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The Unified Narcissism Scale: Moving Towards an Integrated Measure of Narcissism

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Abstract

Narcissism as a psychological construct has had a contentious past both in its conceptualization and measurement. There is an emerging consensus that narcissism consists of grandiose and vulnerable subtypes, which share a common core. In the present research (N = 1002), we constructed a new measure of unified narcissism that reflects these contemporary understandings using items from the most widely used measures of grandiose and vulnerable narcissism: the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988, https://doi.org/10.1037/0022-3514.54.5.890), and the Pathological Narcissism Inventory (PNI; Pincus et al., 2009, https://doi-org/10.1037/a0016530). We used classical test theory and item response theory approaches to devise a 29-item Unified Narcissism Scale. The scale showed good internal consistency, and convergent and discriminant validity, and showed evidence of measurement invariance between men and women. This research gave strong support for the structure, reliability, and validity of the unified measure, which offers a promising avenue for further enhancing our knowledge of narcissism.

Keywords

narcissism, psychometrics, scale construction, factor analysis, item reponse theory

Relevance Statement

We illustrate the construction of a new measure of narcissism that is concise and precise. The measure reflects the contemporary conceptualizations of narcissism while addressing many of the criticisms of past measures of narcissism.

Key Insights

- We constructed a 29-item narcissism measure.
- The research found a five-factor solution for narcissism.
- The scale did not manifest an entitlement factor.
- The scale was measurement invariant between men and women.
- IRT showed the scale captured the latent trait well.

Narcissism is a construct that has been flexibly used to describe personality traits, pathology, and a self-oriented motivational state. The fields of social-personality, clinical, and psychodynamic psychology have been divergent in their conceptualizations (Cain et al., 2008; Pincus et al., 2009; Raskin & Terry, 1988). Despite this divergence, there has been an outburst in the study of narcissism, and this has ultimately cultivated the space for a more parsimonious understanding of the concept. Two important approaches have described the convergence and parsimony in understanding, namely Krizan and Herlache's (2018) narcissism spectrum model (NSM) and Miller's et al. (2017) Five-Factor model of narcissism; though separate the two approaches identify similar conceptualizations of the construct. Firstly, both models posit that narcissism is a multidimensional construct that sits on a spectrum, shifting between subclinical and clinical manifestations (Krizan & Herlache, 2018; Miller et al., 2017). Additionally, both posit grandiose and vulnerable narcissism subtypes with a shared core (Krizan & Herlache, 2018; Miller et al., 2017). There are several other proposed divisions (e.g., intrapersonal and interpersonal narcissism, covert and overt narcissism; Cain et al., 2008; Wink, 1991); however, the grandiose-vulnerable narcissism differentiation is the most accepted and widely investigated due to robustness in factor structure, reproducibility, and consistent associations with external variables.

Grandiose narcissism includes an inflated sense of self, superiority, and a dominant interpersonal style (Dickinson & Pincus, 2003; Miller et al., 2017). On the other hand, vulnerable narcissism includes a contingent sense of self, a submissive interpersonal style, and self-dysregulation (Dickinson & Pincus, 2003; Pincus et al., 2009). In support of this conceptual distinction, these two constructs exhibit unique patterns of correlation with the Big Five traits and self-esteem (Cain et al., 2008; Miller et al., 2011). Both are negatively correlated with agreeableness. Grandiose narcissism, however, correlates positively with extraversion and self-esteem, but negatively or non-significantly with neuroticism. On the other hand, vulnerable narcissism correlates positively with neuroti-

cism and self-esteem, and negatively with extraversion (Bresin & Gordon, 2011; Miller et al., 2011).

Although Krizan and Herlache (2018) and Miller et al. (2017) agree on the two subtypes, they disagree on what forms the "shared core", with Krizan and Herlache implicating entitlement and self-importance, and Miller et al. (2017) interpersonal antagonism as the core. Nomological network analyses allude to disagreeableness as the shared core (Miller et al., 2011). Antagonism, however, is a feature of anti-social personalities and not a unique feature of narcissism, as it is the central node that connects narcissism to psychopathy and Machiavellianism within the Dark Triad. Further, antagonism appears to be central to grandiose and not vulnerable narcissism (Muris et al., 2017; Trahair et al., 2020). On the other hand, grandiose and vulnerable narcissism positively correlate to psychological entitlement, more so than Machiavellianism and psychopathy (Miller et al., 2011; Turnipseed & Cohen, 2015). Recent network analyses also identified entitlement as the central feature of the narcissism network that connects grandiose and vulnerable narcissism (Dinić et al., 2021). Therefore, research suggests that entitled self-importance, as described by Krizan and Herlache (2018), is narcissism's core.

Narcissism is measured in various ways propagating the conceptual confusion. Scales often reflect a specific subtype at the cost of the unified understanding of narcissism. Two scales have dominated the area, covering core aspects of grandiose and vulnerable narcissism (Krizan & Herlache, 2018; Miller et al., 2017). The Narcissistic Personality Inventory (NPI) by Raskin and Terry (1988), captures primarily grandiose narcissism well, whereas the Pathological Narcissism Inventory (PNI) by Pincus et al. (2009) captures primarily vulnerable narcissism (Crowe et al., 2019; Krizan & Herlache, 2018; Miller et al., 2017). Currently, any researcher attempting to capture both constructs need to utilize both scales (or short forms).

Researchers have developed alternative measures, such as the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013), Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997), and Five-Factor Narcissism Inventory (FFNI; Glover et al., 2012). Despite their various advantages, they do not consistently capture the entitlement core. For example, NARQ primarily focuses on the strategies used to maintain an inflated sense of self (Back et al., 2013), and both NARQ and HSNS overlap in their construct coverage with the NPI and PNI (Krizan & Herlache, 2018).

The FFNI describes a three- and two-factor model to measure narcissism (Glover et al., 2012). The three-factor model describes antagonism as the common 'core' of narcissism along with agentic extraversion, which represents the unique features of grandiose narcissism, and neuroticism, which represents the unique features of vulnerable narcissism (Miller et al., 2016). The scale also proposes a two-factor model representing grandiose and vulnerable narcissism. Unfortunately, this approach resulted in grandiose narcissism not correlating significantly with extraversion, and vulnerable narcissism correlating positively with Machiavellianism (Miller et al., 2013). Further, agentic

extraversion, which represents grandiose narcissism, is more representative of healthy personality rather the unique features of grandiose narcissism. Nonetheless, this is also a criticism often levelled at the NPI (Rosenthal et al., 2011). The FFNI is also part of a larger body of work that is attempting to demonstrate how the five-factor model can be utilized to capture current categorical personality disorders. As a result, it does not provide specialized assessment of constructs such as narcissism, the same way PNI and NPI do. Finally, the entitlement factor in the FFNI contributes to grandiose narcissism but not vulnerable narcissism in the two-factor model, although entitlement is common to both which contradicts widely accepted conceptualization and research (Krizan & Herlache, 2018; Miller et al., 2011, 2016). Though, in the three-factor model entitlement contributes to the core of antagonism which may suggest that the scale in fact does capture entitlement across the domains. However, further research exploring FFNI's correlations with entitlement will help clarify this.

Narcissistic Personality Inventory and the Pathological Narcissism Inventory

In the present research investigating a unified approach to narcissism, we focus on the items from the PNI and NPI collectively because the items have excellent content validity covering the full spectrum of narcissism with a shared core of entitlement (Krizan & Herlache, 2018). NPI includes items that capture entitlement and shows significant correlations with external measures of entitlement. Similarly, PNI also has illustrated significant correlations with entitlement, though weaker than the NPI (Morf et al., 2017). The NPI is the most used narcissism measure in the literature, with the scale being cited in over 75% of the studies investigating narcissism (Ackerman et al., 2016). Researchers have validated the measure across cultures and developed brief versions (Ackerman et al., 2016; Brailovskaia et al., 2019). Despite its well-deserved notoriety, not all item pairs capture opposite ends of the same trait within the original forced-choice format (Brown et al., 2020). For example, the item pair "Talk my way out of anything" and "Accept the consequences of my behaviour" likely capture different traits instead of two opposing ends of a single trait. Alternative response formats have been developed, such as single choice (True or False) and Likert-type rating scales to respond to only the statements worded in the narcissism direction. The Likert-type rating scales, in addition to being reliable and replicating external correlations, provide more information than the forced-choice and single choice formats (Ackerman et al., 2011, 2016).

Secondly, there is no consensus on the NPI factor structure, with studies suggesting two, three, four, five, and seven factors (Ackerman et al., 2011, 2016; Corry et al., 2008; Emmons, 1984; Raskin & Terry, 1988). Only factors representing leadership/authority and exhibitionism/entitlement have been consistently found (Ackerman et al., 2011, 2016; Corry et al., 2008; Emmons, 1984). Further, many items are "noise", not loading meaningfully onto any factor (Ackerman et al., 2016). Despite the limitations, the NPI

forms a strong foundation for capturing unique aspects of grandiose narcissism beyond other measures (Miller et al., 2012).

The PNI was developed to address several limitations of the NPI, particularly the lack of content capturing vulnerable and pathological narcissism (Pincus et al., 2009). The PNI is increasing in popularity, and provides comprehensive measurement of both grandiose and vulnerable narcissism. The PNI's first-order factor structure has been replicated across samples, cultures, and genders (gender invariant; Wright et al., 2010; You et al., 2013). Nonetheless, the pattern of first-order loadings on the second-order factors appear to vary across studies, suggesting some conceptual confusion around what comprises grandiose versus vulnerable narcissism (Wright et al., 2010; You et al., 2013).

Perhaps the biggest criticism of the PNI is its limited ability to capture important aspects of grandiose narcissism given its specific focus on clinical assessment (Krizan & Herlache, 2018; Miller et al., 2017). This focus has resulted in neglecting many non-clinical aspects, primarily narcissistic leadership and inflated self-esteem. As a result, the NPI is superior in capturing leadership, superiority, and vanity (Miller et al., 2012).

The first challenge to including both the PNI and NPI in a single study is arriving at a homogeneous definition of grandiose narcissism. When researchers include both scales, the results are complicated by divergent conceptualizations. When researchers reduce this complexity by including, but not scoring, grandiose narcissism items from the PNI, it is a lengthy assessment creating unnecessary participant burden. Secondly, there are seven identical items across the two scales (e.g., "I find it easy to manipulate people"). As a result, any statistical analyses that rely on correlations are going to produce inflated effect sizes when they are included in the same model. Both scales include these items because they are important aspects of narcissism and removing them neglects these key aspects and results in a non-empirically validated measure.

Finally, as personality researchers would ideally want to capture multiple constructs, any study measuring narcissism with both the NPI and PNI is likely to have well over 100 items. Research has shown that long surveys, especially when conducted online, result in poor quality data such as, missing responses, incomplete surveys, satisficing, and high participant drop out (Guo et al., 2016). Although there are shortened versions of the NPI and PNI, combining them still does not circumvent the issues of identical items, defining grandiose narcissism composite, and choice of response formats. A shorter, comprehensive measure of unified narcissism will address many of the challenges with combining the NPI and PNI.

The Current Study

The main aim of this study was to construct a more efficient and psychometrically robust scale that would unify the current understanding of narcissism. Utilizing the items from the NPI and PNI, we hypothesized that we would observe the higher-order factors of grandiose and vulnerable narcissism (Hypothesis 1a), with both factors loading onto a

common narcissism factor (Hypothesis 1b) which would index entitlement (Hypothesis 1c; Krizan & Herlache, 2018; Miller et al., 2017). We expected that the new scale would be factorially robust and invariant (Hypothesis 2a), internally consistent for research purposes (Hypothesis 2b), and measure the middle of the latent trait based on IRT estimates (Hypothesis 2c). In addition, we expected that grandiose narcissism would positively correlate with extraversion, and negatively with neuroticism and agreeableness (Hypothesis 3a). We also expected that vulnerable narcissism would positively correlate with neuroticism and negatively with extraversion and agreeableness (Hypothesis 3b; Miller et al., 2011, 2017).

Method

Participants

All procedures performed in this study involving human participants were in accordance with the 1964 Helsinki declaration and its later amendments or comparable, and they were approved by the Human Research Ethics Committee of the Australian National University. Data were collected through online data collection platforms (Figure Eight and Pollfish) from participants living in English-speaking countries (the US, UK, Canada, New Zealand, and Australia) to limit the cultural heterogeneity. The initial dataset consisting of 1,552 participants was screened and cleaned to remove participants failing the attention checks, completing the study twice, or providing incomplete data. The final sample comprised 1,002 participants (509 men and 491 women). The M_{age} = 37.69 (*SD* = 13.6), ranging from 18–84. Majority of the participants were from the US (64%) and identified as Anglo/White (77%). Complete demographic information is provided in the Supplementary Materials, Table S1.

Materials and Procedure

Narcissism Items

The narcissism item pool comprised of all the items from the PNI (52 items; Pincus et al., 2009) and the NPI (40 items; Raskin & Terry, 1988), with their seven identical items included only once making a total of 85 items. Four of these seven items were from the PNI Exploitativeness subscale and the NPI Manipulativeness subscale, as based on the Ackerman et al. (2016) factor solution. One item each was from the PNI Entitlement Rage and Grandiose Fantasy subscales, and these items did not load onto any of the five factors (of the Ackerman et al., 2016, factor model) from the NPI subscale. We only used protrait NPI items to remove bias introduced by response direction (Ackerman et al., 2016). The items were scored on a six-point Likert-type scale ranging from *Not at all like me* (1) to *Very much like me* (6).

Self-Esteem

The 10-item Rosenberg's (1965) Self-Esteem scale (α = .90) was included to measure global self-esteem. It was scored on a four-point Likert-type scale ranging from *Strongly Disagree* (0) to *Strongly Agree* (3).

Big Five Personality Traits

Twelve items from the Mini-International Personality Item Pool (Donnellan et al., 2006) were used to measure agreeableness (α = .73), extraversion (α = .73), and neuroticism (α = .70) as these conceptually discriminate grandiose from vulnerable narcissism (Cain et al., 2008; Miller et al., 2011). These were scored on a five-point Likert-type scale going from *Strongly Disagree* (1) to *Strongly Agree* (5).

Data Analytic Plan

All data sets and the scripts for data analyses can be found in Supplementary Materials. The data were randomly split into equal exploratory (Sample 1, N = 501) and confirmatory (Sample 2, N = 501) halves. Exploratory factor analysis (EFA) was used in Sample 1 to identify viable factor structures using Jamovi (Version 2.1; Jamovi, 2020); strong items were identified based on strong factor loadings (> .60) and item-rest correlations. We then utilized item response theory (IRT) to identify the most informative items for each subscale. We used the R mirt package (Chalmers, 2012) to run a graded response model (GRM) on each factor separately as IRT assumes unidimensionality (Reise & Revicki, 2015). We ran IRT in Sample 1 to determine the best performing items, and then in the overall sample, which provides more stable parameters with more data points (Jiang et al., 2016). Confirmatory factor analysis (CFA) was conducted using the R package lavaan (Rosseel, 2012) in Sample 2 to verify the factor structure of the scale. Finally, multigroup CFA, using lavaan, was conducted to assess the scale's measurement invariance across the samples, gender, and age groups.

Results

Exploratory Analyses

Exploratory Factor Analysis

We conducted EFA on the 84 narcissism items with principal axis factoring and oblimin rotation as we expected our factors to be correlated (Russell, 2002). The Kaiser-Meyer-Olkin test indicated the sample was adequate for EFA (> .80 for all items and .95 for whole test). The Scree test suggested five factors, and parallel analysis suggested up to nine factors with the initial item pool, though there were seven items that did not load onto any factors in the nine-factor solution. We systematically re-ran EFA excluding items

that did not significantly load onto any factors. We excluded a total of 15 items that did not significantly load onto any factor. When we ran EFA with the remaining 69 items, both Scree test and parallel analysis supported a five-factor solution. The five-factor solution was considered the strongest solution, with the least number of cross-loading items (we describe cross-loading items as those that significantly load onto more than one factor at >.30), and each factor having multiple items with strong factor loadings. In addition, the five-factor solution made the most theoretical sense, as we explain below.

We, therefore, selected the five-factor solution and retained the 53 items that loaded strongly onto a single factor (the items and loadings are in the Supplementary Materials, Tables S2 and S3). Reflecting the content of the items, we labelled the factors: 1) Contingent Self-Esteem (CSE; 14 items), 2) Leadership (LED; 17 items), 3) Vanity (VAN; seven items), 4) Grandiose Fantasy (GF; nine items), and 5) Hiding One's Needs (HN; six items). Contrary to our Hypothesis 1c, we did not find an entitlement factor. We retained all items because their corrected item--to-subscale total correlations were greater than .30 (see Supplementary Materials, Table S4).

Item Response Theory

We conducted GRM on each subscale to understand which items to retain (Figure 1). There were no violations to unidimensionality based on Principal Component Analysis, and almost all items were locally independent based on Yen's $Q3$ index > |0.3| (Yen, 1984) with only six item pairs marginally exceeding this value. The best performing items were chosen based on stronger information parameters. We chose the seven best performing items for Contingent Self-esteem, Leadership, and Grandiose Fantasy. We removed HN_6 due to a flat information curve, and VAN_1 due to content overlap with VAN_2 and weaker information curve.

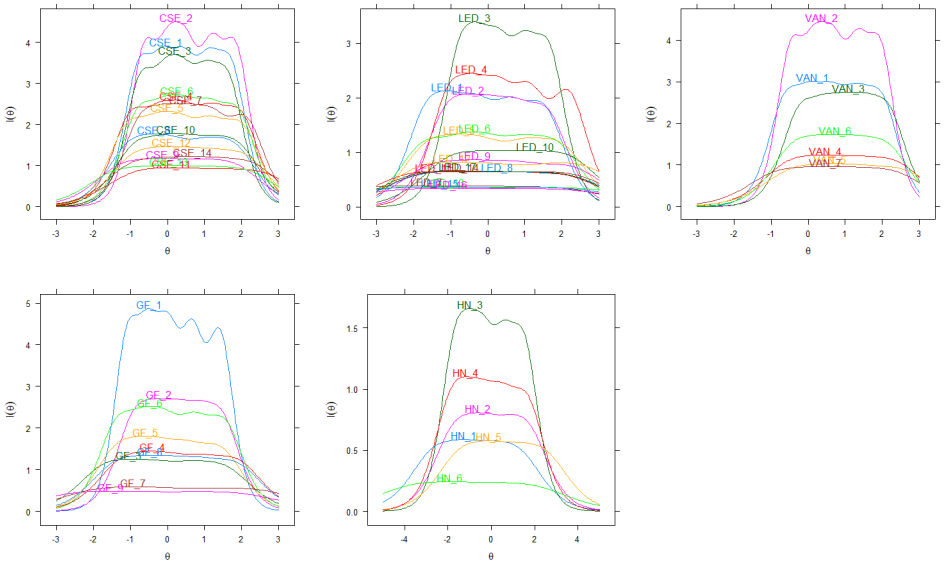
Confirmatory Factor Analyses

We ran a CFA using maximum likelihood estimation in Sample 1 to investigate the correlated second-order factor model before conducting model confirmation in Sample 2. We hypothesized that Leadership and Vanity would load onto Grandiose Narcissism and Contingent Self-Esteem, Grandiose Fantasy, and Hiding One's Needs would load onto a second factor of Vulnerable Narcissism, based on past literature (Ackerman et al., 2011; Pincus et al., 2009). We adopted widely utilized recommendations for acceptable and strong fit estimates (Hu & Bentler, 1999)[1]. The initial second-order model resulted in a Heywood case for vanity, which was eliminated by reducing the number of items to five for vanity and leadership (see Supplementary Materials, Note 1). The final scale

1) Acceptable model fit estimates defined as CFI > .90, SRMR < .08, RMSEA < .08; and strong model fit estimates defined as CFI > .95, SRMR < .06, and RMSEA < .06 (Hu & Bentler, 1999).

Figure 1

Item Information Curves for All the Items Within Each Factor



Note. The figure illustrates the item information curves for each of the items within each factor. Curves that have higher peaks allude to that item providing more information than flatter curves. The graphs are truncated with θ going from -3 to +3.

comprised 29 items and the first-order model showed acceptable fit, $\chi^2(365) = 1115$, $p < .05$, CFI = .915, TLI = .905, SRMR = .078, RMSEA = .064 [.060, .068].

Model Confirmation

Confirmatory Factor Analyses

We ran a CFA using maximum likelihood estimation in Sample 2 to confirm the five-factor structure of the scale, which we call the Unified Narcissism Scale (UNS). We modelled an error covariance between two similar items (VAN_2 and VAN_3). The model (see Table 1) had an acceptable fit to the data, $\chi^2(366) = 947$, $p < .01$, CFI = .914, TLI = .905, RMSEA = .056 [.052, .061], SRMR = .065. The final factor solution consisted of 18 items retained from the PNI (all items of Contingent Self-Esteem and Hiding Needs subscale, and six items of the Grandiose Fantasy subscales), and 11 items from NPI (all items of the Leadership and Vanity subscales, and one item of the Grandiose Fantasy subscale).

Table 1

Results From the Confirmatory Factor Analysis Showing Item Loadings

		Factor loading				
Item label	**Item content**	**1**	**2**	**3**	**4**	**5**
Factor 1: Contingent Self-Esteem						
CSE_1	It's hard for me to feel good about myself unless I know other people like me.	.79				
CSE_2	I am disappointed when people don't notice me.	.79				
CSE_3	When others don't notice me, I start to feel worthless.	.81				
CSE_4	When others don't respond to me the way I would like them to, it is hard for me to still feel okay with myself.	.78				
CSE_5	I need others to acknowledge me.	.70				
CSE_6	When people don't notice me, I start to feel bad about myself.	.80				
CSE_7	It's hard to feel good about myself unless I know other people admire me.	.77				
Factor 2: Leadership						
LED_1	I see myself as a good leader.		.77			
LED_3	I am a born leader.		.82			
LED_5	I am assertive.		.72			
LED_9	I insist upon getting the respect that is due me.		.49			
LED_10	I can make anybody believe anything I want them to.		.67			
Factor 3: Grandiose Fantasy						
GF_1	I often fantasize about being recognized for my accomplishments.			.75		
GF_2	I often fantasize about performing heroic deeds.			.64		
GF_3	I want to amount to something in the eyes of the world.			.83		
GF_4	I often fantasize about having a huge impact on the world around me.			.71		
GF_5	I often fantasize about accomplishing things that are probably beyond my means.			.77		
GF_6	I often fantasize about being rewarded for my efforts.			.62		
GF_8	I often fantasize about being admired and respected.			.42		
Factor 4: Vanity						
VAN_2	I like to look at my body.				.60	
VAN_3	I like to display my body.				.62	
VAN_4	I like to start new fads and fashions.				.67	
VAN_5	I would do almost anything on a dare.				.65	
VAN_7	I am apt to show off if I get the chance.				.75	
Factor 5: Hiding Needs						
HN_1	I hate asking for help.					.45
HN_2	I can't stand relying on other people because it makes me feel weak.					.62
HN_3	I often hide my needs, for fear that others will see me as needy and dependent.					.74
HN_4	It's hard to show others the weaknesses I feel inside.					.65
HN_5	Sometimes I avoid people because I'm concerned that they'll disappoint me.					.54

Note. N = 501. The loadings are standardized.

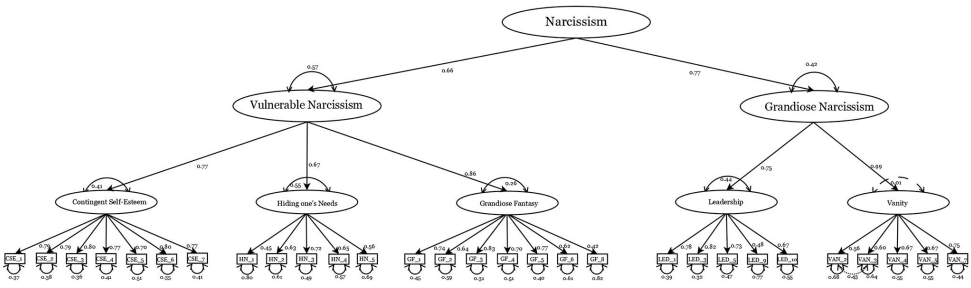
We then ran a correlated second-order factor model, modelling an error covariance between VAN_2 and VAN_3, and fixing the error variance of vanity to be equal to .01, because the initial solution was improper. The model fitted the data acceptably, $\chi^2(371) = 1053$, $p < .01$, CFI = .900, TLI = .890, RMSEA = .061 [.056, .065], SRMR = .082, supporting

Hypothesis 1a, which proposed the two higher-order factors of grandiose and vulnerable narcissism. The loadings of the first-order factors onto the respective second-order factors were high (Leadership: .77; Vanity: .99; Contingent Self-Esteem: .77, Grandiose Fantasy: .86; Hiding One's Needs: .67; all were significant, $p < .001$). The two second-order factors were strongly intercorrelated ($r = .50$, $p < .001$).

Finally, we ran a third-order model[2] where we hypothesized the two second-order factors would load onto a common third-order factor of narcissism. The model fitted the data adequately, $\chi^2(371) = 1053$, $p < .01$, CFI = .900, TLI = .890, RMSEA = .061 [.056, .065], SRMR = .082. We chose to include the third-order narcissism factor, despite mathematical equivalence to the second-order factor model, based on theoretical grounds. The results (see Figure 2) showed that grandiose and vulnerable narcissism load on narcissism, supporting Hypothesis 1b.

Figure 2

The Third-Order Factor Model of the Unified Narcissism Scale



Note. The figure illustrates the third-order factor structure along with the factor loadings of the items, first-order factors, and second-order factors.

Measurement Invariance

We ran multigroup CFA to assess measurement invariance across samples, gender and age group. Measurement invariance sequentially runs increasingly restricted multigroup models in a hierarchical fashion. Changes in CFI and RMSEA at each stage indicate the degree to which the new restriction weakens the model. We tested measurement invariance between samples, that is Sample 1 upon which we conducted exploratory analyses and Sample 2 upon which we conducted confirmatory analyses, and between gender identities. Given sample size requirements, we only included participants who identified as a man or a woman ($n = 1000$). We also split our sample by median age of 35, so that we formed one group of 18–34-year-olds, and a second group of older than 35 years old. For all CFA invariance analyses, configural models had appropriate fit estimates, and constraining the indicator loadings, intercepts, and residuals (strict invariance) did not substantially worsen model fit (see Table 2). These results collectively provide support

for our hypothesis that the scale would be factorially robust and invariant, facilitating meaningful comparisons across samples, gender identities, and between younger and older participants (see Table 2).

Table 2

Results From Measurement Invariance Analyses Between Samples and Gender

Model	*df*	χ^2	$\Delta\chi^2$	*p*	CFI	ΔCFI	RMSEA	ΔRMSEA	TLI
Samples									
Configural	732	2190			.908		.063		.898
Metric	756	2211	21.02	.638	.908	.000	.062	.001	.901
Scalar	780	2231	20.80	.650	.908	.000	.061	.001	.905
Strict	809	2296	64.69	.001	.906	.002	.061	.000	.906
Gender									
Configural	732	2187			.904		.063		.893
Metric	756	2227	40.27	.020	.903	.001	.062	.001	.896
Scalar	780	2362	134.66	.001	.895	.006	.064	.003	.891
Strict	809	2454	92.14	.001	.891	.006	.064	.000	.891
Age									
Configural	732	2244			.900		.064		.889
Metric	756	2275	30.33	.174	.899	.001	.063	.001	.892
Scalar	780	2364	89.14	.001	.895	.004	.064	.001	.891
Strict	809	2532	168.12	.001	.886	.009	.065	.001	.886

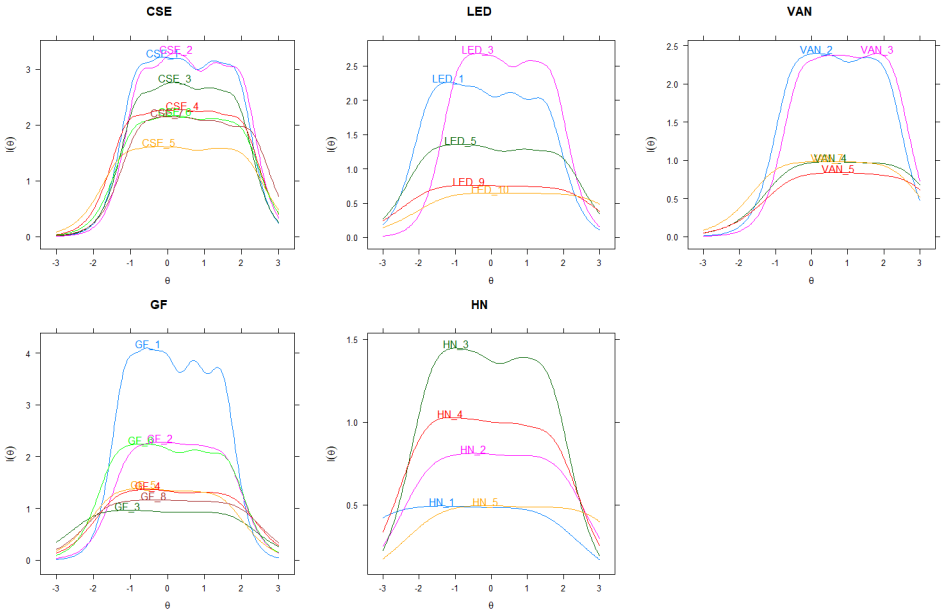
Note. N = 1000. Males = 501, and females = 491. 18–34 years = 486, and 35 years and older = 516. ΔCFI < .01 and ΔRMSEA < .015 was considered invariant (Chen, 2007). CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; TLI = Tucker-Lewis Index.

Item Response Theory: Final Model Characteristics

We also ran GRM IRT analyses utilizing the overall sample (see Supplementary Materials, Tables S5 and S6). All items (Figure 3) and factors (Figure 4) had peaked information curves in the -1 to +2 logit range, indicating that the UNS provides higher measurement precision at the average scores of the latent trait (Hypothesis 2c).

Figure 3

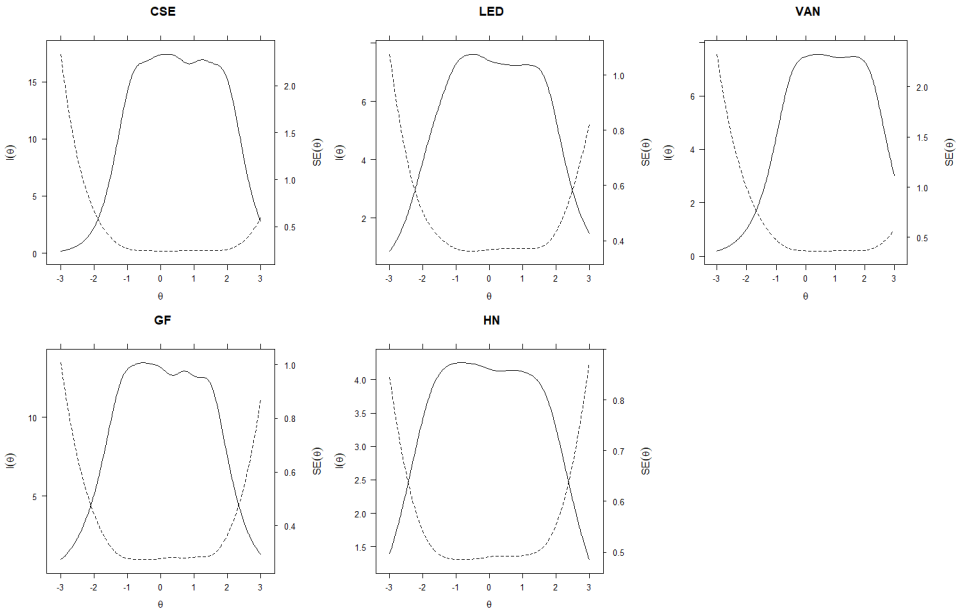
Item Information Curve for Items Within Each Factor



Note. Figure illustrates the item information curves for each of the items in the final scale. The graphs are truncated along θ (-3, +3).

Figure 4

Test Information and Standard Error Curves for Each Narcissism Factor



Note. The figure illustrates the test information curves for each of the factors. The standard error is illustrated by the dotted line.

Descriptive Statistics, Reliability, and Validity

The means for each of the final UNS subscales were towards the centre of the response range with +- 2*SD* in either direction. Estimates of internal consistency were appropriate for research purposes (Hypothesis 2b; Table 3). Mean item correlations (MIC) show that there was minimal item redundancy.

We then investigated the UNS's external validity through correlational analyses. Supporting previous research and Hypothesis 3a (Table 4), grandiose narcissism correlated positively with self-esteem and extraversion, and negatively with neuroticism and agreeableness (Miller et al., 2011, 2017). We found partial support for Hypothesis 3b, with vulnerable narcissism correlating positively with neuroticism and negatively with agreeableness and self-esteem (Bresin & Gordon, 2011; Miller et al., 2011, 2017). Vulnerable narcissism, however, did not correlate with extraversion. Since we did not find an entitlement factor, as expected, we instead tested the correlations of the total score and subscale scores with the entitlement subscale from NPI as per Raskin and Terry's (1988) factor model. We chose this as a proxy measure for entitlement because past research has illustrated that the Entitlement subscale from NPI performs very similarly to the Psycho-

Table 3

Descriptive Statistics of the Unified Narcissism Scale and Subscales for Sample 1 and 2

	Sample 1 (N = 501)				Sample 2 (N = 501)			
Scale/Subscale	***M***	***SD***	**α**	**MIC**	***M***	***SD***	**α**	**MIC**
UNS Total Score	3.16	1.23	.93	.33	3.22	0.79	.92	.27
Grandiose Narcissism	2.89	1.04	.89	.46	3.05	1.00	.88	.42
Leadership	3.26	1.12	.84	.50	3.46	1.10	.82	.48
Vanity	3.44	1.23	.85	.54	3.53	1.12	.81	.46
Vulnerable Narcissism	3.30	1.00	.94	.43	3.31	0.91	.92	.37
Contingent Self-Esteem	2.89	1.23	.93	.66	2.91	1.15	.91	.60
Grandiose Fantasy	2.52	1.17	.91	.60	2.63	1.10	.88	.51
Hiding One's Needs	3.68	1.04	.76	.39	3.56	1.01	.74	.36

Note. MIC = Mean item correlations; UNS = Unified narcissism scale.

logical Entitlement scale (Pryor et al., 2008). As can be observed in Table 4, the total score of UNS and subscales manifested significant correlations with the entitlement subscale ranging from moderate to very strong. For example, our overall measure, despite only retaining two (out of six) items form the Entitlement subscale of the NPI had a strong correlation, r = .76, p < .001. When we re-ran this correlation excluding the shared items from UNS, the total score still correlated very powerfully, r = .70, p < .001.

In addition to correlations with NPI Entitlement subscale, we also assessed the correlations with Emmons' Entitlement/Exploitativeness subscale from the four-factor solution. The final factor solution of UNS retained two items from Emmons' Entitlement/Exploitativeness subscale, and we found the total score for UNS showed strong correlations with Entitlement/Exploitativeness subscale (r = .82, p < .001), and this only slightly weakened when we re-ran the correlations after removing the shared items from UNS total score (r = .76, p < .001). All the UNS subscales also showed significant correlations with Entitlement/Exploitativeness subscale (Table 4).

We also explored correlations between Brief–PNI, NPI-13, UNS and the external validity measures (see Supplementary Materials, Table S8). We found that grandiose narcissism subscale of the Brief–PNI showed significant positive correlations with neuroticism (r = .17, p < .001), and significant negative correlation with self-esteem (r = -.11, p < .001). Similarly, grandiose narcissism as measured by NPI-13 showed a non-significant relationship with neuroticism (r = -.03, p = .331). This is contrary to the literature and theoretical models that suggest grandiose narcissism is positively related to self-esteem and negatively related to neuroticism. The findings for grandiose narcissism as measured by UNS was consistent with previous literature (as shown in Table 4). This shows that

Table 4

Correlations Between the Scales and Subscales, Self-Esteem, and Big Five Personality Traits

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. NARC	-													
2. GN	.84***	-												
3. VN	.81***	.37***	-											
4. LED	.72***	.91***	.25***	-										
5. VAN	.82***	.91***	.42***	.66***	-									
6. CSE	.71***	.34***	.86***	.19***	.43***	-								
7. GF	.77***	.43***	.85***	.62***	.34***	.45***	-							
8. HN	.52***	.12***	.78***	.50***	.07*	.14***	.49***	-						
9. SE	-.13***	.24***	-.48***	-.49***	.34***	.10**	-.27***	-.45***	-					
10. EXT	.35***	.57***	-.02	.03	.55***	.49***	.10**	-.20***	.38***	-				
11. NEU	.19***	-.13***	.46***	.43***	-.18***	-.05	.29***	.43***	-.65***	-.26***	-			
12. AGR	-.21***	-.20***	-.14***	-.17***	-.12***	-.24***	-.06	-.12***	.19***	.11**	-.05	-		
13. ENT	.76***	.74***	.55***	.74***	.60***	.44***	.61***	.32***	.10**	.32***	.03	-.11***	-	
14. EE	.82***	.86***	.55***	.79***	.77***	.51***	.55***	.30***	.09**	.42***	.03	-.24***	.87***	-

Note. N = 1002. NARC = Narcissism; GN = Grandiose Narcissism; VN = Vulnerable Narcissism; CSE = Contingent Self-Esteem; LED = Leadership; VAN = Vanity; GF = Grandiose Fantasy; HN = Hiding Needs; SE = Self-Esteem; EXT = Extraversion; NEU = Neuroticism; AGR = Agreeableness; ENT = Entitlement subscale from Narcissistic Personality Inventory; EE = Emmons' Entitlement/Exploitativeness.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

grandiose narcissism as modelled in the literature is better captured by UNS than Brief–PNI/PNI.

Convergent validity analysis between the UNS, NPI, and PNI (see Supplementary Materials, Tables S7 and S8) showed that the weakest correlation was found between leadership and hiding one's needs, which alludes to these subscales being unique features of grandiose and vulnerable narcissism respectively. As expected, UNS grandiose narcissism correlated strongly with the NPI, and the UNS vulnerable narcissism correlated strongly with the PNI vulnerable narcissism (see Table 5). UNS vulnerable narcissism correlated more strongly with PNI grandiose narcissism than the UNS grandiose narcissism subscale, showing that the PNI primarily measures vulnerable narcissism (Krizan & Herlache, 2018; Miller et al., 2011, 2017).

Table 5

Correlations of the Unified Narcissism Scale and Subscales With NPI and PNI

Variable	1	2	3	4	5	6	7	8	9	10	11
1. NARC	–										
2. GN	.84***	–									
3. VN	.81***	.37***	–								
4. LED	.71***	.91***	.25***	–							
5. VAN	.72***	.91***	.42***	.66***	–						
6. CSE	.82***	.34***	.86***	.18***	.43***	–					
7. GF	.77***	.43***	.85***	.34***	.45***	.62***	–				
8. HN	.52***	.12***	.78***	.07*	.14***	.50***	.49***	–			
9. NARC (NPI)	.86***	.92***	.49[a]***	.85[a]***	.82***	.42***	.54***	.23[a]***	–		
10. GN (PNI)	.87***	.67***	.78***	.60***	.62[a]***	.63***	.85***	.44***	.77***	–	
11. VN (PNI)	.77***	.37[a]***	.93[a]***	.25***	.42[a]***	.87[a]***	.69[a]***	.77***	.49***	.69***	–

Note. $N = 1002$. NARC = Narcissism; GN = Grandiose Narcissism; VN = Vulnerable Narcissism; CSE = Contingent Self-Esteem; LED = Leadership; VAN = Vanity; GF = Grandiose Fantasy; HN = Hiding Needs; NPI = Narcissistic Personality Inventory; PNI = Pathological Narcissism Inventory.

[a]The correlations between the UNS subscales and the appropriate PNI and PNI subscales.

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

Discussion

The UNS is an efficient and psychometrically robust measure of narcissism to investigate the proposed, and conceptually and theoretically advanced, understanding of unified narcissism. In this study using items from the PNI and NPI we constructed a shortened scale comprising of 29-items that made up five first-order factors. These loaded onto second-order factors of vulnerable and grandiose narcissism (Hypothesis 1a). The second-order factors load onto a third-order narcissism factor (Hypothesis 1b). We found the scale to be robust across samples, and men and women, and younger and older participants (Hypothesis 2a). The scale was found to be internally consistent (Hypothesis 2b) and item response theory analyses also showed the scale captures information best at the middle of the latent trait (Hypothesis 2c). In this study we have constructed a subclinical measure of narcissism that circumvents many of the criticisms of previous scales and reflects the unified theoretical understanding of the construct.

Vulnerable narcissism correlated positively with neuroticism, and negatively with agreeableness (Hypothesis 3b), but not with extraversion. Miller et al., (2011) also found a similar non-significant negative correlation between these constructs. Interestingly, the hiding one's needs correlated negatively with extraversion. This facet in fact might be overexpressed in certain scales of vulnerable narcissism that show a negative correlation

between vulnerable narcissism and extraversion (Jauk et al., 2017). Grandiose narcissism replicated all the expected external correlations (Hypothesis 3a).

This study provides important conceptual and theoretical support for the theories of NSM and of Miller and colleagues (Krizan & Herlache, 2018; Miller et al., 2017). The results supported these models and past research identifying grandiose and vulnerable narcissism, each differentially relating to self-esteem and Big Five factors (Crowe et al., 2019; Miller et al., 2011; Pincus et al., 2009). Additionally, the UNS supports a meaningful common factor (total score) that researchers can use in their research.

We were unable to find a separate factor of entitlement (Hypothesis 1c; Krizan & Herlache, 2018), most likely because entitlement is captured within the existing five-factor structure rather than manifesting on its own across all aspects of narcissism (Krizan & Herlache, 2018), rather than as a separate factor. We found preliminary evidence for this from the illustrated strong correlations between the total score and subscale scores for UNS, and the Entitlement subscale from the Raskin and Terry (1988) NPI factor solution, and the Entitlement/Exploitativeness subscale of the Emmons (1984) NPI factor solution. However, future research should investigate how the UNS factors relate to external measures of entitlement and specific instances of entitled behaviour. Grandiose fantasy also loaded onto vulnerable and not grandiose narcissism, in contrast to the PNI where grandiose fantasy loads onto grandiose narcissism. Previous research that measured both adaptive and pathological aspects of grandiose narcissism has shown that grandiose fantasy more strongly relates to vulnerable narcissism than to grandiose narcissism (Glover et al., 2012). The reason grandiose fantasy loads onto PNI grandiose narcissism might be because the PNI conflates grandiose and vulnerable narcissism.

In constructing the UNS we applied classical test theory and IRT, addressing major criticisms of the NPI and PNI. The UNS contains a third of the combined NPI and PNI item pool (29 items compared to 92), substantially reducing participant burden. The scale has also eliminated identical items reducing the likelihood of inflated correlations. Finally, the UNS provides meaningful comparisons and equivalent interpretations for both men and women, younger and older participants and across samples given invariant measurement, addressing the non-reproducible factor structure of the NPI. We also eliminated the confusing forced-choice options from the NPI and integrated a more consistent rating scale. Finally, the UNS captures grandiose narcissism more comprehensively, and with a more theoretically cogent pattern of external correlations, compared to using the PNI alone.

Ongoing research should focus on further developing support for the UNS in light of the limitations of this study. Firstly, we did not include the FFNI in the construction of the UNS, and this may have limited the content coverage and influenced the structure of the scale. It would be also useful to conduct further research to assess how the UNS performs in relation to the FFNI. Secondly, the mean item correlations for Contingent Self-Esteem and Grandiose Fantasy indicate potential item redundancy and

further revision of the scale is required. At present, we caution against using this scale in cross-cultural research without further analyses of the validity and reliability of the scale in more cultures and languages. Future research should also focus on assessing the incremental validity of the UNS in comparison to other measures of narcissism, such as FFNI, NARQ, and HSNS. The UNS, like the PNI and Likert-type measures of the NPI, consists only of positively keyed items, increasing the likelihood of the acquiescence bias, and researchers should include other means of assessing acquiescence (Cloud & Vaughan, 1970). Further, the study did not include any longitudinal data and therefore, we are unable assess the test-retest reliability of the scale.

We constrained the error variance of vanity in the second-order model and removed several items within the leadership factor that did not correlate significantly with any of the other narcissism factors. It has been debated whether the items capturing leadership from the NPI do adequately capture narcissistic leadership as opposed to adaptive leadership (Pincus et al., 2009). Future research should, therefore, focus more on the nature of narcissistic leadership (Rosenthal & Pittinsky, 2006).

Personality scales and research are often criticized for not including behavioural assessments, that is, determining how the personality constructs/scales relate to behavioural outcomes. It would be useful to explore how the scale and narcissism itself relate to certain behavioural outcomes (e.g., how individuals who score high on narcissism, including its dimensions, react to different kinds of threats).

In conclusion, we clarified the structure of narcissism by using items from two most widely used narcissism scales, the NPI and PNI. In support of the wider theoretical base, we demonstrated that narcissism consists of five first-order factors, which load onto two second-order factors of vulnerable and grandiose narcissism, which in turn load on a common factor of narcissism. We showed preliminary evidence that the scale captures entitlement across all its subscales, thereby providing further support for entitlement being central to narcissism. We also showed that narcissism can be measured with a shorter, yet comprehensive and psychometrically robust scale, using the items in the PNI and NPI. This scale is something future researchers can draw on when in need of a unified measure of narcissism that circumvents the challenges of including both the PNI and NPI. In this study, in addition to creating a robust measure of narcissism, we have also created a theoretically meaningful conceptualization, on which future theorists and researchers can draw.

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Data Availability: The data for this article are freely available (see the Supplementary Materials section).

Supplementary Materials

For this article the following Supplementary Materials are available via PsychArchives (for access see Index of Supplementary Materials below):

- Open-Peer Review
- Datasets
- Scripts for data analyses
- Tables S1-S9 and Note 1

Index of Supplementary Materials

Personality Science. (Ed.). (2021). *Supplementary materials to: The Unified Narcissism Scale: Moving towards an integrated measure of narcissism* [Open peer-review]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.5316

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