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FRENCH VERSION OF NPI-40

**Psychometric Properties of a French Version of the Narcissistic Personality Inventory in
Young Adults**

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Abstract

The Narcissistic Personality Inventory (NPI) is widely used in social and personality psychology. The aim of the present study was to validate a French version of the NPI (NPI-Fr) for use with young adults. Respondents ($N = 1275$, $M_{age} = 21.83$, $SD = 4.97$) completed the NPI and two other convergent measures (Rosenberg Self-Esteem Scale and French version of the Big Five Inventory) for three validation steps. Exploratory factor analyses yielded evidence for a structure with either two (power/authority, exhibitionism/self-admiration) or four (leadership/authority, grandiosity/exhibitionism, special person, exploitativeness/entitlement) first-order factors for the NPI. Confirmatory factor analyses supported the 33-item four-factor model, with moderate model fit indices ($\chi^2/df = 2.04$, RMSEA = .058, CFI = .90, GFI = .85). We found significant positive correlations (.11 to .44) with self-esteem, extraversion and openness, and a negative correlation with neuroticism (-.09 to -.21). There was high internal consistency, with a reliability coefficient of .73 to .93, while test-retest reliability at 4 weeks was satisfactory. Our results confirm the psychometric qualities of the questionnaire for young French adults.

Keywords: narcissism, psychometrics, Narcissistic Personality Inventory, factor analysis

Psychometric Properties of a French Version of the Narcissistic Personality Inventory in Young Adults

Over the past few years, there has been a surge of interest in the measurement of narcissism, sparking considerable debate within the scientific community (Alarcon & Sarabia, 2012; Roche, Pincus, Lukowitsky, Ménard, & Conroy, 2013). This debate concerns the diversity of conceptualizations of narcissism (normal dimension of personality (continuum from normal to narcissistic) vs. pathological entity (categorical personality disorder)) and its phenotype (grandiosity vs. vulnerability), expression (overt vs. covert), and structure (category vs. dimension vs. prototype) (Foster & Campbell, 2007; Levy, 2012; Miller & Campbell, 2008). Despite these differing approaches, there seems to be agreement that narcissism is characterized by grandiosity, feelings of entitlement and arrogance. The diagnosis of narcissistic personality disorder (NPD) corresponds to the categorical approach, and refers to both the grandiose and vulnerable subtypes of narcissism (Pincus & Roche, 2011). Those authors who, like the *Diagnostic and Statistical Manual of Mental Disorders-5* (DSM-5), take the dimensional approach, only talk about its grandiose expression (American Psychiatric Association, 2013; Cain, Pincus, & Ansell, 2008; Miller, Gentile, Wilson, & Campbell, 2013; Miller et al., 2011), as they view narcissism as a personality trait solely in its grandiose form. *Grandiose* narcissism reflects a tendency to display behaviour that is overtly grandiose, entitled and exploitative (Cain et al., 2008; Pincus & Roche, 2011). The Narcissistic Personality Inventory (NPI) is the measure most widely used by researchers adopting this approach (Cain et al., 2008).

The NPI is a self-report questionnaire that measures subclinical levels of narcissism in nonclinical populations. The first version of the NPI was designed by Raskin and Hall (1979), and featured 54 items based on the DSM's conceptualization of narcissism. This version yielded a full narcissism score and four subscale scores: Leadership/Authority,

FRENCH VERSION OF NPI-40

Superiority/Arrogance, Self-Absorption/Self-Admiration, and Exploitativeness/Entitlement (Emmons, 1987). In 1988, Raskin and Terry (1988) tested a second version on the NPI containing 40 items. This version yielded a full narcissism score and seven subscale scores (Authority, Exhibitionism, Superiority, Entitlement, Exploitativeness, Self-sufficiency, and Vanity), but its internal consistency was inadequate (except for the full scale and the Authority subscale). A subsequent study demonstrated good test-retest reliability of the NPI-40 in an American college student sample, but poor internal consistency for six of the seven subscales (only the Authority subscale and the full scale had adequate consistency (del Rosario & White, 2005). Psychometrics regarding the internal consistency of NPI subscales, as well as the underlying factor structure (del Rosario & White, 2005; Kubarych, Deary, & Austin, 2004), call into question not only the relevance of the seven-factor version, but also the pertinence of the four-factor version (del Rosario & White, 2005) and indeed the whole notion of a multifactor structure (Barelds & Dijkstra, 2010; Fossati, Borroni, & Maffei, 2008; Raskin & Terry, 1988). For their part, Corry et al. (2008) and Barelds et al. (2010) each identified two robust factors: leadership/authority and exhibitionism/entitlement, and authority/power and self-admiration (see Ackerman, Donnellan, Roberts, & Fraley, 2016 for a synthesis of dimensional solutions to the NPI-40). Three solutions have been proposed so far: (1) the original seven-factor solution; (2) a four-factor solution (leadership/power; exhibitionism/self-admiration; superiority/arrogance; uniqueness/entitlement) supported by Kansi (2003) and Svindseth et al. (2009); and (3) a more recent three-factor solution proposed by Ackerman (2011), featuring Leadership/Authority, Grandiose/Exhibitionism and Entitlement/Exploitativeness subscales.

The NPI-40 is one of the scales most frequently used to measure narcissistic traits, and in Europe, it already exists (in German, Italian, Greek, Swedish and Norwegian language; Barelds & Dijkstra, 2010; Fossati et al., 2008; Kansi, 2003; Svindseth et al., 2009) with one-

FRENCH VERSION OF NPI-40

two-, three- or four-factor structures. However, a French version with an established factor structure and known psychometric properties and validity has yet to be developed. The first goal of the present study was thus to investigate the factor structure and test-retest reliability of a French version of the NPI-40 featuring a Likert-type response format, in line with Ackerman et al.'s recommendations (2016). The specificity of the NPI-40 is that it requires forced-choice responses. Ackerman et al. (Ackerman et al., 2016) criticized this method, but underlined the relevance of using a Likert-type response scale to probe the NPI's factor structure. Several studies have already done just this (Barelds & Dijkstra, 2010; Corry et al., 2008; Kubarych et al., 2004).

Some previous studies have reported an overlap between the NPI score(s) and the profile of the categorical diagnostic entity NPD (Miller, Gaughan, Pryor, Kamen, & Campbell, 2009; Pryor, Miller, & Gaughan, 2008). One recent study, however, concluded that the NPI is not a valid indicator of NPD, but nonetheless constitutes an appropriate tool for assessing the grandiose aspect of narcissism (Vater et al., 2013). Even if controversy remains concerning the relevance of the NPI in subclinical population (see for more details Rosenthal, Montoya, Ridings, Rieck, & Hooley, 2011), several studies demonstrated that this scale is significantly correlated with semi-structured interviews and self-report measures of NPD as well as the expert ratings of prototypical cases of NPD (Miller et al., 2009; Miller, Lynam, & Campbell, 2016; Samuel & Widiger, 2008; Wright et al., 2013). These results tend to show that the NPI converges well with other narcissistic measures, such as the Grandiosity Scale of the Pathological Narcissism Inventory (Pincus et al., 2009) or the scale extracted from the Minnesota Multiphasic Personality Inventory (MMPI) (Maxwell, Donnellan, Hopwood, & Ackerman, 2011; Watson, Grishman, Trottier, & Biderman, 1984). The general convergence of the NPI has been studied via correlations with basic personality traits. The NPI's narcissism measure has been compared with Eysenck's scale (Watson et al., 1984) and Costa

FRENCH VERSION OF NPI-40

and McCrae's various measures of the Five Factor Model (Miller, Price, & Campbell, 2011; Pryor et al., 2008). Previous research has shown that it is negatively correlated with agreeableness (Ackerman et al., 2011; Barelds & Dijkstra, 2010; Corry et al., 2008; Kubarych et al., 2004; Miller, Price et al., 2011) and neuroticism (Barelds & Dijkstra, 2010; Kubarych et al., 2004), and positively correlated with extraversion (Ackerman et al., 2011; Barelds & Dijkstra, 2010; Eliezer, Yahav, & Hen, 2012; Kubarych et al., 2004; Miller et al., 2009; Miller, Price et al., 2011) and openness (Barelds & Dijkstra, 2010). Furthermore, such results support the idea that narcissism should be related to self-esteem (Barelds & Dijkstra, 2010; Kansi, 2003; Kubarych et al., 2004). In a recent study, narcissistic vulnerability was associated with low levels of explicit self-esteem. The way individuals with high narcissistic grandiosity reported explicit self-esteem was conditioned by their implicit self-view (Di Pierro, Mattavelli, & Gallucci, 2016). Narcissism and self-esteem both constitute positive views of the self, but are qualitatively different (Brummelman, Thomaes, & Sedikides, 2016; Thomaes & Brummelman, 2016). In line with this, the second goal of this study was to test convergent validity between NPI-40 scores and other measures such as personality traits and self-esteem.

Given the NPI-40's frequency of use, its ability to assess both normal and pathological narcissism and the importance of narcissistic characteristics in research and psychology (Cain et al., 2008), the psychometric properties of a French version need to be investigated in order to confirm the reliability and validity of this instrument and its subscales for use with French-speaking populations. Especially, there is no measure of the narcissism in French language to our knowledge. We conducted a two-step procedure to validate the NPI among young French adults, investigating three aspects of its psychometric qualities (internal and convergent validity, and test-retest reliability at 4 weeks). In the first step, we assessed the structure of the NPI by comparing a two-dimensional model of this scale with a four-factor model. Construct

FRENCH VERSION OF NPI-40

validity was investigated by assessing correlations between NPI scores and related psychological constructs. More specifically, psychological constructs were included because higher levels of narcissistic scores are thought to be related to higher scores on self-centredness, self-esteem, and certain personality traits. We tested the NPI's internal validity by evaluating its structure through (1) exploratory factor analyses (EFA), using SPSS software, and (2) confirmatory factor analyses (CFA) with AMOS software. We also aimed to assess convergent validity by examining the pattern of correlations between the NPI and Big Five personality traits, self-centredness and self-esteem. In the second step, the questionnaire was administered twice, with a 4-week interval, to measure test-retest reliability.

Method

Participants and procedure. Sample 1 comprised 824 participants: 43.2% female ($n = 356$) and 56.8% male ($n = 468$). The participants' ages ranged from 13.0 to 35.0 years, with a mean age of 21.46 years ($SD = 3.52$) (see Table 1), and no significant gender difference ($t(822) = 1.30, p = .19$), while 27% ($n = 223$) were employed and 73% ($n = 601$) were postgraduate students.

Sample 2, used for the CFA, consisted of 312 participants: 75.7% female ($n = 236$) and 24.3% male ($n = 76$). Their mean age was 22.71 years ($SD = 6.51$, range = 17.00-45.00), with no significant gender difference, $t(220) = -.89, p = .37$. Nearly 44% ($n = 98$) were employed and 56% ($n = 124$) were postgraduate students. Descriptive statistics for age and NPI scores are provided in Table 1.

In order to limit fatigue and contamination bias between questionnaires, participants answered no more than 90 items (including sociodemographic data), that is, a maximum of three measures in addition to the NPI, using a random assignment design. Recruitment for this study was conducted in classes and an email invitation sent to interested students or

FRENCH VERSION OF NPI-40

undergraduates. Participants responded anonymously, and all the scales were administered in an online survey. All the data were collected via self-administered questionnaires after an initial invitation was sent out by e-mail. Previous studies (Riva, Teruzzi, & Anolli, 2003) had found no difference between paper and online measures for psychological research. The email invitation included an embedded link to the study website. The purpose of the study and the procedures for answering the questionnaires were explained, emphasizing the confidentiality and anonymity of the data. Clear and precise instructions were given, and the importance of giving honest answers was stressed. The numbers of participants who answered each questionnaire are provided in Table 5 (107 completed a self-esteem questionnaire and 591 completed the Big Five Inventory). There were no significant differences in NPI scores or age between these two groups of participants. Students with one or more values missing for the NPI or other assessments were excluded, as were participants aged above 45 years, as narcissism declines in older participants (Foster, Campbell, & Twenge, 2003).

Sample 3, used solely to examine the test-retest reliability of the NPI-Fr, comprised 139 first-year undergraduates aged over 16 and under 45 years ($M_{age} = 20.43$ years, $SD = 3.38$). This sample of psychology students completed the NPI-Fr twice with a 4-week interval, in accordance with the literature (Kansi, 2003). Fifty-eight students (41.72%) did not complete the retest phase and were eliminated from the statistical analysis. There were no differences between these students and the rest of the participants in terms of either sex or NPI scores. For the retest at 4 weeks, the final sample ($n = 81$) consisted of 68 female (83.95%) and 13 male (16.05%) participants, with a mean age of 19.73 years ($SD = 1.66$). The test and retest were both administered in the classroom by a researcher. No class incentive was offered.

Please insert Table 1 about here

FRENCH VERSION OF NPI-40

Instruments. The participants completed a demographic questionnaire, the NPI, and three other measures.

The *Narcissistic Personality Inventory* (Raskin & Hall, 1979; Raskin & Terry, 1988) is a 40-item self-report assessment that measures trait narcissism. First, the inventory was translated from English to French, and a back-translation was performed by a professional translator. For this study, we used a Likert-like scale for each of the NPI items, ranging from 0 (*Not at all applicable*) to 7 (*Highly applicable*). In accordance with Barelds et al. (2010) and Kubarych et al. (Kubarych et al., 2004), we retained all 40 narcissistic items of the original forced-choice format. Higher scores indicated higher levels of narcissism. The NPI was first translated into French by two English-speaking. Back-translation methods were used to ensure compatibility between the English and French versions, with the help of a native English speaker.

The *self-centred* subdimension of the *How I Think Questionnaire* (HIT-Q; (Barriga, Gibbs, Potter, & Liau, 2001; Van Leeuwen, Chauchard, Chabrol, & Gibbs, 2013) was used as a convergent egocentrism measure. This subscale consists of nine items assessing self-centred attitudes and beliefs (egocentric bias) (e.g., 'If I see something I like, I take it') that are rated on 6-point Likert-like scales ranging from *Totally agree* to *Totally disagree* (mean score). The higher the score is, the higher the level of self-centredness is. Our French version of this subscale showed good internal consistency ($\alpha = .71$).

The *French version (BFI-FR)* of the Big Five Inventory (John, 1990; John & Srivastava, 1999; Plaisant, Courtois, Réveillère, Mendelson, & John, 2010) consists of 45 items. Each item is a short sentence featuring an adjective characterizing one of the Big Five personality dimensions, namely extraversion (energy, enthusiasm), agreeableness (altruism, affection), conscientiousness (constraint, controlling impulses), neuroticism (negative affectivity, nervousness), and openness (originality, open-mindedness) (John & Srivastava,

FRENCH VERSION OF NPI-40

1999). Participants are asked to quantify each characteristic (e.g., being talkative, having a tendency to criticize others, working conscientiously) on a 5-point Likert scale ranging from *Strongly disapprove* to *Strongly approve*. A mean score is calculated for each dimension. The BFI-FR is valid and sensitive to adolescents and young adults (Plaisant et al., 2010).

The *Rosenberg Self-Esteem Scale* (RSES; (Rosenberg, 1979; Vallières & Vallerand, 1990) measures overall feelings of self-worth via 10 items (e.g., “On the whole, I am satisfied with myself”) rated on 4-point Likert-like scales ranging from *Strongly agree* to *Strongly disagree*. Scores range from 10 to 40, with higher scores indicating higher self-esteem. Originally designed to measure the self-esteem of secondary-school students, the scale has been used with a variety of age and cultural groups. It is widely held to be one-dimensional and has excellent internal consistency ranging from .72 to .92.

Results

Exploratory factor analyses. To test for internal validity, we ran a series of EFAs, adopting the principal component extraction method. In accordance with the original American studies, we applied an oblique rotation (oblimin), owing to the interdependence of the factors that make up the NPI. Factors were extracted and confirmed on the basis of scree-test criteria (Cattell, 1966) and eigenvalues greater than one. An item was considered to contribute to a factor when the factor loading was above .35, in line with other studies of the NPI (e.g., Ackerman et al., 2011; Emmons, 1987; Kansi, 2003; Raskin & Terry, 1988) and as recommended by Hatcher (1994) and Matsunaga (2010).

The EFA results pointed to the presence of nine factors. These had a total eigenvalue of 22.88 and accounted for 57.20% of the variance. These factors contained many ambiguities of meaning, and some items saturated with several factors. Given the relative magnitude of the first two factors, compared with the other seven, these results suggested that the items of the NPI primarily measure two underlying dimensions of narcissism. When we reran the

FRENCH VERSION OF NPI-40

EFAs with only two factors, 33 NPI items loaded more than .35 on these factors and explained 31.60% of the variance (see Table 2). The first factor was saturated by 20 items with eigenvalues totalling 9.84, and accounted for 24.06% of the variance. This first factor was related to power/authority (e.g., “People always seem to recognize my authority.”). It should be noted that Item 34 (“I am going to be a great person.”) cross-loaded onto Factors I (.46) and II (.37). Despite its cross-loading, this item was retained on the factor with the highest loading (Matsunaga, 2010), that is, power/authority (Factor I). The second factor consisted of 13 items and appeared to represent an exhibitionism/self-admiration component. It was evaluated by items such as “I really like to be the centre of attention”. This factor explained 7% of the total variance. The two factors were positively correlated ($r = .35, p > .001$).

Please insert Table 2 about here

We then ran a three-factor solution, with an eigenvalue of 14.57, accounting for 36.44% of the total variance. As with the seven-factor solution, these factors did not all appear to represent a meaningful domain of narcissism. A scree plot suggested the possible presence of four factors, which accounted for 40.96 % of the variance and were logically consistent (eigenvalue: 16.38). Of the 40 items, seven loaded less than .35, and factor loadings ranged from .35 to .76 (see Table 2). The first factor, leadership/authority, consisted of nine items. This factor explained 24.60% of the total variance. Item 8 (“I will be a success”) cross-loaded onto Factors I (.44) and III (.39). Despite its cross-loading, this item was retained on the factor with the highest loading. The second factor, which could be regarded as grandiosity/exhibitionism, included 13 items (e.g., “I see myself as a good leader”) and accounted for 7.00 % of the total variance. The third factor (special person) explained 4.84%

FRENCH VERSION OF NPI-40

of the total variance, and included six items (e.g., “I am an extraordinary person”). In this factor, Items 22 and 34 cross-loaded. Item 22 (“I rarely depend on anyone else to get things done”) was excluded because it had a significant loading on three factors. Item 34 (“I am going to be a great person”) was retained on Factor III because it had a strong conceptual fit with the special person dimension. The fourth factor, comprising five items, concerned exploitativeness/entitlement (e.g., “I find it easy to manipulate people”). Factor IV accounted for 4.52 % of the variance. All four factors were positively correlated (see Table 3).

Cronbach’s alpha coefficients showed that each of the factors in these two- and four-factor solutions had adequate internal consistency (for more details, see Table 2).

Please insert Table 3 about here

Confirmatory factor analysis. We ran a CFA on an independent sample (Sample 2) to test the dimensional structures of the NPI. The models we investigated had either two or four factors, corresponding to the exploratory factor analysis (EFA) solutions considered earlier. Seven items from the original NPI were excluded from each of these solutions because of their negligible factor loadings. CFA provides information on how well the data fit the proposed hypothetical model. The five indices we considered to test each model’s goodness-of-fit were the χ^2/df ratio, the goodness-of-fit index (GFI), the Bentler comparative fit index (CFI), the standardized root mean square residual (SRMR) and the root mean square error of approximation (RMSEA). Although there is no consensus regarding an acceptable χ^2/df ratio, recommendations range from below 5.0 to 2.0. Both the GFI and the CFI range from 0 to 1.00, with a value greater than .90 generally being taken to indicate an acceptable fit. SRMR and RMSEA values below .08 can be regarded as acceptable, and the lower they are the better (Hu & Bentler, 1999). Table 4 displays the fit indices of the two models.

FRENCH VERSION OF NPI-40

In this study, the four-factor NPI model was found to be the best fit. The majority of the indices for the four-factor model were good (χ^2/df ratio, RMSEA, CFI, SRMR), and only one was poor (GFI), indicating an acceptable fit. The two-factor model had a poor fit. Another criterion on which models can be compared is the expected cross-validation index (ECVI), where the lower the value the better the fit. The ECVI value of the four-factor model (3.6) was slightly lower than that of the two-factor model (4.6). The four-factor model therefore represented a slight improvement, in accordance with the EFA findings of the original and replicating studies of this questionnaire, once again indicating the suitability of the four-dimensional structure of the NPI-Fr. Figure 1 shows the model we chose. The final version of the questionnaire is provided in Appendix A.

Please insert Table 4 about here

Construct validity. We assessed the NPI's construct validity by calculating Pearson's correlation coefficients to examine the relationships between the participants' NPI scores and their scores on self-centredness, self-esteem, and the Big Five personality dimensions, which have all been linked to narcissistic traits. We observed positive correlations between the Self-centred subscale of the HIT-Q and all dimensions of the NPI ($r = .28-.38, p < .001$). We also found close relationships between the convergent self-esteem measure (RSES) and some of the NPI subscales, with Pearson's correlations ranging from .33 to .36 ($p < .001$). As expected, NPI scores were negatively linked to the Agreeableness and Neuroticism scores, and positively related to the Extraversion and Openness scores. More details of the correlations are shown in Table 5.

Please insert Table 5 about here

Test-retest reliability. To verify the NPI's test-retest reliability, we calculated the correlations between the test and retest scores. The mean scores, standard deviations, and internal consistency are set out in Tables 1 and 6. For this step, some participants ($n = 81$) were assessed 4 weeks after the first assessment. The test-retest correlations indicated satisfactory reliability for all four subscales (test-retest correlation greater than .80). These results support the notion that narcissism is a personality trait that is relatively stable over time. They are consistent with previous findings on NPI reliability (test-retest correlation between .57 and .93). Internal consistency (Cronbach's alpha) for the NPI-Fr subdomains was high (.77-.90). Cronbach's alpha is a coefficient of consistency used to describe the reliability of psychometric instruments, and a value of .70 is considered to be the minimum level of reliability.

Please insert Table 6 about here

Discussion

There is a clear need for valid and reliable narcissistic trait screening instruments in contexts of psychological practice and research. The NPI-40 is one of the most commonly used self-report questionnaires, designed to measure narcissism in a variety of dimensions (power, entitlement, arrogance, self-admiration, etc.). In France, a validated version of the 40-item NPI could provide a quick measurement of the various narcissism components, and would surely prove useful in a variety of settings. The aim of the present study was therefore to investigate the psychometric properties of a French version of the NPI (NPI-Fr), so that the NPI could be used for French samples.

FRENCH VERSION OF NPI-40

The results of previous studies of the 40-item NPI had raised doubts about the most appropriate number of factors. The first step in the present study was therefore to investigate the NPI's factor structure. The EFA yielded two solutions, the first of which was a two-factor model. Its two narcissism components, comparable to the theoretical subdimensions of the NPI identified in a previous study in a Scottish sample (Kubarych et al., 2004), were power/authority, related to exerting power and expecting to be recognized as superior, and exhibitionism/self-admiration, which reflects a need for constant attention and admiration. The second solution was a four-factor model similar to that reported in the above-mentioned studies (Emmons, 1987; Kansi, 2003; Svindseth et al., 2009) with leadership/authority (dominant, need to exert authority over others), grandiosity/exhibitionism (grandiose sense of self-importance, vanity), special person (fantasies of unlimited success, inflated opinion of their talents), and exploitativeness/entitlement (interpersonal exploitativeness and expectation of special favours) factors. Seven items of the original NPI were excluded from each of these solutions because of their negligible factor loadings. The CFA confirmed the usefulness of the four-factor solution for measuring the narcissism trait in the French young adult population. The four-factor model appeared to be the most satisfactory, with both acceptable fit indices and a good internal consistency coefficient, in accordance with previous studies (Corry et al., 2008; Kubarych et al., 2004). As expected, the subdomains of narcissism were correlated positively with the egocentrism bias, self-esteem, and the extraversion and openness traits. These results are in line with several studies investigating links between narcissism and other related constructs such as neuroticism and self-esteem (e.g. Ackerman et al., 2011; Barelds & Dijkstra, 2010; Kansi, 2003; Kubarych et al., 2004). Test-retest reliability was satisfactory, indicating that the NPI-Fr scale is relatively stable over time. Internal consistency was satisfactory, and entirely comparable to that reported in other studies (Barelds & Dijkstra, 2010; del Rosario & White, 2005; Kansi, 2003; Svindseth et al., 2009).

FRENCH VERSION OF NPI-40

Some limitations of our study warrant mention. Measure of DSM-5 personality constructs were not included; clinical characteristics of narcissism should test the discriminant validity. In addition, the study was also limited in some external criteria used to evaluate the validity of the NPI-Fr's score. Other pathological personality traits (e.g. illusory superiority, self-deception, narcissistic admiration and rivalry) should be empirically examined. Nevertheless, to our knowledge, questionnaires for assessing these constructs do not exist in French. Finally, our sample for the test-retest study was quite small and only students, and was also limited in terms of demographic representation. Thus more studies are clearly needed for increase confidence in the general applicability of the results. We did not include participants over 45 years, as narcissism has been found to decline in older individuals (Foster et al., 2003), although it may also just be more hidden, with the trait taking on other manifestations with age. Digital surveys have another important limitation: the impossibility of performing attrition analysis.

For a measuring instrument to be used with confidence, it must be reliable, sensitive and specific. The NPI had previously been validated in a variety of languages or cultures, but not in French. The two studies we conducted demonstrated good internal consistency and reliability for our French version. This instrument therefore represents a potentially relevant tool for French-speaking health professionals. Even if some authors argue that the NPI assesses more normal than pathological narcissism due in part to its positive correlations with self-esteem, several results and a recent one suggest that it's a good measure of DSM-IV and DSM-5 NPD (Miller et al., 2016). The NPI-Fr may provide a useful measure of normal and pathological aspects of narcissism in clinical practice and research. The NPI-Fr (33 items) captures multidimensional aspects of narcissism and can be employed by French researchers without requiring from any special training. It is therefore especially appropriate for examining differential influences on specific domains of narcissism on psychosocial

FRENCH VERSION OF NPI-40

adjustment. In accordance with Kubarych et al. (2004), we recommend using a Likert response format, which facilitates NPI-Fr factor analysis and measures the dimensionality of narcissistic traits better (across a continuum). Additional studies are needed to improve the NPI-Fr's psychometric properties in a general French sample. Gender differences in NPI-Fr scores need to be considered further, while future research should also verify the scale's ability to identify clinical patients with NPD.

Conflict of Interest

The authors report no conflicts of interest.

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FRENCH VERSION OF NPI-40

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FRENCH VERSION OF NPI-40

Table 1

Descriptive statistics for all three samples and both sexes

	Four-factor model				Two-factor model	
	L/A	G/E	SP	EE	P/A	E/SA
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Sample 1 (<i>n</i> = 824)						
Female	3.46	3.13	3.47	3.74	3.68	3.13
(<i>n</i> = 356)	(1.14)	(.88)	(1.03)	(1.12)	(.88)	(.88)
Male	3.78	3.23	3.93	4.41	4.10	3.23
(<i>n</i> = 468)	(1.23)	(1.01)	(1.19)	(1.29)	(.98)	(1.01)
Student's <i>t</i>	***	<i>ns</i>	***	***	***	<i>ns</i>
Sample 2 (<i>n</i> = 312)						
	3.34	2.92	3.27	3.8	3.59	2.92
	(1.22)	(.95)	(1.17)	(1.30)	(1.02)	(.95)
Sample 3 (<i>n</i> = 81)						
T1	3.24	2.89	3.19	3.69	3.51	2.89
(<i>n</i> = 139)	(1.21)	(.90)	(1.13)	(1.28)	(1.03)	(.90)
T2	3.30	2.93	3.15	3.68	3.54	2.93
(<i>n</i> = 81)	(1.10)	(.86)	(.99)	(1.22)	(.93)	(.86)

Note. LA = leadership/authority; G/E = grandiosity/exhibitionism; SP = special person; EE = exploitativeness/entitlement; P/A = power/authority; E/SA = exhibitionism/self-admiration.

****p* < .001.

FRENCH VERSION OF NPI-40

Table 2

Exploratory factor analyses of the NPI-40: two- and four-factor models

	Four-factor model				Two-factor model	
	L/A	G/E	SP	EE	P/A	E/S A
1. I have a natural talent for influencing people.	.20	-.03	-.05	-.72	.66	.00
2. Modesty doesn't become me.	.03	.24	-.02	-.22	.14	.26
3. I would do almost anything on a dare.	.03	.15	.18	-.30	.32	.17
4. I know that I am good because everybody keeps telling me so.	.01	.22	.32	-.26	.34	.25
5. If I ruled the world it would be a better place.	-.08	.15	.45	-.12	.26	.17
6. I can usually talk my way out of anything.	.29	-.09	.15	-.35	.58	-.05
7. I like to be the centre of attention.	.29	.64	-.16	-.07	.09	.69
8. I will be a success.	.44	.16	.39	.17	.39	.23
9. I think I am a special person.	.00	.30	.56	-.08	.33	.34
10. I see myself as a good leader.	.66	.17	-.02	-.23	.62	.25
11. I am assertive.	.61	-.02	.15	-.07	.59	.05
12. I like to have authority over other people.	.56	.25	-.28	-.23	.39	.30
13. I find it easy to manipulate people.	.06	-.04	-.04	-.76	.59	-.02
14. I insist upon getting the respect that is due to me.	.32	.21	.08	.11	.17	.25
15. I like to show off my body.	.12	.41	.08	-.04	.11	.45
16. I can read people like a book.	-.02	-.09	.15	-.61	.53	-.08
17. I like to take responsibility for making decisions.	.69	.09	-.10	-.01	.46	.17
18. I want to amount to something in the eyes of the world.	.00	.52	.16	.03	-.01	.55
19. I like to look at my body.	.02	.50	.16	.00	.03	.53
20. I will usually show off if I get the chance.	.08	.53	-.02	-.19	.12	.57
21. I always know what I am doing.	.31	-.25	.41	.00	.49	-.21
22. I rarely depend on anyone else to get things done.	.39	-.34	.41	-.02	.58	-.29
23. Everybody likes to hear my stories.	.22	-.05	.25	-.29	.52	-.01
24. I expect a great deal from other people.	.01	.38	.02	.15	-.14	.39
25. I will never be satisfied until I get all that I deserve.	.10	.35	.21	-.03	.17	.39
26. I like to be complimented.	.11	.57	-.05	.26	-.21	.59
27. I have a strong will to power.	.39	.23	.02	-.26	.46	.29
28. I like to start new fads and fashions.	.05	.50	-.04	-.18	.08	.53
29. I like to look at myself in the mirror.	.07	.57	.05	.03	-.02	.60
30. I really like to be the centre of attention.	.18	.70	-.14	-.10	.03	.74
31. I can live my life in any way I want to.	.31	-.12	.37	.11	.37	-.07
32. People always seem to recognize my authority.	.55	-.05	.11	-.29	.69	.01
33. I would prefer to be a leader.	.66	.26	-.16	-.15	.47	.34
34. I am going to be a great person.	.36	.30	.38	-.02	.46	.37

FRENCH VERSION OF NPI-40

35. I can make anybody believe anything I want them to.	.02	.04	-.01	-.75	.55	.06
36. I am a born leader.	.47	.19	-.01	-.39	.61	.25
37. I wish somebody would someday write my biography.	-.18	.49	.20	-.16	.03	.50
38. I get upset when people don't notice how I look when I go out in public.	-.10	.58	.03	-.12	-.05	.60
39. I am more capable than other people.	-.15	.17	.56	-.34	.43	.20
40. I am an extraordinary person.	-.08	.31	.64	-.07	.31	.34
Eigenvalue	9.84	2.80	1.93	1.81	9.84	2.80
Variance explained (%)	24.60	7.00	4.80	4.52	24.60	7.00
Cronbach's α	.87	.81	.73	.78	.89	.88

Note. Loadings marked in bold had a valid factor loading ($\geq .35$), and the items were retained in the solution. Items with factor loading below .35 are shown in italics. For the four-factor solution: L/A = leadership/authority; G/E = grandiosity/exhibitionism; SP = special person; EE = exploitativeness/entitlement. For the two-factor solution: P/A = power/authority; E/SA = exhibitionism/self-admiration.

FRENCH VERSION OF NPI-40

Table 3

Correlations between factors of the NPI (four-factor model)

	L/A	G/E	SP	EE
L/A	1.00	.53***	.54***	.52***
G/E		1.00	.48***	.33***
SP			1.00	.43***
EE				1.00

Note. LA = leadership/authority; G/E = grandiosity/exhibitionism; SP = special person; EE = exploitativeness/entitlement; *** $p < .001$.

FRENCH VERSION OF NPI-40

Table 4

Fit indices of the confirmatory factor analysis models

	χ^2/df	GFI	CFI	SRMR	RMSEA	ECVI
Two-factor model	2.699	.801	.828	.067	.073	4.619
Four-factor model	2.039	.847	.902	.056	.058	3.618

Note. *df* = degrees of freedom; GFI = goodness-of-fit index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; CFI = Bentler comparative factor analysis; ECVI = expected cross-validation index.

FRENCH VERSION OF NPI-40

Table 5

Correlations between self-esteem, personality traits and the NPI dimensions

	Four-factor model			
	L/A	G/E	SP	EE
Self-esteem (<i>n</i> = 107)	.36***	<i>ns</i>	.33***	<i>ns</i>
Self-Centred (<i>n</i> = 140)	.32***	.38***	.31***	.28***
Extraversion (<i>n</i> = 591)	.44***	.29***	.11**	.23***
Agreeableness (<i>n</i> = 591)	.01	.04	-.13**	.00
Conscientiousness (<i>n</i> = 591)	.16***	-.08	-.00	.00
Neuroticism (<i>n</i> = 591)	-.21***	.05	-.09*	-.15***
Openness (<i>n</i> = 591)	.19***	.20***	.29***	.29***

Note. LA = leadership/authority; G/E = grandiosity/exhibitionism; SP = special person; EE = exploitativeness/entitlement. * $p < .05$. ** $p < .01$. *** $p < .001$.

FRENCH VERSION OF NPI-40

Table 6

Internal consistency and test-retest correlations for the NPI (Pearson correlations)

	Cronbach's alpha	Cronbach's alpha	Test-retest
	Time 1	Time 2	correlations
	.90	.89	.88***
Four-factor model			
L/A	.90	.89	.88***
G/E	.84	.86	.83***
SP	.77	.77	.83***
EE	.86	.82	.80***

Note. LA = leadership/authority; G/E = grandiosity/exhibitionism; SP = special person; EE = exploitativeness/entitlement. *** $p < .001$.

FRENCH VERSION OF NPI-40

Figure 1

Model of the NPI-Fr analysed with AMOS

