

Introducing a Short Self-Report for the Assessment of DSM-5 Level of Personality Functioning for Personality Disorders: The Self and Interpersonal Functioning Scale

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Abstract

In the present study, we report on the development and validation of the Self and Interpersonal Functioning Scale (SIFS), a 24-item self-report questionnaire designed to assess the four core elements of personality pathology (Identity, Self-direction, Empathy, and Intimacy) from the DSM-5 Level of Personality Functioning (LPF) for personality disorders (PDs). Participants from a community sample ($n = 280$) and patients from a specialized treatment facility for PDs ($n = 106$) were included in the validation sample. Overall, the SIFS showed sound psychometric properties. A second-order factor solution, which consisted of the four LPF elements and an overarching personality pathology factor, showed the best fit indices. The four SIFS elements showed a well-differentiated and conceptually meaningful pattern of associations with related constructs. In light of these results, the SIFS should be considered as a promising, concise measure of Criterion A for clinical screening and research purposes. Its relative strengths and limitations in contrast with other existing self-report measures of Criterion A are discussed.

Keywords: Alternative DSM-5 Model for Personality Disorders; personality disorder; Criterion A; test development; self-report measure.

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Even without an “official” status, the Alternative Model for Personality Disorders (AMPD), presented in Section III (Emerging Measures and Models) of the DSM-5 (American Psychiatric Association, 2013) has generated considerable clinical and research interest over the past few years (Waugh et al., 2017). The AMPD covers core difficulties in personality functioning (Criterion A) in conjunction with pathological personality traits (Criterion B); it also retains six categorical PDs, which can be diagnosed on the basis of Criteria A and B.

Criterion A is operationalized by the Level of Personality Functioning Scale (LPFS; Bender, Morey, & Skodol, 2011), a clinician-rated tool which assesses the level of personality pathology on a five-point scale, based on core impairments in self- and interpersonal functioning. Self-functioning includes two elements, Identity and Self-direction, while Interpersonal functioning refers to Empathy and Intimacy. Criterion A bridges important theoretical PD formulations from various paradigms (e.g., psychodynamic, interpersonal, and social-cognitive), incorporating structural elements, developmental processes, and personality dynamics relevant in contemporary PD formulations (Bender et al., 2011; Waugh et al., 2017).

For pathological personality traits assessment (Criterion B), the AMPD proposes 25 traits hierarchically organized into five higher-order dimensions: Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism. The availability of a well-validated self-report measure, the Personality Inventory for DSM-5 questionnaire (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), has bolstered research on Criterion B, which has generated a large number of findings over the past few years (Al-Dajani, Gralnick, & Bagby, 2016; Waugh et al., 2017). However, the corpus of research for Criterion A has been more modest; the lack of a

comparably detailed and validated tool has most certainly been a factor to explain the relative paucity of findings (Morey, 2017). Available evidence on Criterion A and its operationalization, the LPFS, has been promising for the most part. Its criterion validity has been demonstrated in multiple studies, as Criterion A significantly predicted the presence and number of PDs in diverse samples (Few et al., 2013; Morey, Bender, & Skodol, 2013). Morey and colleagues (2013) reported that an LPFS score of moderate or greater severity (≥ 2) demonstrated good sensitivity and specificity (84.6% and 72.7%, respectively) for identifying patients with at least one PD diagnosis; Criterion A also showed incremental predictive power on functional impairment, prognosis, and treatment intensity over the 10 categorical DSM PDs.

Self-report instruments for assessing Criterion A are needed for large-scale studies and for screening purposes. An efficient self-report may help clinicians to systematically pay attention to potential personality pathology, which would allow them to identify patients more likely to require a more thorough assessment and/or subsequent treatment; it may also help patients in self-assessing potential personality pathology and prompt them to get treatment (Hutsebaut et al., 2016). Furthermore, considering that PD patients are often subject to lengthy assessment procedures, developing concise measures might be especially relevant.

Early research on the LPFS relied on measures which antedated the DSM-5 AMPD, but were intended to measure very similar constructs. The General Assessment of Personality Disorder (GAPD; Berghuis, Kamphuis, Verheul, Larstone, & Livesley, 2013) posits a two-factor structure for personality, aligned with the AMPD Criterion A's two higher-order dimensions, Self-pathology and Interpersonal dysfunction. It does not explicitly mention the four Criterion A elements, which are merely considered as subscales among others. The Severity Indices of Personality Problems (SIPP-118; Verheul et al., 2008) has yielded a five-dimension solution,

which includes Self-control, Identity integration, Relational capacities, Social concordance, and Responsibility. While somewhat different from current AMPD conceptualization, these five dimensions qualitatively and theoretically map onto the four Criterion A dimensions.

Since the publication of the DSM-5, a growing number of self-report measures for Criterion A have been concurrently developed and validated by a number of research teams worldwide. Morey (2017) reported on the Level of Personality Functioning Scale-Self Report (LPFS-SR), an 80-item self-report questionnaire, with each item answered on a four-point scale. Construction of the scale was based on items generated for each information unit from Table 2 of the DSM-5 AMPD. Each item is weighted according to its severity within the LPFS conceptualization for scoring. Morey reported promising preliminary validity results for the scale, including high degrees of internal consistency and very large intercorrelations for the four LPFS elements, and large correlations with concurrent measures of personality pathology. Of note, however, the four LPFS elements showed indiscriminate associations with various criterion variables, raising doubts about the utility of distinct elements. Morey contends that these results are coherent with the assumption underlying Criterion A development that the four LPFS components are all considered to be indicators of a single, global, core dimension of personality pathology. Hopwood, Good, and Morey (2018) have since reported additional data from three large community samples in support of the instrument's reliability and validity. The LPFS-SF's internal structure was once again best characterized by a single factor. It was highly reliable across a brief retest interval, and showed conceptually meaningful and often large correlations with external criteria (maladaptive personality traits, PD constructs, interpersonal problems).

Huprich and colleagues (2017) have recently developed and validated the DSM-5 Levels of Personality Functioning Questionnaire (DLOPFQ), a 132-item self-report questionnaire which

assesses the four LPF elements (Identity, Self-direction, Empathy, and Intimacy) across two life settings (work/school and relationships). Items are scored on a six-point scale. Initial validation data from a sample of 140 psychiatric and medical outpatients have been promising, including good internal consistency, along with meaningful and expected correlations with a number of external criteria. The scale also showed incremental predictive validity over DSM-5 trait domains for interpersonal and general functioning. The DLOPFQ scales, however, had limited discrimination with the external criterion variables.

While these two scales have shown promising results, they are both relatively lengthy instruments. Hutsebaut and colleagues (2016) have developed and validated a very concise, 12-item self-report questionnaire to assess the LPFS, the Level of Personality Functioning Scale-Brief Form (LPFS-BF). Items, which are scored binary in a yes/no format, were generated by a group of PD experts, who tried to capture the basic psychological aptitude implied by the description of each of the 12 “facets” of the LPFS (which correspond to the 12 descriptive statements—three for each LPF element—presented in Table 1, “Elements of personality functioning”, of the DSM-5 AMPD; American Psychiatric Association, 2013, p.762). Hutsebaut and colleagues (2016) reported a two-factor solution (Self and Interpersonal functioning) for their original instrument. Because the scale showed some middling psychometric properties (e.g., poor association with PD pathology, low reliability, low explained variance of the factor solution), a revised version was developed and validated: the LPFS-BF 2.0 (Bach & Hutsebaut, 2018; Weekers, Hutsebaut, & Kamphuis, 2018). Unlike the first version, the LPFS-BF 2.0 uses a four-point Likert scale scoring format. This version represents an improvement over the original scale, showing better internal consistency and stronger associations with PDs, along with a high sensitivity to change. The two-factor structure of the revised instrument was demonstrated in

both Exploratory and Confirmatory factor analysis (EFA and CFA), with some noteworthy limitations (e.g., two items from their total sample did not load on their intended factor in EFA, and an acceptable model fit could only be obtained after performing two post hoc tests in CFA). The LPFS-BF 2.0 showed relevant associations with various external criteria, although there were also indiscriminate patterns of associations between its two factors and most of the SIPP Short Form domains.

Concurrently with these international efforts aiming to operationalize Criterion A, our own research group was working on the development and validation of a new scale, the Self and Interpersonal Functioning Scale (SIFS; Gamache & Savard, 2017). We wished to develop a scale that: (a) was brief; (b) was user-friendly, with a simple scoring system; and (c) provided a coverage of all key facets of personality functioning depicted in the LPFS. In a first step, the two authors of the instrument, who have respectively 15 and 10 years of clinical experience with PD patients, and both have significant experience in personality test development and validation, generated items based on the DSM-5 AMPD definitions for the four LPFS elements (Identity, Self-direction, Empathy, and Intimacy). This original pool of 36 items was then reviewed by a panel of five PD experts, who share 62 years (range 3–19) of clinical experience with these patients. They rated all items for their representativeness of the DSM-5 AMPD construct they intended to depict, on a scale ranging from 0 (Not representative at all) to 5 (Totally representative). After reviewing representativeness scores for all 36 items, 12 were deemed less representative and dropped. All 24 remaining items were also rated by the same expert panel on their clarity, on a scale ranging from 0 (Totally unclear) to 5 (Totally clear); items with a mean score ≤ 4.5 were revised until a mean score > 4.5 was attained; this led to minor rewording for six items. Thus, a total of 24 items, rated with a five-point Likert scale from 0 to 4, were

included in the scale (with items 1, 6, 8, 12, 17, 19, and 24 as reversed items); higher scores are indicative of pathological personality functioning. The four elements each originally had six items; however, preliminary results (Leclerc, Gamache, & Savard, 2018) showed that item 7 (“I often feel like my life has no meaning”), initially intended to capture the absence of meaningful life goals (Self-direction), was unequivocally more strongly associated with the Identity element; it was therefore moved to the latter.

The present study aims at exploring the psychometric properties of the newly developed SIFS. Analyses include: (a) internal consistency and item properties based on classical test theory (CTT); (b) differences between clinical and nonclinical participants, which are expected to be significant and large; (c) test-retest after a two-week interval; (d) factor structure using Confirmatory Factor Analysis (CFA). Making hypotheses about the optimal factor structure is hazardous at this time, as a single-factor, a two- and a four-factor solution all appear defensible in the light of DSM-5 AMPD formulation and previous empirical results on LPFS measures (e.g., Hopwood, Good, et al., 2018; Hutsebaut et al., 2016; Zimmerman et al., 2015). However, we contend that the scale should have clear, discernable factors in order to fulfill its intended goal of being a useful tool for treatment planning, and for monitoring treatment course and outcome; and (e) articulating the SIFS’ nomological network. At this point, there are relatively few conclusive results on which to base definitive hypotheses regarding convergent and discriminant validity, and the present work should contribute in expanding these findings. Most notably, the relationship between Criteria A and B remains a thorny issue, as substantial overlap and covariation have been noted in earlier studies (e.g., Few et al., 2013; Hentschel & Pukrop, 2014). Therefore, significant correlations between the two should be expected. As for the specific nature of the associations between the SIFS’ elements and external criteria, including

Criterion B, some hypotheses can be made, drawing on recent suggestions from Widiger et al. (2018). Based on their extensive review, which included prior factor analytic work on Criteria A and B (e.g., Zimmermann et al., 2015), the following pattern of associations between Criterion A elements and external criteria (including Criterion B), should be expected: Identity with measures of internalized pathology; Self-direction with measures of disinhibition-externalized pathology; Empathy with measures of antagonism; and Intimacy with measures of detachment.

Method

Participants and procedure

A total sample of 386 French-speaking Canadian participants (273 women) aged 18 to 79 years old ($M_{\text{age}} = 31.6$; $SD = 11.6$) from two different subsamples were included in the study. The first one is a community sample ($n = 280$, 208 women, $M_{\text{age}} = 30.6$, $SD = 11.9$) recruited through social media, online message boards, and institutional e-mail from two universities in the Province of Quebec, Canada; data were collected anonymously and computerized via an online platform (SurveyMonkey). All community respondents were invited to participate in the retest of the SIFS after a two-week interval; we had a return rate of 39.6% ($n = 111$, 80 women, $M_{\text{age}} = 30.7$, $SD = 12.0$). The second subsample ($n = 106$, 65 women, $M_{\text{age}} = 34.1$, $SD = 10.6$) is a clinical sample recruited during the intake procedure at a psychiatric outpatient clinic, specialized in the treatment of PDs, in the Quebec City area. Provision of services is contingent upon the presence of at least one DSM PD diagnosis established by the referring physician or psychiatrist, and confirmed by a team of six licensed clinical psychologists. Main diagnoses retrieved from patient files were as follows: narcissistic PD (28.4%), borderline-narcissistic PD (22.7%), mixed or complex PD (i.e., three or more PDs; 18.1%), borderline PD (12.5%), unspecified PD (8.0%), schizotypal PD (5.7%), syndrome disorder (3.4%), and histrionic PD

(1.1%). The majority of participants from the community sample were full-time or part-time students (58.4%), while the majority of the clinical group (59.8%) was unemployed (Cramer's $V = .58, p < .001$). Most participants from the community sample had a university degree (55.7%), which was the case for only 18.7% of the clinical group (Cramer's $V = .48, p < .001$).

All participants gave informed consent, and no compensation or incentive for participation was offered; for the clinical group, the decision to participate or not in the study had no impact on service provision. This study was approved by three ethics committees from the Université du Québec à Trois-Rivières, Laval University, and the Capitale-Nationale Integrated University Health and Social Services Centre. Data were thoroughly examined by two of the authors to rule out indiscriminate responding (i.e., selection of the same response option for every item on a scale), and no participant had to be excluded on such basis.

Measures

Participants from the two samples completed slightly different test batteries. In addition to the SIFS and a short sociodemographic form, both samples completed the following questionnaires:

The short form of the Personality Inventory for DSM-5 (PID-5-SF; Maples et al., 2015; French validation by Roskam et al., 2015) is a 100-item self-report derived from the original 220-item PID-5 (Krueger et al., 2012) using item-response theory. Items are rated on a four-point scale. It covers 25 pathological personality traits, which can be hierarchically organized into five dimensions: Negative Affect (NAF; $\alpha = 0.93$), Detachment (DET; $\alpha = 0.92$), Antagonism (ANT; $\alpha = 0.90$), Disinhibition (DIS; $\alpha = 0.83$), and Psychoticism (PSY; $\alpha = 0.88$).

The Interpersonal Reactivity Index-French Version (IRI-F; Davis, 1980; French validation by Gilet, Mella, Studer, Grünh, & Labouvie-Vief, 2013) is a 28-item self-report

questionnaire, scored on a seven-point Likert scale, which measures empathy and its components. Two subscales assess the cognitive component of empathy: Fantasy (the propensity to get involved in fictitious situations; $\alpha = 0.80$); and Perspective Taking (the ability to adopt others' point of view; $\alpha = 0.82$). Two other subscales focus on the affective component of empathy: Empathic Concern (the motivation to care about others; $\alpha = 0.77$); and Personal Distress (the tendency to feel discomfort in response to others' emotional distress; $\alpha = 0.85$).

Community sample

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; French validation by Vallières & Vallerand, 1990) is a unidimensional measure, scored on a four-point Likert scale, which includes 10 items assessing global self-esteem ($\alpha = 0.90$).

The brief 20-item version of the Inventory of Personality Organization (IPO) developed by Verreault, Sabourin, Lussier, Normandin, and Clarkin (2013) includes three scales from the original IPO (Kernberg & Clarkin, 1995): Identity diffusion ($\alpha = 0.66$), Primitive defenses ($\alpha = 0.75$), and Impaired reality testing ($\alpha = 0.77$). Items are scored on a five-point rating scale and assess a continuum of personality pathology based on Kernberg's PD model (e.g., 1984).

The Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985; French validation by Blais, Vallerand, Pelletier, & Brière, 1989), is a five-item measure answered on a seven-point Likert scale, which asks straightforward questions about life satisfaction ($\alpha = 0.89$).

Clinical sample

The Brief Version of the Pathological Narcissism Inventory (B-PNI; Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2009; French validation by Diguier et al., 2014) was used to measure two dimensions of pathological narcissism: Grandiosity (e.g., inflated self-image, entitlement,

exploitative behaviors, and fantasies of power and perfection; $\alpha = 0.84$) and Vulnerability (e.g., depleted self-image, feelings of shame/anger, and interpersonal hypersensitivity; $\alpha = 0.87$). The 28 items are scored on a seven-point Likert scale.

The short version of the Borderline Symptom List (BSL-23; Bohus et al., 2009; French validation by Nicasastro et al., 2016) is a 23-item self-rating instrument assessing borderline PD symptomatology in accordance with DSM-5 formulation. Items are scored on a five-point scale. The BSL-23 assesses BPD symptom severity on a dimensional continuum. We only used the global score ($\alpha = 0.92$) in the present study.

The 12-item version of the Buss-Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992; French validation by Genoud & Zimmerman, 2009) covers four forms of aggression: Verbal ($\alpha = 0.66$), Physical ($\alpha = 0.88$), Anger ($\alpha = 0.83$), and Hostility ($\alpha = 0.75$). It also yields a global trait aggression score ($\alpha = 0.89$). Items are scored on a seven-point scale.

The 36-item Medical Outcomes Study Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992; French validation by Richard, 2000) is a self-report measure of health-related quality of life. It includes 36 items with scores that are transformed into a 0–100 scale, and then averaged into eight subscales: Physical Functioning ($\alpha = 0.88$), Role limitations due to physical problems ($\alpha = 0.82$), Bodily Pain ($\alpha = 0.70$), General Health ($\alpha = 0.83$), Vitality ($\alpha = 0.71$), Social Functioning ($\alpha = 0.63$), Role limitations due to emotional problems ($\alpha = 0.83$), and Mental Health ($\alpha = 0.78$). Higher scores reflect a better health-related quality of life.

Statistical analyses

Cronbach alphas were used to assess internal consistency, while bivariate zero-order correlations were computed to assess test-retest reliability of the SIFS scores after a two-week interval. *T*-tests and bivariate zero-order correlations were computed to explore item properties

based on CTT. *T*-tests were also used to examine differences between the clinical and the nonclinical groups on SIFS scores. These analyses were carried out using the Statistical Package for the Social Sciences (SPSS) 25.0 software.

In line with DSM-5 AMPD theoretical formulations and previous studies on LPFS measures (e.g., Hutsebaut et al., 2016; Morey, 2017), various factor analytic models were tested. Five models were computed using Confirmatory factor analysis (CFA): a basic one-factor model (Model 1); a two-factor correlated solution with Self and Interpersonal functioning as factors (Model 2); a four-factor correlated solution with the theoretical elements of Identity, Self-direction, Empathy, and Intimacy as factors (Model 3); a second-order orthogonal solution with the four factors loading on a general personality pathology factor (Model 4); and a bi-factor four-factor model, with all items loading both on the four elements and on an overarching general personality pathology factor, consistent with recent studies (e.g., Sharp et al., 2015) investigating the presence of a general personality pathology factor (Model 5). These analyses were performed using Mplus version 8.0 (L. K. Muthén & B. O. Muthén, 2017), with data treated as categorical. As suggested by Beauducel and Herzberg (2006), the robust weighted least square estimator (WLSMV) was used. Adequate model fit was determined using the χ^2 goodness-of-fit index, alongside with sample-size independent fit indexes (e.g., Hu & Bentler, 1999): the comparative fit index (CFI; > .90), the Tucker-Lewis index (TLI; > .90), and the root mean square error of approximation (RMSEA; < .08). Nested model comparisons of fit improvement were evaluated using the Mplus DIFFTEST function ($MD\Delta\chi^2$; Asparouhov & Muthén, 2009).

The SIFS' nomological network was assessed, first, through bivariate zero-order correlations between SIFS scores and external criteria. Unique contribution of each element, after partialing out shared variance with the other three elements, was also computed. In order to

do so, we created residualized scores for each SIFS element by computing a regression for each element, with the three other elements as predictors. These residualized scores, which represent the unique, unshared variance of each element, were then correlated with external criteria.

Results

Item properties results based on CTT are presented in Table 1. For the Global scale, internal consistency was excellent, and was good for the four personality functioning elements. Items 6 and 16 appeared problematic based on CTT; the first one was associated with low item-scale correlations (ISC) figures ($< .30$), while the second had low variance and did not discriminate between the clinical and the nonclinical groups^b.

Test-retest figures after a two-week interval ($n = 111$) were as follows: Global scale: $r = .89$; Identity (SIFS-ID): $r = .91$; Self-direction (SIFS-SD): $r = .63$; Empathy (SIFS-EMP): $r = .78$; and Intimacy (SIFS-INT): $r = .92$; all $ps < .001$.

For all CFA models, modification indices were consulted to determine whether correlations between item residuals would improve model fits; only theoretically defensible modifications for item pairs within a same element were considered. Three were eventually implemented (item pairs 13–15, 19–24, and 22–23). Examination of fit indices (see Table 2) revealed that the CFA two-factor (Model 2; $MD\Delta\chi^2 = 65.241$; $df = 1$; $p < .001$; $\Delta CFI = .018$, $\Delta TLI = .019$, $\Delta RMSEA = .011$) and four-factor (Model 3; $MD\Delta\chi^2 = 149.507$; $df = 6$; $p < .001$; $\Delta CFI = .025$, $\Delta TLI = .026$, $\Delta RMSEA = .009$ and nonoverlapping RMSEA 90% confidence interval) models had significantly improved fit coefficients compared to the single-factor model (Model 1), with the four-factor model fitting the data better than Model 2 ($MD\Delta\chi^2 = 59.396$; $df = 5$; $p < .001$; $\Delta CFI = .007$, $\Delta TLI = .007$, $\Delta RMSEA = .005$). The second-order CFA model, nested within the correlated four-factor model, did not significantly decrease model fit, and thus can be

accepted as the more parsimonious alternative, especially considering its close alignment with the Criterion A AMPD conceptualization, which posits that the four LPFS elements are all indicators of an overarching global dimension of personality pathology (Morey, 2017). The bi-factor solution (Model 5) had practically identical fits in comparison with Model 4; given that the comparison of bi-factor and higher-order models is known to be biased in favor of the former when there is unmodelled complexity (Murray & Johnson, 2013), the higher-order model was preferred. Item loadings of the second-order CFA model solution are presented in Figure 1.

Results pertaining to the SIFS' nomological network are presented in Table 3. SIFS-ID showed the strongest unique associations with poor self-esteem (RSES), identity diffusion (IPO), negative emotions (PID-5), and with subjective impression of mental health impairment and limitations due to emotional distress (SF-36); it also showed a positive association with IRI Personal distress. SIFS-SD showed the strongest unique associations with disinhibition (PID-5), vulnerable narcissism (B-PNI), and with anger and hostility (BPAQ). SIFS-EMP showed the strongest unique associations with antagonism (PID-5), with impaired perspective-taking and empathic concern (IRI), and with trait, verbal, and physical aggression (BPAQ). Finally, SIFS-INT showed the strongest unique associations with detachment (PID-5).

Discussion

The main purpose of the study was to report on the development and psychometric properties of a new self-report measure of DSM-5 AMPD Criterion A, the Self and Interpersonal Functioning Scale (SIFS). Overall, the scale has shown promising reliability and validity, providing important preliminary results in support of its validity as an operationalization of the DSM-5 AMPD personality pathology conceptualization.

Internal consistency was excellent for the Global scale, and was good for the four elements. Based on CTT, two items seemed fairly problematic. Item 6 (“I recognize myself in how others describe me”) was associated with low ISC figures ($< .30$), calling into question whether it should be retained in future iterations of the SIFS. We opted to keep it for now, as it is the SIFS-ID item which taps most directly onto the facet “accuracy of self-appraisal”. Item 16 (“I have little interest for other people’s feelings or problems”) was the only SIFS item that did not discriminate between the clinical and nonclinical groups. It was weakly endorsed in both subsamples, possibly because of its blunt formulation. However, we do not recommend its deletion at this point, because of its potential value in contexts (e.g., forensic) where psychopathic traits are likely to be high. All other items showed significant differences for the clinical and the nonclinical groups, with large effect sizes for the four elements and the global score, providing a first indication of the scale’s criterion validity. Items 3 (inner emptiness) and 7 (meaninglessness), which are central to the notion of identity diffusion (e.g., Kernberg, 1984), were the most discriminant. Test-retest figures were substantial for most elements, which is consistent with the short-term stability expected for core personality elements. Results were moderate, however, for SIFS-SD, suggesting that this element may tap onto more fluctuating and context-dependent personality constructs (e.g., the ability to self-reflect productively). However, the substantial test-retest coefficient (.88) for the SD element of the LPFS-SR reported by Hopwood et al. (2018) casts doubt on this hypothesis.

Factor analysis results revealed that the best fit was obtained with a second-order four-factor CFA model, with a general personality pathology factor as a second-order overarching construct. The model obtained acceptable fits, with only one item (Item 6) having a questionable loading ($< .40$) on its factor. The retained model is coherent with the DSM-5 AMPD

conceptualization that the four LPFS elements are all indicators of a global personality pathology dimension; at the same time, it also suggests that it would also be justified to consider elements as distinct, core features of personality pathology. Our results are in contrast with those reported for both versions of the LPFS-BF (Bach & Hutsebaut, 2018; Hutsebaut et al., 2016; Weekers et al., 2018), for which a two-factor solution (reflecting the Self and Interpersonal elements) was found. Zimmermann et al. (2015) had also found support for a two-factor solution for the LPFS, using other-ratings by laypersons and therapists, and did not find support for the four elements. Authors of the LPFS-SR (Hopwood et al., 2018; Morey, 2017) have argued in favor of a single-factor model based on their results, which relied on intercorrelations and PCA; however, they did not use CFA, and therefore did not test for a second-order or a bi-factor model. Huprich et al. (2017) provided no factor-analytic information on the structure of the DLOPFQ.

The underlying structure of Criterion A remains a contentious issue. The LPFS has been described by its developers as a single dimension that should be represented by a single score (see, e.g., Morey, 2017), which could arguably represent the general personality disorder factor (e.g., Sharp et al., 2015) uncovered in recent investigations. However, a strong case could be made that a clear and distinct factor structure for Criterion A is warranted, based on clinical and conceptual considerations. Indeed, reducing Criterion A to a single dimension or score would obfuscate potentially meaningful clinical information on specific pathological profiles of patients. It seems highly unlikely that a one-factor solution, or even a two-factor solution, will be able to accomplish the four objectives stated by the Criterion A authors of “(a) identifying the presence and extent of personality psychopathology, (b) planning treatment, (c) building the therapeutic alliance, and (d) studying treatment course and outcome” (Bender et al., 2011, pp. 340–341). Having distinct and robust factors will also enable to yield more reliable diagnoses for

the six specific DSM-5 AMPD PDs; their description, albeit indirectly, acknowledges the usefulness of distinct scores for the four elements, as the first criterion states that the presence of moderate or greater impairment in personality functioning, as manifested by difficulties in two or more Criterion A elements, is required. In sum, we contend that having a clear factor structure for Criterion A, and a measure which allows for a valid assessment of these factors, is important. This makes a case for the SIFS, which has shown the potential to distinguish “significant” levels of impairment empirically, which has yet to be done by any other available Criterion A tool, to our best knowledge. A second-order factor solution, which is consistent with our data, might arguably be the best way to reconcile recent findings about a general personality disorder factor (e.g., Sharp et al., 2015) with Criterion A’s intended goals.

Associations with external criteria showed distinct patterns for the four SIFS elements. These results, along with results from factor analyses, suggest that it is justifiable to consider SIFS element scores separately. This is a considerable strength, as the capacity to obtain a personalized profile for each patient is one of the main anticipated advantages of evaluating personality on a dimensional basis (e.g., a specific score for each element can help to document treatment prognosis and to identify priority clinical targets for intervention). In contrast, the LPFS-SR and the DLOPFQ showed mostly indiscriminate associations with external measures for the four elements (Huprich et al., 2017; Morey, 2017). Of note, however, the external criteria variables chosen for the present study (e.g., specific measures of identity diffusion, self-esteem, or empathy) may have mapped more specifically onto LPFS constructs than the general personality pathology measures used by Morey (2017) and Huprich and colleagues (2017).

Associations with external criteria were remarkably in line with hypotheses drawn from Widiger et al. (2018). SIFS-ID showed theoretically meaningful and unique associations with

measures of negative affectivity, poor self-esteem, identity diffusion, and personal distress. Thus, this element appears to be strongly related to internalized psychopathology, a result also supported by the negative associations with antagonism and various forms of aggression. SIFS-SD showed associations with indices of disinhibition and externalization, in line with LPF formulation of poor planning, compromised goal-setting abilities, and lack of prosocial internal standards. Its associations with vulnerable narcissism and anger-hostility are intriguing and warrant further studies. It may reflect, for both construct, an inhibition of the capacity to reach gratifying and satisfying personal goals; in vulnerable narcissism, this may be due to impaired self-evaluation (which may be secretly grandiose, or severely debased), and may entail enraged reactions in the face of this failure (e.g., Pincus et al., 2009). The SIFS-EMP element showed expected correlations with impaired empathic capacities, as well as coherent patterns of associations with antagonism and aggression. Finally, the SIFS-INT element showed unique associations with interpersonal detachment, and was also associated (though not specifically) with other indicators of interpersonal problems (antagonism, low empathy), in line with the LPFS formulation, which depicts negative, detached, and self-serving relationships.

These patterns of associations do not solve the redundancy problem pertaining to the overlaps between Criteria A and B (e.g., Zimmermann et al., 2015), also noted by Hopwood et al. (2018) for the LPFS-SR. Correlations between the SIFS global score and PID-5 trait domains were in the high-very high range, from .49 (Antagonism) to .81 (Detachment). The SIFS-INT element mapped to a significant degree onto the pathological trait domain of detachment. SIFS-ID, SD, and EMP appear to have somewhat broader nomological networks, but remain closely tied with negative affectivity, disinhibition, and antagonism, respectively. Solving the overlap issues between Criteria A and B remains an important objective in demonstrating the clinical and

scientific utility of the AMPD, and research geared toward that goal needs solid, theory-driven, and statistically sound tools, such as the SIFS, to do so.

The main limitation of the present study is that validation data, at this time, are limited to a sample of French-speaking Canadians. Proper validation of the existing English translation, as well as translation-adaptation to other languages and validation in diverse cultural groups, is needed. Test-retest, which could only be assessed for the community sample and for which we had only a modest level of participation (39.6%), was assessed at only one point in time, and at a brief interval (two weeks). PD diagnoses in the clinical sample, even though they were revised by a team of licensed clinical psychologists, were not confirmed by a formal assessment using structured/semi-structured interviews or validated self-reports. Invariance of the retained factor model between groups, as well as between women and men, could not be performed due to the relatively small clinical sample size and number of male participants. Results for convergent-discriminant validity cannot be readily compared with those reported for other Criterion A self-report measures, as our choice of external criteria comparators was restricted to those that are well validated in the French language. The present study provided little information on the incremental validity of the SIFS elements over the PID-5-SF traits; correlational results using residualized scores showed an overlap between SIFS elements and pathological traits, suggesting that a fine-tuned discrimination between LPFS and pathological traits is likely to remain challenging (Hopwood, Good, et al., 2018). The use of a self-report to study personality pathology might be considered in itself as a limitation; a number of authors (e.g., Hopwood et al., 2008; Oltmanns & Turkheimer, 2009) have suggested that the use of informant reports, in addition to self-reports, can provide more accurate information and data in the context of evaluating personality and PDs. Thus, the possibility of developing an informant report version

of the SIFS should be strongly considered. Finally, we did not assess the disorder-specific impairments expected for the six specific PDs proposed in DSM-5 Section III.

Despite some limitations, the present investigation suggests that the SIFS possesses sound psychometric properties, and should be seen as a valid, concise alternative for assessment of Criterion A DSM-5 AMPD conceptualization. In contrast with other existing self-report measures of Criterion A, its main strength relative to other measures is the presence of well-differentiated factors, which we believe is important in order for a Criterion A measure to fulfill its intended objectives (e.g., treatment planning and monitoring). Its psychometric properties, overall, seem generally more robust in comparison with the original LPFS-BF (Hutsebaut et al., 2016); a direct comparison with the 2.0 iteration of the LPFS-BF, which has also shown mostly solid psychometric properties, should be tested in future studies. The rigorous strategy behind the development of the LPFS-SR (Morey, 2017), for which each information unit from Table 2 of the DSM-5 AMPD was turned into an item (up to a total of 80), makes it more closely aligned with DSM LPF formulation in contrast with the SIFS; the added number of items also provides a broader coverage of all 12 personality pathology facets. The DLOPFQ is considerably longer than the SIFS (132 items), but in addition to a broader facet coverage and a better demonstration of its incremental validity over Criterion B pathological traits, it also has the unique advantage of assessing personality pathology manifestations across two meaningful life contexts (work/school and relationships). Future comparison studies of Criterion A measures could also include semi-structured interview schedules assessing the LPFS such as the Semi-Structured Interview for Personality Functioning DSM-5 (Hutsebaut, Kamphuis, Feenstra, Weekers, & De Saeger, 2017).

Notes

^a The SIFS was originally developed in French. It has been since translated into English. The translation and instructions for scoring are available as supplemental material.

^b Proposed cutoff scores and basic statistical classification results for the SIFS and its subscales are available as supplemental material.

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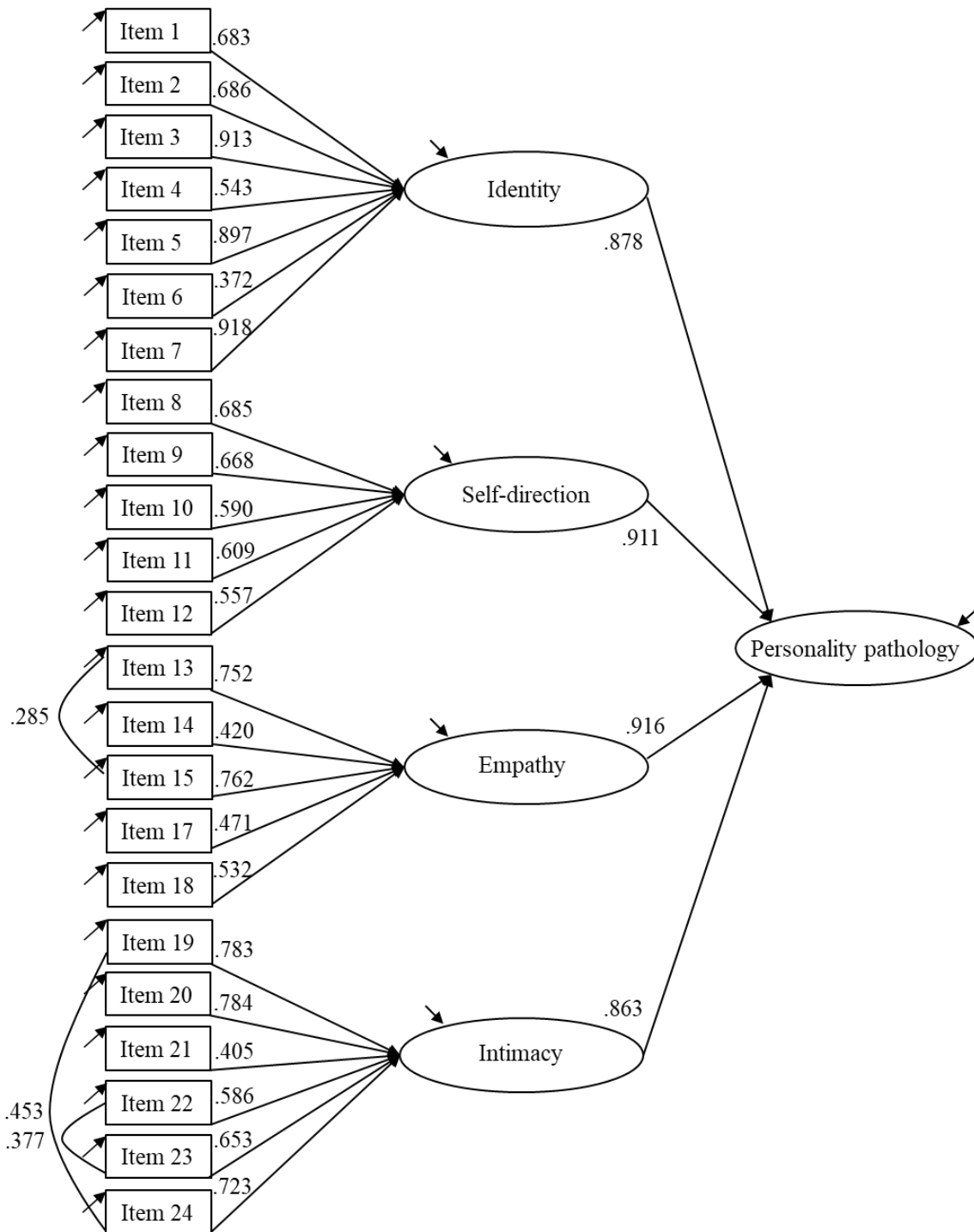
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Figure 1

Second-order four-factor confirmatory factor analysis of the Self and Interpersonal Functioning Scale (SIFS)



Note. All coefficients are significant at $p < .001$. R^2 of Identity, Self-direction, Empathy, and Intimacy were respectively at .771, .830, .839, and .745. Item 16 was excluded from the analysis.

Table 1

Descriptive Statistics (Global, Nonclinical, and Clinical Samples) and Inter-item Correlations for the Self and Interpersonal Functioning Scale (SIFS; N = 386)

Classical test theory										Inter-item Correlations (N = 386)							
Global sample			Nonclinical Sample (n = 280)			Clinical Sample (n = 106)			Student's <i>t</i>	<i>d</i>							
<i>M</i>	<i>SD</i>	ISC	<i>M</i>	<i>SD</i>	ISC	<i>M</i>	<i>SD</i>	ISC			2	3	4	5	6	7	
Identity																	
1	1.80	1.17	.61	1.43	.97	.55	2.71	1.15	.29	10.04***	1.20	.50***	.55***	.34***	.51***	.25***	.50***
2	2.46	1.25	.63	2.11	1.15	.55	3.33	1.08	.40	9.49***	1.09	.59***	.41***	.57***	.17**	.52***	
3	1.56	1.43	.83	.98	1.06	.72	2.95	1.23	.69	15.32***	1.72		.45***	.74***	.28***	.82***	
4	1.09	1.11	.49	.84	.94	.38	1.70	1.70	.37	7.12***	0.63			.47***	.11*	.41***	
5	1.42	1.41	.78	.97	1.14	.71	2.52	1.39	.68	10.93***	1.22				.27***	.73***	
6	1.87	1.05	.28	1.73	.98	.24	2.22	1.14	.10	4.21***	0.46					.24***	
7	1.51	1.46	.77	.93	1.14	.64	2.92	1.20	.59	14.61***	1.70						
<i>M</i>	1.67	.94		1.29	.71		2.61	.75		15.61***	1.81						
α		.86			.80			.73									
Self-Direction																	
													9	10	11	12	

SELF AND INTERPERSONAL FUNCTIONING SCALE

8	1.65	1.11	.47	1.35	.91	.29	2.39	1.19	.42	8.72***	0.98		.31***	.33***	.35***	.37***
9	1.57	1.23	.55	1.27	1.06	.45	2.29	1.32	.47	7.78***	0.85			.46***	.42***	.36***
10	1.14	1.10	.53	.91	.89	.37	1.69	1.34	.54	6.50***	0.69				.44***	.25***
11	1.32	1.21	.52	1.09	1.06	.39	1.90	1.36	.52	6.05***	0.66					.25***
12	1.11	.98	.42	.90	.76	.26	1.60	1.23	.37	6.76***	0.69					
<i>M</i>	1.36	.78		1.11	.58		1.97	.88		11.06***	1.15					
α		.73			.60			.71								

Empathy

												14	15	16	17	18
13	.91	1.12	.62	.64	.89	.55	1.53	1.36	.55	7.38***	0.77	.42***	.63***	.20***	.28***	.36***
14	.53	.95	.46	.42	.76	.46	.80	1.25	.40	3.51**	0.37		.24***	.45***	.24***	.17**
15	1.22	1.23	.49	.94	1.04	.41	1.90	1.39	.43	7.16***	0.78			.15**	.24***	.30***
16	.60	1.00	.33	.56	.96	.32	.72	1.09	.35	1.53	0.16				.20***	.15**
17	1.01	.98	.38	.83	.80	.18	1.46	1.21	.42	5.97***	0.61					.29***
18	1.02	1.10	.39	.83	.90	.14	1.48	1.38	.52	5.37***	0.56					
<i>M</i>	.88	.68		.70	.52		1.31	.83		8.59***	0.88					
α		.71			.60			.71								

Intimacy

												20	21	22	23	24
19	1.64	1.29	.65	1.26	1.07	.63	2.57	1.31	.46	10.03***	1.10	.45***	.19***	.46***	.45***	.71***

20	.87	1.16	.58	.55	.84	.55	1.66	1.45	.41	9.29***	0.94		.33***	.40***	.42***	.47***
21	.93	1.04	.32	.84	.89	.23	1.16	1.32	.38	2.75**	0.28		.28***	.25***	.19***	
22	.79	1.08	.60	.63	.96	.59	1.17	1.25	.55	4.44***	0.49			.54***	.46***	
23	1.24	1.24	.57	1.01	1.09	.54	1.82	1.38	.47	5.97***	0.65				.40***	
24	1.32	1.29	.64	1.00	1.11	.62	2.10	1.38	.47	8.13***	0.88					
<i>M</i>	1.25	.82		.99	.67		1.90	.79		10.33***	1.24					
α		.80			.78			.72								
Global scale																
<i>M</i>	1.30	.69		1.03	.50		1.97	.64		15.16***	1.64					
α		.92			.87			.88								

Note. *d* = Cohen's *d*; ISC = Item-scale correlations (corrected). A five-point Likert scale (0 = This does not describe me at all; 4 = This describes me totally) was used.

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

Table 2.

Goodness-of-fit statistics for the models estimated on the Self and Interpersonal Functioning Scale (SIFS)

Models	WLSMV χ^2 (<i>df</i>)	CFI	TLI	RMSEA [90% CI]	<i>p</i>
1. CFA 1 factor	859.145* (227)	.926	.918	0.087 [.081 - .093]	<.001
2. CFA 2 factors correlated	706.100* (226)	.944	.937	0.076 [.069 - .082]	<.001
3. CFA 4 factors correlated	637.270* (221)	.951	.944	0.071 [.065 - .078]	<.001
4. Second-order CFA	663.354* (223)	.949	.942	0.073 [.067 - .080]	<.001
5. Bi-factor CFA 4 factors	668.565* (212)	.947	.936	0.076 [.070 - .083]	<.001

Note. WLSMV: Robust weighted least square estimator; χ^2 = WLSMV chi square; *df*= degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; 90% CI = confidence interval. All models have been tested without item 16, and including correlations between error terms for items 19 and 24, 22 and 23, and 13 and 15.

* $p < .001$.

Table 3

Nomological network of the Self and Interpersonal Functioning Scale (SIFS)

<i>SIFS</i>													
<i>Global Scale</i>	<i>SIFS Identity</i>				<i>SIFS Self-direction</i>			<i>SIFS Empathy</i>			<i>SIFS Intimacy</i>		
<i>r</i>	<i>r</i>	<i>Res r</i>	β^c	<i>r</i>	<i>Res r</i>	β^c	<i>r</i>	<i>Res r</i>	β^c	<i>r</i>	<i>Res r</i>	β^c	
<i>SIFS (n = 369)</i>													
Global Scale	.89***			.81***			.79***			.83***			
Identity				.67***			.53***			.61***			
Self-direction							.58***			.52***			
Empathy										.65***			
Intimacy													
RSES (<i>n</i> = 258) ^a	-.69***	-.74***	-.44***	-.63***	-.48***	-.01	-.11*	-.31***	.10	.03	-.42***	-.05	-.11
SWLS (<i>n</i> = 255) ^a	-.68***	-.63***	-.27***	-.41***	-.47***	-.03	-.17**	-.36***	.10	.05	-.54***	-.22***	-.32***
<i>IPO (n = 257)^a</i>													
Id. diffusion	.56***	.57***	.33***	.45***	.41***	.03	.11	.33***	.05	.12	.29***	-.06	-.02
Pr. defenses	.56***	.44***	.10	.19**	.47***	.14*	.26***	.41***	.09	.18*	.37***	.05	.10
Reality testing	.34***	.26***	.06	.14	.25***	.04	.10	.26***	.05	.13	.26***	.08	.08
<i>PID-5 (n = 345)</i>													

Negative affect	.76***	.80***	.46***	.68***	.62***	.09	.13**	.50***	.05	.08	.52***	-.01	-.02
Detachment	.81***	.71***	.24***	.36***	.52***	-.05	-.09	.63***	.09	.14***	.81***	.38***	.54***
Antagonism	.49***	.31***	-.11*	-.17*	.44***	.17**	.24***	.54***	.26***	.37***	.44***	.11*	.18**
Disinhibition	.58***	.47***	.03	.04	.64***	.37***	.54***	.45***	.06	.09	.41***	.03	.05
Psychoticism	.64***	.57***	.22***	.32***	.48***	.02	.02	.56***	.21***	.30***	.52***	.08	.11
IRI (<i>n</i> = 357)													
Fantasy	-.07	.06	.27**	.37***	-.11*	-.13*	-.20**	-.14*	-.03	-.07	-.18**	-.20***	-.22**
Pers. distress	.37***	.41***	.29***	.42***	.32***	.05	.07	.25***	.08	.10	.17**	-.14**	-.17*
Pers.-taking	-.51***	-.32***	.12*	.17	-.46***	-.18**	-.26***	-.59***	-.32***	-.46***	-.46***	-.10	-.11
Emp. concern	-.17**	.05	.31***	.49***	-.01	-.00	-.01	-.36***	-.28***	-.39***	-.30***	-.22***	-.37***
B-PNI (<i>n</i> = 106) ^b													
Grandiose	.50***	.36***	-.10	.15	.42***	.19	.21	.41***	.20*	.19	.35***	.02	.08
Vulnerable	.68***	.53***	-.12	.24**	.62***	.34**	.39***	.46***	.11	.05	.47***	.11	.17
BSL (<i>n</i> = 106) ^b													
BPAQ (<i>n</i> = 106) ^b	.63***	.37***	-.25*	-.01	.56***	.29**	.30**	.61***	.35***	.41***	.44***	.01	.08
Verbal	.40***	.20*	-.19	-.05	.34***	.15	.15	.45***	.33***	.41**	.26**	-.05	-.01
Physical	.47***	.20*	-.26**	-.12	.36***	.13	.10	.54***	.37***	.46***	.40***	.06	.14
Anger	.52***	.32**	-.25*	-.04	.55***	.35***	.40***	.48***	.24*	.26*	.35***	-.01	.03
Hostility	.61***	.48***	-.10	.19*	.55***	.28**	.32**	.48***	.20*	.18	.40***	.00	.07
SF-36 (<i>n</i> = 106) ^b													

Ph. Function.	.14	.09	-.00	---	.05	-.05	---	.16	.13	---	.12	.01	---
Role-Physical	-.15	-.20*	-.12	---	-.06	.05	---	-.08	-.02	---	-.11	-.01	---
Bodily Pain	-.01	-.11	-.16	---	.03	.08	---	.01	-.02	---	.05	.09	---
General Health	-.31**	-.34***	-.09	-.28*	-.25**	-.08	-.09	-.19*	-.05	.00	-.20*	.01	-.03
Vitality	-.29**	-.30**	-.07	-.27*	-.15	.02	.05	-.14	.04	.11	-.31**	-.18	-.27*
Soc. Function	-.29**	-.33**	-.11	-.32**	-.22*	-.03	-.06	-.23*	-.12	-.08	-.16	.07	.05
Role-Emotional	-.16	-.31**	-.24*	-.43***	-.08	.05	.03	-.01	.07	.18	-.11	.01	-.00
Mental Health	-.31**	-.47***	-.30**	-.54***	-.18	.08	.07	-.22*	-.15	-.09	-.12	.17	.15

RSES = Rosenberg Self-Esteem Scale. SWLS = Satisfaction With Life Scale. IPO = brief 20-item version of the Inventory of Personality

Organization. Id. diffusion = Identity diffusion. Pr. Defenses = Primitive defenses. PID-5-SF = Short form (100 items) of the Personality Inventory for DSM-5. IRI-F = Interpersonal Reactivity Index-French Version. Pers. Distress = Personal distress. Pers.-taking = Perspective-taking. Emp. Concern = Empathic concern. B-PNI = Brief Version of the Pathological Narcissism Inventory. BSL = 23-item Borderline Symptoms List. BPAQ = 12-item version of the Buss-Perry Aggression Questionnaire. SF-36 = 36-item Medical Outcomes Study Short-Form Health Survey. Ph. Function. = Physical Functioning. Soc. Function = Social Functioning. All instruments in their validated French versions.

Note. ^a Data only available for the nonclinical subsample. ^b Data only available for the clinical subsample. ^c Standardized beta coefficients from multiple regression analyses (controlling for age) using the four SIFS elements as statistical predictors and each external criterion as the predicted variable. Coefficients not shown in the absence of a statistically significant regression result. Res *r* = bivariate correlations using the unique contribution of each element, after partialing out shared variance with the other three elements.

* *p* < .05. ** *p* < .01. *** *p* < .001.