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# Validation of the Narcissistic Admiration and Rivalry Questionnaire Short Scale (NARQ-S) in Convenience and Representative Samples

Marius Leckelt  
University of Münster

Eunike Wetzel  
University of Konstanz

Tanja M. Gerlach  
Georg August University Göttingen

Robert A. Ackerman  
The University of Texas at Dallas

Joshua D. Miller  
University of Georgia

William J. Chopik  
Michigan State University

Lars Penke  
Georg August University Göttingen

Katharina Geukes and Albrecht C. P. Kүfner  
University of Münster

Roos Hutteman  
Utrecht University

David Richter  
German Institute for Economic Research, Berlin, Germany

Karl-Heinz Renner  
Bundeswehr University Munich

Marc Allroggen  
University Hospital Ulm, Ulm, Germany

Courtney Brecheen  
The University of Texas at Dallas

W. Keith Campbell  
University of Georgia

Igor Grossmann  
University of Waterloo

Mitja D. Back  
University of Münster

Due to increased empirical interest in narcissism across the social sciences, there is a need for inventories that can be administered quickly while also reliably measuring both the agentic and antagonistic aspects of grandiose narcissism. In this study, we sought to validate the factor structure, provide representative descriptive data and reliability estimates, assess the reliability across the trait spectrum, and examine the nomological network of the short version of the Narcissistic Admiration and Rivalry Questionnaire (NARQ-S; Back et al., 2013). We used data from a large convenience sample (total  $N = 11,937$ ) as well as data from a large representative sample (total  $N = 4,433$ ) that included responses to other narcissism measures as well as related constructs, including the other Dark Triad traits, Big Five personality traits, and self-esteem. Confirmatory factor analysis and item response theory were used to validate the factor structure and estimate the reliability across the latent trait spectrum, respectively. Results suggest that the NARQ-S shows a robust factor structure and is a reliable and valid short measure of the agentic and antagonistic aspects of grandiose narcissism. We also discuss future directions and applications of the NARQ-S as a short and comprehensive measure of grandiose narcissism.

Marius Leckelt, Department of Psychology, University of Münster; Eunike Wetzel, Department of Psychology, University of Konstanz; Tanja M. Gerlach, Department of Psychology & Leibniz Science Campus on Primate Cognition, Georg August University Göttingen; Robert A. Ackerman, Department of Psychology, The University of Texas at Dallas; Joshua D. Miller, Department of Psychology, University of Georgia; William J. Chopik, Department of Psychology, Michigan State University; Lars Penke, Department of Psychology, Georg August University Göttingen; Katharina Geukes and Albrecht C. P. Kүfner, Department of Psychology, University of Münster; Roos Hutteman, Department of Developmental Psychology, Utrecht University; David Richter, German Institute for

Economic Research, Berlin, Germany; Karl-Heinz Renner, Department of Psychology, Bundeswehr University Munich; Marc Allroggen, Clinic for Child and Adolescent Psychiatry/Psychotherapy, University Hospital Ulm, Ulm, Germany; Courtney Brecheen, Office of Undergraduate Education, The University of Texas at Dallas; W. Keith Campbell, Department of Psychology, University of Georgia; Igor Grossmann, Department of Psychology, University of Waterloo; Mitja D. Back, Department of Psychology, University of Münster.

Correspondence concerning this article should be addressed to Marius Leckelt, Department of Psychology, University of Münster, Fliegerstr 21, 48149 Münster, Germany. E-mail: marius.leckelt@wwu.de

**Public Significance Statement**

The present study suggests that the short version of the Narcissistic Admiration and Rivalry Questionnaire (NARQ-S) is a reliable and valid short measure of the agentic and the antagonistic aspects of grandiose narcissism that is suitable for application in a wide variety of research contexts and study designs.

*Keywords:* narcissism, short scale, representative sample, validation, personality

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In recent years, it has been increasingly recognized that grandiose narcissism (henceforth “narcissism”) is best understood as a multidimensional construct (Back et al., 2013; Brown, Budzek, & Tamborski, 2009; Miller & Campbell, 2008; Miller et al., 2011; Paulhus, 2001). Specifically, narcissism incorporates agentic aspects such as dominance, charm, self-assuredness, and humor (Back, Schmukle, & Egloff, 2010; Kűfner, Nestler, & Back, 2013; Paulhus, 1998) as well as antagonistic aspects such as selfishness, hostility, entitlement, and arrogance (e.g., Bushman & Baumeister, 1998; Reidy, Foster, & Zeichner, 2010).

The *narcissistic admiration and rivalry concept* (NARC) is a self-regulatory process model of grandiose narcissism that differentiates these two interrelated dimensions of narcissism: narcissistic admiration (agentic aspects driven by self-enhancement) and narcissistic rivalry (antagonistic aspects driven by self-defense). Contrary to previously introduced models of grandiose narcissism, the NARC is a two-dimensional process model that explicitly incorporates agentic (admiration) and antagonistic (rivalry) aspects of grandiose narcissism. Further, it describes the underlying motivational, resulting behavioral, and interpersonal dynamics of both narcissistic admiration and rivalry. The NARC, thus, follows from literature characterizing grandiose narcissism as a mix of both agentic and antagonistic aspects: Grandiose narcissism has been described as incorporating well-adaptedness and malignancy (Kernberg, 1975), extraversion and disagreeableness (Paulhus, 2001), and adaptive interpersonal and maladaptive intrapersonal (Brown et al., 2009) aspects. Grandiose narcissism has been shown to be associated with positive consequences such as positive self-views, emergent leadership, and interpersonal success (short-term) as well as negative consequences such as relationship trouble, aggression, and cheating (Campbell & Campbell, 2009). Going beyond existing process models (e.g., Campbell & Campbell, 2009; Morf & Rhodewalt, 2001), the NARC not only includes dynamic processes but also explicitly acknowledges and considers the two dimensions of grandiose narcissism and places them in a coherent process model. Generally speaking, with respect to consequential outcomes of narcissism, the agentic aspects facilitate positive short-term effects—for example, higher levels of state self-esteem (Geukes et al., 2016), peer popularity at zero and short-term acquaintance (Back et al., 2010; Lange, Crusius, & Hagemeyer, 2016; Leckelt, Kűfner, Nestler, & Back, 2015), being rated as attractive (Oltmanns, Friedman, Fiedler, & Turkheimer, 2004), and dating success (Wurst et al., 2017)—whereas the antagonistic aspects are linked to negative effects in the long run—for example, higher self-esteem fragility (Geukes et al., 2016), increasingly negative peer evaluations (Leckelt et al., 2015;

Paulhus, 1998), and higher number of divorces and romantic relationship conflict (Cramer, 2011; Wurst et al., 2017; see also Campbell & Campbell, 2009).

Given the important consequences associated with both aspects of narcissism across a variety of domains, including psychological health as well as social and occupational functioning, it is important to study the effects of agentic and antagonistic aspects of narcissism not only in convenience samples but also in large representative samples (e.g., panel surveys) and more naturalistic settings (e.g., field studies using mobile devices, ambulatory assessment in general). In these settings, the length of measurement tools is a major concern due to time limitations and respondents’ fatigue. It is, therefore, crucial to have shorter, time-efficient measures available that are able to reliably and validly assess both the agentic and antagonistic aspects of narcissism.

The most frequently used measure of narcissism to date is the 40-item version of the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). In recent years, the NPI has been criticized for its ambiguous factor structure (e.g., Corry, Merritt, Mrug, & Pamp, 2008), low coverage of the more maladaptive aspects of narcissism (Rosenthal & Hooley, 2010; Rosenthal, Montoya, Ridings, Rieck, & Hooley, 2011), and unreliability of scores on some of its facets. This especially applies to the only antagonistic facet, Entitlement/Exploitativeness (EE; e.g.,  $\alpha$ s ranging from .44 to .47; Ackerman et al., 2011, Studies 2–4; see also del Rosario & White, 2005; Trzesniewski, Donnellan, & Robins, 2008). Although the NPI is not without merits regarding the global assessment of narcissism (e.g., Miller & Campbell, 2011; Miller, Lynam, & Campbell, 2016), it may not be well suited for a differentiated assessment of narcissism, especially in restrictive settings such as panel surveys or repeated assessments in the field. There are other short measures of narcissism available, but these do not systematically differentiate the antagonistic and agentic aspects of narcissism. Such short narcissism scales can be found in inventories designed to measure the Dark Triad (Paulhus & Williams, 2002), such as the Dirty Dozen (Jonason, & Webster, 2010) and the Short Dark Triad (SD3; Jones & Paulhus, 2014), the Narcissism Grandiosity Scale (Crowe, Carter, Campbell, & Miller, 2016) or short versions of the NPI (e.g., NPI-16: Ames, Rose, & Anderson, 2006; NPI-13: Gentile et al., 2013). Short versions of other inventories created to assess a breadth of narcissistic aspects (including pathological narcissism) may be unfeasible in length for research designs with time restrictions (brief version of the Five Factor Narcissism Inventory with 60 items: Sherman et al., 2015; short form of the Pathological Narcissism Inventory with 28 items:

Schoenleber, Roche, Wetzel, Pincus, & Roberts, 2015; Grandiose Narcissism Scale with 33 items: Foster, McCain, Hibberts, Brunell, & Burke Johnson, 2015).

Recently, Back and colleagues (2013) developed the Narcissistic Admiration and Rivalry Questionnaire (NARQ), which assesses the agentic (admiration) and antagonistic (rivalry) aspects of narcissism according to the NARC. In their article, Back and colleagues showed that the NARQ can reliably measure and distinguish between the agentic and antagonistic aspects of narcissism. Additionally, the authors introduced a short version of the NARQ (NARQ-S), comprising six items. Although such an ultrabrief assessment of agentic and antagonistic narcissism seems desirable for use in time-restricted settings, the NARQ-S has not yet been formally validated regarding its factor structure, reliability of its test scores, and situation in a broader nomological network.

### The Present Study

The present study seeks to (a) validate the two-dimensional structure of the NARQ-S; (b) provide representative descriptive data and reliability estimates; (c) investigate the reliability across the trait spectrum; and (d) examine its theoretically derived relations to other narcissism measures as well as related constructs, including the other Dark Triad traits, Big Five personality traits, and self-esteem. We expected the NARQ-S to show the two correlated factors structure as derived from the NARC, to be as reliable as well-established ultrashort personality measures with similar number of items per dimension (e.g., the 15-item GSOEP Big Five Inventory, BFI-S; Gerlitz & Schupp, 2005; Hahn, Gottschling, & Spinath, 2012), to differentiate between individuals across a sufficiently large spectrum of narcissism, and to exhibit a nomological network pattern similar to that for the full NARQ.

To address these aims, we used data from several large-scale samples, including both convenience samples because they are predominantly used in psychological research and large, representative samples.

### Method

#### Samples

We used one convenience sample (hereafter Sample C) and one representative sample (hereafter Sample R) in the present study. Each of these samples is a combination of several smaller samples that were aggregated. We describe these two combined samples in the next sections and direct readers to the online supplemental materials<sup>1</sup> accompanying this article for detailed information on all the individual samples.

**Convenience sample.** We collected various German (20 samples,  $N = 9,125$ ; 31% male,  $M_{\text{age}} = 27.01$  years,  $SD = 8.36$ ) and English (seven samples from the United States and United Kingdom,  $N = 2,812$ ; 37% male,  $M_{\text{age}} = 25.19$ ,  $SD = 10.96$ ) convenience samples.<sup>2</sup> Combined, this sample (Sample C) included 11,937 participants (33% male,  $M_{\text{age}} = 26.57$ ,  $SD = 9.08$ , range = 14–75).

**Representative sample.** This sample was a combination of two representative German samples. One of these was the Innovation Sample of the Socioeconomic Panel (SOEP-IS; Richter & Schupp, 2012), which comprised 1,920 participants (48% male,  $M_{\text{age}} = 52.22$ ,  $SD = 18.06$ , range = 17–96). The SOEP-IS is an ongoing, nationally

representative longitudinal study of private households in Germany. The sample consists of respondents with differing levels of education, work situations, and marital statuses. Besides containing a relatively short set of core questions, the SOEP-IS incorporates innovative content that is purely user-designed and selected through an annual competitive refereed process to identify top-quality research questions and operationalizations. All data have been collected by a professional high-quality fieldwork organization (TNS Infratest Social Research, Munich, Germany; <http://www.tns-infratest.com>).

The second representative sample was originally collected for a survey on mental health and includes 2,513 participants (45% male,  $M_{\text{age}} = 48.79$ ,  $SD = 18.11$ , range = 14–94). This sample, which is representative for the general population of Germany (regarding age, sex, region of residence, and education), was collected by a demographic consulting company (USUMA, Berlin, Germany; <http://www.usuma.com>). The survey was conducted in concordance with the Declaration of Helsinki (World Medical Association, 2013), met ethical guidelines of the international code of Marketing and Social Research practice by the International Chamber of Commerce and the European Society for Opinion and Marketing Research (ESOMAR, 2016), and was approved by the Institutional Review Board of the University of Leipzig. The combined representative sample (Sample R) included 4,433 participants (46% male,  $M_{\text{age}} = 50.28$ ,  $SD = 18.17$ , range = 14–96).

#### Measures

**Narcissistic admiration and rivalry.** Narcissism was assessed with the full Narcissistic Admiration and Rivalry Questionnaire (NARQ) and the six-item short form of it (NARQ-S; Back et al., 2013). The full version of the NARQ is an 18-item measure of grandiose narcissism, distinguishing the agentic (admiration) and antagonistic (rivalry) parts of grandiose narcissism. Each dimension has three subscales that are measured by three items each and contain content addressing narcissists' *affective-motivational*, *cognitive*, and *behavioral* processes. For admiration, these subscales are *grandiosity*, *strive for uniqueness*, and *charmingness*. A typical item reads "Being a very special person gives me a lot of strength." The rivalry dimension consists of the subscales *devaluation*, *strive for supremacy*, and *aggressiveness*. A typical item reads "I want my rivals to fail." Items are answered on a 6-point scale ranging from 1 (*not agree at all*) to 6 (*agree completely*) scale. The NARQ-S has six items, three for each dimension and one from each subscale. Items were selected so that the admiration and rivalry brief scales contained items of all three NARQ subscales and content domains (affective-motivational, behavioral, and cognitive). For each dimension, item inclusion was based on the highest factor loading of the respective subscale (Back et al., 2013). An overview of the items and their means and standard deviations, intercorrelation, and factor loadings can be found in Table 1. In the present research, most samples used the full NARQ from which NARQ-S items were selected, whereas others applied

<sup>1</sup> Detailed sample descriptions and sampling information can be found in the online supplemental materials. All information and files described in this and later footnotes can be found online at the Open Science Framework website under the link [osf.io/pb43s](https://osf.io/pb43s)

<sup>2</sup> We tested for weak factorial measurement invariance across the English and German samples. Results confirmed that weak factorial invariance held (see Table S1 in the online supplemental materials).

only the NARQ-S (see the online supplemental materials). Both representative samples exclusively applied the short six-item version. We would like to point out that a total score of the NARQ-S can also be calculated in cases where researchers are interested in a global assessment rather than the differential influence of agentic and antagonistic aspects of grandiose narcissism. However, we would recommend calculating and using the admiration and rivalry dimensions because they provide a more nuanced insight into the, at times, paradoxical effects of narcissism.<sup>3</sup>

**NPI.** The Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) is a 40-item, forced-choice, self-report measure of grandiose narcissism. We calculated, in addition to the NPI total score, the three NPI subscales—Leadership/Authority (LA), Grandiose Exhibitionism (GE), and Entitlement/Exploitativeness (EE)—identified by Ackerman et al. (2011). Data on the 40-item version were available for 16 of the smaller convenience samples (see the online supplemental materials). One of the smaller convenience samples used the German NPI-15 (Schütz, Marcus, & Sellin, 2004).

**Dark Triad.** Data on the Dark Triad traits (psychopathy, narcissism, Machiavellianism) were available for seven of the smaller convenience samples and one of the representative samples. All subsamples of the convenience sample used the German version of the Dirty Dozen (Küfner, Dufner, & Back, 2015). For one subsample of the representative sample, a nine-item version of the German Dirty Dozen, the Naughty Nine (Küfner et al., 2015), was used.

**Big Five.** The Big Five personality traits of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness were measured using different instruments across the various samples. Six of the smaller samples used in Sample C did not have data on the Big Five. Of the remaining 19 smaller samples, all but two used the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) or a shortened version of the BFI. The remaining two samples used the Revised NEO Personality Inventory (NEO-PI-R; Costa & MacCrae, 1992) and the 50-item International Personality Item Pool (IPIP; Goldberg et al., 2006), respectively (see the online supplemental materials). In Sample R, Big Five data were available for only the SOEP-IS, which used the BFI-S (Gerlitz & Schupp, 2005).

**Self-esteem.** Self-esteem data was available for 19 of the smaller samples that make up Sample C. In all but two cases, the Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used. The remaining two studies used the complete German Multidimensional Self-Esteem Scale (MSWS) or a shortened 12-item version of it (Schütz & Sellin, 2006). In Sample R, self-esteem data was available for only the SOEP-IS, which uses a single-item measure of self-esteem. The item reads “I have a positive attitude towards myself” and was assessed on a 7-point scale ranging from 1 (*does not apply at all*) to 7 (*applies completely*).

## Results

### Factor Structure

We used confirmatory factor analyses (CFAs) with full-information maximum-likelihood estimation to validate the two-dimensional structure of the NARQ-S. One- and two-dimensional models with uncorrelated and correlated factors were fitted to the data of Samples C and R. The two best fitting models were then compared against each other. We used several indices of model fit: comparative fit index (CFI), chi-square test, root-mean-square

error of approximation (RMSEA), and the standardized root-mean-square residual (SRMR). Cutoff criteria for goodness of fit were based on Hu and Bentler (1999), with values of  $\geq .95$  for the CFI,  $\leq .08$  for the SRMR, and  $\leq .06$  for the RMSEA indicating good fit. All analyses were performed in R Version 3.2.2 (R Core Team, 2015). CFAs were run using the *lavaan* package (Version 0.5–17; Rosseel, 2012).

Factor loadings can be found in Table 1, and the results of the CFAs can be found in Table 2. In both Samples C and R, the two-dimensional model with correlated factors (correlation of the latent factors = .60 and .74 in Samples C and R, respectively) fit the data significantly better than did the one-dimensional model: Sample C,  $\Delta\chi^2(1) = 1,451.94$ ,  $p < .001$ ; Sample R,  $\Delta\chi^2(1) = 688.85$ ,  $p < .001$ , or the two-dimensional model with uncorrelated factors: Sample C,  $\Delta\chi^2(1) = 1,868.57$ ,  $p < .001$ ; Sample R,  $\Delta\chi^2(1) = 1,761.19$ ,  $p < .001$ . The overall model fit was good, as indicated by the CFI and SRMR (Sample C/R: CFI = .98/.95, SRMR = .02/.04) and acceptable as indicated by the RMSEA (Sample C/R: RMSEA = .09, 90% confidence interval [CI: .08, .09]/.07, 90% CI [.06, .08]). In both samples, factor loadings were satisfactory. Sample R showed continuously higher loadings, and in both samples Item 6 (“Most people are somehow losers”) had the lowest factor loading of all items. The magnitude of the factor loadings for this item was acceptable ( $> .50$ ).

### Representative Descriptive Data, Gender Differences, and Overall Reliability

We provide means, standard deviations, gender differences, and overall reliability estimates for test scores of the convenience and representative samples. Reliability was estimated using conventional measures such as Cronbach’s alpha ( $\alpha$ ) as well as with an alternative index, omega hierarchical ( $\omega_h$ ), that addresses some of the conceptual and methodological problems inherent in  $\alpha$  (e.g., Zinbarg, Revelle, Yovel, & Li, 2005). In comparison to  $\alpha$ ,  $\omega_h$  is a better estimator of a scale’s unidimensionality and can be interpreted as the proportion of a scale’s variance that is due to a general factor (Revelle & Zinbarg, 2009).

Information on means and standard deviations for both sexes and the overall samples are summarized in Table 3. In both samples, similar gender differences were observed. Men scored significantly higher on admiration (Sample C/R:  $d = .28/.22$ ) and rivalry (Sample C/R:  $d = .38/.24$ ) than did women. This pattern was identical to results for the full NARQ in Sample C as well as to results reported in Back et al. (2013).

The reliability of the test scores of the admiration and rivalry scales was acceptable to good in both samples, despite their brevity: In Sample C, both  $\alpha$  and  $\omega_h$  indicated acceptable reliability for the test scores of the admiration facet of the NARQ-S ( $\alpha$  and  $\omega_h = .74$ ), and test scores on the rivalry facet showed acceptable values of reliability ( $\alpha = .61$ ,  $\omega_h = .63$ ). Similarly, admiration scores showed very good reliability ( $\alpha$  and  $\omega_h = .84$ ) in Sample R, and the reliability of rivalry scores was acceptable ( $\alpha = .70$ ,  $\omega_h = .71$ ). The mean interitem correlations were .48 and .63 for admiration, and .34 and .43 for rivalry, for Samples C and R, respectively. Compared to the results of the full NARQ as reported in

<sup>3</sup> Correlational results for the NARQ total score can be found in Table S4 in the online supplemental materials.

Table 1  
*NARQ-S Item Content, Factor loadings, Item numbers, Descriptive Information, and Interitem Correlations*

Item in NARQ-S <sup>a</sup>	<i>M</i>	<i>SD</i>	Factor loading	Dimension	Facet	2	3	4	5	6
1. I react annoyed if another person steals the show from me. (4)	2.25/1.89	1.23/1.17	.61/.70	Rivalry	Aggressiveness	.34/.45	.39/.53	.27/.40	.33/.46	.25/.34
2. I deserve to be seen as a great personality. (8)	2.58/1.88	1.33/1.18	.68/.78	Admiration	Grandiosity	—	.25/.45	.51/.64	.42/.59	.22/.33
3. I want my rivals to fail. (9)	2.38/1.65	1.39/1.07	.64/.75	Rivalry	Strive for supremacy	—	—	.20/.41	.22/.43	.39/.43
4. Being a very special person gives me a lot of strength. (15)	2.73/2.08	1.43/1.31	.75/.82	Admiration	Strive for uniqueness	—	—	—	.52/.67	.24/.32
5. I manage to be the center of attention with my outstanding contributions. (16)	2.66/2.13	1.32/1.28	.67/.80	Admiration	Charmingness	—	—	—	—	.21/.33
6. Most people are somehow losers. (17)	1.70/1.78	1.09/1.08	.52/.54	Rivalry	Devaluation	—	—	—	—	—

*Note.* Data for Samples C and R are separated by a forward slash, respectively. Factor loadings are standardized. NARQ-S = short form of the Narcissistic Admiration and Rivalry Questionnaire (NARQ).

<sup>a</sup> Numbers at the end of each item indicate the item number in the full NARQ.

Back et al. (2013), the reliability of scores on the full NARQ in Sample C was nearly identical. In both samples, admiration and rivalry showed moderate to strong manifest correlations (Sample C:  $r = .41, p < .001$ ; Sample R:  $r = .58, p < .001$ ).

### Reliability Across the Latent Trait Spectrum

Because  $\alpha$  and  $\omega_h$  can be seen as overall reliability estimates of the scores on a test or scale, we also investigated the reliability of scores on the NARQ-S across the entire trait spectrum using item response theory (IRT). This allowed us to move beyond classic indicators of reliability that assume reliability to be the same for persons with different standings on the latent trait. These analyses also allowed us to investigate whether the NARQ-S could reliably capture variation in the latent trait of narcissism among individuals scoring high or low in narcissism. We extracted the test information functions for the admiration and rivalry dimensions and converted them to reliability estimates on a familiar scale according to Thissen (2000). In doing so, reliability can be estimated as a function of an individual’s standing on the latent trait. To this end, we fitted the graded response model<sup>4</sup> (Samejima, 1969) to the responses to the NARQ-S items using the *mirt* package (Chalmers, 2012) Version 1.14 for R. The graded response model is an extension of the two-parameter logistic model from dichotomous items to ordered or polytomous items and is the most appropriate for this kind of data (Samejima, 2004).

Results of the IRT analyses are depicted in Figure 1. Similar to the overall reliability, admiration scores showed a higher reliability across the trait spectrum than did rivalry scores in Sample C. Although scores on both subscales showed acceptable values of reliability, especially across the higher standings on the trait, admiration was also reliable in the lower trait standings (reliability of .60 at about 1.5 *SD* below the mean). The same pattern of results was observed in Sample R, except that admiration and rivalry scores showed higher levels of reliability compared to the results from Sample C. An additional noteworthy difference was that despite showing very good reliability, admiration did not cover as much of the lower trait spectrum in Sample R as in Sample C. However, when compared to the full NARQ—based on data from Sample C—the NARQ-S and its subscales covered the trait spec-

trum from slightly below the mean to 2.5 *SD* above the mean equally well in the representative sample (Sample R). The NARQ-S test scores in Sample C covered these areas less well but still within acceptable levels of reliability, particularly for a scale including only three items per dimension.

### Nomological Network

We examined the NARQ-S’s nomological network and compared the pattern of associations with that found for the full version of the NARQ. Specifically, we analyzed associations to the NPI and its subscales LA, GE, and EE; the Dark Triad traits; the Big Five; and self-esteem. We used zero-order correlations as well as regression models—where admiration and rivalry were simultaneously entered as predictors—to investigate these associations. In doing so, we examined the general nomological network as well as the incremental contribution of each dimension (admiration vs. rivalry). Given that inventories varied across samples, all measures were standardized within each of the smaller samples. Because not all traits were included in all samples, the sample sizes varied across analyses, and this is indicated where appropriate.

Results from correlational and regression analyses are depicted in Table 3 for the NPI, Dark Triad traits, and self-esteem. Table 4 contains results for the Big Five personality traits.<sup>5</sup> To establish convergent validity, we first compared the NARQ-S to the NPI and its facets. The NARQ-S showed nearly identical correlational associations to the NPI total score, as did the full NARQ (see Table 3). As expected, regression analyses showed that this relationship was stronger for the unique aspects of admiration compared to the unique aspects of rivalry. Likewise, both dimensions were related to the LA and GE facets, and the association was mainly due to narcissistic admiration rather than rivalry. Regarding the more

<sup>4</sup> A more detailed description of the IRT analyses can be found in the online supplemental materials on pages 3–4 and in Tables S2 and S3.

<sup>5</sup> Per request of an anonymous reviewer, we also provide results for a version of the NARQ from which the NARQ-S items were removed (see Tables S5 and S6 in the online supplemental materials). Additional analyses and results can also be found in the supplementary material—Additional Analyses and Results section of the online supplemental materials.

Table 2  
Results from Confirmatory Factor Analyses and Model Comparisons Comparing One- and Two-Factor Models

Sample and model	CFI	RMSEA	RMSEA 90% CI	SRMR	$\chi^2$	df	p	$\Delta\text{CFI}^a$	$\Delta\chi^2^a$
Convenience									
One factor	.84	.14	[.14, .15]	.07	2,140.79	9	<.001		
Two factors (uncorrelated)	.81	.16	[.15, .16]	.15	2,557.42	9	<.001	-.03	416.63
<b>Two factors (correlated)</b>	<b>.95</b>	<b>.09</b>	<b>[.08, .09]</b>	<b>.04</b>	688.85	<b>8</b>	<b>&lt;.001</b>	<b>.11</b>	<b>-1,451.94***</b>
Representative									
One factor	.91	.14	[.14, .15]	.05	833.83	9	<.001		
Two factors (uncorrelated)	.80	.22	[.21, .23]	.23	1,929.82	9	<.001	-.11	1,096.00
<b>Two factors (correlated)</b>	<b>.98</b>	<b>.07</b>	<b>[.06, .08]</b>	<b>.02</b>	168.63	<b>8</b>	<b>&lt;.001</b>	<b>.07</b>	<b>-665.20***</b>

Note. Bold font indicates the best fitting model. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; CI = confidence interval; SRMR = standardized root-mean-square residual.

<sup>a</sup> Compared to next best fitting model.

\*\*\*  $p < .001$ .

antagonistic facets, the NARQ-S dimensions showed expected correlations with the EE facet of the NPI. Regression analyses revealed that, in accordance with theory, this relationship was driven primarily by rivalry and to a lesser extent by admiration. These specific associations between admiration and rivalry with NPI facets were again highly similar to those found for the full NARQ (see Table 3).

Regarding the Dark Triad, both admiration and rivalry showed moderate to strong correlations with psychopathy, Machiavellianism, and the narcissism scale of the Dark Triad measures across both samples C and R. The relations were as expected for the Dark Triad as assessed by the Dirty Dozen, and they were highly similar to relations found for the full NARQ (see Table 3). When considering these NARQ-S scales simultaneously, we found that the antagonistic aspects of narcissism (rivalry) were more strongly related to both psychopathy and Machiavellianism in both samples.

Correlations with the Big Five personality traits (see Table 4) were largely consistent with results of previous research on the

NARQ (Back et al., 2013; Rogoza, Wyszynska, Maćkiewicz, & Ciecuch, 2016) and highly similar to analyses with the full NARQ within the current samples. Admiration was negatively related to neuroticism, whereas rivalry showed a positive relationship. Similarly, admiration was positively and rivalry slightly negatively related to extraversion and openness to experience. Both dimensions were negatively related to agreeableness, with rivalry's effect being larger than admiration's. Finally, rivalry showed a negative correlation with conscientiousness. Regression analyses confirmed this pattern of results and amplified the expected incremental relations of admiration and rivalry to the Big Five.

Finally, the NARQ-S scales showed mostly expected associations with self-esteem, with a pattern similar to that for the full NARQ. In Sample C, admiration was positively and rivalry negatively related to self-esteem. These effects were amplified when controlling for the common variance between admiration and rivalry. In Sample R, however, results were less clear, potentially because only a less reliable single item measure of self-esteem was available. Here, admiration was not correlated with self-esteem,

Table 3  
Descriptive Statistics, Overall Reliability, and Associations of the NARQ-S With the NPI and Its Facets, the Dark Triad Traits, and Self-Esteem

Test version and sample	Dimension	M	SD	$\alpha/\omega_h$	$d_{\text{gender}}^a$	r/ $\beta$							
						NPI	LA	GE	EE	PSYCH	MACH	NARC	S-E
NARQ-S													
C	ADM	2.64	1.11	.74/.74	.28***	.56/.52	.45/.44	.42/.39	.25/.10	.27/.11	.30/.11	.45/.29	.22/.35
R	ADM	2.03	1.09	.84/.84	.22***	—	—	—	—	.42/.15	.50/.25	.65/.50	.03/.09
C	RIV	2.11	.94	.61/.63	.38***	.32/.12	.21/.03	.22/.07	.41/.37	.41/.36	.51/.46	.49/.36	-.15/-.30
R	RIV	1.77	.88	.70/.71	.24***	—	—	—	—	.53/.43	.57/.42	.55/.25	-.06/-.11
NARQ													
C	ADM	3.01	.91	.86/.77	.30***	.63/.59	.51/.50	.48/.47	.24/.09	.28/.12	.31/.10	.47/.30	.34/.49
Back et al. (2013)	ADM	2.77	.94	.87/—	.32***	.63/—	.47/—	.46/—	.26/—	.33/.21	.17/-.10	—	.33/.49
C	RIV	2.11	.81	.82/.67	.35***	.32/.11	.21/.03	.20/.04	.44/.41	.44/.39	.54/.50	.54/.42	-.19/-.38
Back et al. (2013)	RIV	2.14	.78	.83/—	.38***	.32/—	.19/—	.18/—	.47/—	.39/.31	.64/.67	—	-.23/-.42

Note. Minimum  $n = 1,249$ . Values left of the forward slash represent zero-order correlations, and values on the right represent standardized regressions coefficients from models simultaneously regressing each criterion measure on admiration and rivalry. Correlations and coefficients are significant at  $p < .05$  unless they appear in italics. Dashes indicate that data were either not obtained or not reported. NARQ-S = short version of the Narcissistic Admiration and Rivalry Questionnaire; NARQ = full version of the NARQ; NPI = Narcissistic Personality Inventory; LA = Leadership/Authority; GE = Grandiose Exhibitionism; EE = Entitlement/Exploitativeness; PSYCH = psychopathy; MACH = Machiavellianism; NARC = narcissism; S-E = self-esteem; C = convenience; R = representative; ADM = admiration; RIV = rivalry.

<sup>a</sup> Cohen's  $d$  for gender differences (men > women).

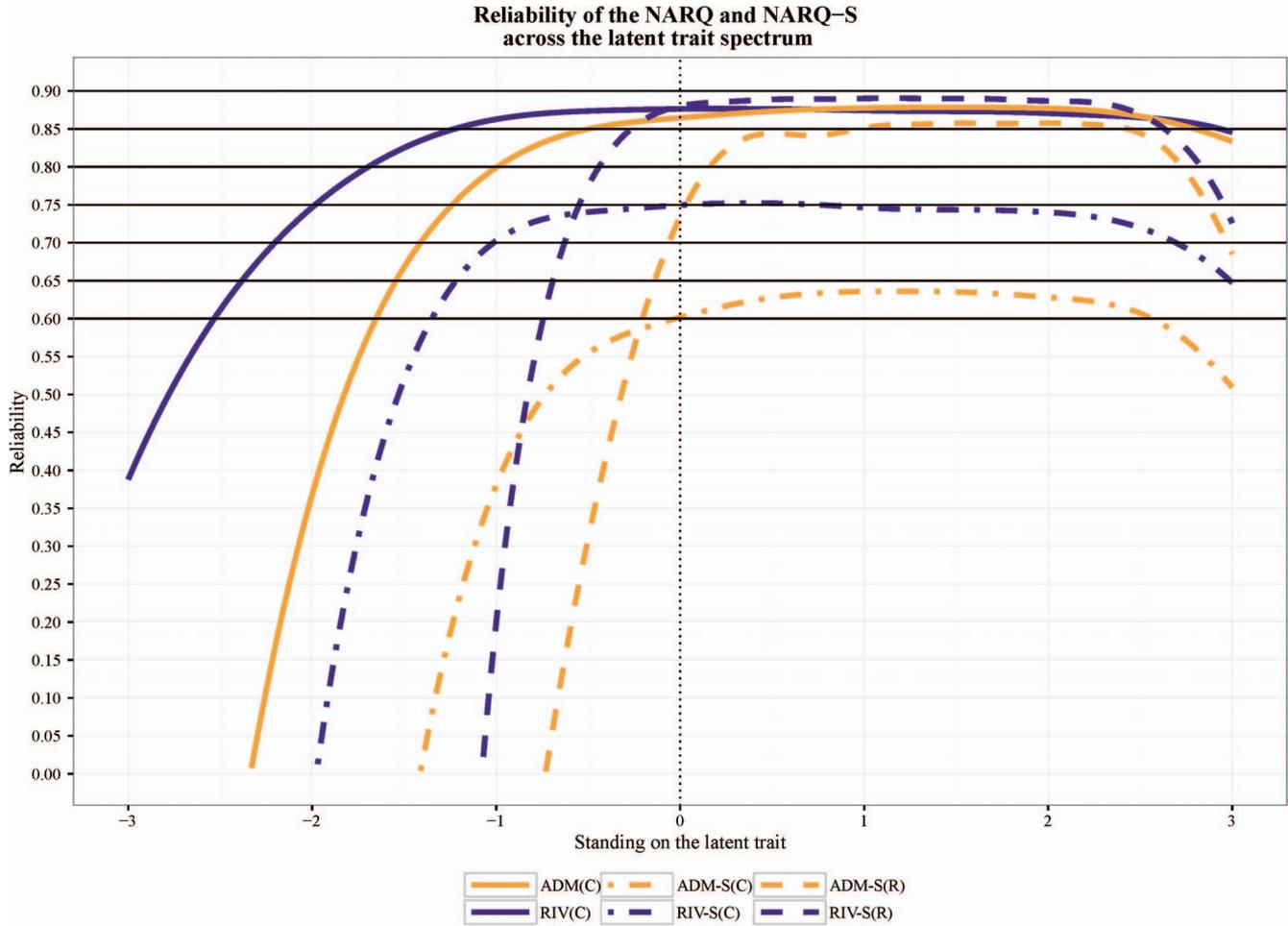


Figure 1. Results of item response theory analyses showing the reliability of test scores based on the short form of the Narcissistic Admiration and Rivalry Questionnaire (NARQ-S) compared to reliability for scores on the full NARQ across the latent trait spectrum. Reliability estimates were calculated according to Thissen (2000): Reliability = 1 - (1/I), where I is the test information extracted from the graded response model. Horizontal lines were added for easier readability and indicate levels of reliability commonly regarded as acceptable. ADM = admiration (based on the NARQ); RIV = rivalry (based on the NARQ); ADM-S = admiration (based on the NARQ-S); RIV-S = rivalry (based on the NARQ-S); C = convenience sample; R = representative sample. See the online article for the color version of this figure.

and rivalry only marginally negatively. Considering admiration and rivalry simultaneously in regression analyses rectified the NARQ-S's relation to self-esteem somewhat: Admiration showed a small positive and rivalry a small negative association with self-esteem.<sup>6</sup>

**Discussion**

Using data from large convenience samples as well as two large nationally representative samples, we validated the NARQ-S by (a) confirming its two-dimensional structure; (b) providing representative descriptive data, overall reliability estimates, and gender differences; (c) showing its reliability across the latent trait spectrum using IRT; and (d) confirming its nomological network.

In line with previous results for the full NARQ (Back et al., 2013), the structure of grandiose narcissism as captured with the

NARQ-S was best described by a model with two correlated factors. Scores on the admiration and rivalry scales representing these factors could, moreover, show acceptable to good reliability across samples and across a relatively large spectrum of narcissism values, particularly regarding moderate to high levels of narcissism. This makes the NARQ-S particularly useful to researchers who are interested in narcissism's development in samples where a lower to moderate level of narcissism can already be assumed and space and time limitations play an important role. If researchers are interested in lower levels of grandiose narcissism and time and space limitations are not a major concern, the full NARQ with

<sup>6</sup> R<sup>2</sup> values for the regression analyses can be found in the online supplemental materials in Table S7, and estimates of the amount of specific variance of the NARQ-S scores can be found in Table S8.

Table 4  
Associations of the NARQ-S With the Big Five Personality Traits

Version and sample	Dimension	<i>r</i> / $\beta$				
		NEU	EXT	OPEN	AGR	CON
NARQ-S						
Convenience	Admiration	-.12/-.23	.24/.33	.18/.26	-.10/.08	.04/.13
Representative	Admiration	.00/-.10	.10/.17	.17/.23	-.15/-.01	-.10/-.01
Convenience	Rivalry	.15/.24	-.07/-.21	-.08/-.19	-.39/-.42	-.16/-.21
Representative	Rivalry	.13/.19	-.03/-.12	.00/-.12	-.28/-.29	-.19/-.20
NARQ						
Convenience	Admiration	-.21/-.33	.35/.45	.23/.31	-.07/.11	.08/.18
Back et al. (2013)	Admiration	-.16/-.25	.31/.39	.25/.31	-.04/.11	.08/.16
Convenience	Rivalry	.20/.32	-.11/-.28	-.10/-.22	-.42/-.46	-.19/-.26
Back et al. (2013)	Rivalry	.19/.28	-.11/-.24	-.08/-.18	-.42/-.46	-.19/-.25

*Note.* Minimum  $n = 1,658$ . Values left of the forward slash represent zero-order correlations, and values on the right represent standardized regressions coefficients from models simultaneously regressing each criterion measure on admiration and rivalry. Correlations and coefficients are significant at  $p < .05$  unless they appear in italics. NARQ-S = short version of the Narcissistic Admiration and Rivalry Questionnaire; NARQ = full version of the NARQ; NEU = neuroticism; EXT = extraversion; OPEN = openness to experience; AGR = agreeableness; CON = conscientiousness.

still only 18 items provides the best trade-off between length and reliable coverage of a large spectrum of grandiose narcissism.

The overall reliability of scores on the Rivalry Scale was somewhat lower in Sample C compared to Sample R. With a reliability of around .60, it might not meet classical standards of reliability (such as  $\alpha \geq .70$  for “acceptable” internal consistency; e.g., Schmitt, 1996). However, it has to be taken into consideration that the NARQ-S measures admiration and rivalry using only three items each. Test scores on comparable and well-established inventories such as the BFI-S, which also only uses three items per dimension, reach reliability estimates between .50 (agreeableness) and .74 (openness to experience; Gerlitz & Schupp, 2005). Furthermore, according to Aiken and Groth-Marnat (2006), reliability coefficients of .60 are evaluated as sufficient in nomothetic studies that are not aimed at individual assessment. In Sample R, test scores on both NARQ-S dimensions showed comparable or better reliability estimates when compared to the BFI-S reliability estimates based on representative data (Gerlitz & Schupp, 2005). The consistent performance of the NARQ-S across the latent state spectrum, especially in the moderate to high levels of narcissism, is remarkable.

The nomological network of the NARQ-S was consistent with the conceptualization of narcissistic admiration and rivalry and to a large degree similar to the respective network of the original and longer version of the full NARQ. Admiration and its incremental contributions beyond rivalry were primarily associated with higher scores on the NPI and its more agentic facets, the Narcissism Scale from the Dirty Dozen or Naughty Nine, emotional stability (i.e., a negative association with neuroticism), extraversion, openness to experience, and self-esteem. Rivalry and its incremental contributions beyond admiration were mainly related to the antagonistic subscale of the NPI (i.e., EE), all of the Dark Triad traits, and neuroticism, as well as to lower extraversion, openness to experience, agreeableness, conscientiousness, and self-esteem.

Despite the generally consistent results, it has to be noted that the associations with self-esteem were lower in Sample R compared to Sample C. This is potentially because self-esteem was measured using a single item instead of a complete scale in Sample R. Moreover, the associations of the NARQ-S scales with the Big

Five based on the representative data were somewhat lower when comparing them to results obtained in convenience samples, with either the full NARQ or the NARQ-S. These slight differences in the strength of associations with other constructs in convenience and representative samples warrant further investigation and should be considered when applying the NARQ-S. Future research should, moreover, build on the present analyses by investigating the temporal stability and criterion-related validity of the NARQ-S. It would, for instance, be interesting whether the short form of the NARQ is as useful as the full NARQ in predicting intrapersonal dynamics and observable behavior as well as occupational outcomes (Dufner et al., 2015) and social interaction and relationship outcomes (Back et al., 2013; Geukes et al., 2016; Küfner et al., 2013; Lange et al., 2016; Leckelt et al., 2015; Wurst et al., 2017).

In the future, researchers might make use of the NARQ-S to quickly and reliably measure both the agentic and antagonistic aspects of grandiose narcissism in research settings that do not allow for in-depth assessment or addition of lengthy inventories. Such settings include panel surveys that already feature a breadth of inventories, have limited space for additional measures, and have to seriously consider respondents' fatigue (Richter & Schupp, 2012). Similarly, field studies employing ambulatory assessment with repeated measurements during a single day and over a given period of time present an area of research of increasing interest, which is in need of valid and reliable short-form measures (Giacomin & Jordan, 2016; Wrzus & Mehl, 2015). Furthermore, the NARQ-S could readily be used in experimental settings where narcissism is of interest as a moderator. Due to its ability to reliably measure narcissism in moderate and higher trait levels, the NARQ-S might also prove useful for the investigation of this construct at the intersection of social-personality psychology and clinical psychology. Still, it should be kept in mind that very short inventories may not provide sufficient accuracy for individual-based diagnostic purposes. Specifically, scores on brief scales may be reliable but can at the same time lack the measurement precision needed for individual-level assessment (Krueger, Emons, & Sijtsma, 2013), and individual-level decisions suffer more from scale shortening than do group-level decisions (Krueger, Emons, & Sijtsma, 2012). Similarly, all high-stakes decisions made in a given

setting should always be made under inclusion of additional information (Emons, Sijtsma, & Meijer, 2007). For now, we caution practitioners against the use of the NARQ-S for purposes of individual assessment until evidence for its validity in settings beyond group-level research has been obtained. The NARQ-S might also be used as an additional measure along with psychopathy and Machiavellianism inventories in situations where researchers are interested in the unique processes or the common core of the Dark Triad but are working with time and space restrictions. Finally, future research should build on our results and systematically analyze the joint and unique nomological networks using a larger set of different long and short narcissism measures. Possible avenues for this are, for instance, multitrait-multimethod models using short as well as full-length inventories of narcissism and other personality traits.

In sum, we have demonstrated that the NARQ-S is a reliable and valid short measure of the agentic and the antagonistic aspects of grandiose narcissism. With only six items, the NARQ-S can be quickly administered in a variety of research contexts and study designs while still reliably disentangling the bright(er) and dark(er) sides of grandiose narcissism.

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