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Validation of the Super-Brief Pathological Narcissism Inventory (SB-PNI) among Swedish adolescents

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Abstract

This study examines the psychometric structure and properties of the Swedish version of the Super-Brief Pathological Narcissism Inventory (SB-PNI) among adolescents. In order to ensure the validity and feasibility of the measure, we examined the factor structure, measurement invariance across gender, age and ethnicity, and construct validity in relation to a number of correlates of narcissism in adolescence. Data were drawn from a large cross-sectional survey conducted in 35 schools in southern Sweden. The sample consisted of $N = 5313$ adolescents (Mage $= 16.10$ $SD = 1.55$) with 52.2% girls, 45.9% boys and 1.8% adolescents with unspecified gender, from compulsory and upper secondary schools in southern Sweden. The results showed that the measure holds a two-factor structure, suggesting the use of the subscales grandiosity and vulnerability separately, rather than as a unidimensional measure. The correlated factors grandiosity and vulnerability yielded full configural and metric invariance across gender, age, and ethnicity. Both grandiosity and vulnerability were correlated with externalizing and internalizing symptoms, as well as with low self-esteem. The study provides evidence for the utility of the SB-PNI among Swedish adolescents and indicates that the measure can be used across male and female adolescents of different ages and ethnic groups.

Keywords SB-PNI · Narcissism · Vulnerability · Grandiosity · Adolescents · Validation

While narcissistic traits – manifested as an inflated self-image, extreme self-centeredness and a constant need for the attention and admiration of others (Pincus & Lukowitsky, 2010; Thomaes et al., 2013; Miller et al., 2021) – may have benefits for the narcissistic person (Sękowski et al., 2023), they may also be disadvantageous or even harmful to the narcissistic person, their families, other people or society (Twenge et al., 2008). It is therefore unsurprising that narcissism and the development of scientific measures to assess narcissism have received much attention from researchers within the fields of social/personality and clinical psychology. That said, most research into narcissism has focused on adults even though it is likely that narcissistic traits will already be manifesting themselves in childhood, with adolescence being a critical developmental stage for emerging personality pathology (Sharp & Wall, 2018).

Capturing adolescent narcissistic traits has not been easy, as these traits have often been assessed with measures developed for adults (Derry et al., 2019). However, such an approach to the assessment of adolescent narcissism may be questionable, since adult measures are often time-consuming and not necessarily suited to the reality of adolescence. This poses a threat to the ecological validity of the measures used. With these challenges in mind, there have been calls for tools to measure narcissism in various samples, including adolescents from different cultural backgrounds (Barry & Ansel, 2011). This has led to the development of measures specifically designed for adolescents (e.g., Derry et al., 2019), as well as the adaptation of measures validated in young adults. One such tool developed and validated among young adults in the United States is the Super-Brief Pathological

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Narcissism Inventory (SB-PNI) (Schoenleber et al., 2015), which is an abridged version of the Pathological Narcissism Inventory (PNI; Pincus et al., 2009). In the current study, we examine the potential of the SB-PNI outside of the US, by testing its psychometric structure and properties on a multiethnic sample of adolescents in Sweden.

What is narcissism?

Narcissistic personality traits are described as a continuum ranging from normal, healthy expressions of personal dominance, competitiveness and the perseverance of a positive self-image to pathological, maladaptive behaviours (Roche et al., 2013; Thomaes et al., 2013; Reis et al., 2021). While moderate, adaptive levels of narcissism can help individuals protect and maintain a positive self-image and increase the sense of personal agency, pathological levels of narcissism, involving deficits in regulatory processesemotional dysregulation and coping strategies for dealing with setbacks and challenging outcomes, may lead to a variety of emotional, behavioural, and interpersonal difficulties (e.g., Thomaes et al., 2013). Pathological narcissism is believed to be rooted in a fragile self-image, where grandiose and self-centred behaviours are a means of gaining attention and approval from others and concealing a lack of self-esteem (Morf & Rhodewalt, 2001; Pincus & Lukowitsky, 2010).

Pathological narcissism is a phenomenon (Miller et al., 2021) with at least two distinguishable dimensions: grandiose narcissism and vulnerable narcissism. Grandiose narcissism captures the classical and most observable manifestations of narcissism: extraverted self-centeredness, excessive bragging, arrogance, and domineering attitudes towards others (Pincus & Lukowitsky, 2010; Thomaes et al., 2013; Miller et al., 2021). Individuals with a high level of grandiose narcissism see themselves as special, they fantasize about power and success and view social relationships as zero-sum games. Moreover, grandiose narcissism is associated with externalizing symptoms (impulsivity/hyperactivity, conduct problems), and with risk-taking and high sociability (Miller et al., 2021).

While vulnerable narcissism is also characterised by a sense of entitlement and specialness (Maciantowicz et al., 2019), it is more inwardly directed and neurotic, characterised by insecurity and a fragile self-esteem (Wink, 1991; Pincus & Lukowitsky, 2010; Thomaes et al., 2013). Individuals with high levels of vulnerable narcissism are often anxious, insecure and overly sensitive to criticism. They feel anger and shame, and often struggle with social relationships. Like grandiose narcissism, vulnerable narcissism has been associated with externalizing symptoms (Schoenleber et al., 2011), but is also associated with internalizing symptoms (anxiety, depression, peer problems), and with low or contingent self-esteem (Miller et al., 2021). Vulnerable narcissism is often considered more maladaptive than grandiose narcissism, at least for the affected individual (Miller et al., 2017). There is some debate as to whether narcissistic individuals oscillate between states of grandiosity and vulnerability over time (Gore & Widiger, 2016) or whether these two dimensions exist on a spectrum with entitlement and self-importance at the common core (Krizan & Herlache, 2018).

Pathological narcissism in childhood and adolescence

Narcissistic personality traits often develop in late childhood and adolescence (Thomaes et al., 2013; Brummelman et al., 2015). Indeed, adolescence, with its many biological, psychological and social changes, is a sensitive period when adaptive or maladaptive self-appraisals and self-other relatedness may develop that can serve as indicators of personality pathology, including narcissism (Sharp & Wall, 2018). Much of the previous research on adolescent narcissism has focused on the grandiose, extraverted aspects of narcissism (Derry et al., 2019), as well as differences between adaptive, "healthy" narcissism and more pathological, maladaptive expressions, such as exploitativeness and entitlement (Barry et al., 2007; Cramer, 2011). It is only in recent years that the vulnerable aspects of narcissism have begun to be more systematically studied among young people (Barry et al., 2019; Derry et al., 2019, 2020). While grandiose narcissism has been associated with aggression and conduct problems in young people (Chrétien et al., 2018; Barry et al., 2019; Derry et al., 2019), vulnerable narcissism has been associated with a range of maladaptive patterns, such as aggression and hostility, anxiety and depression, peer problems, and low self-esteem (Chrétien et al., 2018; Barry et al., 2019; Derry et al., 2019, 2020). These patterns are similar to those found in adults.

Assessment of narcissism in children and adolescents

One important reason for the slow progress of research into vulnerable narcissism among children and adolescents is the lack of established and validated measurements to investigate this dimension. The most commonly used self-report measures to study narcissism among young people, the Narcissistic Personality Inventory for Children (Barry et al., 2003) and the Childhood Narcissism Scale (Thomaes et al., 2008), focus on narcissism as a unidimensional construct,

emphasising aspects of grandiosity such as self-sufficiency, exploitativeness and entitlement. Recently, two-dimensional self-report measures have been developed specifically for use with children and adolescents, most notably the Narcissism Scale for Children (NSC) (Derry et al., 2019), a 15-item adaptation of the adult Narcissism Scale (Derry et al., 2017). The NSC demonstrated good validity and reliability when used with children aged 8–12 years, and the two-factor structure of the scale was also replicated in a sample of adolescents aged 13–17 years. However, some of the items are stated specifically from a child's perspective (e.g., "I am a powerful kid," "I can tell what adults are thinking"), making the use of the scale with older adolescents questionable.

It is certainly beneficial to develop age-specific narcissism measures for use among children. However, as pointed out by Somma and colleagues (Somma et al., 2020), it is also necessary to study whether existing measures developed and used for adults can also be used for younger populations. Furthermore, it is of great interest to study the degree of measurement invariance across age, gender, as well as between societies and ethnic groups.

The most commonly used multidimensional measure of pathological narcissism among adults is the Pathological Narcissism Inventory (PNI), a 52-item self-report measure developed to capture both grandiose and vulnerable narcissism (Pincus et al., 2009). This measure also exists in a brief version (B-PNI) consisting of 28 items, and a super-brief version (SB-PNI) consisting of only 12 items (Schoenleber et al., 2015). Both the PNI and the B-PNI consist of seven subscales, three that constitute grandiosity (exploitativeness, self-sacrificing self-enhancement, grandiose fantasy) and four that constitute vulnerability (contingent self-esteem, hiding the self, devaluing, entitlement rage). The SB-PNI consists of only two scales, grandiosity and vulnerability, which include the six best-performing items from each scale in the B-PNI (Schoenleber et al., 2015). All three versions of the PNI are used in studies with adolescents (Kauten & Barry, 2016; Barry et al., 2019; Somma et al., 2020; Reis et al., 2021). In a validation among adolescents and young adults in France, the French version of the PNI demonstrated good psychometric properties and a factor structure equivalent to that of the original PNI for adults (Chrétien et al., 2018). In a validation among adolescents and young adults in Italy, the Italian versions of the PNI, B-PNI, and SB-PNI were compared, and all showed good psychometric properties and measurement invariance across the two age-group samples (Somma et al., 2020).

Current study

To increase knowledge about pathological narcissism in childhood and adolescence, there is a need for validated measures suitable for younger populations. Therefore, the aim of this study is to test the psychometric structure and properties of the Swedish version of the SB-PNI among adolescents. First, we want to validate the dimensionality of the construct by comparing a unidimensional model with a correlated factor model that includes two correlated latent variables (grandiosity and vulnerability), and an orthogonal bifactor model that allows for separation of the variance contributions due to a general factor (i.e., narcissism) and subfactors (grandiosity and vulnerability). Consistent with the original measure, we expect a two-factor solution for the construct (Schoenleber et al., 2015).

Second, we will investigate whether the SB-PNI exhibits measurement invariance between younger and older adolescents, between boys and girls, and between adolescents with an ethnic Swedish background and a background in more collectivistic countries such as Afghanistan, Iraq, Palestine, Somalia, and Syria. Based on the findings of other studies using SB-PNI with adults (Henttonen et al., 2022) and adolescents (Somma et al., 2020), we expect the measure to achieve both age and gender invariance. Earlier research also suggests that narcissism may be more common in Western cultures that are highly individualistic compared to collectivistic cultures (Twenge, 2011; Thomaes & Brummelman, 2016; Vater et al., 2018). However, as the measure has not been tested in other, non-Western cultural contexts, these analyses are exploratory.

Third and finally, we will test the construct validity of the SB-PNI by examining the correlation with externalizing and internalizing symptoms and self-esteem. As suggested in previous research concerning narcissism in children, we expect to find that grandiose narcissism is associated with externalizing symptoms (e.g., Maciantowicz et al., 2019), while vulnerable narcissism will be associated with both externalizing and internalizing symptoms and low self-esteem (e.g., Derry et al., 2020).

Methods

Sample and procedure

The data for this study was obtained through a research project on child-to-parent violence conducted in 35 schools in 12 municipalities in southern Sweden. The schools were selected based on a stratification that took into account the size of the municipality (large city, medium-sized city, small town or rural area), the type of school (municipal or independent), and the type of upper secondary school programme (preparation for higher education or vocational). In larger municipalities with many schools, we also stratified based on the proportion of students with foreign backgrounds and the level of education of parents. The purpose

of stratification was to recruit a diverse group of participants from various social backgrounds. Before the data collection, the study underwent ethical review by the Swedish Ethical Review Authority (reference number 2021-05901-01). The study was not considered to require formal approval pursuant to the Swedish Ethical Review Act (SFS 2003:460) but the authority issued an advisory statement which we complied with.

The data was collected through an anonymous online survey administered in a classroom setting by researchers or trained project assistants. All students in the participating classes were informed about the purpose of the study, that participation was voluntary and confidential and that they could discontinue at any time. The parents of students under the age of 15 were also notified and given the option to decline participation on their child's behalf. Adequate Swedish language skills were a requirement for participation. The survey took approximately 35 minutes to complete.

The number of students in the visited classes was $N = 6965$, and $N = 5780$ were present on the day of the visit. A total of $N = 5313$ students completed the survey, a response rate of 76.3%. The participants' characteristics are presented in Table 1.

Measures

The Super-Brief Pathological Narcissism Inventory (SB-PNI) The SB-PNI is a self-report scale containing 12 items (Schoenleber et al., 2015) which was developed from the original 52-item PNI (Pincus et al., 2009). It consists of two sub-scales, each with 6 items, measuring grandiosity and vulnerability. The grandiosity subscale contains items such as "I feel important when others rely on me" and "I often fantasize about being rewarded for my efforts." The vulnerability subscale contains items like "It's hard for me to feel good about myself unless I know other people like me" and "Sometimes I avoid people because I'm concerned that they'll disappoint me." Participants are asked to rate each item on a 6-point Likert scale, ranging from "not at all like me" (0) to "very much like me" (5).

When translating the SB-PNI, we employed a combination of the back-translation and committee approaches outlined by Brislin (1970). Three of the authors of this article (Andersson, Johnson, and Svensson) initially translated the SB-PNI into Swedish. The original and the Swedish items were then reviewed by a research colleague, a native English speaker who is fluent in Swedish. His feedback led to a few minor adjustments. A professional translator then translated the scale back into English. The resulting items closely matched the original items. Finally, the scale was pilot tested for comprehensibility by 12 native Swedish adolescents. The Cronbach's alpha coefficients for the total narcissism scale, grandiosity subscale, and vulnerability subscale were $\alpha = .87$, $\alpha = .80$, and $\alpha = .89$, respectively. The Swedish version of the SB-PNI can be found in the Appendix Table 5.

The Strengths and Difficulties Questionnaire (SDQ) The SDQ (Goodman, 2001) is a widely used self-report questionnaire for assessing child mental health problems. The questionnaire consists of 25 items divided into five subscales, measuring conduct problems, emotional symptoms, hyperactivity, peer problems, and prosocial behaviour. In the original version, each subscale consists of five items with a 3-point response scale ("Not true" = 0, "Somewhat true" = 1, "Certainly true" = 2). We used the Swedish version of the SDQ (Smedje et al., 1999). For reasons of space, we reduced each subscale to four items, resulting in subscale ranges of 0–8. Cronbach's α for the subscales was very good for hyperactivity ($\alpha = .80$) and emotional problems ($\alpha = .74$), reasonable for prosocial behaviour ($\alpha = .64$) and conduct problems ($\alpha = .63$), but lower for peer problems ($\alpha = .47$). Low internal reliability for the peer problems subscale is common in research using the self-report version of the SDQ (Smedje et al., 1999; Van Widenfelt et al., 2003; Di Riso et al., 2010). Hyperactivity and conduct problems were combined into the broader scale externalizing problems ($\alpha = .78$). Peer problems and emotional symptoms were combined into the broader scale internalizing problems ($\alpha = .68$).

Self-esteem Self-esteem was measured using the Swedish version of the Rosenberg self-esteem scale (RSES) (Rosenberg, 1965; Eklund et al., 2018). The RSES is a 10-item

Table 1 Participant characteristics

Characteristic	% (n)
Gender	
Female	52.2 (2762)
Male	45.9 (2440)
Other	1.8 (93)
Grade	
Compulsory, grade 8	23.0 (1221)
Compulsory, grade 9	26.0 (1378)
Upper secondary, grade 1	17.4 (926)
Upper secondary, grade 2	19.6 (1040)
Upper secondary, grade 3	14.0 (743)
Country of birth	
Sweden	83.3 (4425)
Other European country	4.3 (229)
Other country outside Europe	12.3 (656)

scale, but for reasons of space, we used only six items. Cronbach's α for the scale was α = .84.

Ethnicity The adolescents were asked where they were born, with the response options being: 1) Sweden; 2) Denmark, Finland, Iceland or Norway; 3) another European country; or 4) a country outside Europe. For responses 3 and 4, a follow-up question was asked in which the respondent was asked to select their country of birth from a list. Similarly, the adolescents were also asked about where their father and mother were born.

In this article's ethno-cultural comparisons, we compare adolescents from a Swedish background (born in Sweden with both parents also born in Sweden, $n = 3207$) with adolescents from more collectivistic countries (born in countries with >50% Muslim population with parents also born in such countries, $n = 583$. The vast majority came from Syria, Iraq, Afghanistan, Somalia, and Palestine, in descending order.

Gender is coded as zero for girls and one for boys. Since the group "other" is small, only 1.8% ($n = 93$), we decided to exclude it from the analyses.

Age was based on which year the respondent was in at school, which was assessed by the question "What year are you in at school?", with the response options "compulsory year 8", "compulsory year 9", "upper secondary year 1", "upper secondary year 2" and "upper secondary year 3". We grouped adolescents by age: younger adolescents attending compulsory school (~14–16) and older adolescents attending upper secondary school (~17–19).

Data analysis

We used confirmatory factor analyses (CFAs) with full information maximum likelihood (FIML) estimation to validate the structure of the SB-PNI. Alternative models were compared to assess data fit. A unidimensional model was compared with a correlated factor model, which included two correlated latent variables (grandiosity and vulnerability), and an orthogonal bifactor model which allows for separation of the variance contributions due to a general factor (i.e., narcissism) and subfactors (i.e., grandiosity and vulnerability). Model fit was assessed by comparing $\chi 2$, CFI, TLI, and RMSEA goodness-of-fit statistics. For CFI and TLI indices, values greater than .90 were interpreted to exhibit a good fit and values greater than .95 an excellent fit. RMSEA values smaller than .08 indicate a reasonable fit and values smaller than .05 a good fit (Hu & Bentler, 1999). Factor loadings were calculated for all models and interpreted as satisfactory when above .50 and as ideal when above .70.

We compared omega hierarchical (ωH) – an estimator of the percentage of a total (standardized) score variance that can be attributed to the single general factor – along with explained common variance (ECV) – the ratio between the common variance explained by the general factor and the total common variance – and percentage of uncontaminated correlations (PUC) to determine the dimensionality of the bifactor model. Multidimensionality is generally confirmed with the following thresholds: $\omega H < .70$, $ECV < .60$, and PUC values > .80 (Reise et al., 2013; Rodriguez et al., 2016). We used the Excel-based tool developed by Dueber (2017) to calculate bifactor indices.

To evaluate how well the specified model fit the data, we conducted a series of invariance tests related to gender, age based on school year (compulsory school vs. upper secondary school) and ethnicity. Invariance tests were conducted on the correlated factor model and the bifactor model. First, a configural model was compared to a metric model where all factor loadings were constrained to be equal among groups. Second, we compared a metric model to a scalar model where all intercepts were constrained to be equal among groups. Typically, the measurement invariance is evaluated by change in χ^2 for the nested models, however because χ^2 is sensitive to large sample data, we used −01 change in CFI ($\Delta CFI > .01$) for nested models as a measurement invariance criterion (Putnick & Bornstein, 2016). When differences in model fit were detected, we released constraints on one or more loadings or intercepts and then tested the difference. Partial invariance was accepted when the majority of items on the factor were invariant (Vandenberg & Lance, 2000).

After performing the CFA and invariance testing, we examined the psychometric properties of the SB-PNI using Cronbach's alpha to test reliability. Finally, we tested the concurrent validity by calculating bivariate correlations between SB-PNI scales, including grandiosity and vulnerability, and measures of externalizing and internalizing symptoms and self-esteem.

Results

Factor structure of the SB-PNI

The fit measures for the competing models are shown in Table 2. While the unidimensional model showed poor model fit, both the correlated factor model and bifactor model fulfilled the criteria for goodness-of-fit, although the RMSEA of the correlated factor model was questionable

Table 2 Indices from confirmatory factor analyses and model comparison

Model	χ^2	df	CFI	TLI	RMSEA	AIC
1-factor	7947.650	54	.729	.669	.166	7995.650
Correlated factor	2207.883	53	.926	.908	.087	2257.883
Bifactor	829.118	42	.973	.953	.059	901.118

(RMSEA = .087). However, the bifactor model indicated a significantly better fit than the correlated factor model, indicated by ΔCFI > .01.

Table 3 shows factor loadings and bifactor indices. All items had bifactor loadings (λ > .30) on the general factor. Bifactor loadings for the subfactor grandiosity were however poor. Although two items (item 1 and 4) had bifactor loadings (λ > .40), four items on the subfactor had negative loadings. Bifactor loadings for subfactor vulnerability were satisfactory (λ > .45). Internal reliability of the multidimensional composite in the general factor (ω = .91), as well as the subfactor grandiosity (ω = .83) and the subfactor vulnerability (ω = .89) was high. General factor saturation was moderate (ω*H* = .65), and on a sub-scale level ωH was 0.66 for subfactor vulnerability and .00 for subfactor grandiosity. This indicates that when the general factor is controlled for, reliable factor variance for grandiosity is lacking, probably due to the negative bifactor loadings. Explained common variance (ECV), which informs about the relative strength of the general and subfactors, was moderate for the general factor (ECV = .52) but still below the threshold for multidimensionality (ECV = .70). This indicates that more than half of the common variance is attributable to the general factor, while 48% is accounted for by the subfactors. Further evaluation of the factor structure showed that the ECV in the general factor was caused by the items in the subfactor grandiosity, with items I-ECV ranging from .55 to .99. The subfactor vulnerability (ECV = .74) did however exhibit independence from the general factor with comparably higher ECV indices.

All in all, given the results above the factor structure of the SB-PNI is somewhat ambiguous. Although the factor structure is not essentially unidimensional (ECV < .70), it is evident that the majority of the factor structure in the general factor is attributable to the subfactor grandiosity while the subfactor vulnerability displays more specific factor variance independent from the general factor. Because of the ambiguity of the factor structure in the SB-PNI, further analyses were run on the correlated factor model.

Measurement invariance of the SB-PNI

We ran several analyses to investigate whether the model held for both boys and girls, and across the age groups (i.e., compulsory school and upper secondary school) and regardless of country of birth (i.e., Swedish background and background in Muslim-majority countries).

Table 3 Factor loadings and bifactor indices of general factor and subfactors in SB-PNI

Item	λg	λG	λV	ECV
1. I feel important when others rely on me.	.264 (.507)	.436 (.458)		.551
2. I often fantasize about accomplishing things that are probably beyond my means.	.385 (.604)	.631 (−.087)		.980
3. I often fantasize about being rewarded for my efforts.	.415 (.695)	.719 (−.063)		.992
4. I like to have friends who rely on me because it makes me feel important.	.346 (.567)	.496 (.441)		.623
5. I often fantasize about performing heroic deeds.	.410 (.719)	.723 (−.236)		.903
6. I often fantasize about being recognized for my accomplishments.	.405 (.756)	.725 (−.243)		.906
7. When people don't notice me, I start to feel bad about myself.	.674 (.491)		.654 (.470)	.522
8. Sometimes I avoid people because I'm concerned that they'll disappoint me.	.570 (.330)		.563 (.453)	.347
9. It's hard for me to feel good about myself unless I know other people like me.	.839 (.409)		.847 (.739)	.234
10. I am preoccupied with thoughts and concerns that most people are not interested in me.	.848 (.391)		.861 (.767)	.206
11. It's hard to feel good about myself unless I know other people admire me.	.856 (.352)		.881 (.823)	.155
12. When others get a glimpse of my needs, I feel anxious and ashamed.	.735 (.372)		.737 (.633)	.257
ω	(.909)	(.834)	(.894)	
ωH	.651	*.004*	.656	
ECV	.521	.174	.739	
PUC	.545			

As shown in Table 4, the results revealed configural (χ^2 (106) = 2241.745; CFI = .924; TLI = .906; RMSEA = .062) as well as metric gender invariance (ΔCFI .004). Full scalar invariance was however not established (ΔCFI .012). Therefore, in a series of analyses, we tested the model by relaxing constraints on specific items in the model. Partial scalar invariance was established by relaxing constraints on the intercept of the Item 4 in grandiosity subfactor "I like to have friends who rely on me because it makes me feel important".

Configural (χ^2 (106) = 2283.147; CFI = .925; TLI = .907; RMSEA = .062), metric (ΔCFI .000) as well as scalar invariance (ΔCFI .001) across age was established. In addition, configural (χ^2 (106) = 1520.243; CFI = .931; TLI = .915; RMSEA = .059) and metric (ΔCFI .003) invariance across ethnicity was established, however not full scalar invariance (ΔCFI .012). After a series of models in which the constraints on the specific items in the model were relaxed, partial scalar invariance was established by relaxing the constraints on the intercept of the Item 2 in the vulnerability subfactor "Sometimes I avoid people because I'm concerned that they'll disappoint me".

Concurrent validity of the SB-PNI

To provide additional evidence for the validity of the SB-PNI, scores for grandiosity and vulnerability were correlated with adolescent externalizing and internalizing symptoms, as well as with self-esteem. Grandiosity was positively correlated to externalizing ($r = .16$ $p < .001$) and internalizing symptoms ($r = .14$ $p < .001$) and negatively to self-esteem ($r = -.07$ $p < .001$). Vulnerability was positively correlated to externalizing ($r = .29$ $p < .001$) and internalizing symptoms ($r = 0.52$ $p < .001$) and negatively to self-esteem ($r = -.53$ $p < .001$).

Discussion

In the current study, we investigated the psychometric structure and properties of the Swedish version of the Super-Brief Pathological Narcissism Inventory (SB-PNI) among adolescents. The investigation in this study allowed us to evaluate the structure, measurement invariance across gender, age, and ethnicity, as well as the construct validity in relation to a number of correlates of narcissism in adolescence. This was done to ensure the validity and feasibility of the measure. As hypothesized (Schoenleber et al., 2015), we found that the measure maintained the two-factor structure, suggesting the use of the subscales grandiosity and vulnerability separately, rather than as a unidimensional measure. In fact, although the fit of the bifactor model was acceptable and the general factor met criteria for high internal reliability, we discovered that grandiosity subfactor exhibited poor model fit and negative factor loadings when the general factor was controlled for. On the other hand, the vulnerability subfactor exhibited high reliability and independence from the general factor. Similar results were found in a study conducted among Finnish young adults and adults (Henttonen et al., 2022). These results indicate that it would be appropriate to use grandiosity and vulnerability as separate measures.

Extending earlier research on adults (Henttonen et al., 2022; Schoenleber et al., 2015) and adolescents (Somma et al., 2020), we found that the correlated factors grandiosity and vulnerability yielded full configural and metric invariance across gender, age, and ethnicity. Configural invariance indicates that the basic organisation of the latent constructs is supported across both girls and boys, younger and older adolescents and across adolescents from Swedish and other ethnic groups. Additionally, metric invariance of the factors

Table 4 Invariance constraints for the SB-PNI across adolescent gender, age, and ethnicity

Model	Chi2(df)	*P*	CFI	TLI	RMSEA	AIC	Model comparison	CFI difference
Gender								
1. Configural invariance	2241.745(106)	.000	.924	.906	.062	2341.745	–	–
2. Metric invariance	2359.781(116)	.000	.920	.909	.060	2439.781	2 versus 1	ΔCFI .004
3. Scalar invariance	2710.697 (126)	.000	.908	.904	.062	2818.697	3 versus 2	ΔCFI .012*
4. Partial scalar invariance[a]	2551.493 (125)	.000	.914	.909	.061	2661.493	4 versus 2	ΔCFI .006
Age								
1. Configural invariance	2283.147 (106)	.000	.925	.907	.062	2383.147	–	
2. Metric invariance	2302.902 (116)	.000	.925	.915	.060	2382.902	2 versus 1	ΔCFI .000
3. Scalar invariance	2340.878 (126)	.000	.924	.920	.058	2448.878	3 versus 2	ΔCFI .001
Ethnicity								
1. Configural invariance	1520.243 (156)	.000	.931	.915	.059	1620.243	–	
2. Metric invariance	1608.423 (116)	.000	.928	.918	.058	1688.423	2 versus 1	ΔCFI .003
3. Scalar invariance	1861.816 (126)	.000	.916	.912	.060	1969.816	3 versus 2	ΔCFI .012*
4. Partial scalar invariance[b]	1801.333 (125)	.000	.919	.914	.060	1911.333	4 versus 2	ΔCFI .009

*Significant difference between the models; [a] Item 4 of Grandiosity relaxed; [b] Item 2 of Vulnerability relaxed

suggests that the factor loadings of grandiosity and vulnerability are equivalent across groups (Putnick & Bornstein, 2016). Moreover, to compare latent factor means and intercepts across groups, we also tested the scalar invariance of the measure. Full scalar invariance was supported for age groups, indicating that both younger and older adolescents have similar intercepts in the observed variables. For gender, partial scalar invariance was reached as we relaxed the constraints on the intercept of one item in the grandiosity subfactor. Similarly for ethnicity, partial scalar invariance was supported when we relaxed the constraints on the intercept of one item in the vulnerability subfactor. Although studies suggest that narcissism may be more common in Western cultures than in other cultures (Thomaes & Brummelman, 2016), our study – which to our knowledge is the first to test the measurement invariance of the instrument across different ethnic groups of adolescents – shows that the measure seems to have adequate psychometric validity independent of ethnicity. Therefore, based on the equivalence of model form, as well as equivalence in terms of the factor loadings and intercepts for the latent constructs, we propose that SB-PNI is an instrument of choice to be used across male and female adolescents of different ages and ethnic groups.

Finally, to test the construct validity of the measure, we examined the correlations between grandiosity and vulnerability respectively and externalizing and internalizing symptoms, as well as adolescent self-esteem. These are some of the most common correlates of narcissism in children and adolescents (Barry et al., 2019). As anticipated, we found that both grandiosity and vulnerability were correlated with mental health problems, including externalizing and internalizing symptoms and low self-esteem. This was particularly true for vulnerability, given the stronger correlations with internalizing symptoms such as worry and social anxiety, and low self-esteem. Indeed, both grandiose and vulnerable narcissistic personality are associated with maladaptive behaviours (e.g., Miller et al., 2021), although the grandiose manifestation of narcissism may also be more adaptive, helping individuals to protect their self-image and sense of resilience (Sękowski et al., 2023). In studies with both adults (e.g., Miller et al., 2017; Schoenleber et al., 2011) and adolescents (e.g., Chrétien et al., 2018; Derry et al., 2020), vulnerable narcissism has been shown to be more maladaptive, not least because of insecurity and fragility in social interactions. Similar results are evident in our sample of mid and late adolescents.

Although the study has several strengths, including a large stratified sample of adolescents from the general Swedish population, there are some limitations worth mentioning. First, because we did not collect any personal data, we could not conduct attrition analyses. As adolescents with problem behaviours may be more difficult to include in research, it is possible that adolescents with narcissistic traits might have been omitted from the analytic sample. Second, the internal reliability of the subscale for peer problems in SDQ was low, which also affected the reliability of the internalizing symptoms scale. Similar problems with low alpha scores are evident in other Swedish studies using SDQ, particularly with the subscale peer problems (e.g., Lundh et al., 2008). However, given that the number of items in the SDQ is low, obtaining high alpha values is difficult. Finally, we strategically included foreign-born adolescents to capture the multicultural population of Swedish adolescents, which also enabled us to conduct invariance testing based on ethnicity. It should however be noted that while some of the foreign-born adolescents are well integrated into Swedish society, others are not, which makes the sample of foreign-born adolescents quite variable.

In conclusion, the current study provides evidence for the utility of the SB-PNI among Swedish adolescents. As suggested by Pincus and Lukowitsky (2010) and Schoenleber et al. (2015), adapting adult measures to versions feasible for use among adolescents and individuals across different cultural contexts may help to establish continuity and facilitate comparative research on narcissism.

Appendix

Table 5 The Super-Breif Pathological Narcissism Inventory (SB-PNI), Swedish version

Subscale	Original English item	Swedish item
Vulnerability	When people don't notice me, I start to feel bad about myself.	När människor inte lägger märke till mig känner jag mig illa till mods.
Vulnerability	Sometimes I avoid people because I'm concerned that they'll disappoint me.	Ibland undviker jag människor eftersom jag är orolig över att de ska göra mig besviken.
Grandiosity	I feel important when others rely on me.	När andra räknar med mig känner jag mig viktig.
Grandiosity	I often fantasize about accomplishing things that are probably beyond my means.	Jag fantiserar ofta om att klara av. saker som förmodligen är över min förmåga.
Vulnerability	It's hard to feel good about myself unless I know other people admire me.	Jag har svårt att känna mig nöjd med mig själv om jag inte vet att andra människor beundrar mig.
Grandiosity	I often fantasize about being rewarded for my efforts.	Jag fantiserar ofta om att bli belönad för mina ansträngningar.
Vulnerability	I am preoccupied with thoughts and concerns that most people are not interested in me.	Jag oroar mig ofta över att de flesta inte är intresserade av. mig.
Grandiosity	I like to have friends who rely on me because it makes me feel important.	Jag gillar att ha vänner som vet att de kan lita på mig eftersom det får mig att känna mig viktig.
Vulnerability	It's hard for me to feel good about myself unless I know other people like me.	Jag har svårt att känna mig nöjd med mig själv om jag inte vet att andra människor tycker om mig.
Grandiosity	I often fantasize about performing heroic deeds.	Jag fantiserar ofta om att utföra hjältedåd.
Grandiosity	I often fantasize about being recognized for my accomplishments.	Jag fantiserar ofta om att bli erkänd för det jag gör.
Vulnerability	When others get a glimpse of my needs, I feel anxious and ashamed.	När andra får veta något om mina behov känner jag mig ängslig och skamsen.
Response scale for all items	*Please indicate how much each of the following statements is typical of you. Not at all like me 0–1 – 2 – 3 – 4 – 5 Very much like me*	*Kryssa i det svar som stämmer bäst in på dig. Stämmer inte alls in på mig 0–1 – 2 – 3 – 4 – 5 Stämmer precis in på mig*

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Data availability The datasets generated during and/or analyzed during the current study are not publicly available but are available from the corresponding author on reasonable request.

Declarations

All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee (approval no 2021–05901-01) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to participate Informed consent was obtained from all individual participants included in the study.

Conflict of interest The authors declare that they have no conflict of interest.

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