Original Article

Untangling the Many Facets of Narcissism

A Network Approach to Agentic, Antagonistic, Communal, and Neurotic Facets Across Gender

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Abstract: A wide range of trait characteristics describe narcissism, but there is active debate about which features are most central to this construct. To explore the narcissism spectrum, the current study used a community sample of adults (N = 555) and applied psychometric network analysis to investigate the core elements of narcissistic manifestations. By doing so, we administered three distinct narcissism questionnaires comprising four facets of narcissism (i.e., agentic, antagonistic, neurotic, and communal facets). Given that narcissistic trait expressions can vary systematically for men and women, we additionally examined potential gender differences in network structure. Results revealed that agentic, antagonistic, communal, and neurotic narcissism each play a central role in defining narcissism, with distinct connectivity patterns observed across the facets. Network-comparison testing revealed male-female network invariance, but males and females showed no substantial differences in narcissistic configurations.

Keywords: Narcissism, network analysis, network approach, personality structure, personality traits

Narcissism has been a topic of interest among clinicians, researchers, and laypeople for many years. One reason individuals high in narcissism may captivate us is their complex and sometimes contradictory set of trait characteristics. In fact, individuals high in narcissism may present themselves as extraverted, charming, and likable, often eliciting positive first impressions from others (Back et al., 2010). However, they may also appear introverted, socially withdrawn, and hypersensitive, being driven by a deep-seated insecurity and fear of failure (Hart et al., 2017). Moreover, individuals high in narcissism can also display aggressive, exploitative, and hostile behaviors, leading to conflicts in social relationships over time (Leckelt et al., 2015). Lastly, they can also act on behalf of the community, declaring prosociality, civic engagement, and pro-environmentalism (Naderi, 2018; Nehrlich et al., 2019).

In light of the above, the question of how to best conceptualize narcissism is still actively debated (Miller et al., 2021). Among others, the following aspects need to be clarified yet: How do different facets of narcissism interact with each other? Are they co-existent within individuals or do they reflect different and mutually exclusive narcissistic subtypes? Is it possible to detect core features of the narcissism spectrum, namely dimensions that have a central role in defining narcissism? Recently, some authors attempted to answer these questions by investigating configurations of narcissistic contents through the network analysis approach (e.g., Briganti & Linkowski, 2020; Di Pierro et al., 2019; 2023; Rogoza, Crowe, et al., 2022). The results of these studies provided empirical evidence that the antagonistic facet of narcissism is a central feature of narcissistic personality, which is congruent with theoretical claims presenting it as a facet common for grandiose narcissism (i.e., arrogance, dominance, and social boldness) and vulnerable narcissism (i.e., defensiveness, insecurity, and social withdrawal; Miller et al., 2021). However, neither of the mentioned studies included communal narcissism (Gebauer et al., 2012) nor the role of gender in defining narcissistic configurations. In the current paper, we aimed to address these issues.

The Many Faces of Narcissism

Traditionally, narcissism was conceived as a unidimensional construct, with all narcissistic tendencies reduced to a single trait dimension, often measured by the Narcissistic

Personality Inventory (NPI Raskin & Hall, 1979). However, this perspective has been criticized for its oversimplification. Subsequent evaluations of the NPI's structure highlighted it encompasses both "adaptive" and "maladaptive" aspects of narcissism (cf., Ackerman et al., 2011). Despite these advancements, the measure faced significant methodological challenges (e.g., pertaining to its reliability; Back et al., 2013; Brown et al., 2009). Over time, research has evolved, leading to a consensus that narcissism is a multidimensional construct encompassing a range of behaviors and tendencies. Recognizing this complexity is now seen as essential for a comprehensive understanding of the construct (Back et al., 2013; Krizan & Herlache, 2018; Miller et al., 2021; Rogoza et al., 2019).

The current consensus is that narcissism has a hierarchical structure, and that its two primary phenotypical manifestations (i.e., grandiose and vulnerable narcissism) are divided into three more specific facets of *agentic narcissism* (which is a purely grandiose form of narcissism characterized by charmingness, grandiose fantasies, and a desire for uniqueness), *antagonistic narcissism* (which is a blend of the grandiose and vulnerable forms of narcissism characterized by devaluation, aggressiveness, and a desire for supremacy; Back et al., 2013), and *neurotic narcissism* (which is a purely vulnerable form of narcissism characterized by contingency of self-esteem, feelings of shame, and hypersensitivity; Miller et al., 2021).

Gebauer et al. (2012) challenged the notion that the aforementioned three facets of narcissism encompass the entire spectrum of narcissistic thoughts and behaviors (cf. Miller et al., 2021), introducing the concept of *communal narcissism*. While grandiose narcissism is typically associated with agentic domains (e.g., intelligence; Rogoza et al., 2024), Gebauer et al. (2012) argued that individuals can also exhibit a grandiose self-image in communal domains, perceiving themselves as superior in areas like family or community. They demonstrated that communal narcissism shares the same self-serving motives as agentic narcissism – such as grandiosity, entitlement, esteem, and power – manifesting in communal contexts.

Although communal narcissism might appear counterintuitive, given its positive association with prosociality (Nehrlich et al., 2019) and its failure to meet the criteria for a "dark personality trait" (Rogoza et al., 2019; Rogoza, Kowalski et al., 2022), recent research suggests it fits within the three-factor model of narcissism (Rogoza et al., 2023). Specifically, communal narcissism, driven by agentic motives, may be understood as a superficial self-presentation style. When the "mask of communion" is removed, it closely resembles agentic narcissism (Rogoza et al., 2023). Incorporating communal narcissism into the study of narcissistic facets could therefore provide valuable insights into the construct.

A Network Approach to Narcissism and its Facets

In recent years, network analysis has been proposed as an alternative approach to investigate the structural organization of personality (Costantini & Perugini, 2016). The basic rationale behind adopting the network perspective to the study of personality lies in recognizing that personality, including traits like narcissism, is better understood not as isolated and independent elements but as a complex interplay of interconnected characteristics. Thus, mapping out these interconnections and identifying key elements in the network can provide a more detailed and nuanced understanding of the structure and dynamics of personality in general and narcissism in particular (Borsboom et al., 2021; Costantini et al., 2015).

Several studies have used network analysis to explore the structure of narcissism and the nature of trait interconnections. For example, Trahair et al. (2020) used a network approach to examine the structure of the Dark Triad traits. They found that scales measuring agentic narcissism formed one distinct community, while those capturing Machiavellianism and psychopathy formed another. Notably, antagonistic narcissism bridged these communities, highlighting its pivotal role in the organization of narcissistic personality. Furthermore, grandiose fantasy and entitlement rage were found to be central in defining the structural organization of narcissism in both community samples (Di Pierro et al., 2019; 2023) and personality-disordered patients (Di Pierro et al., 2023). Moreover, Jordan et al. (2022) showed that grandiosity and exploitativeness were key components of grandiose narcissism. Finally, traits of entitlement are associated with aspects of grandiose and vulnerable narcissism as well (Dinić et al., 2020; Di Pierro et al., 2023), and Rogoza, Crowe, et al. (2022) identified the latent factor of antagonistic narcissism as a central element in the narcissism network, explaining the observed relationship between agentic and neurotic narcissism. While these studies highlight the utility of network analysis for understanding the structural organization of narcissism, to date no study has integrated communal narcissism within the network structure of narcissism. By including this facet in the network analysis of narcissism, we can gain a more comprehensive understanding of the structure and interrelationships of narcissistic contents.

Gender Differences in the Narcissism Network

Existing studies on the structural organization of narcissism, including those cited above, have entirely neglected potential gender differences in the network structure.

Although there is a common perception that men appear more narcissistic than women, meta-analytic research paints a more nuanced picture. Specifically, men are indeed more likely to exhibit agentic and antagonistic narcissism, but women are not more likely to exhibit neurotic narcissism (Grijalva et al., 2015; Weidmann et al., 2023). However, men and women do not differ in communal narcissism (Gebauer et al., 2012).

Grijalva et al. (2015) suggest that potential gender differences in narcissism can be attributed, in part, to societal pressure created by gender role stereotypes. Specifically, women may experience stronger societal expectations to suppress overt displays of narcissism, particularly in agentic and antagonistic forms, as these behaviors conflict with traditional gender roles emphasizing modesty, nurturing, and care. In contrast, men are typically socialized to prioritize dominance, power, and independence, which align closely with agentic and antagonistic narcissism, leading to fewer inhibitions in expressing these traits.

Moreover, because certain aspects related to gaining social validation (e.g., emerging as a leader in a social group) are more central to men, these aspects might be more strongly connected to other narcissistic features, further strengthening the association between agentic and antagonistic narcissism. Conversely, for women, societal pressures to avoid dominance-oriented behaviors may weaken these connections, resulting in distinct patterns of narcissistic functioning. Unfortunately, empirical evidence on potential gender differences in the network structure of narcissism is missing, making it a relevant topic for the current study.

The Present Research

The present research aimed to investigate the structural organization of narcissism using a network approach. The current study extends previous network research on narcissism by examining a wider range of narcissistic personality facets (i.e., agentic, antagonistic, neurotic, and communal). Based on the literature, we hypothesized that all narcissism facets would be interconnected, and no element would be disconnected from the network, meaning that each facet significantly contributes to defining narcissistic tendencies in individuals. Furthermore, building upon prior research indicating that antagonism is considered a central aspect of narcissism (Miller et al., 2021; Krizan & Herlache, 2018), we hypothesized that antagonistic narcissism would exhibit the strongest and most consistent positive connections with other facets of narcissism (Rogoza, Crowe, et al., 2022). Moreover, unlike past studies, the present research aimed to investigate potential gender differences in the network structure of narcissism. In light of previous research, we expected stronger interconnections among agentic and antagonistic facets of narcissism in men, but no gender differences in neurotic and communal facets of narcissism. We employed recently developed methods combining structural equation models and network analysis (Epskamp et al., 2018; Epskamp, 2020), establishing measurement invariance (Putnick & Bornstein, 2016) before estimating networks. This strategy allowed examining gender differences while taking into account the possibility that such differences could simply reflect different measurement characteristics in the two groups.

Methods

The study was not preregistered. The data used to reproduce this manuscript are available at the Open Science Framework (OSF; https://osf.io/m4hcz/).

Participants and Procedure

A total of 555 individuals (M_{age} = 27.31, SD_{age} = 10.39; 69.7% women, 30.3% men) were recruited via online social networks, university mailing lists, and snowball sampling to participate in an online survey on "personality and social relationships". We reached this sample size by enrolling as many participants as feasible over the course of one month. The data of additional six participants who did not identify with either gender was not included in the analyses because their non-binary identification did not align with the specific gender-related research question under investigation. Of the participants surveyed, the slight majority were students (n = 361, 65.0%). Approximately one-third of the sample (n = 172, 31.0%) held a university degree. After consenting to participate, participants completed the measures described below. All measures were administered in German. No financial compensation was provided, but participants had the option to receive brief written feedback on selected dimensions of their personality (based on the Big-Five-Inventory-10; Rammstedt & John, 2007; not analyzed in the current study).

Measures

Narcissism was measured using three different questionnaires, each assessing one or more distinct facets of narcissism.

Agentic and Antagonistic Narcissism

Agentic and antagonistic narcissism were measured using the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013). The NARQ consists of six subscales (3 items each): grandiosity (α = .71), uniqueness (α = .60), and charmingness (α = .74) contribute to the

measurement of Narcissistic Admiration (α = .85). In contrast, devaluation (α = .72), striving for supremacy (α = .83), and aggressiveness (α = .70) form the Narcissistic Rivalry dimension (α = .83). Two higher-order dimensions, Narcissistic Admiration and Narcissistic Rivalry, capture agentic and antagonistic narcissism, respectively. Participants rated each item (e.g., "I am great") from 1 (= *do not agree at all*) to 6 (= *agree completely*).

Communal Narcissism

Communal narcissism was assessed using the Communal Narcissism Inventory (CNI; Gebauer et al., 2012). The CNI comprises 16 items that capture grandiose self-views in communal domains (e.g., "I will be known for the good deeds that I will have done" [α = .92]). Items were rated from 1 (= *disagree strongly*) to 7 (= *agree strongly*).

Neurotic Narcissism

Neurotic narcissism was assessed using the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997). The HSNS comprises 10 items that capture the neurotic facet of narcissism (e.g., "My feelings are easily hurt by ridicule or the slighting remarks of others" [α = .71]). Items were rated from 1 (= *very uncharacteristic or untrue, strongly disagree*) to 5 (= *very characteristic or true, strongly agree*).

Data Analysis

We tested the factor structure of the NARQ, CNI, and HSNS using CFA using maximum likelihood estimation, as implemented in the *R* packages *lavaan* (version 0.6-19; Rosseel, 2012) and *semTools* (version 0.5-6; Jorgensen et al., 2022), developing a measurement model of different aspects of narcissism. For the NARQ, we considered a two-factor solution, including agentic (AGE) and antagonistic (ANT) narcissism, each subsuming three facet scales (Back et al., 2013). This model is conceptually close to the second-order factor model tested by Back and colleagues, albeit using parcels instead of first-order factors, and it was preferred because it allowed the estimation of an overall latent network model involving all narcissism scales. The results of a second-order factor model are reported in the online Supplement S1 and are in line with those obtained by Back and colleagues. As to the CNI, we followed Gebauer et al. (2012) and fitted a monofactorial model after freeing the correlations between present-focused items and those between the future-focused items. We deviated from their proposal by not freeing correlations involving item 5 ("I am [going to be] the best parent on this planet"), which does not have a clear focus on the present or on the future. As to the HSNS, we contrasted a single-factor model (Model 1) and a two-factor model (Model 2). The two-factor model included self-centeredness (SCE) and rejection-sensitivity (REJ) factors, following the indications by Stone & Bartholomay (2022), who suggested that this structure is more suitable to reflect gender-dependent manifestations of narcissism.

CFA model fit was assessed comparing CFI, RMSEA and SRMR to dynamic cutoffs (McNeish & Wolf, 2023), through the R package *dynamic* (version 1.1.0, Wolf & McNeish, 2023), providing Level-1 and 95/5 cutoffs when possible, and Level-2 and/or 90/10 cutoffs otherwise. Package dynamic does not currently support multi-group structures and, therefore, measurement invariance testing; in addition, in some cases the package could not return a solution. In these cases, we considered fixed cutoffs of SRMR $\leq$ .08, RMSEA $\leq$ .06, and CFI $\geq$ .95 (Hu & Bentler, 1999).

Once we assessed a measurement model for narcissism, we tested its measurement invariance across the two gender groups. We examined configural, metric, and scalar measurement invariance by performing a series of model comparisons (Hirschfeld & von Brachel, 2014; Putnick & Bornstein, 2016). More specifically, we first fit a CFA model (with correlated narcissism factors) in both groups (configural invariance); second, we constrained loadings to be equal across groups (metric invariance); third, we also constrained intercepts to be equal across groups (scalar invariance). To evaluate measurement invariance, we considered values of ΔCFI < .01, ΔRMSEA < .015 and ΔSRMR < .03 as indicating sufficient similarity between models for testing metric invariance, and values of ΔCFI < .01, ΔRMSEA < .015 and ΔSRMR < .01 for testing scalar invariance (Chen, 2007; Sass, 2011; Thielmann et al., 2020).

Relying on the measurement model defined, we tested a latent network model – a psychometric network model involving latent aspects of narcissism (Epskamp et al., 2017). This model was fit using the R package *psychonetrics* (version 0.13; Epskamp, 2020). Edges connecting nodes can be interpreted as regularized partial correlations (Costantini et al., 2015), whereas nodes represent latent variables. This approach combines network analysis with the structural equation modeling approach, thus incorporating parameter constraints (Epskamp, 2020). We used this possibility to test whether a model in which the network of narcissism was freely estimated in the two gender groups fit the data better than a single model in which the narcissism network was constrained to be equal in males and females.

To summarize the overall pattern of connectivity of each node, we considered Expected Influence (EI), which is an index assessing a node's connectivity within the network (Robinaugh et al., 2016). Unlike other network indices (e.g., strength centrality), EI accounts for the presence of negative edges by not taking the absolute value of edges before summing them: Positive edges are added, and negative edges are subtracted (Robinaugh et al., 2016). Thus,

Table 1. Zero-order correlations among narcissism scales in males and females

	AGE	ANT	COM	SCE	REJ
AGE	–	.42***	.57***	.10	.31***
ANT	.36***	–	.27***	.30***	.57***
COM	.56***	.11*	–	.16*	.30***
REJ	-.15**	.23***	.01	–	.37***
SCE	.12*	.43***	.09	.39***	–

Note. Values below the main diagonal represent females and those above the main diagonal represent males. AGE = agentic, ANT = antagonistic, COM = communal, REJ = rejection-sensitivity, SCE = self-centeredness. *p < .05, **p < .01, ***p < .001.

Table 2. Zero-order correlations among narcissism scales

	AGE	ANT	COM	SCE	REJ
AGE	–				
ANT	.41***	–			
COM	.57***	.19***	–		
REJ	−.11**	.19***	.02	–	
SCE	.19***	.48***	.16***	.35***	–

Note. AGE = agentic, ANT = antagonistic, COM = communal, REJ = rejection-sensitivity, SCE = self-centeredness. *p < .05, **p < .01, ***p < .001

EI might foster interpretability in networks in which all nodes have similar interpretability (e.g., psychopathology symptoms; Borsboom et al., 2021), like in our case.

Results

Measurement Models

Zero-order correlations among narcissism measures are presented in Tables 1 (for males and females) and 2 (for the whole sample). The latent models for NARQ and CNI had satisfactory fit (see Table 3 and Figures 1 and 2). Table 4 reports the fit of alternative HSNS models (see also Figure 3). The two-factor model suggested by Stone and Bartholomay (2022) (Model 2) fit the data better than the single-factor model (Model 1), $\Delta\chi^2(2) = 149.19$, $p < .001$. However, an inspection of factor loadings indicated that whereas item 9 loaded significantly on Self-centeredness ($\lambda = .56$, $p < .001$), as was expected, it did not load on Rejection-sensitivity ($\lambda = -.11$, $p = .075$). For this reason, we fit a new model (Model 2b) that mirrored Model 2, but with item 9 loading only on Self-centeredness. The model did not differ in fit from Model 2, and was preferred due to the absence of cross-loadings and, thus, to its higher conceptual and statistical simplicity. The fit of Model 2b was, however, not very satisfactory. To further investigate the reasons behind the misfit, we iteratively inspected modification indices and adjusted the model accordingly, until a satisfactory model fit was reached. This process led to the inclusion in the model of the loadings of items 5 ($\lambda = .315$) and 10 ($\lambda = -.333$) on factor rejection sensitivity (REJ), as well as freeing three residual covariances, between items 3 and 5 ($r = .259$, $p < .001$), 1 and 8 ($r = .244$, $p < .001$), and 6 and 10 ($r = -.234$, $p = .001$) (see Model 3, see Table 4 and Figure 3).

It is important to emphasize that the changes made to Model 3 were data-driven and, therefore, the model cannot be interpreted as a confirmatory one, likely providing an overly optimistic fit (e.g., Sörbom, 1989). Whereas Model 3 can be inspected to have indications of the reasons for the misfit of Model 2b, in the subsequent analyses (measurement invariance test and network analysis) we decided to focus on Model 2b, which was theoretically-driven, albeit leading to a suboptimal fit.

We combined the two NARQ, the single CNI, and the two HSNS factors (Model 2b) in a single CFA model with five correlated factors. As expected, given the suboptimal fit of Model 2b for HSNS, the overall model did not fit the data very well, $\chi^2(405) = 1259.6$, $p < .001$, CFI = .889, RMSEA= .062, SRMR = .072. McNeish and Wolf's (2023) cutoffs were .039 for SRMR (95/5 Level-1), .979 for CFI (Level-2 95/5 – Level 1 indices were not available) and .026 for RMSEA (Level-2 95/5, – Level 1 indices were not available). Table 5 reports the results of measurement invariance tests, which indicated support for metric but not for scalar invariance, implying that a comparison between means among the two groups would not be justified. Thus, we focused on comparisons involving the relationships between latent variables, for which metric invariance is sufficient. Given the relatively poor fit of the configural invariance model, the reader should interpret the results of the measurement invariance tests with caution.

Table 3. Fit of measurement models for NARQ and CNI. Dynamic thresholds for fit indices are reported in parentheses

	χ^2(df)	*p*-value	CFI	RMSEA	SRMR
NARQ	25.95 (8)	.001	.983 (.968)	.064 (.107)	.031 (.047)
CNI	142.03 (55)	< .001	.982	.053	.029

Note. For NARQ, we report 95/5 Level-1 thresholds by McNeish and Wolf (2023). For CNI, the *dynamic* package did not return a solution, hence we inspected results relying on Hu and Bentler's (1999) cutoffs.

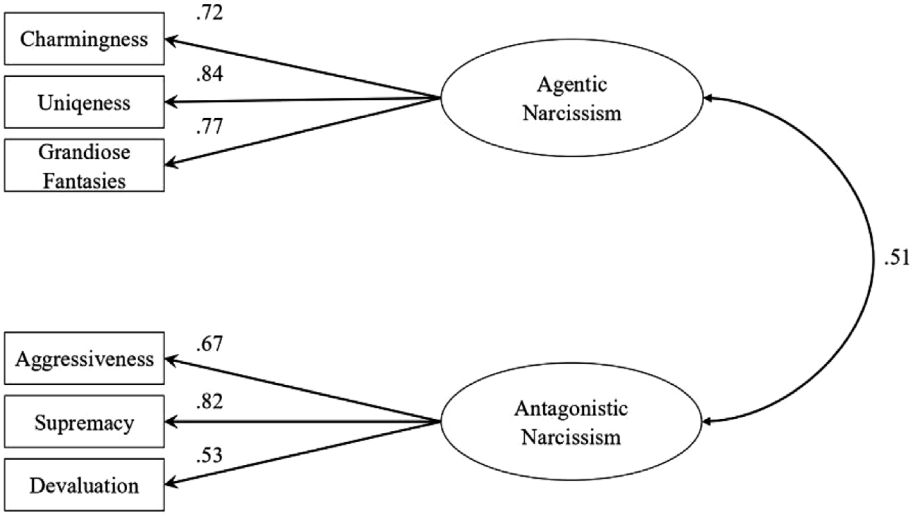

Figure 1. NARQ CFA model (Agentic narcissism = narcissistic admiration; antagonistic narcissism = narcissistic rivalry).

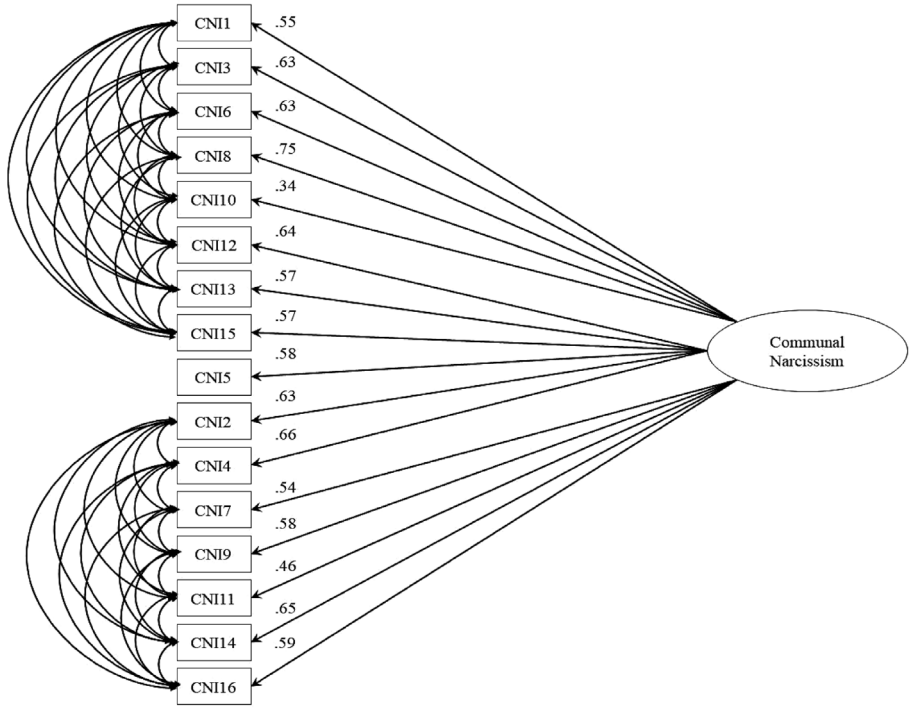

Figure 2. CNI CFA model.

Table 4. Comparison of alternative measurement models for HSNS. Dynamic thresholds for fit indices are reported in parentheses

	χ^2(df)	*p*-value	$\Delta\chi^2$(df)	*p*-value	CFI	RMSEA	SRMR	AIC	BIC
Model 3	37.28 (29)	.139	37.27 (29)	<.001	.990 (.967)	.023 (.049)	.030 (.041)	15434	15546
Model 2	190.49 (33)	< .001	–	–	.818 (.978)	.093 (.031)	.073 (.034)	15579	15674
Model 2b	193.70 (34)	< .001	3.21 (1)	.073	.816 (.977)	.092 (.030)	.075 (.035)	15580	15671
Model 1	339.68 (35)	< .001	145.99 (1)	< .001	.648 (.964)	.125 (.034)	.092 (.031)	15724	15810

Note. Model 1 = single-factor HSNS model. Model 2 = two-factor HSNS model as suggested by Stone and Bartholomay (2022). Model 2b = two-factor model in which item 9 loads only on the rejection sensitivity factor. Model 3 = Model adjusted according to modification indices. When possible, we report 95/5 Level-1 thresholds dynamic fit indices by McNeish and Wolf (2023). However, in three cases (CFI and RMSEA for Model 2 and CFI for Model 2b) a 95/5 solution was not found (for details, see McNeish & Wolf, 2023), and thus, we reported Level 1 90/10 thresholds.

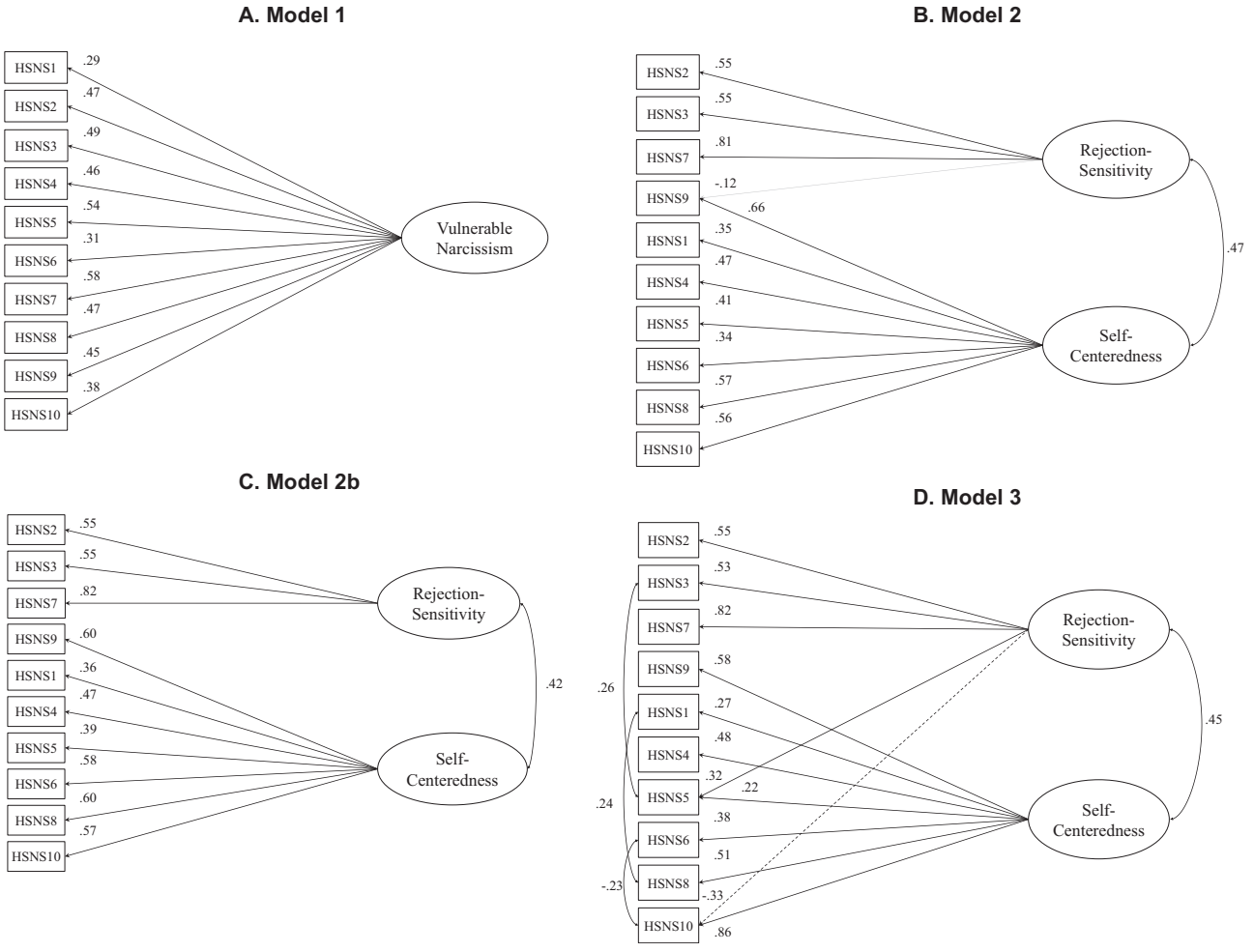

Figure 3. HSNS CFA models.

Gender Differences of the Narcissism Network

After constraining loadings to be equal among males and females, we estimated two latent network models: one with freely estimated edges and another with edges constrained to be equal in male and female groups. In both models, loadings were constrained to be equal across gender groups. The resulting networks are visualized in Figure 4: The male and female networks were highly similar, with all edges presenting the same signs in all networks. The pattern of expected influence of each of the nodes was also similar for males and females. The results of a formal model comparison test (Table 6) suggested that the less restricted model did not fit the data significantly better than the simpler constrained model with equality constraints.

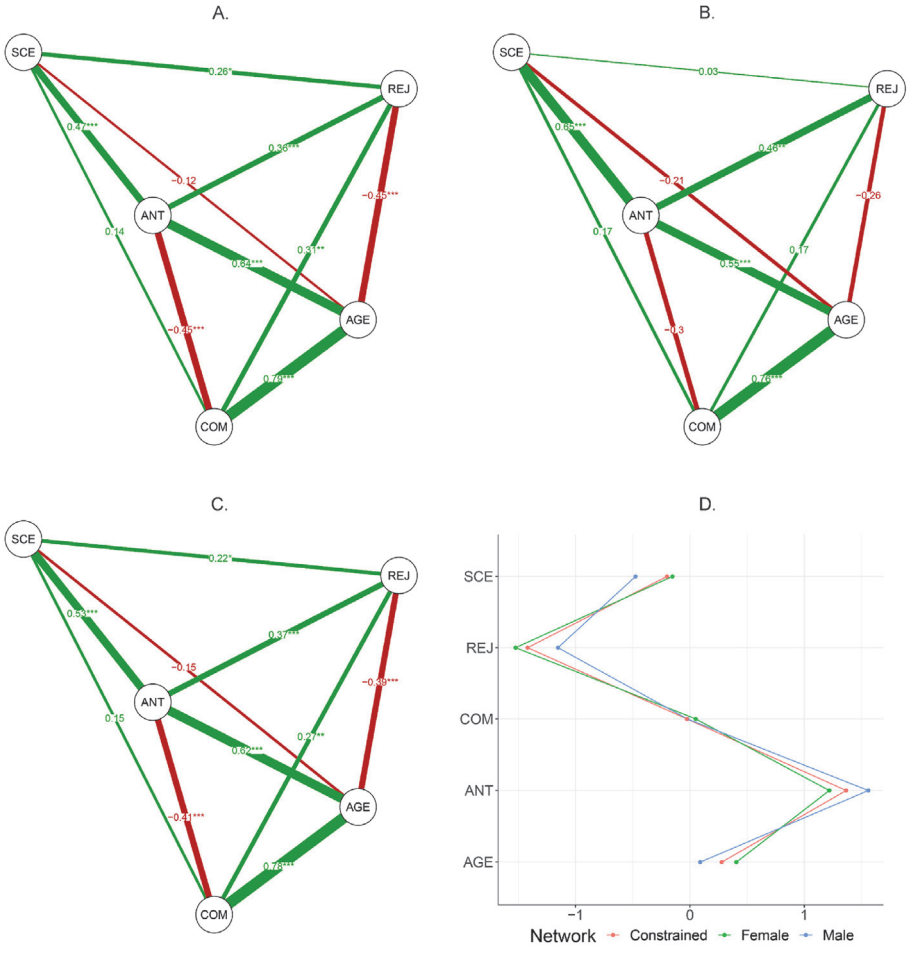

Figure 4. Latent network model of narcissism. Expected influence in panel D is standardized to facilitate comparisons among networks. AGE = agentic, ANT = antagonistic, COM = communal, REJ = rejection-sensitivity, SCE = self-centeredness.

Table 5. Measurement invariance

	χ^2(df)	*p*-value	$\Delta\chi^2$(df)	*p*-value	CFI (Δ)	RMSEA (Δ)	SRMR (Δ)	AIC	BIC
Config.	1696.10 (810)	< .001	–	–	.885	.063	.074	50921	52260
Metric	1753.35 (837)	< .001	57.25 (27)	< .001	.881 (−.004)	.063 (<.001)	.077 (.004)	50924	52146
Scalar	1921.54 (864)	< .001	168.19 (27)	< .001	.863 (−.018)	.066 (.004)	.079 (.002)	51038	52144

Table 6. Network models

	χ^2(df)	*p*-value	$\Delta\chi^2$(df)	*p*-value	CFI	RMSEA	AIC	BIC
Free	1753.35 (837)	< .001	–	–	.881	.063	50924	52146
Constrained	1768.05 (847)	< .001	14.69 (10)	.140	.881	.063	50919	52098

In addition, AIC and BIC indicated that the model with equality constraints provided a more parsimonious account of the data (e.g., see Burnham & Anderson, 2004), suggesting that narcissistic manifestations do not show substantial gender-related differences. Thus, while we had hypothesized stronger interconnections among agentic and antagonistic facets of narcissism in men, the results did not support this assertion.

Network Structure of Narcissism

We next proceeded to examine our main hypothesis regarding the interconnections within the narcissism network. As expected, all narcissism facets were interconnected, and no node was disconnected from the network. In both male and female networks, as well as in the constrained network, the node with the highest expected influence

was antagonistic narcissism (ANT) (Figure 4), confirming that, despite a negative connection with communal narcissism (COM), this node had the overall strongest pattern of positive connections to other nodes. On the other hand, rejection sensitivity (REJ) had the lowest EI value. This means that REJ is the facet that has the lowest overall positive connectivity with other facets in the narcissism network.

Discussion

The aim of the present study was to evaluate the network structure of a wide spectrum of narcissism by examining the interrelationships among agentic, antagonistic, communal, and neurotic narcissism facets through psychometric network analysis. In addition, we examined potential gender differences in network structure. Our findings suggest that narcissism is a complex and multifaceted construct, and its structure does not vary across gender. In sum, the study clarifies the structure of narcissism through a visual network representation, which can aid in understanding the relationships among its facets.

While we expected that there would be gender-related differences in the interconnections among agentic and antagonistic facets of narcissism, this hypothesis was not supported. Instead, the male and female networks were highly similar. This suggests that the pattern of connections between narcissistic facets is not significantly different for both genders. One possible explanation for the lack of significant gender differences in the network structure of narcissism is that narcissistic contents may be shaped more by shared societal and cultural norms than by inherent gender-specific factors per se. For example, norms promoting individualism could play a role in fostering narcissistic tendencies across genders, as individuals may adopt similar behaviors in response to broader influences rather than inherent gender differences. Future work is needed to delve into the role of cultural influences and societal expectations concerning narcissism.

In line with previous research, our study emphasizes the role of antagonistic narcissism, often regarded as the central characteristic of narcissism (Miller et al., 2021; Krizan & Herlache, 2018; Rogoza, Crowe, et al., 2022). Our findings underscore its significance as the facet was most strongly associated with other dimensions of narcissism. Antagonistic narcissism is characterized by a sense of entitlement, devaluation, and a lack of empathy (Back et al., 2013; Rogoza et al., 2019), and these traits can indeed lead to negative interpersonal relationships and problems in various areas of life that are typically found in people with strong narcissistic tendencies.

Communal narcissism exhibits positive associations with socially-desired outcomes such as prosociality, agreeableness, and liking others (Gebauer et al., 2012; Nehrlich et al., 2019; Rogoza et al., 2023). Thus, the question of its integration into the established narcissism facets' network (Miller et al., 2021) was previously unclear. Our findings indicate that communal narcissism aligns within the narcissism network, demonstrating positive relations with agentic and negative relations with antagonistic narcissism. This negative relation is understandable, given communal narcissism's superficial self-presentation style, revealing its underlying agentic character after accounting for its self-declared communal mask (Rogoza et al., 2023). Consequently, our study adds to the growing body of evidence supporting the integration of communal narcissism into the broader narcissism research, using the visual network method for better understanding.

While our study offers valuable insights into the nature and expression of narcissism, it is important to acknowledge its limitations. First, the study's online-sampling strategy raises concerns about potential selection bias. Additionally, because the sample was predominantly female, this may restrict the generalizability of our findings to broader populations, including clinically diagnosed narcissistic individuals. Future research should employ more diverse and representative sampling methods to enhance the external validity of the results and replicate our network structure within a sample of individuals with narcissistic personality disorder. Third, the use of self-report measures carries the risk of socially desirable responses, which may not accurately reflect participants' narcissistic tendencies. Additionally, there is a potential for common method bias, as collecting data on multiple variables simultaneously could influence their associations, for example, through specific response styles (Podsakoff et al., 2024). The inclusion of multiple assessment methods, such as implicit association tests or informant reports, could enhance the robustness and validity of our findings. Moreover, the cross-sectional design employed restricts our ability to draw any conclusions regarding causal relationships between variables. To gain an understanding of the dynamic interplay and developmental trajectories of facets of narcissism, longitudinal studies are needed. Specifically, the results presented in this paper primarily reflect between-person interindividual differences. However, given that narcissism is marked by significant variability and fluctuations in its states, applying network psychometrics to examine within-person changes over time could provide valuable insights into the complex dynamics of narcissistic personality (Back, 2018). Also, future studies could systematically explore the intersection of strategies and domains in narcissism (e.g., crossing agentic, antagonistic, or neurotic motives with communal and other contextual domains) to

provide a more comprehensive framework for understanding the complexity of narcissistic tendencies (see Grosz et al., 2022).

In sum, our study highlights the value of network analysis in exploring complex personality phenomena like narcissism. By offering a visual representation, this approach enhances understanding of the relationships between personality traits and constructs. The study examines a wide spectrum of narcissism emphasized within current conceptualizations of narcissism, as well as one of the few studies to examine gender differences in personality network structure.

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We report how we determined our sample size, all data exclusions (if any), all data inclusion/exclusion criteria, whether inclusion/exclusion criteria were established prior to data analysis, all measures in the study, and all analyses including all tested models. If we use inferential tests, we report exact *p* values, effect sizes, and 95% confidence or credible intervals.
Open Data: The data used to reproduce this manuscript are available at the Open Science Framework (OSF: https://osf.io/m4hcz/
Open Materials: The information needed to reproduce all of the reported methodology is not openly accessible. The material is available on request from the authors.
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