

## RESEARCH ARTICLE

# Traits of narcissistic vulnerability in adults with autism spectrum disorders without intellectual disabilities

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## Abstract

The relationship between Autism Spectrum Disorders (ASD) and Narcissistic Personality Disorder (NPD), considering the dimensions of narcissistic grandiosity and vulnerability, represents an important differential diagnosis and potential ground of comorbidity, since both conditions show high grades of pervasiveness, a life-long course, ego-syntonic traits, and difficulties in building up and sustaining interpersonal relationships. Although the co-diagnosis rates, according to the categorical criteria in use, are limited (0%–6.4%), it is common to encounter diagnostic doubts in clinical practice. Here we investigated the dimensions of narcissistic vulnerability and grandiosity in a sample of 87 adults diagnosed with ASD without intellectual disabilities through the administration of the Pathological Narcissism Inventory-52 Items (PNI-52). The mean scores of our sample were compared with the normative distribution available in the literature, and we found that individuals with ASD scored significantly higher than neurotypical controls at the Total Score and at the Vulnerable Narcissism subscale, but not at the Grandiose Narcissism subscales. Demographic features did not influence these results. Vulnerable narcissism was significantly associated with the “Ritvo Autism and Asperger Diagnostic Scale - Revised” subscale Social Relatedness. These findings could potentially be indicative of a greater comorbidity rate between the two disorders with respect to the one reported to date, possibly because DSM-5 criteria are mainly focused on the grandiose dimension. Potential explanatory links between ASD phenomenology and vulnerable narcissism, such as the personality dimension of neuroticism, are discussed, together with the possible role of narcissistic vulnerability in mediating internalizing symptoms (e.g., anxiety, depression) in individuals with ASD.

## Lay Summary

We investigated the dimensions of narcissistic vulnerability and grandiosity in a sample of 87 adults diagnosed with ASD without intellectual disability, and we found that they scored significantly higher than neurotypical controls at the Vulnerable Narcissism subscale, but not at the Grandiose Narcissism subscale. Hence, we discuss potential explanatory links between ASD phenomenology and vulnerable narcissism.

## KEYWORDS

autism spectrum disorders, comorbidity, grandiosity, narcissistic personality disorder, neuroticism, personality, personality disorders, vulnerability

Giovanni Broglio and Veronica Nisticò share first authorship.

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## INTRODUCTION

Personality disorders (PD), and personality as a normal feature of any individual, interact with the expression of concomitant mental conditions (Schwartzman et al., 2016). These interactions represent a key factor to understand the psychopathology of each single patient and must be taken into account in the diagnostic and therapeutic process. Consistently with these considerations, there is a growing interest in studying personality in individuals affected by different psychiatric disorders, according to both a categorical and a dimensional approach. Among others, Autism Spectrum Disorders (ASD) reached the attention of the scientific community since both ASD and PD show high grades of pervasiveness, a life-long course, ego-syntonic traits, and difficulties in building up and sustaining interpersonal relationships (Lai & Baron-Cohen, 2015); these similarities could be especially remarkable in those ASD conditions where the intellectual and developmental disabilities are less pronounced and could be compensated by the use of socio-behavioral strategies (Hull et al., 2017). Moreover, the subtle clinical condition of individuals with ASD without intellectual disabilities often leads this population to seek psychiatric and psychological help for Axis I symptoms only in young adulthood (Happé et al., 2016), that is PD onset period as well. PD, in relation to ASD, could be regarded as a comorbidity but also as a challenging differential diagnosis. The available data, recently summarized in a systematic review by Rinaldi et al. (2021), shows that the co-occurrence rate of ASD without intellectual disabilities and at least one PD, as defined by DSM criteria, is up to 75%, and that the PD most frequently diagnosed in the ASD population belong to Cluster A and Cluster C (Schizoid, Paranoid, Obsessive-Compulsive and Avoidant). These PD must be added to the well-known comorbid psychiatric burden of the ASD adult population, composed of anxiety and mood disorders, Obsessive-Compulsive Disorder, Attention Deficit/Hyperactivity Disorder (ADHD), and psychosis (Lai et al., 2019). According to these observations, all Cluster B PDs appear to be only minimally diagnosed in comorbidity with ASD. In particular, Narcissistic PD (NPD) has been reported as a rare categorical co-diagnosis with ASD, with a co-occurrence rate ranging from 0% to 6.4% (Anckarsäter et al., 2006; Lugnegård et al., 2012); these studies, however, used only grandiose-narcissism-based categorical DSM criteria in order to establish co-occurrence rates: this could contribute to underestimate the prevalence of narcissistic spectrum manifestations within samples of individuals with ASD without intellectual disabilities. Only one study by Strunz et al. (2015) performed a direct comparison between ASD without intellectual disabilities and NPD using a dimensional approach: the authors measured personality traits with the Neo-Personality Inventory-Revised (NEO-PI-R), and personality pathology with the Dimensional

Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ). They found that ASD patients' scores on the Narcissism DAPP-BQ subscale were comparable to neurotypical healthy controls' ones and significantly lower than NPD patients' ones. However, this study shares the limitation we previously mentioned, in the fact that the Narcissism DAPP-BQ subscale is a dimensional score that assesses narcissistic traits without specifically distinguishing between grandiosity and vulnerability. Narcissistic grandiosity and narcissistic vulnerability are two distinct phenotypes of narcissism proposed by Pincus et al. (2009). This modern and unifying conceptualization is coherent with a long history of clinical theorists who describe a dichotomy in clinical manifestations of narcissism, from Kohut's and Kernberg's theories to other definitions as thick-skinned/thin-skinned (Rosenfeld, 1987) and oblivious/hypervigilant (Gabbard, 1989). These two phenotypes are different in terms of both subjective experiences and external, behavioral manifestations (Lingiardi & Gazzillo, 2014; Pincus & Lukowitsky, 2010; Ronningstam, 2009). The narcissistic grandiosity collects traits more commonly associated with NPD as arrogant, aggressive, and exploitative behaviors, lack of empathy, attention-seeking conducts, self-serving inner beliefs of grandiose sense of self-importance, entitlement, and grandiose fantasies. The narcissistic vulnerability, on the contrary, collects traits and themes less associated with the common idea of narcissistic patients. The subject in vulnerable states shows hypersensitivity to criticisms and failure, avoidant and inhibited social behavior, perfectionism, and acute and intrusive feelings of shame and guilt. In the field, there is still debate about the reciprocal relationship between these two phenotypes: are they two extremes of the same continuum or two distinct types of personality pathology with specific early life events, temperament, and etiopathogenesis? Do the two dimensions fluctuate in the same subject over time or do they tend to be relatively stable? Moreover, differences between these two phenotypes in terms of hypothetical etiology, dysfunctionality in social and interpersonal domains, access to the therapeutic process and adherence to cure course, prognosis, and psychiatric comorbidities are reported. Despite the low overlap between ASD and NPD, which emerges when using categorical models, clinical suspicions of psychopathological and behavioral features in ASD resembling NPD presentation emerge in clinical settings especially during the very first diagnostic assessment, ultimately challenging the differential diagnosis between these two nosographic categories. This clinical impression of uncertainty is confirmed by different expert opinions regarding perceived attitude, sometimes expressed by patients in clinical settings, towards egocentrism, arrogance, blaming and correcting other's errors, or lecturing them on specific topics. This behavior is often described by experts as compensation for perceived inadequacy or as an effect of a reduced awareness regarding social consequences of their conduct, distinguishing

them from NPD patients (Attwood, 2007; Lai & Baron-Cohen, 2015). Delving into potential overlapping features between the two conditions, it must be noted that individuals with ASD present anomalies in perception, integration, and processing of sensory stimuli, resulting in a heightened or lowered sensory threshold (DSM-5, APA, 2013). Interestingly, a recent study found evidence of an association between sensory processing sensitivity (in particular, heightened sensitivity to environmental stimuli, including emotional and sensory information) and vulnerable narcissism, in terms of their underlying networks and characteristics: the authors ultimately recommend clinicians to assess narcissistic self-regulatory strategies in individuals presenting as highly sensitive (Jauk et al., 2022). Finally, highlighting the importance of a correct distinction between ASD and NPD, Strunz et al. (2014) showed that, in a population of adult help-seekers in which ASD-WID was suspected and then ruled out, NPD is one of the most frequent PD. In line with the modern conceptualization of narcissism, determining with initial investigations both vulnerable and grandiose components of narcissism in subjects with ASD is useful to address both the theme of differential diagnosis and the theme of comorbidities.

To the best of our knowledge, no studies up to date have addressed the dimension of narcissistic vulnerability when investigating narcissistic traits in individuals with ASD. Assessment of this aspect of narcissistic psychopathology within a sample of adults with ASD without intellectual disabilities could help understanding a hidden field of comorbidities. Moreover, the dimension of narcissistic vulnerability could explain, at least partially, the internalizing symptoms frequently reported by ASD individuals without intellectual disabilities, which could help clinicians during their daily activities with patients. Hence, the aim of the present study was to investigate both grandiose and vulnerable narcissism in a population of adult individuals with ASD without intellectual disabilities and compare them to the normative population scores reported in the literature.

## METHODS

### Participants

Eighty-seven adults with ASD-WID were recruited at the tertiary level neuropsychiatric clinic of ASST Santi Paolo e Carlo, Presidio S. Paolo, Milan (Italy). Each participant was diagnosed by a psychiatrist and a psychologist according to DSM-5 criteria (APA, 2013). To further confirm the diagnosis, all participants underwent the Module 4 of the Autism Diagnostic Observation Schedule—2nd version (ADOS-2) (Hus & Lord, 2014). Exclusion criteria were: (i) age less than 18 years old; (ii) presence of intellectual disabilities (IQ < 75, measured via the Wechsler Adult Intelligence Scale—Fourth

Edition (WAIS-IV; Lang et al., 2015), which was administered to the participants during the diagnostic assessment; (iii) inability to understand the instruction of the task. All participants gave their written informed consent and were free to withdraw from the study at any time without giving further explanation. The study was approved by the local Ethics Committee.

### Procedure

First, sociodemographic information was collected. Participants underwent the following questionnaires: the Autism Spectrum Quotient (AQ, Baron-Cohen et al., 2001), to measure the degree to which an adult without intellectual disabilities exhibits autistic traits; the Ritvo Autism and Asperger Diagnostic Scale Revised (RAADS-R, Ritvo et al., 2011), usually implemented in clinical setting to support the diagnosis of ASD without intellectual disabilities; the Empathy Quotient (EQ, Baron-Cohen & Wheelwright, 2004), to assess the level of cognitive and affective empathy of the subject; the Pathological Narcissism Inventory-52 Items (PNI-52), investigating levels of narcissistic grandiosity and vulnerability (Italian version, Fossati & Borroni, 2018).

### Statistical analyses

Statistical analyses were performed in SPSS 27. Significance level was set at  $\alpha = 0.05$  and all tests were two-tailed. First, Kolmogorov–Smirnov test was run to confirm that all the continuous variables followed a normal distribution. Second, descriptive statistics with respect to sociodemographic and clinical information were calculated for both samples. Third, a series of *t*-tests for independent samples were run to compare the PNI-52 Total Score and subscales of our sample with the normative data reported by Fossati and Borroni (2018); normative data were obtained by administering the Italian Version of the PNI-52 to a sample of 1487 Italian adults (Fossati & Borroni, 2018); post-hoc power analysis was conducted in GPower 3.1 (Faul et al., 2009) (Supplementary Materials). Fourth, we investigated the role of sociodemographic and psychometric variables on the PNI-52 scores; a series of *t*-tests for independent samples was run to compare the differences between men and women diagnosed with ASD (non-binary participants and individuals who chose not to disclose their gender identity were not included in this analysis because of the low sample size, 5 and 2, respectively); *t*-test results are reported according to Levene's test for homogeneity of variance. Moreover, Pearson's correlational analysis was run to assess the presence of an association between the PNI-52 scores, participants' age, their IQ as per WAIS-IV, the AQ and its subscales, the RAADS-R and its subscales, and the EQ; to account for multiple comparisons,

the significant threshold was set at  $p < 0.001$ . Finally, as in Fossati et al. (2017), we used the score reported by Fossati and Borroni (2018) as the 90th percentile of the PNI-52 Total Score (i.e., the highest 10% of the population; the score was equal to 2.7308) to identify ASD individuals potentially at risk of pathological narcissism.

## RESULTS

Mean age of our sample was 30.6 years ( $\pm 10.08$ ); 40 participants (46%) were male, 40 (46%) were female, 5 (5.7%) declared themselves non-binary, and 2 (2.3%) preferred not to disclose their gender. Other sociodemographic information can be found in Table 1. Mean Intelligent Quotient, as per WAIS-IV, was 108.78 ( $\pm 16.04$ ); mean AQ was 33.07 ( $\pm 7.96$ ); mean RAADS-R was 142.75 ( $\pm 43.14$ ), and mean EQ was 25.62 ( $\pm 12.09$ ); for each questionnaire subscales, see Table 2.

**TABLE 1** Sociodemographic features.

		Value
Age, mean (SD)		30.6 (10.08)
BMI, mean (SD)		23.28 (4.1)
Gender, <i>N</i> (%)	Male	40 (46)
	Female	40 (46)
	Not binary	5 (5.7)
	Undeclared	2 (2.3)
Sexual orientation	Asexual	5 (5.7)
	Bisexual	8 (9.2)
	Heterosexual	52 (59.8)
	Homosexual	4 (4.6)
	Pansexual	8 (9.2)
	Other	2 (2.3)
	Undeclared	8 (9.2)
	Education	Middle school
	3-year professional license	2 (2.3)
	Diploma	44 (50.6)
	Bachelor degree	15 (17.2)
	Master degree	17 (19.5)
Employment	Student	32 (36.8)
	Employed	32 (36.8)
	Unemployed	23 (26.4)
Living condition	Living Alone	10 (11.5)
	Living with parents	48 (55.2)
	Living with partner	23 (26.4)
	Living with flatmates	4 (4.6)
	Living in a therapeutic community	2 (2.3)

Abbreviations: BMI, Body Mass Index; *N*, numerosity; SD, standard deviation.

With respect to the PNI-52, participants with ASD scored significantly higher than the normative population at the Total Score ( $t = 6.81$ ,  $df = 1571$ ,  $p < 0.001$ ) and at the following subscales: Vulnerable narcissism ( $t = 9.31$ ,  $df = 1571$ ,  $p < 0.001$ ), Contingent self-esteem ( $t = 10.50$ ,  $df = 1572$ ,  $p < 0.001$ ), Hiding the self ( $t = 8.19$ ,  $df = 1572$ ,  $p < 0.001$ ), Grandiose fantasy ( $t = 5.73$ ,  $df = 1572$ ,  $p < 0.001$ ), Devaluation ( $t = 7.54$ ,  $df = 1572$ ,  $p < 0.001$ ), Entitlement rage ( $t = 4.96$ ,  $df = 1572$ ,  $p < 0.001$ ); on the contrary, they scored significantly lower at the subscale Exploitative ( $t = -2.33$ ,  $df = 1572$ ,  $p = 0.020$ ); the subscales Grandiose narcissism and Self-sacrificing self-enhancement were not significantly different ( $p > 0.05$ ) (Table 3).

We found no effect of gender (i.e., no difference between men and women, Table 4), age, and IQ (no significant correlations) on any of the PNI-52 scales and subscales (all  $p > 0.05$ ). Positive correlations emerged between: (i) the RAADS-R Total Score and the PNI-52 subscales Vulnerable narcissism ( $r = 0.369$ ,  $p < 0.001$ ) and Entitlement rage ( $r = 0.359$ ,  $p < 0.001$ ); (ii) the RAADS-R subscale Social Relatedness and the PNI-52 subscales Vulnerable narcissism ( $r = 0.364$ ,  $p < 0.001$ ) and Entitlement rage ( $r = 0.374$ ,  $p < 0.001$ ). Further details are reported in Tables 4 and 5.

Finally, we found that 25 individuals (28.7%) scored above the score identified by Fossati et al. (2017) as the 90th percentile of the normative population and hence might be considered potentially at risk of pathological narcissism.

## DISCUSSION

The aim of this study was to assess narcissistic dimensions, as measured by the PNI-52, in a sample of 87 adult participants with ASD without intellectual disabilities. We found that individuals with ASD scored significantly higher than the normative population (as reported by Fossati & Borroni, 2018) at the PNI-52 Total Score; in particular, significant differences emerged in the vulnerable narcissism dimension, but not in terms of grandiose narcissism. The existing literature on the co-occurrence of NPD and ASD reports limited comorbidity rate between these two conditions (Rinaldi et al., 2021; Vuijk et al., 2018): as a matter of fact, since DSM nosography is mainly focused on grandiose psychological experiences and behaviors (Pincus et al., 2009; Ronningstam, 2009), it could be argued that the reported prevalence of NPD in different population, including ASD, is an expression of their grandiosity dimension only. Similarly, Strunz et al. (2015), who investigated levels of narcissism through the DAPP-BQ Narcissism Subscale, found comparable levels of narcissism between ASD individuals and healthy controls, who both scored lower than NPD patients; however, given that the DAPP-BQ Narcissism Subscale is not specifically designed to distinguish

**TABLE 2** Psychometric assessment.

		Value
<b>WAIS-IV</b>		
Intelligence Quotient, mean (SD)		108.78 (16.04)
Verbal Comprehension Index, mean (SD)		117.54 (16.03)
Perceptual Reasoning Index, mean (SD)		106.63 (18.39)
Working Memory Index, mean (SD)		99.76 (14.2)
Processing Speed Index, mean (SD)		99.78 (17.03)
<b>ADOS-2</b>		
Communication, mean (SD)		3.83 (1.48)
Reciprocal social interaction, mean (SD)		7.37 (2.07)
Imagination/creativity, mean (SD)		1.63 (0.59)
Stereotyped behaviors and restricted interests, mean (SD)		1.90 (1.29)
Total social communication, mean (SD)		11.20 (3.26)
<b>AQ</b>		
Total score, mean (SD)		33.07 (7.96)
Total score, <i>N</i> (%)	Below cut-off	31 (35.6)
	Above cut-off	56 (64.4)
Social skills, mean (SD)		7.46 (2.34)
Attention switching, mean (SD)		7.83 (1.98)
Attention to detail, mean (SD)		6.26 (2.46)
Communication, mean (SD)		6.67 (2.54)
Imagination, mean (SD)		4.85 (2.2)
<b>RAADS-R</b>		
Total score, mean (SD)		142.75 (43.14)
Total score, <i>N</i> (%)	Below cut-off	4 (4.6)
	Above cut-off	83 (95.4)
Social relatedness, mean (SD)		69.21 (19.7)
Circumscribed interests, mean (SD)		27.86 (9.92)
Language, mean (SD)		10.72 (5.23)
Sensory-motor, mean (SD)		34.95 (15.52)
<b>EQ</b>		
Total score, mean (SD)		25.62 (12.09)
Total score, <i>N</i> (%)	Low	65 (74.7)
	Average	20 (32)
	Above average	1 (1.1)
	High	1 (1.1)
<b>PNI-52</b>		
Total score, mean (SD)		2.38 (0.78)
Total score, <i>N</i> (%)	Below cut-off <sup>a</sup>	62 (71.3%)
	Above cut-off <sup>a</sup>	25 (28.7%)
Grandiose narcissism, mean (SD)		2.20 (0.81)
Vulnerable narcissism, mean (SD)		2.52 (0.86)
Contingent self-esteem, mean (SD)		2.54 (1.12)
Exploitative, mean (SD)		1.62 (0.95)
Self-sacrificing self-enhancement, mean (SD)		2.37 (1.07)
Hiding the self, mean (SD)		3.11 (1.03)
Grandiose fantasy, mean (SD)		2.62 (1.33)
Devaluation, mean (SD)		2.04 (1.12)
Entitlement rage, mean (SD)		2.39 (0.97)

Abbreviations: ADOS-2 = Autism Diagnostic Observation Schedule—2nd version; AQ = Autism Quotient; EQ = Empathy Quotient; N = Numerosity; PNI-52 = Pathological Narcissism Inventory; RAADS-R = Ritvo Autism Asperger diagnostic scale revised; SD = standard deviation; WAIS-IV = Wechsler Adult Intelligence Scale—Fourth Edition.

<sup>a</sup>See the Method section for an explanation on how the cut-off was identified.

**TABLE 3** Comparison with normative data.

PNI-52 variables	ASD, <i>N</i> = 87	HC <sup>a</sup> , <i>N</i> = 1487	<i>Df</i>	<i>t</i>	<i>p</i>	Cohen's <i>D</i>	Power <sup>b</sup>
Total Score, mean (SD)	2.38 (0.78)	1.86 (0.69)	1571	6.81	<0.001	0.71	0.999
Grandiose narcissism, mean (SD)	2.20 (0.81)	2.09 (0.74)	1571	1.44	0.151	0.15	0.472
Vulnerable narcissism, mean (SD)	2.52 (0.86)	1.77 (0.72)	1572	9.31	<0.001	0.94	0.999
Contingent self-esteem, mean (SD)	2.54 (1.12)	1.53 (0.85)	1572	10.50	<0.001	1.01	1
Exploitative, mean (SD)	1.62 (0.95)	1.83 (0.82)	1572	-2.33	0.020	-0.24	0.439
Self-sacrificing self-enhancement, mean (SD)	2.37 (1.07)	2.50 (0.89)	1571	-1.29	0.197	-0.13	0.462
Hiding the self, mean (SD)	3.11 (1.03)	2.33 (0.86)	1572	8.19	<0.001	0.83	0.999
Grandiose fantasy, mean (SD)	2.62 (1.33)	1.93 (1.09)	1572	5.73	<0.001	0.57	0.969
Devaluation, mean (SD)	2.04 (1.12)	1.36 (0.8)	1572	7.54	<0.001	0.7	0.999
Entitlement rage, mean (SD)	2.39 (0.97)	1.87 (0.94)	1572	4.96	<0.001	0.54	0.945

Abbreviations: ASD, autism spectrum disorders; HC, healthy controls; *N*, numerosity; *p* = significance level; PNI-52, Pathological Narcissism Inventory; SD, standard deviation; *t*, *t*-test statistical index.

<sup>a</sup>HC normative data, which we used as control group in the present study, were retrieved from Fossati and Borroni (2018).

<sup>b</sup>Calculated through a post hoc sensitivity analysis.

**TABLE 4** Comparison between men and women with ASD.

PNI-52 variables	Men ( <i>N</i> = 40)	Women ( <i>N</i> = 40)	<i>t</i>	<i>p</i>
Total score, mean (SD)	2.29 (6.23)	2.36 (8.23)	-0.427	0.671
Grandiose narcissism, mean (SD)	2.18 (7.23)	2.13 (8.23)	0.254	0.800
Vulnerable narcissism, mean (SD)	2.37 (7.23)	2.53 (9.23)	-0.851	0.397
Contingent self-esteem, mean (SD)	2.49 (1.08)	2.39 (1.23)	0.406	0.686
Exploitative, mean (SD)	1.61 (9.23)	1.59 (9.23)	0.094	0.925
Self-sacrificing self-enhancement, mean (SD)	2.27 (0.23)	2.37 (0.23)	-0.460	0.647
Hiding the self, mean (SD)	2.87 (8.23)	3.24 (1.23)	-1608	0.112
Grandiose fantasy, mean (SD)	2.67 (2.23)	2.44 (3.23)	0.752	0.454
Devaluation, mean (SD)	1.90 (9.23)	2.06 (2.23)	-0.649	0.518
Entitlement rage, mean (SD)	2.24 (8.23)	2.45 (0.23)	-0.986	0.327

Abbreviations: *N*, Numerosity; *p*, significance level; PNI-52, Pathological Narcissism Inventory; SD, standard deviation; *t*, *t*-test statistical index.

vulnerable and grandiose narcissism, it is not possible to establish to what extent mixed features of grandiosity and vulnerability contribute to the subscale score. Hence, in this study, we made a step further by using an instrument, the PNI-52, specifically designed to distinguish the two main dimensions of NPD and showing that the significantly higher mean score at PNI-52 Total Score we found in our ASD population seems to be driven by the vulnerable component of narcissistic psychopathology. To the best of our knowledge, no other scientific work has addressed this specific aspect, and this is the very first occasion in which vulnerable narcissism is directly assessed in an ASD population. This lack of knowledge might be partially due to a still evolving concept of narcissism in terms of theoretical structure, different dimensions and relative operationalized criteria, normal/pathological dichotomy, and psychometrics tools to assess this entity (Pincus et al., 2009). On the other hand, experimental studies addressing this specific topic are largely missing. ASD and related conditions are known

to be highly heterogeneous both for clinical pictures and outcomes. Recently, efforts have been made to define and correctly evaluate elements that could explain part of such variability, including demographic features such as age and gender (Vannucchi et al., 2014). Differences in personality profile, also in their extreme and pathological forms of categorical comorbidities with PD, can account for differential life outcomes, social adaptive capacity, quality of life, internalizing symptoms, and employment rates (Schwartzman et al., 2016; Rodgers et al., 2018; Lodi-Smith et al., 2019; Grella et al., 2022). Increasing evidence is pointing out a specific Big Five Factor personality profile in ASD individuals, characterized by higher neuroticism (especially in those subjects that show more frequent psychiatric symptoms and lower adaptation levels (Schwartzman et al., 2016)) and lower openness, conscientiousness, extraversion, agreeableness (Lodi-Smith et al., 2019). On the other hand, recent evidence in the field of narcissism has recently pointed out a connection between the construct of vulnerable

TABLE 5 Correlational analysis.

	Total score	Grandiose narcissism	Vulnerable narcissism	Contingent self-esteem	Exploitative	Self-sacrificing self-enhancement	Hiding the self	Grandiose fantasy	Devaluation	Entitlement rage
Age	<i>r</i> 0.06	-0.027	0.114	0.014	0.007	-0.055	0.111	-0.01	0.128	0.122
	<i>p</i> 0.579	0.805	0.294	0.896	0.946	0.612	0.307	0.926	0.239	0.259
WAIS-IV IQ	<i>r</i> 0.065	0.103	0.031	0.106	0.106	0.105	-0.092	0.036	0.078	-0.003
	<i>p</i> 0.688	0.524	0.846	0.508	0.511	0.514	0.568	0.821	0.627	0.985
AQ total score	<i>r</i> 0.111	-0.1	0.245*	0.121	-0.213*	-0.102	0.256*	0.051	0.186	0.245*
	<i>p</i> 0.306	0.355	0.022	0.264	0.047	0.349	0.017	0.639	0.085	0.022
AQ social skills	<i>r</i> 0.115	-0.075	0.234*	0.118	-0.273*	-0.098	0.318**	0.137	0.184	0.144
	<i>p</i> 0.288	0.489	0.029	0.275	0.011	0.369	0.003	0.207	0.088	0.183
AQ attention switching	<i>r</i> 0.156	-0.009	0.251*	0.136	-0.033	-0.08	0.253*	0.073	0.179	0.260*
	<i>p</i> 0.149	0.937	0.019	0.208	0.764	0.459	0.018	0.504	0.097	0.015
AQ attention to detail	<i>r</i> 0.121	0.081	0.132	0.027	0.121	0.058	0.134	0.016	0.095	0.187
	<i>p</i> 0.266	0.454	0.222	0.801	0.265	0.597	0.217	0.883	0.381	0.083
AQ communication	<i>r</i> 0.098	-0.089	0.216*	0.168	-0.287**	-0.054	0.153	0.086	0.166	0.221*
	<i>p</i> 0.368	0.411	0.044	0.121	0.007	0.618	0.156	0.427	0.125	0.04
AQ imagination	<i>r</i> -0.109	-0.263*	0.014	-0.035	-0.255*	-0.193	0.032	-0.144	0.018	0.036
	<i>p</i> 0.316	0.014	0.896	0.75	0.017	0.073	0.77	0.185	0.868	0.74
RAADS-R total score	<i>r</i> 0.257*	0.049	0.369**	0.196	-0.064	-0.021	0.331**	0.153	0.325**	0.358**
	<i>p</i> 0.016	0.651	<0.001	0.069	0.559	0.846	0.002	0.157	0.002	<0.001
RAADS-R social relatedness	<i>r</i> 0.226*	-0.013	0.364**	0.212*	-0.166	-0.105	0.279**	0.18	0.327**	0.374**
	<i>p</i> 0.035	0.903	<0.001	0.049	0.124	0.333	0.009	0.096	0.002	<0.001
RAADS-R circumscribed interests	<i>r</i> 0.255*	0.127	0.311**	0.148	0.119	0.05	0.268*	0.107	0.294**	0.307**
	<i>p</i> 0.017	0.24	0.003	0.17	0.272	0.645	0.012	0.322	0.006	0.004
RAADS-R language	<i>r</i> 0.025	-0.125	0.126	0.076	-0.241*	-0.103	0.16	0.028	0.042	0.143
	<i>p</i> 0.821	0.25	0.243	0.486	0.025	0.342	0.139	0.8	0.696	0.186
RAADS-R sensorymotor	<i>r</i> 0.257*	0.114	0.323**	0.154	0.039	0.077	0.340**	0.119	0.287**	0.276**
	<i>p</i> 0.016	0.292	0.002	0.154	0.718	0.478	0.001	0.272	0.007	0.01
EQ total scores	<i>r</i> -0.039	0.1	-0.132	-0.048	0.164	0.246*	-0.072	-0.133	-0.136	-0.18
	<i>p</i> 0.717	0.359	0.223	0.657	0.13	0.022	0.51	0.219	0.209	0.096

Abbreviations: AQ, Autism Quotient; EQ, Empathy Quotient; IQ, Intelligence Quotient; N, Numerosity; PNI-52, Pathological Narcissism Inventory; *p*, significance level; *r*, Pearson's *r* value; RAADS-R, Ritvo Autism Asperger diagnostic scale revised; SD, standard deviation; WAIS-IV, Wechsler Adult Intelligence Scale—Fourth Edition.

\**p* < 0.05, uncorrected significance threshold; \*\**p* < 0.001, corrected significance threshold.

narcissism (and its tendency to emotional dysregulation with negative feelings such as shame, guilt, rage, and depressed affect) to basic personality traits of neuroticism (Miller et al., 2018; Soleimani et al., 2022). Hence, a possible explanatory link between ASD phenomenology and vulnerable narcissism might be found in the dimension of neuroticism itself, as common basic personality traits that could underlie both narcissism vulnerability and analogue fragile aspects of personality in ASD individuals. In our sample, we have not assessed basic personality traits, nor implemented a direct comparison with subjects affected by NPD; therefore, it is not possible at this stage to test this very first hypothesis of connection. However, the only study that directly compared ASD and NPD individuals (Strunz et al., 2015) found that levels of neuroticism and emotional dysregulations, respectively, captured by NEO-PI-R and DAPP-BQ, are similar between NPD and ASD populations and, in both cases, are more pronounced than nonclinical controls: this finding argues in favor of our hypothesis. Similar levels of neuroticism between ASD individuals and NPD patients, if confirmed in further studies with direct comparisons, could explain different quotes of shared variance in these samples and could add coherent elements in the expression of narcissistic vulnerability in ASD subjects.

With respect to the specific PNI-52 subscales, we found that the group of participants with ASD scored higher than the normative population at all the subscales belonging to the vulnerability dimension (i.e., Contingent self-esteem, Hiding the self, Devaluation, and Entitlement rage). On the other hand, Exploitative, Self-sacrificing self-enhancement, and Grandiose Fantasy subscales, which belong to the grandiose dimension, show conflicting tendencies: ASD participants exhibit lower mean score at Exploitative subscale and higher mean score at the Grandiose Fantasy subscale, while no significant differences were found at Self-sacrificing self-enhancement subscale. Integrative measures, maybe related to the theory of mind, self-esteem, social behaviors, and creative thinking, are needed in order to correctly establish the meaning of these results and their role in the personality of ASD individuals. Moreover, we found that PNI-52 scales in ASD subjects show no correlation with IQ levels or age and there is no difference between males and females. These observations could preliminarily suggest that our data seem clear from outstanding confounding elements that could otherwise explain these findings. Larger samples and wider ranges of age must be considered in order to specifically assess gender differences and modifications with aging in the complex interaction of ASD and personality traits.

Looking at correlations between PNI-52 and RAADS-R scores, significance emerges for a direct, positive association between RAADS-R total score, RAADS-R Social Relatedness score, with both PNI-52 subscales Vulnerable Narcissism and Entitlement rage. The positive relation that joins RAADS-R total score

and the Vulnerable Narcissism subscale could represent an indirect support to the hypothesis of a greater presence of vulnerable narcissistic traits in ASD subjects instead of grandiose ones. It is interesting that this direct correlation regards especially Social Relatedness among other RAADS-R subscales: it might suggest that difficulty in social and interpersonal contact could be an interacting and overlapping area for narcissistic vulnerability and autism phenomenology, where neurotypical impairment of social contact could be exacerbated by the concurrent presence of avoidant and inhibited interpersonal style distinctive of vulnerable narcissism.

Finally, the higher mean PNI-52 total score in our ASD sample has also reflections in terms of the absolute numbers of subjects that score above the 90th percentile of the normative population, i.e., the cut-off proposed by Fossati et al. (2017) to identify subjects at risk for pathological narcissism. 28.7% of our sample has scored above this suggested cut-off, hence resulting at risk of pathological narcissism and eligible for appropriate diagnostic evaluations and subsequent psychotherapies in consideration of this possible comorbidity (Vuijk et al., 2022; Vuijk & Arntz, 2017). This observation could give a preliminary hint with respect to the possible impact of increased expression of pathological narcissism within the ASD population in terms of clinical practice.

We acknowledge the limitations of our study. First, the discrepancy between the two sample sizes (our ASD population and the normative population) urges confirmatory analysis in larger samples or with direct comparisons with control groups enrolled on purpose, composed by neurotypical individuals and NPD patients. Second, we have only used the PNI-52, which is a self-report tool not validated yet in the population of individuals diagnosed with ASD: given that self-report reliability in narcissism and autism assessment is still under debate, in terms of self-insight difficulties (Ozonoff et al., 2005; Schriber et al., 2014) and of agreement between self-measure and informant- or clinician-measure (Cooper et al., 2012; Lukowitsky & Pincus, 2013; Oltmanns et al., 2018), future studies should integrate our finding with other measurements of narcissism based on clinical observer ratings or informant ratings, such as relatives and significant others. On the other hand, the fact that our data are only based on our participants' answers to a self-report, may help us going beyond the diagnostic substitution and confirmation bias that a clinician might fall into when assessing an individual presenting difficulties in social interaction and restricted interests, depending on the context and the individual's social and clinical history. Third, we have not assessed general psychopathological variables, such as depression, anxiety, and stress: therefore, we could not stratify our group controlling for general psychiatric symptoms and we could not analyze the potential mediating effect of vulnerable narcissism on internalizing symptoms (Happé et al., 2016; Lai et al., 2019). Moreover, we did not analyze



sociodemographic variables such as participants' sexual orientation, living environment, and occupation, as well as non-binary and not-declared gender identity, because of the too heterogeneous sample size; on the same line, we could not compare our sample to the participants included in the normative sample for such demographic features. Finally, our inquiry has a cross-sectional design that prevents further investigation regarding longitudinally stable or fluctuating profile of vulnerable narcissism in our ASD population (Oltmanns & Widiger, 2018) and its temporal relationship with the possible evolution of other variables, such as ASD traits and internalizing symptoms.

In conclusion, in this study we detected an increased expression of vulnerable narcissistic traits in a sample of adults with ASD without intellectual disabilities. This result raises questions about the relationship between autism, narcissism and neuroticism, the possible role of narcissistic vulnerability in mediating internalizing symptoms in ASD individuals, and the similarities and differences between ASD subjects and NPD subjects in terms of vulnerability. Further studies are required to confirm our result in broader samples, to answer the consequent interrogatives and to deepen general knowledge in this field, to ultimately design specific diagnostic and therapeutic interventions that should be implemented in clinical practice.

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Authors have nothing to report.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## ETHICS STATEMENT

Ethical approval was obtained by the local Ethics Committee. All participant gave their informed consent. The study conforms to the Declaration of Helsinki.

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