total scale, difficulties in self-reported interpersonal functioning and object relations.

Additionally, we determined if these differences of the correlations between the LPFS-BF 2.0 scales and external measures were statistically significant by means of Steiger's t test [59] and the results are showed in Table 4. Most of the correlations between the LPFS-BF 2.0 Total and Interpersonal scales and external measures showed statistically significant differences in magnitude that were on the hypothesized direction. As such, the latter two scales tended to systematically show significantly higher correlations with measures of interpersonal dysfunction and personality pathology than with measures of general symptomatology and quality of life.

Discussion

This study explored the psychometric properties of the Italian version LPFS-BF 2.0 in a fairly sized community sample of adults, also providing the first empirical assessment of its temporal stability over an interval of 11.5 weeks. In the following sections we discuss the

main findings with specific attention to the two following points: a) the two-dimensional structure of the Italian LPFS-BF 2.0 and b) the construct validity and temporal stability of the measure. We also highlight possible implications of the results to the further development and use of the LPFS-BF 2.0, together with the limitations of this study and potential suggestions for future research.

The two-dimensional structure of the Italian LPFS-BF 2.0

Confirmatory analysis results and fit indices confirmed the two-factor structure of the LPFS-BF 2.0 in the present community adult Italian sample. This speaks to the two-dimensional organization of personality functioning across the Self and Interpersonal subcomponents theorized in the AMPD and other conceptualizations [15]. For instance, as showed by an empirical investigation on DSM-IV (and DSM-5) PDs criteria [8], what is most salient in order to capture the level of personality maladjustment essentially includes aspects such as the individual's preoccupations with rejection, being socially inept, inadequacy, anger, identity disturbance, and paranoid ideation. Importantly, such elements ultimately denote the view people hold of themselves and others [15], which are specifically emphasized by the LPFS Self and Interpersonal subcomponents.

The two-dimensional organization of personality functioning should be interpreted in light of the similarity of the two subcomponents. Both subcomponents obtained positive and statistically significant correlations with measures of self, personality and interpersonal dysfunction, overall symptomatology and quality of life. Moreover, the two LPFS-BF 2.0 factors were highly intercorrelated in this sample ($r = 0.70$). Such level of association among the two subcomponents was aligned with findings from most of the current literature on the LPFS-BF 2.0 and AMPD criterion A measures more in general [21, 23, 26, 29], corroborating the robustness of this finding. As previously noted with older adults who took the LPFS-BF 2.0 [26], and more generally regarding LPFS scales [60], this might be a sign of a less than optimal level of discriminant validity within the measure. On the other hand, this finding could be interpreted as the

Table 4 Steiger's t test comparing convergent and divergent correlations of the Italian LPFS-BF 2.0

<i>Correlations comparisons (Steiger's t) for LPFS-BF 2.0 Self</i>						
	IPO Total	IIP-32 Total	PID5BF+M Total	GHQ-12	DSM-5 Symptoms	BSI-18
IPO Total	-					
IIP-32 Total	.07*	-				
PID5BF+M Total	.05*	-.01	-			
GHQ-12	.20***	.13**	.15***	-		
DSM-5 Symptoms	.00	-.06*	-.05	-.20***	-	
BSI-18 Total	-.00	-.07*	-.06*	-.21***	-.01	-
<i>Correlations comparisons (Steiger's t) for LPFS-BF 2.0 Interpersonal</i>						
	IPO Total	IIP-32 Total	PID5BF+M Total	GHQ-12	DSM-5 Symptoms	BSI-18
IPO Total	-					
IIP-32 Total	.04	-				
PID5BF+M Total	.02	-.02	-			
GHQ-12	.32***	.28***	.30***	-		
DSM-5 Symptoms	.06*	.02	.04	-.26***	-	
BSI-18 Total	.09***	.05	.07*	-.23***	.03	-
<i>Correlations comparisons (Steiger's t) for LPFS-BF 2.0 Total</i>						
	IPO Total	IIP-32 Total	PID5BF+M Total	GHQ-12	DSM-5 Symptoms	BSI-18
IPO Total	-					
IIP-32 Total	-.01	-				
PID5BF+M Total	-.04	-.02	-			
GHQ-12	.39***	.40***	.42***	-		
DSM-5 Symptoms	.13***	.14***	.16***	-.26***	-	
BSI-18 Total	.20***	.22***	.24***	-.18***	.08**	-

Table shows the difference between pairs of correlations between the target LPFS-BF 2.0 scales and external criterion measures (Steiger's t). For LPFS-BF 2.0, $N = 482$; for GHQ-12 (General Health Questionnaire – 12), $N = 470$; for DSM-5 Symptoms (DSM -5 Self-Rated Level 1 Cross-Cutting Symptom Measure), $N = 467$; for SCLK-9 (Symptom Checklist – Short Form), BSI-18 (Brief Symptom Inventory-18), IPO (Inventory of Personality Organization), and IIP32 (Inventory of Interpersonal Problems-32), $N = 471$; for PID5BF+M (Personality Inventory for DSM-5 – Brief Form Plus Modified), $N = 477$

* $p < .05$, ** $p < .01$, *** $p < .001$

evidence of the ultimate unitarity of personality functioning in adaptive nonclinical development, which would still allow for a certain degree of independence between the two subcomponents. This possibility is somewhat supported by the evidence that at least some level of distinctiveness have been found between the Self and Interpersonal functioning subcomponents in this sample, as demonstrated by the slightly different pattern of associations with external measures entailed by the two subscales (see below).

Temporal stability and construct validity of the LPFS-BF 2.0

The temporal stability for both the total and subscale scores of the LPFS-BF was high in this sample. This is an important finding considering that information available on the temporal stability of the measure across time is lacking. In fact, although sensitivity to treatment change has been suggested especially for the total scale and the Self subcomponent [9], no study had explored the topic of temporal stability of the scores in community populations. The possibility to rely on a measure with demonstrated temporal stability is important to assure that potential detected variations across scores for the same individual or groups of individuals across times are due to actual, replicable differences.

The direction and magnitude of the correlations we obtained for the LPFS-BF 2.0 total scale and subscales with external measures were comparable to those present in the literature (e.g., [9, 18]). Moreover, it is crucial to consider the different pattern of associations with external measures entailed by the two subscales of the LPFS-BF 2.0 not only in the light of supporting the two-dimensional structure of the scale, but also in terms convergent and divergent validity of the measure itself. For instance, the Self subcomponent had quite large ($r > 0.60$) correlations with measures of psychological clinical symptoms, whereas the Interpersonal component had only medium sized associations with such constructs ($0.30 < r < 0.40$). The Self component was more extensively correlated with such external constructs, whereas the Interpersonal component had more specific associations with self/interpersonal, and overall personality dysfunction rather than with general psychological symptomatology and quality of life. This might indicate a poorer discriminant validity for the Self subcomponent, but is also coherent with the idea that this subscale captures a wider range of personality functions and disturbances than the Interpersonal subcomponent. As previously noted, the psychological experiences described by the Self subcomponent seems to ultimately refer to the

individual's perceived subjective distress and debilitation, which is coherent with content present in the LPFS Self-functioning scale related to emotion regulation (identity) and fulfillment (self-direction) [18]. In regard to the LPFS-BF 2.0 total score, it should be noted that the larger associations it yielded with external measures of self, interpersonal, and personality dysfunction than with overall psychological difficulties and general distress, is coherent with findings from Weekers and colleagues [9] revealing moderate associations of the total score with other proxies of the severity of PD that remained significant even when controlling for general psychopathology. This evidence supports the ability of the LPFS-BF 2.0 to identify personality pathology specifically and net of general psychological problems.

Importantly, both the two LPFS-BF 2.0 subscale scores and the total score yielded positive and sizeable correlations with the PID5BF + M total score. Using the latter as a proxy for severity of personality pathology, this finding suggests that, as observed in studies with other LPFS scales [26], detecting the individual's level of personality functioning is important to determine the overall personality pathology severity [28]. This is particularly relevant in a treatment framework to define an intervention target in severity of the organization rather than on trait-based issues [6, 61].

Limitations and future directions

Notwithstanding several strengths of the present study, a few limitations should be noted and taken into account to set possible directions for future studies for the LPFS-BF 2.0. A first issue is the exclusive use of self-report methods to measure level of personality functioning and the external criterion measures. Relying on self-report instruments exclusively can limit the overall accuracy of the assessment of personality functioning, especially when personality disturbance hinders the individual's self-insight capacities [62, 63]. Furthermore, it has been suggested that self-report measures likely capture psychological impairment in general rather than personality pathology specifically [17]. These points, together with the risk for artificially heightened correlations among measures due to monomethod bias [63], prompt for investigations encompassing an integrated multimethod assessment, which is especially useful when studying utility when studying personality [64]. For instance, findings from self-report methods can be valuably integrated with clinician ratings and information gathered in experimental settings [65, 66]. On the other hand, well conceived self-report measures are still the standard and most cost-effective psychological instruments used in clinical practice and scientific research, and this is relevant particularly for the LPFS-BF 2.0 which has been primarily

conceived as a screening tool that might call for further, more in-depth assessment.

A second limitation is the low internal reliability we detected for the Interpersonal subcomponent (*McDonald's Omega* = 0.635). This is not new to this sample, with the Interpersonal subcomponent reporting lower internal consistency than the Self subcomponent in most published studies across countries and types of samples, and with values at times similar to the one observed in our research [9, 18, 21–24]. It is possible to hypothesize that interpersonal impairments may be somewhat more heterogeneous and less accessible through self-report, and this could be especially true for items related to Empathy [67]. In this sample, items 7 (“I often have difficulty understanding the thoughts and feelings of others”) and 8 (“I often find it hard to stand it when others have a different opinion”), which target the individual's capacities to understand and accept other's feelings and thoughts, are also the ones yielding lower loadings to the designated factor. Importantly, the lower internal consistency of the Interpersonal subcomponent and the lower factor loadings for specific items might also mean that self-report items for interpersonal functioning are interpreted differently in Italy compared to other countries. However, this potential concern might be attenuated by the fact that cross-cultural invariance was overall demonstrated in a recent investigation [22] comparing the LPFS-BF 2.0 across linguistic translations and countries, including Italy. Albeit with some discrepancies regarding the way student participants in particular used the questionnaire's response scales (i.e., partial scalar invariance), it was demonstrated that the factor structure and the general meaning of LPFS-BF 2.0 items (i.e., configural and metric invariance respectively) were equivalent across groups.

Finally, it is important to consider that in this study we tested the temporal stability of the LPFS-BF 2.0 scale scores. This by definition does not allow to disentangle between stability and reliability of a measure and is a direct consequence of having only two measurement time points. Moreover, it is possible that participation to psychotherapeutic treatment, a piece of information that was not available for participants in this sample, might have influenced temporal stability. It should be noted nonetheless that given the relatively short time occurring between the first and second administration of the LPFS-BF 2.0, impact of a potential treatment would likely be small. In sum, we believe that the results of this study can be considered a first solid base to have an estimate of the expected level of stability of the LPFS-BF 2.0 scores across time, and this is useful for both research and clinical investigations aimed at seizing, for example, therapeutic change.

Conclusions

To conclude, the present study supports the structural and convergent validity of the Italian LPFS-BF 2.0, as well as its temporal stability over an interval of medium length. Factor analysis of the scale confirmed a two-dimensional structure with two correlated subcomponents of Self and Interpersonal personality functioning, and despite the sizeable association between the two subcomponents, they also entailed distinct relations with external criteria. Ultimately, these findings further validate the AMPD model, in particular emphasizing the solidity of criterion A.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s40479-025-00286-3>.

Supplementary Material 1.

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None.

Authors' contributions

Emanuela S. Gritti: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Roles/Writing—original draft; Writing—review & editing. Pietro de Carli: Conceptualization; Methodology; Investigation; Formal analysis. Joost Hutsebaut: Conceptualization; Methodology; Roles/Writing—original draft; Writing—review & editing. Alessandra Simonelli: Conceptualization; Resources. Johannes Zimmermann: Conceptualization; Methodology; Investigation; Writing—review & editing.

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Data availability

Data used in this study have been uploaded on a secure public repository (i.e., www.osf.io) currently accessible through a private weblink. The latter, together with analysis code and research materials will be made available upon reasonable request to the corresponding author.

Declarations

Ethics approval and consent to participate

All participants whose data were used in the analyses provided a valid written informed consent, and the study was approved by the Institutional Review Board of the Department of Developmental Psychology and Socialization of the University of Padova (Protocol No. 3953).

Consent for publication

Participants who took part in the study provided written informed consent for the publication of the data collection results in anonymized, aggregated form.

Competing interests

The authors declare no competing interests.

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References

1. APA. Diagnostic and statistical manual of mental disorders: DSM-5. 5th ed. Arlington: American Psychiatric Association; 2013.
2. World Health Organization. ICD-11: International classification of diseases (11th revision). 2019. Retrieved from <https://icd.who.int/>.
3. Gritti ES, Plouffe R, Blanch A. Editorial to special issue "Personality pathologies in the world: Beyond dichotomies." *Pers Individ Dif*. 2019;140:1–3.
4. Widiger TA, Samuel DB. Diagnostic categories or dimensions? A question for the Diagnostic and Statistical Manual of Mental Disorders - Fifth Edition. *J Abnorm Psychol*. 2005;114:494–504.
5. Haslam N, McGrath MJ, Viechtbauer W, Kuppens P. Dimensions over categories: Ameta-analysis of taxometric research. *Psychol Med*. 2020;50(9):1418–32.
6. Sharp C, Wright AGC, Christopher Fowler J, Christopher Frueh B, Allen JG, Oldham J, et al. The structure of personality pathology: Both general ('g') and specific ('s') factors? *J Abnorm Psychol*. 2015;124(2).
7. Rushton JP, Irwing P, Booth T. A General Factor of Personality (GFP) in the personality disorders: Three studies of the Dimensional Assessment of Personality Pathology - Basic Questionnaire (DAPP-BQ). *Twin Res Hum Genet*. 2010;13(4):301–11.
8. Hopwood CJ, Malone JC, Ansell EB, Sanislow CA, Grilo CM, Mcglashan TH, et al. Personality assessment in DSM-5: Empirical support for rating severity, style, and traits. *J Pers Disord*. 2011;25(3):305–20.
9. Weekers LC, Hutsebaut J, Kamphuis JH. The Level of Personality Functioning Scale-Brief Form 2.0: Update of a brief instrument for assessing level of personality functioning. *Personal Ment Health*. 2019;13(1):3–14.
10. Prevolnik Rupel V, Jagger B, Fialho LS, Chadderton LM, Gintner T, Arntz A, et al. Standard set of patient-reported outcomes for personality disorder. *Qual Life Res*. 2021;30(12):3485–500.
11. Kernberg OF. Borderline conditions and pathological narcissism. New York: Janson Aronson; 1975.
12. OPD Task Force. Operationalized Psychodynamic Diagnosis OPD-2: Manual of diagnosis and treatment planning. Cambridge: Hogrefe & Huber; 2008.
13. Zimmermann J, Ehrental JC, Cierpka M, Schauenburg H, Doering S, Benecke C. Assessing the level of structural integration using operationalized psychodynamic diagnosis (OPD): implications for DSM-5. *J Pers Assess*. 2012;94(5):522–32.
14. Lingiardi V, McWilliams N. Manuale Diagnostico Psicodinamico PDM-2. Seconda edizione. Milano: Raffaello Cortina Editore; 2020.
15. Bender DS, Morey LC, Skodol AE. Toward a model for assessing level of personality functioning in DSM-5, part I: A review of theory and methods. *J Pers Assess*. 2011;93(4):332–46.
16. Birkhölzer M, Schmeck K, Goth K. Assessment of Criterion A. *Curr Opin Psychol*. 2021;37:98–103.
17. Zimmermann J, Hopwood CJ, Krueger RF. The DSM-5 Level of Personality Functioning Scale. In: Krueger RF, Blaney PH, editors. *Oxford Textbook of Psychopathology*. 4th ed. New York: Oxford University Press; 2023. p. 579–603.
18. Bach B, Hutsebaut J. Level of Personality Functioning Scale-Brief Form 2.0: Utility in Capturing Personality Problems in Psychiatric Outpatients and Incarcerated Addicts. *J Pers Assess*. 2018;100(6):660–70. Available from: <https://doi.org/10.1080/00223891.2018.1428984>.
19. Buer Christensen T, Eikenaes I, Hummelen B, Pedersen G, Nysæter TE, Bender DS, et al. Level of personality functioning as a predictor of psychosocial functioning-Concurrent validity of criterion A. *Personal Disord*. 2020;11(2):79–90.
20. Le Corff Y, Aluja A, Rossi G, Lapalme M, Forget K, García LF, et al. Construct Validity of the Dutch, English, French, and Spanish Lpfs-Bf 2.0: Measurement Invariance Across Language and Gender and Criterion Validity. *J Pers Disord*. 2022;36(6):662–79.

21. Łakuta P, Ciecuch J, Strus W, Hutsebaut J. Level of Personality Functioning Scale-Brief Form 2.0: Validity and reliability of the Polish adaptation. *Psychiatr Pol*. 2022;57(2):247–60.
22. Natoli AP, Bach B, Behn A, Cottin M, Gritti ES, Hutsebaut J, et al. Multinational Evaluation of the Measurement Invariance of the Level of Personality Functioning Scale–Brief Form 2.0: Comparison of Student and Community Samples Across Seven Countries. *Psychol Assess*. 2022;34(12):1112–25.
23. Rossi G, Diaz-Batanero C. Differentiation of Self and Interpersonal Functioning with the Level of Personality Functioning Scale - Brief Form 2.0. *J Pers Assess*. 2024;106(1):60–71.
24. Silva de Oliveira ES, Zimmermann J, Krueger RF, Hutsebaut J. Brazilian Version of the Level of Personality Functioning Scale-Brief Form 2.0: Evidence of Reliability and Validity Versão Brasileira da Escala de Nível de Funcionamento da Personalidade – Forma Breve – 2.0: Evidência de Fidedignidade e Validade. *Psicologia: Teoria e Pesquisa*. 2023;39e05(39):1–14.
25. Spitzer C, Müller S, Kerber A, Hutsebaut J, Brähler E, Zimmermann J. The German Version of the Level of Personality Functioning Scale-Brief Form 20 (LPFS-BF): Latent Structure, Convergent Validity and Norm Values in the General Population. *Psychother Psychosom Med Psychol*. 2021;71(7):284–93.
26. Stone LE, Segal DL, Noel OR. Psychometric Evaluation of the Levels of Personality Functioning Scale—Brief Form 2.0 Among Older Adults. *Personal Disord*. 2021;12(6):526–33.
27. Weekers LC, Sellbom M, Hutsebaut J, Simonsen S, Bach B. Normative data for the LPFS-BF 2.0 derived from the Danish general population and relationship with psychosocial impairment. *Personal Ment Health*. 2023;17(2):157–64.
28. Zimmermann J, Müller S, Bach B, Hutsebaut J, Hummelen B, Fischer F. A Common Metric for Self-Reported Severity of Personality Disorder. *Psychopathology*. 2020;53(3–4):168–78.
29. Bliton CF, Roche MJ, Pincus AL, Dueber D. Examining the Structure and Validity of Self-Report Measures of Dsm-5 Alternative Model for Personality Disorders Criterion A. *J Pers Disord*. 2022;36(2):157–82.
30. Hutsebaut J, Feenstra DJ, Kamphuis JH. Development and Preliminary Psychometric Evaluation of a Brief Self-Report Questionnaire for the Assessment of the DSM-5 Level of Personality Functioning Scale: The LPFS Brief Form (LPFS-BF). *Personal Disord*. 2016;7(2):192–7.
31. Weekers LC, Sellbom M, Hutsebaut J, Simonsen S, Bach B. Normative data for the LPFS-BF 2.0 derived from the Danish general population and relationship with psychosocial impairment. *Personal Ment Health*. 2023;17(2):157–64.
32. Buer Christensen T, Eikehaas I, Hummelen B, Pedersen G, Nysæter TE, Bender DS, et al. Level of personality functioning as a predictor of psychosocial functioning—Concurrent validity of criterion A. *Personal Disord*. 2020;11(2):79–90.
33. Hopwood CJ, Good EW, Morey LC. Validity of the DSM-5 Levels of Personality Functioning Scale-Self Report. *J Pers Assess*. 2018;100(6):650–9.
34. Morey LC. Development and Initial Evaluation of a Self-Report Form of the DSM-5 Level of Personality Functioning Scale. *Psychol Assess*. 2017;29(10):1302–8.
35. Lynam DR, Gaughan ET, Miller JD, Miller DJ, Mullins-Sweatt S, Widiger TA. Assessing the Basic Traits Associated With Psychopathy: Development and Validation of the Elemental Psychopathy Assessment. *Psychol Assess*. 2011;23(1):108–24.
36. Brislin RW. Translation and content analysis of oral and written material. In: Triandis HC, Berry JW, editors. *Handbook of cross-cultural psychology*, vol. 1. Boston: Allyn & Bacon; 1980. p. 389–444.
37. Geisinger KF. Testing and assessment in cross-cultural psychology. In: Graham R, Naglieri JA, editors. *Handbook of psychology: Assessment psychology*. Hoboken: Wiley; 2003. p. 95–117.
38. Van de Vijver FJR, Hambleton RK. Translating tests: Some practical guidelines. *Eur Psychol*. 1996;1:89–99.
39. Lenzenweger MF, Clarkin JF, Kernberg OF, Foelsch PA. The inventory of personality organization: Psychometric properties, factorial composition, and criterion relations with affect, aggressive dyscontrol, psychosis proneness, and self-domains in a nonclinical sample. *Psychol Assess*. 2001;13(4):577–91.
40. Preti E, Prunas A, De Panfilis C, Marchesi C, Madeddu F, Clarkin JF. The facets of identity: Personality pathology assessment through the inventory of personality organization. *Personal Disord*. 2015;6(2):129–40.
41. Ellison WD, Levy KN. Factor structure of the primary scales of the inventory of personality organization in a nonclinical sample using exploratory structural equation modeling. *Psychol Assess*. 2012;24(2):503–17.
42. Hörz-Sagstetter S, Volkert J, Rentrop M, Benecke C, Gremaud-Heitz DJ, Unterhainer HF, et al. A Bifactor Model of Personality Organization. *J Pers Assess*. 2020;103(2):149–60.
43. Horowitz LM, Alden LE, Wiggins JS, Pincus AL. *Inventory of Interpersonal Problems (IIP-32/IIP-64)*. London: Psychological Corporation; 2000.
44. Lo Coco G, Mannino G, Salerno L, Oieni V, Di Fratello C, Profita G, et al. The Italian version of the inventory of interpersonal problems (IIP-32): Psychometric properties and factor structure in clinical and non-clinical groups. *Front Psychol*. 2018;9:1–12.
45. Bach B, Kerber A, Aluja A, Bastiaens T, Keeley JW, Claes L, et al. International assessment of DSM-5 and ICD-11 Personality Disorder Traits: Toward a Common Nomenclature in DSM-5.1. *Psychopathology*. 2020;3(4):179–88.
46. Krueger RF, Derringer J, Markon KE, Watson D, Skodol AE. Initial construction of a maladaptive personality trait model and inventory for DSM-5. *Psychol Med*. 2012;42(9):1879–90.
47. Zabora J, Brintzenhofesoc K, Jacobsen P, Curbow B, Piantadosi S, Hooker C, et al. A new psychosocial screening instrument for use with cancer patients. *Psychosomatics*. 2001;42(3):241–6.
48. Prunas A, Sarno I, Preti E, Madeddu F, Perugini M. Psychometric properties of the Italian version of the SCL-90-R: A study on a large community sample. *Eur Psychiatry*. 2012;27(8):591–7.
49. Carrozzino D, Siri C, Bech P. The prevalence of psychological distress in Parkinson's disease patients: The brief symptom inventory (BSI-18) versus the Hopkins symptom checklist (SCL-90-R). *Prog Neuropsychopharmacol Biol Psychiatry*. 2019;88(31):96–101.
50. Musetti A, Mancini T, Corsano P, Santoro G, Cavallini MC, Schimmenti A. Maladaptive Personality Functioning and Psychopathological Symptoms in Problematic Video Game Players: A Person-Centered Approach. *Front Psychol*. 2019;10:1–14.
51. Bellantuono. Psychiatric screening in general practice in Italy _ Enhanced Reader. 1987.
52. Piccinelli M, Bisoffi G, Bon MG, Cunico L, Tansella M. Validity coefficients of the 12-item General Health Questionnaire in general practice: a comparison between three scoring methods. *Compr Psychiatry*. 1993;34(3):198–205.
53. Banks MH, Clegg CW, Jackson PR, Kemp NJ, Stafford EM, Wall TD. The use of the General Health Questionnaire as an indicator of mental health in occupational studies. *J Occup Psychol*. 1980;53:187–94.
54. Brown TA. *Confirmatory Factor Analysis for Applied Research*. New York: Guilford Press; 2014.
55. Little TD. *Longitudinal Structural Equation Modeling*. New York: Guilford Press; 2013.
56. Flora DB. Your Coefficient Alpha Is Probably Wrong, but Which Coefficient Omega Is Right? A Tutorial on Using R to Obtain Better Reliability Estimates. *Adv Methods Psychol Sci*. 2020;3(4):484–501.
57. R Core Team. *R: A Language and Environment for Statistical Computing*. Vienna: R Foundation for Statistical Computing; 2020.
58. Rosseel Y. "lavaan: An R Package for Structural Equation Modeling." *J Stat Softw*. 2012;48(2):1–36.
59. Steiger JH. Tests for comparing elements of a correlation matrix. *Psychol Bull*. 1980;87(2):245–51.
60. Sleep CE, Weiss B, Lynam DR, Miller JD. The DSM-5 Section III Personality Disorder Criterion A in Relation to Both Pathological and General Personality Traits. *Personal Disord*. 2019;11(3):202–12.
61. Hopwood CJ. A framework for treating DSM-5 alternative model for personality disorder features. *Personal Ment Health*. 2018;12(2):107–25.
62. Ganellen RJ. Assessing Normal and Abnormal Personality Functioning: Strengths and Weaknesses of Self-Report, Observer, and Performance-Based Methods. *J Pers Assess*. 2007;89(1):30–40.
63. Campbell DT, Fiske DW. Convergent and discriminant validation by the multitrait-multimethod matrix. Vol. 56, *Psychological Bulletin*. US: American Psychological Association; 1959. p. 81–105.
64. Eid M, Diener E. *Handbook of multimethod measurement in psychology*. In: Eid M, Diener E, editors. *Handbook of multimethod measurement in psychology*. Washington, DC: American Psychological Association; 2006.
65. Gritti ES, Marino DP, Lang M, Meyer GJ. Assessing Narcissism Using Rorschach-Based Imagery and Behavior Validated by Clinician Reports: Studies With Adult Patients and Nonpatients. *Assessment*. 2018;25(7). Available from: <https://doi.org/10.1177/1073191117715728>.

66. Gritti ES, Meyer GJ, Bornstein RF, Marino DP, di DP, Marco JD. Narcissism and Reactions to a Self-Esteem Insult: An Experiment Using Predictions from Self-Report and the Rorschach Task. *J Pers Assess* [Internet]. 2021;103(5):621–633.33. Available from: <https://doi.org/10.1080/00223891.2020.1848854>.
67. Murphy BA, Lilienfeld SO. Are self-report cognitive empathy ratings valid proxies for cognitive empathy ability? Negligible meta-analytic relations with behavioral task performance. *Psychol Assess*. 2019;31(8):1062–72.

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