Testing the Divergent Validity of Grandiose and Vulnerable Narcissism

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Abstract

In psychological literature, various conceptualisations of narcissism have been at odds with each other, especially those deriving from clinical and social-personality perspectives. At the heart of this debate is the emphasis placed on either grandiosity (e.g., obvious arrogance and entitlement) or vulnerability (e.g., concealed negative emotion). Historically, models of narcissism have often attempted to separate grandiosity and vulnerability, whereas more recent models also include a common core. The aim of the present study was to examine whether grandiose narcissism and vulnerable narcissism are separate constructs by investigating their relationships with several personality factors previously linked in separate studies. Measures of narcissism and other personality factors were administered to a sample of 509 adults. Using structural equation modelling, findings revealed that grandiose narcissism and vulnerable narcissism presented contrasting relationships with extraversion, neuroticism, self-esteem and social anxiety, but were both associated with increased perfectionism. Implications of these results include the importance of the Big Five traits and self-esteem in discriminating grandiosity from vulnerability, the crucial role of perfectionism in narcissism, and social anxiety as a possible unique contributor to vulnerable narcissism. Overall, the results support the idea that grandiose narcissism and vulnerable narcissism are separate but related constructs.

Statement of Candidate

I hereby confirm that all material contained in this project are my original authorship and ideas, except where the work of others has been acknowledged or referenced. I also confirm that the work has not been submitted for a higher degree to any other university or institution. The research project was approved by the Macquarie University Human Research Ethics Committee (Approval No. 5201951987690).

(Signed)

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Testing the Divergent Validity of Grandiose and Vulnerable Narcissism

The term "narcissism" originated from the Greek myth of Narcissus, who fell in love with his own reflection. The mirror image fragmented each time Narcissus attempted to embrace it, causing melancholy and ultimately his death (Hamilton, 1942). This juxtaposition of immense self-admiration with despair in fact foreshadowed the developing understanding of narcissism in psychological literature. Over time, research has evidenced that narcissism involves two contrasting experiences: "grandiose" and "vulnerable" (Cain, Pincus, & Ansell, 2008). Grandiosity refers to the traditional, widely understood themes of narcissism, involving obvious arrogance, entitlement, and exploitativeness. Vulnerability is less explored in comparison and implicates narcissism as a construct that also includes negative emotions such as insecurity, depressiveness, and shame (Miller, Lynam, Hyatt, & Campbell, 2017). Despite increasing research addressing vulnerable themes in the past two decades, clinical conceptualisations of narcissism in particular have overwhelmingly emphasised grandiose themes (Stanton & Zimmerman, 2017). This includes diagnostic criteria for a pathological form of narcissism, Narcissistic Personality Disorder (NPD), in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; APA, 2013). In contrast, social-personality perspectives in psychology formulate narcissism as a trait, ranging on a continuum from normality to pathology, and encapsulating both grandiosity and vulnerability (Miller & Campbell, 2008).

The current study will focus on a trait approach and investigate the validity of grandiose narcissism and vulnerable narcissism as two different constructs. To do this, a number of personality factors will be referenced to largely discriminate grandiose narcissism from vulnerable narcissism, although a common core between the two constructs may also be sourced. These personality factors include some that have been often explored before to characterise subtypes of narcissism, including the Big Five Factor traits (extraversion and

neuroticism; Miller et al., 2011), and self-esteem (Di Pierro, Mattavelli, & Gallucci, 2016). Moreover, the current study will build on previous literature by further assessing the role of perfectionism in grandiose narcissism and vulnerable narcissism (for a review, see Smith et al., 2016). Lastly, a gap in present research regarding the relevance of social anxiety for a non-unitary construct of narcissism will be addressed. Prior to this study, very few other papers have looked into the relationship between narcissism and social anxiety (two are doctoral theses: Schurman, 2000; Williams, 2016), and this will be the first study that has integrated grandiose narcissism and vulnerable narcissism with these specific personality factors into a single model. We will begin with an overview of the history of narcissism in psychological literature.

Foundations for Narcissism

Narcissism was first introduced as a clinical construct by Ellis (1898), who saw narcissism as a sexual perversion in which a person treats their own body like an object. However, he also used it to label a more general form of self-admiration and this was shared by another early user of the term, Rank (1911). Freud's (1914/1957) seminal paper on narcissism specified two forms: primary and secondary. Primary narcissism is essential for a newborn's attachment to its mother as it learns the importance of other objects ("object-libido") separate from the self ("self-libido"); this transition requires an ego ideal that retains the initial drive for perfection. On the other hand, secondary narcissism involves a traumatised individual withdrawing their libido from other objects and focusing it exclusively onto themselves. Primary narcissism is therefore a normal form of narcissism, whereas secondary narcissism is a pathological form of narcissism; this denotes an early comprehension that narcissism could be adaptive or maladaptive.

Freud (1931/1950) also formulated narcissism as a basic personality feature, where individuals of the narcissistic type are aggressive, confident, and independent. Other theorists

such as Jones (1913/1951) and Waelder (1925) similarly reflected on the narcissistic personality, observing characteristics such as aloofness, fantasies of power, and marked superiority. These descriptions may have been the first initial markers for grandiose themes of narcissism in psychological literature and defined the construct as a variable for individual difference, instead of a clinical construct (Campbell & Foster, 2007). Later, William Reich (1933/1949) described the "phallic-narcissist" as assertive, haughty, and energetic; an individual otherwise convinced of their specialness. Akin to Jones (1913/1951) and Waelder (1925), William Reich's core understanding of narcissism was that it was a personality trait involving external displays of vanity.

Murray (1938) articulated a more complex list of attributions for the construct, labelling direct and indirect manifestations of "egophilia" (or "narcism"; an intentional misspelling). Direct manifestations mostly mirror grandiose narcissism in that self-admiration, delusions of grandeur, and demands for attention are expected. However, he also proposed vulnerable attributes of narcissism within direct manifestations such as susceptibility to neglect, excessive shyness, and delusions of persecution. Indirect manifestations of narcissism outlined more severe characteristics including aggression and exploiting others. These attributes formed the basis of Murray's (1938) Hypersensitive Narcissism Scale, the first measure created for narcissism, and integrating grandiose and vulnerable qualities. Anna Reich (1960) also elaborated on vulnerable narcissism, naming a "compensatory narcissistic" personality type. She specified that pathological narcissism involved self-esteem dysregulation, where "narcissistic injuries" (e.g., perceived negative, external feedback) cause regression back into the ego ideal. Consequently, an overly demanding ego ideal develops over time, which obliges the individual to engage in compensatory self-inflation.

Anna Reich's discussions of the narcissistic personality could be seen as a direct

contrast to William Reich (1933/1949), who solely emphasised grandiose themes. Unlike the phallic-narcissist, a compensatory-narcissist is consciously aware of their inadequacies, thus tying vulnerable themes of narcissism into the function of grandiosity. That is, pathological narcissism requires grandiosity to protect an individual's self-esteem, but due to a fragile self-esteem, experiences of vulnerability occur (Reich, 1960). Early conceptualisations of narcissism were ultimately various: the construct was construed as both a clinical construct and normal personality variable, and descriptions differentially emphasised grandiosity (outward qualities of superiority) and vulnerability (inward qualities of inferiority).

Nonetheless, mainly clinical conceptualisations of narcissism have persisted over time, in part due to pioneers in the narcissism field such as Kohut (1971) and Kernberg (1975). Kohut believed that pathological narcissism originates during infancy and childhood, due to non-empathetic responses from caregivers. Pathological narcissism thereafter involves two forms of "splitting", horizontal and vertical. Horizontal splitting is when the individual represses unacceptable self-interests, thus keeping intact a feeling of superiority while denying inadequacy (grandiose narcissism). Vertical splitting is when the individual consciously alternates between helplessness and omnipotence (vulnerable narcissism). On the other hand, Kernberg (1975) defined pathological narcissism as a defense against abandonment, where the individual abnormally invests into an ideal self. Pathological narcissism subsequently brings about a breakdown in personality structure and can be categorised according to the severity of aggression within a given personality structure: as aggression increases, narcissism ranges from NPD to malignant narcissism to antisocial personality disorder (Kernberg & Caligor, 2005).

Common to all these categories of narcissism is an individual who seeks to maintain self-representations and avoid awareness of negative self-representations. Kernberg's (1975) conceptualisation of pathological narcissism, unlike Kohut's (1971) horizontal and vertical

splitting, hence emphasised grandiose themes. Even within a clinical context, the conflict

between these theorists still mirrored a fundamental disagreement that exists among scholars

of narcissism today. The question remains, are grandiose and vulnerable narcissism entirely

separate from each other, or do they interact together in some way? The validation of

grandiose and vulnerable narcissism as distinct constructs requires more support, and this is

the process that the remainder of the introduction will investigate. Given that the introduction

has so far solely discussed theories of narcissism, empirical findings regarding grandiose

narcissism and vulnerable narcissism will now be addressed. In doing this, it is essential to

look at how these two constructs are measured.

Measurement of Grandiosity and Vulnerability

      The Narcissistic Personality Inventory. The Narcissistic Personality Inventory

(NPI; Raskin & Terry, 1988) is the most commonly used measure of narcissism, with

approximately 77% of social-personality research utilising the inventory as its main or only

measure of narcissism (del Rosario & White, 2005). This measure is derived from NPD

criteria in the DSM-III (APA, 1986), where the disorder was first introduced. Although NPD

criteria have undergone some changes during their history in the DSM, many researchers

contend that the criteria have largely encapsulated grandiose narcissism (Fossati, Somma,

Borroni, Pincus, & Markon, 2017; Miller, Gentile, Wilson, & Campbell, 2013; Wright et al.,

2013). Likewise, factor analyses of the NPI have revealed that the measure may prioritise

characteristics associated with grandiose narcissism, such as a seven-factor structure coined

by one of its authors: authority, entitlement, exhibitionism, exploitativeness, self-sufficiency,

and superiority (Raskin & Terry, 1988). Increased scores on the NPI are associated with

manipulativeness, self-enhancement, aggression, and dominance; due to these correlations,

some researchers have stated that the NPI may measure a "subclinical" form of narcissism, as

it is not accompanied by indicators of psychopathology such as severe personal distress

(Paulhus & Williams, 2002; Wallace & Baumeister, 2002). Other researchers have even

identified narcissism measured by the NPI as predominantly "adaptive", although this may be

biased by focus on select factors such as authority and leadership, more likely to correlate

with positive outcomes including increased self-esteem and decreased depression (Watson,

Little, Sawrie, & Biderman, 1992). Other factors in the NPI such as entitlement and

exploitativeness, if focused on, are generally more linked to maladaptive outcomes including

increased antisocial tendencies and decreased relationship quality (Ackerman et al., 2011)

It is questionable for the NPI to resemble a subclinical form of narcissism given its

derivation from clinical criteria. The absence of studies comparing clinical and normal

samples for the NPI also makes it difficult to conclude whether it does in fact assess

subclinical narcissism (Cain et al., 2008). If the NPI did assess subclinical narcissism,

explanations could be difficult to pinpoint. The NPI item pool may not have sufficiently

addressed the wide range of pathological narcissistic qualities defined by clinical criteria,

assuming these criteria did in fact reflect NPD adequately. Furthermore, it is dubious what

the clinical criteria for narcissism even measure to begin with. There is contesting evidence

(Fossati et al., 2005; Miller, Hoffman, Campbell, & Pilkonis, 2008) to whether DSM criteria

support a one-factor solution (grandiose narcissism only) or two-factor solution (grandiose

and vulnerable narcissism).

DSM-based measurement. Empirically, only a few studies have looked into whether

grandiose and vulnerable narcissism are validated with measures of DSM criteria. After

administering structured clinical interviews for the DSM-IV (APA, 1994) to a group of

outpatients, Fossati et al. (2005) used confirmatory factor analysis on NPD criteria. More

specifically, a correlation matrix of the NPD criteria was used to test a one-factor model

against a two-factor model. This analysis supported the existence of two separate, albeit

marginally related, clusters of narcissistic features, which the authors denoted as "overt" and

"covert". The overt cluster comprised indicators from the criteria such as feelings of

grandiosity, specialness and uniqueness, entitlement, exploitativeness, a lack of empathy, and

arrogance. In contrast, the covert cluster comprised indicators such as fantasies of unlimited

success, a need for excessive admiration, and feelings of envy.

This non-unitary approach to narcissism was derived from Akhtar and Thomson

(1982), who first introduced the terms of overt and covert narcissism. Aside from Fossati et

al. (2005), this approach has also been independently validated by a principle components

analysis of six Minnesota Multiphasic Personality Inventory-based narcissism scales, which

produced two orthogonal dimensions: "grandiosity-exhibitionism" (overt) and "vulnerability-

sensitivity" (covert) (Wink, 1991). Grandiose and overt narcissism, as well as covert and

vulnerable narcissism, are therefore considered overlapping and largely synonymous

constructs. This is supported by a factor analysis of the Narcissistic Personality

Questionnaire, created to assess overt and covert narcissism, which found that dimensions of

overt narcissism included authority, superiority, entitlement, and self-admiration, similar to

grandiose narcissism as operationalised by the NPI, and dimensions of covert narcissism

included vulnerability (Zheng & Huang, 2005).

Miller et al. (2008) followed up on Fossati et al.'s (2005) study by comparing a one-

factor structure to a two-factor structure (the two-factor structure was the same as the one

devised in the previous study). Using a mostly outpatient sample and also administering

structured clinical interviews for the DSM-IV (APA, 1994), confirmatory factor analyses

showed that the two-factor structure was not a significantly better fit than the one-factor

structure. Moreover, the study examined the convergent and divergent validity of each model

in association with other DSM-IV personality disorders; it was hypothesised that if there

existed two factors, the "overt" factor should be more strongly associated with other cluster B

personality disorders such as antisocial and histronic. Alternatively, the "covert" factor

should be more strongly related to personality disorders characterised by negative affectivity, such as borderline, avoidant, and dependent. Instead, results showed that the majority of correlations did not differ significantly for the overt and covert factors, suggesting a unidimensional construct of narcissism.

However, it is important to note that Fossati et al.'s (2005) and Miller et al.'s (2008) findings are restricted to a DSM-IV (APA, 1994) conceptualisation of narcissism. For instance, another study conducting structural analyses on DSM-5 NPD (APA, 2013) criteria found that although grandiose and vulnerable narcissism are largely unrelated to each other, both constructs may be necessary to fully capture pathological narcissism (Stanton & Zimmerman, 2017). The study also provided evidence against the claim that grandiose narcissism may be subclinical and/or adaptive, as both grandiose and vulnerable narcissism were linked to psychosocial impairment outcomes such as increased criminality, unemployment, suicidality, and inpatient hospitalisations.

The Pathological Narcissism Inventory. The Pathological Narcissism Inventory (PNI; Pincus et al., 2009) was constructed to address more modern, clinical conceptualisations of narcissism. Based on recent clinical observations of individuals with NPD, the narcissistic experience may necessarily involve both grandiosity and vulnerability. The "fluctuation hypothesis" supposedly accounts for this observed phenomenon: a study investigating clinician and professor ratings of grandiose and vulnerable narcissists revealed that either profiles demonstrated traits of the complementary variant, especially those profiled as grandiose narcissists (Gore & Widiger, 2016). In other words, a typically grandiose narcissist can display vulnerable behaviours and vice versa. Accordingly, the PNI aims to assess a pathological form of narcissism that encapsulates both grandiosity and vulnerability.

Authors of the PNI examined patterns of correlations the NPI and PNI exhibited with other variables in order to determine similarity between the two measures. There was evidence for contrasting relationships, as the NPI correlated positively with self-esteem, negatively with shame, and was unrelated to borderline personality organisation. On the other hand, the PNI was negatively correlated with self-esteem, and positively with shame and borderline personality organisation (Pincus et al., 2009), suggesting that the NPI and PNI may measure different formulations of narcissism. They also found that the NPI was unrelated to psychotherapy variables, whereas higher scores on the PNI correlated with increased psychotherapy presentation and utilisation. If the NPI is purported to measure grandiose narcissism, and Stanton and Zimmerman's (2017) findings of grandiose narcissism associated the construct with psychotherapy presentation and utilisation, it appears that the NPI's measurement of grandiose narcissism differs from the current DSM-5's (APA, 2013) measurement of grandiose narcissism.

Moreover, as Pincus et al. (2009) validated the two-factor structure of grandiose and vulnerable narcissism via confirmatory factor analysis in the PNI, grandiose narcissism as measured by the PNI may align more with the DSM-5, as predicted. Indeed, the authors of the PNI suggested that the NPI was not an appropriate measure of pathological narcissism, but appropriate for the measure of normal and/or adaptive narcissism. Some findings have also suggested that grandiose narcissism as measured by the PNI differs from that of grandiose narcissism measured by the NPI (Wright, 2016). However, another study found that the NPI's trait profile was strongly correlated with expert ratings of DSM-5 NPD criteria, whereas the PNI was mostly uncorrelated (Miller, Lynam, & Campbell, 2016). Therefore, the degree of clinical relevancy for the NPI and the PNI is yet to be concluded.

Measures of vulnerable narcissism. Some measures have been created that solely assess vulnerable narcissism. Amongst them is the Hypersensitive Narcissism Scale (HSNS;

Hendin & Cheek, 1997) and the Narcissistic Vulnerability Scale (NVS; Crowe, Edershile,

Wright, Campbell, & Lynam, 2018). The HSNS in part arose due to the overt/covert theory

of narcissism (Akhtar & Thomson, 1982) and principal components analyses that validated

this approach. Rathvon and Holmstrom (1996) is a study that used Minnesota Multiphasic

Personality narcissism scales to validate a non-unitary nature to the construct, as two

orthogonal dimensions were once again evidenced: grandiosity and "depletion". Interestingly,

this study also looked at the Narcissistic Personality Inventory, suggesting a familiar

conceptualisation of grandiosity. However, it is the depletion factor that is more of interest, as

positive correlations with depression, feelings of inferiority, social introversion and general

distress were discovered for this factor (Rathvon & Holstrom, 1996). This pattern of

correlations is more or less identical to that found for vulnerable narcissism (Cain et al.,

2008; Stanton & Zimmerman, 2017), suggesting that depletion and vulnerable narcissism are

overlapping constructs. These observations for a more vulnerable side to narcissism were

noted as similar to those encapsulated by Murray's (1938) scale by the authors of the HSNS.

The HSNS was consequently devised by correlating items of Murray's scale with a

Minnesota Multiphasic Personality Inventory-based composite measure of covert narcissism.

Hendin and Cheek (1997) found that the HSNS correlated near zero with the NPI, offering

more evidence to the idea that the NPI assesses grandiose narcissism, whereas the HSNS

assesses vulnerable narcissism.

The NVS (Crowe et al., 2018) is the most recent measure of narcissism to be included

in the literature. Authors of the NVS noted that most measures of narcissism, including the

NPI and the PNI, were intended to capture stable, trait-based descriptions of the construct. On

the other hand, the NVS was devised to be capable of assessing state *and* trait

conceptualisations of vulnerable narcissism; as per the fluctuation hypothesis, it is feasible

for the narcissistic experience to involve oscillating between temporary states of grandiosity

and vulnerability. In support of its convergent validity, the NVS correlated positively with measures of vulnerable narcissism, including the HSNS and the PNI. The NVS also manifested discriminant validity in returning a largely unrelated association with the PNI (Crowe et al., 2018), reinforcing further the PNI, the HSNS, and the NVS measure a similar conceptualisation of narcissism, whereas the NPI does not.

Measures summary. Existing evidence suggests that the NPI is a measure of grandiose narcissism and may better suit normal or adaptive approaches to this construct, as the measure has limited clinical validation (Corry, Merrit, Mrug, & Pamp, 2008; Miller et al., 2016a). The PNI is purported to be a measure of pathological narcissism, covering both grandiose and vulnerable expressions, and typically manifests contrasting relationships with other personality factors when compared to the NPI (e.g., self-esteem, shame, and borderline personality organisation; Pincus et al., 2009). The HSNS and the NVS are considered unidimensional measures of vulnerable narcissism, with both measures correlating positively with the PNI, but unrelated to the NPI (Hendin & Cheek, 1997; Crowe et al., 2018). It is also important to note that unlike the PNI, the HSNS and the NVS are intended to measure narcissism within the normal range of individual difference. The PNI is therefore the only measure that subscribes to conceptualising narcissism primarily as pathological.

Personality Factors Relevant for Separation

More recent models of narcissism have attempted an integrative approach to the construct, acknowledging both similarities and differences between grandiosity and vulnerability (Krizan & Herlache, 2018; Miller, Lynam, Hyatt, & Campbell, 2017). However, most research has suggested that grandiose narcissism and vulnerable narcissism are largely separate constructs, with multiple factors that can be used to distinguish between them. For instance, recently the "narcissistic spectrum model" (Krizan & Herlache, 2018) specifies that

although entitlement is common to grandiose and vulnerable narcissism, these constructs can be separated on the basis of approach and avoidance systems. That is, grandiose narcissism is more driven by reward-seeking behaviours (the act of acquiring positives) and vulnerable narcissism by threat-oriented behaviours (the act of avoiding punishments). Similarly, Miller et al. (2017) identify antagonism as common to grandiose and vulnerable narcissism, continuing a pattern observed in many models that outline a form of disagreeableness as shared by these two constructs (Miller et al., 2016b).

However, if this shared variance is removed, grandiose and vulnerable narcissism are frequently unrelated, if not strongly negatively related with each other (Hyatt et al., 2018; Miller et al., 2010). At least this is the case in subclinical samples, as there has not yet been a systematic investigation into the correlation between grandiose and vulnerable narcissism in clinical samples (Jauk, Weigle, Lehmann, Benedek, & Neubauer, 2017; Miller et al., 2011). Moreover, disagreeableness as a common core to grandiose and vulnerable narcissism is itself questionable, as disagreeableness may manifest differently for these two constructs. For instance, disagreeableness in grandiose narcissism is often driven by immodesty and noncompliance, whereas in vulnerable narcissism it is driven by anger and distrust (Campbell & Miller, 2013). This current section will address some personality factors established in past studies to differentiate between grandiose and vulnerable narcissism (e.g., extraversion, neuroticism, and self-esteem), and others that are comparatively tentative in whether they do in fact discriminate (e.g., perfectionism and social anxiety).

Extraversion and neuroticism. Extraversion refers to the tendency to be outgoing and social with others, whereas neuroticism refers to the tendency to experience negative affectivity, including self-consciousness, anxiety, and depressed mood (McCrae & John, 1992). Extraversion and neuroticism are two personality traits that are part of the Big Five personality theory, alongside agreeableness, conscientiousness, and openness. Similar to

grandiose and vulnerable narcissism according to a trait approach, the Big Five are assumed to be relatively stable and enduring indicators of personality (Costa Jr., 1991). This nomological network has often been used to describe grandiose and vulnerable narcissism, for instance, low agreeableness is regularly cited as common to both these traits (in some way synonymous to antagonism; Miller et al., 2017). Literature exploring the relationship between the Big Five and narcissism often include the Five-Factor Narcissism Inventory, a measure specifically designed to assess grandiose and vulnerable narcissism from a Big Five perspective (Miller at al., 2013). Use of this measure has helped inform that although conscientiousness and openness are less explored and typically return non-significant results, extraversion and neuroticism are more evidenced in their relation to grandiose and vulnerable narcissism (Miller et al., 2016b). Extraversion is typically positively linked to grandiosity and negatively or non-significantly linked to vulnerability, and neuroticism is typically negatively or non-significantly linked to grandiosity and positively linked to neuroticism (Cain et al., 2008; Miller et al., 2011). These social-personality findings can also be seen as predicted by Wink's (1991) analysis of clinical measures of narcissism, because he described grandiose narcissists as more likely to be assertive and outspoken, whereas vulnerable narcissists are often withdrawn.

However, speculation has been aimed at the direction of causality between narcissistic traits and the Big Five. Some have claimed that the Big Five traits could influence the expression of narcissism as either grandiose or vulnerable, as opposed to narcissistic traits causing discrepancy in the Big Five in of themselves (Miller et al., 2011). Furthermore, the role that extraversion plays in discriminating narcissistic traits from each other remains dubious: extraversion may "mask" a common foundation to these traits. One study found that although grandiosity and vulnerability did exhibit opposing relationships with extraversion,

controlling for extraversion revealed that the higher the grandiosity, the greater the positive association with vulnerability (Jauk et al., 2017).

The association between narcissistic traits and neuroticism is also not clear. As vulnerable narcissism is linked to several mental disorders other than NPD (e.g., borderline personality disorder and anxiety disorder), investigating the function of neuroticism in vulnerability seems to suggest that it plays a crucial role in pathologising of the narcissistic trait (Stanton & Zimmerman, 2017). For example, one theory regarding the function of neuroticism suggests an interaction with helplessness; because vulnerable narcissism is prone to helplessness, combined with increased neuroticism it leads to a predisposition towards psychopathology. Other factors support the helplessness theory, including the role of agency in differentiating between grandiosity and vulnerability. Given that low agency is associated with vulnerability, this narcissistic trait exhibits a decreased capacity to deal with stressors (Miller, Price, Gentile, Lynam, & Campbell, 2012). Resorting to rumination is therefore more typical of vulnerable narcissism and characteristic of neuroticism (Fernie, Fung, & Nikcevic, 2016). Recently, some authors have even suggested that vulnerable narcissism can be considered a disorder of neuroticism, as empirical correlates between these two constructs were nearly identical (Miller et al., 2018). These empirical correlates covered a wide variety of outcomes, including personality disorder and dysfunction, attachment styles, internalising and externalising symptoms, and social cognition.

Although the Big Five approach is useful for separating grandiose narcissism from vulnerability, its explanatory and predictive power seems to be somewhat lacking. In other words, extraversion and neuroticism may help describe the ways in which grandiose and vulnerable narcissism are different from each other, but they do little to explain *why* these two narcissistic traits are different from each other. Especially from a trait perspective, it is also questionable to whether the Big Five can be used to predict changes in pathological

narcissism over time. If we are to assume that grandiose and vulnerable narcissism are stable,

as to the Big Five personality traits, the relationships between these variables would be

expected to remain relatively constant over time. Longitudinal studies are necessary to assess

the validity of this approach to narcissism. It may be that trait conceptualisations of

narcissism need to be widened to include state conceptualisations, and also acknowledge the

role of situational factors (Ackerman, Donnellan, & Wright, 2019).

Self-esteem. Regulation of self-esteem is often considered central to how narcissism

functions. Self-esteem refers to an individual's subjective evaluation of their worth, with high

self-esteem reflecting a positive self-evaluation (Crowe, Sleep, Carter, Campbell & Miller,

2018). Naturally, narcissism and self-esteem are expected to relate to each other as they both

depend on self-evaluations. However, the way the variables relate to each other has been

contended, with two opposing models: the mask model and the explicit model (Miller et al.,

2017). The mask model proposes that narcissistic traits such as grandiosity are used to hide

low self-esteem. It also distinguishes between two different forms of self-esteem, explicit

(intentional and controllable) and implicit (automatic and uncontrollable). Implicit self-

esteem is usually difficult to measure, however, with mixed findings for methods such as

implicit association tests and name letter tests (Bosson et al., 2008).

As such, many studies testing the mask model for narcissism have preferred to look

exclusively at explicit self-esteem. A study that examined the relationship between grandiose

narcissism and explicit self-esteem found that results differed according to factors; for

instance, focusing on leadership/authority produced a small, positive relation with explicit

self-esteem, whereas entitlement/exploitation produced a large, negative relation with explicit

self-esteem (Hyatt et al., 2018). The authors argued accounting for agreeableness/communion

could explain these results, in that narcissistic features associated with low agreeableness

(i.e., entitlement/exploitation) should produce lower explicit self-esteem. They also suggested

that low agreeableness is important for understanding dysfunctional behaviour linked to narcissistic individuals.

Possible mediating factors are helpful to recognise because grandiose narcissism often exhibits a complex relationship with explicit self-esteem. Grandiosity is sometimes linked to high explicit self-esteem, and in turn high explicit self-esteem is often linked to improved psychosocial outcomes (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). But if grandiose narcissism is sometimes linked to low explicit self-esteem, and disagreeableness accounts for these findings (Hyatt et al., 2018), it stands to reason that different results regarding explicit self-esteem may be due to conceptualising narcissism as either subclinical or pathological. Therefore, a negative association should be expected between explicit self-esteem and narcissism if the latter is pathologised. Strangely, this is at odds with the mask model, which states that patients with NPD should have a combination of high *explicit* self-esteem and low *implicit* self-esteem.

On the contrary, another study examining patients with NPD found evidence for "damaged self-esteem", characterised by low explicit self-esteem and high implicit self-esteem (Vater et al., 2013). This is instead in line with the argument that more maladaptive forms of narcissism should exhibit *lower* explicit self-esteem (Hyatt et al., 2018). Results from Zeigler-Hill's (2006) study supported this notion of discrepant self-esteem, although not necessarily linked to a maladaptive form of narcissism, as individuals with high NPI scores were found to exhibit high explicit and low implicit self-esteem. Unfortunately, studies have not yet explored the mask model of self-esteem for vulnerable narcissism. In fact, Hyatt et al. (2018) intentionally chose to exclude vulnerability on the basis that it is supposedly unrelated, and less evidenced in comparison, to grandiosity. Nonetheless, with the literature that is available, there is cause for the mask model of self-esteem to be treated with caution in regard to narcissism.

Contrary to the mask model, the explicit model of self-esteem contends that narcissism can involve genuine endorsement of the self, as characteristically witnessed in grandiosity (Miller et al., 2017). The explicit model does not distinguish between forms of self-esteem as the mask model does, although general self-esteem in the explicit model can be considered equivalent to explicit self-esteem in the mask model. General self-esteem is usually assessed with Rosenberg's (1965) self-esteem scale, evidenced as a unidimensional measure of the construct. Grandiose narcissism has been repeatedly linked to high self-esteem, whereas vulnerable narcissism is repeatedly linked to low self-esteem (Miller et al., 2011; Rohmann, Hanke, & Bierhoff, 2019; Rose, 2002). High NPI scores, more representative of grandiosity than vulnerability, are also often linked to high self-esteem (Cain et al., 2008). Dominance is said to strengthen the positive relationship between grandiose narcissism and self-esteem (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004); dominance is central to grandiosity, but not vulnerability (Brown & Zeigler-Hill, 2004). This may partially explain why vulnerable narcissism presents a conflicting relationship with self-esteem compared to grandiose narcissism, that is, vulnerability is negatively associated with self-esteem (Brookes, 2015).

It is also possible that as with neuroticism, agency plays a role in the relationship between narcissistic traits and self-esteem. A model by Campbell, Brunell, and Finkel (2006) proposes that the positive impact of narcissism on self-esteem is explained by two processes, interpersonal skills and interpersonal strategies. Examples of interpersonal skills include personal attributes intended to attract others, such as charisma, charm, and physicality. Examples of interpersonal strategies include social tactics intended to promote oneself, such as acquiring trophy partners, demeaning or exceeding others, and maintaining a positive reputation. Given that those high in grandiose narcissism consider their interpersonal skills as sufficient and their interpersonal strategies as successful, they have inflated self-esteem. On

the other hand, those high in vulnerable narcissism are limited in their feelings of agency when interacting with others, leading to deflated self-esteem. Similarly, another study demonstrated that NPI scores are varied in their links to self-esteem depending on whether agentic narcissistic traits are measured: overall self-esteem was higher for increased agentic expressions of narcissism (Campbell, Bosson, Goheen, Lakey, & Kernis, 2007). Having said this, increased self-esteem is evidently more likely for grandiose than vulnerable narcissism (Miller et al., 2012).

An alternative approach to the relationship between narcissism and self-esteem suggests that these constructs may be unrelated. Brummelman, Thomaes, and Sedikides (2016) have argued that narcissism and self-esteem should effectively not be linked to each other. The authors cite differences in phenotype, consequences, development, and origin. For instance, narcissism and self-esteem are usually only moderately correlated; although narcissism involves feeling superior to another, it does not necessarily involve feeling good about oneself (for a review, see Thomaes & Brummelman, 2016). Additionally, narcissistic behaviour is said to be driven by aggressive and dominant urges, not mirrored by individuals with high self-esteem (Campbell, Rudich, & Sedikides, 2002). Narcissism and self-esteem also differ in their developmental courses, in that narcissism peaks in adolescence and steadily decreases throughout adulthood. Contrarily, self-esteem dips in adolescence, and steadily increases throughout adulthood (Foster, Campbell, & Twenge, 2003; Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002). Lastly, narcissism and self-esteem may originate from diverse experiences: a longitudinal study found that parental overvaluation (excessive praise and granting of privileges) predicted narcissism, but parental warmth (appropriate affection and appreciation) predicted self-esteem (Brummelman et al., 2015).

Social anxiety. Social anxiety refers to fears about situations that involve the potential for scrutiny, particularly regarding performance and interactions with others (Rapee

& Heimberg, 1997). Concern over social scrutiny is posited to exist on a continuum ranging from mere shyness, to social phobia, and lastly avoidant personality disorder. According to a cognitive behavioural model of social anxiety, individuals who exhibit this characteristic are highly self-critical, perceive little control over themselves, and exaggerate their incompetency (Hofmann, 2007). On face value, these attributes may sound similar to those associated with introversion (the opposite of extraversion), neuroticism, low self-esteem, and even perfectionism, foreshadowing a positive association between vulnerable narcissism and social anxiety. Nonetheless, research directly evaluating the relationship between narcissism and social anxiety has been exceptionally sparse, with only a few studies available.

A preliminary study investigating the association between narcissism and social anxiety hypothesised these constructs should be linked due to a common foundation in shame (Schurman, 2000). The author, however, focused on vulnerable narcissism for this hypothesis as she expected the NPI to be unrelated with social anxiety. Partially endorsing this theory, high scores on the HSNS were correlated with increased social anxiety, but the NPI showed a negative relationship. Williams (2016) expanded on Schurman's work by identifying subgroups within social anxiety populations, including "covert narcissistic social anxiety" subgroups, using high scores on measures for vulnerable narcissism and social anxiety. These subgroups reported increased experience of negative affect, as well as worse personality organisation, with greatest impairment shown in those particularly elevated in anger.

In contrast to these studies, Akehurst and Thatcher (2010) proposed that increased narcissism should protect individuals from experiencing social anxiety. Unlike Schurman (2000), this hypothesis was reliant on a conception of narcissism reflecting self-aggrandising and exhibitionist behaviour (Morf & Rhodewalt, 2001), as well as positive self-appraisal (Wallace & Baumeister, 2002). Subsequently, such a conception of narcissism was likely to resemble grandiose narcissism, and the NPI was used in this study (Akehurst & Thatcher,

2010). Results indicated that NPI scores did protect individuals from experiencing high social anxiety, but this finding is not generalisable to vulnerable narcissism. Based off these observations, characteristics associated with grandiose narcissism seem to be counteractive to the experience of social anxiety (e.g., decreased neuroticism, displays of superiority, and increased self-esteem; Akehurst & Thatcher, 2010). On the other hand, characteristics associated with vulnerable narcissism and social anxiety are rather similar, as they share increased neuroticism, affected personality structures, and feelings of rage (Schurman, 2000; Williams, 2016).

Perfectionism: An exception to the rule? Many approaches to narcissism, such as cognitive and clinical, have emphasised perfectionism as a related feature to the construct (Beck, Freeman, & Davis, 2004). For instance, Millon's conceptualisation of narcissism involved an individual that could not tolerate any small flaw in themselves (Millon & Davis, 2000). Likewise, individuals high in perfectionism strive for flawlessness, impose extreme standards upon themselves, and harshly self-evaluate. Recent studies in narcissism and perfectionism have attempted to unite these two constructs and specify a form of narcissistic perfectionism (Nealis, Sherry, Lee-Baggley, Stewart, & Macneil, 2016; Nealis, Sherry, Sherry, Stewart, & Macneil, 2015). However, it is still unclear whether perfectionism relates to grandiose and vulnerable narcissism differently. The most widely used model of perfectionism in regard to narcissism is a three-dimensional model, including self-oriented (requiring perfection from oneself), other-oriented (requiring perfection from others), and socially prescribed (believing others require perfection) perfectionism (Hewitt & Flett, 1991).

Many theories concerning the function of perfectionism in narcissism could be used to hypothesise how these models of perfectionism might apply to grandiosity and vulnerability. Perfectionism is occasionally cited as a mechanism that maintains and reinforces a superior self-image; in this way, increased perfectionism is linked to grandiose narcissism. Similarly,

a self-regulatory theory describes perfectionism as an interpersonal tactic to defend and boost self-esteem in narcissistic individuals (Morf & Rhodewalt, 2001). In support of this theory, one study found that self- and other-oriented perfectionism predicted greater self-esteem in those with higher NPI scores (Watson, Varnell, & Morris, 1999). Other theories of perfectionism have directly pinpointed its motivation as driven by feelings of worthlessness (Ronningstam, 2010), suggesting that vulnerable narcissism could also be associated with increased perfectionism. Pincus, Cain, and Wright (2014) highlighted the pathological nature of perfectionism in narcissism, as it is thought to contribute to social withdrawal and a lack of genuine reinforcement from external sources. Akin to that posited by cognitive theorists, instead of resolving their own imperfect sense of self, those high in narcissistic traits continue to project their perfectionistic expectations and persistent dissatisfaction with flaws onto others (Beck et al., 2004). Taken altogether, these theories seem to suggest that grandiose and vulnerable narcissism could be both linked to increased perfectionism, although it is still open to debate which forms of perfectionism would be related to these two constructs.

Empirical research investigating the relationship between narcissism and perfectionism is somewhat lacking, with most studies treating narcissism as a unidimensional construct (Sherry et al., 2014; Stoeber, 2014). The first study to assess perfectionism in relation to grandiose and vulnerable narcissism used similar measures incorporated into this thesis, such as the NPI, the PNI, and the HSNS (Stoeber, Sherry, & Nealis, 2015). This study found evidence for a robust relationship between other-oriented perfectionism and grandiose narcissism, as well as socially prescribed perfectionism and vulnerable narcissism, but not for a relationship between self-oriented perfectionism and either of the narcissism subtypes. A meta-analytic review conducted by Smith et al. (2016) assessed thirty studies and found that self- and other-oriented perfectionism was connected to grandiose narcissism, whereas socially prescribed perfectionism was connected to vulnerable narcissism. Therefore,

although an increased frequency of perfectionistic thoughts was observed in grandiose and vulnerable narcissists, the content of these thoughts was a meaningful distinction between the two constructs. That is, a grandiose narcissist may focus on achieving perfectionism, and a vulnerable narcissist may focus on perceived failure to be perfect. However, it is important to acknowledge that many of the observed effect sizes for these relationships in the meta-analytic review were weak to moderate strength at best. Available studies examining vulnerable narcissism were also notably less than grandiose narcissism (Smith et al., 2016).

Related factors summary. There appears to be good evidence behind distinct nomological nets for grandiose narcissism and vulnerable narcissism (Daly, 2016). More specifically, extraversion and neuroticism are thoroughly researched in their opposite relationships with grandiose and vulnerable narcissism (Cain et al., 2008; Jauk et al., 2017); extraversion is positively associated with grandiose narcissism and neuroticism is negatively associated with grandiose narcissism. Whereas, extraversion is negatively associated with vulnerable narcissism and neuroticism is positively associated with vulnerable narcissism (Miller et al., 2011). Moreover, at least on an explicit level self-esteem is positively associated with grandiose narcissism, whereas self-esteem is negatively associated with vulnerable narcissism (Hyatt et al., 2018). Lastly, preliminary research on social anxiety suggests that it is negatively associated with grandiose narcissism and positively associated with vulnerable narcissism (Schurman, 2000; Williams, 2006). Perfectionism is the only personality variable reviewed that is likely to be shared amongst grandiose and vulnerable narcissism, as increased perfectionism is observed in both variants   (Smith et al., 2016).

The Current Investigation

In part due to the lack of clarity regarding the relationship between normal and pathological narcissism (Pincus & Lukowitsky, 2010) as well as the clinical relevancy of

narcissism measures (Miller et al., 2016a; Stanton & Zimmerman, 2017), the present study will adopt a trait approach to the constructs of grandiose and vulnerable narcissism. These constructs will consequently be viewed as continuous and we will not assume that higher scores on grandiose or vulnerable narcissism equate to pathological narcissism. This approach allows us to more simply associate these two narcissism constructs with other personality traits (Miller & Campbell, 2010). Findings from a social-personality perspective of narcissism can still help inform clinical conceptualisations of narcissism, especially considering that a proposed revision for future DSM NPD criteria depends on deviations in normal personality traits (APA, 2013).

Aim and Hypotheses

The aim of the present study is to therefore validate the approach towards narcissism that specifies two subtypes, grandiosity and vulnerability. In doing this, we will investigate their relationships with other personality factors. These two subtypes may be marginally related but are expected to mostly differ from each other. The overall hypothesis is that, if grandiose narcissism and vulnerable narcissism are separate constructs, scores on grandiose narcissism and on vulnerable narcissism will have predictable and different patterns of association with other constructs. Specifically, it is predicted that:

1. Grandiose narcissism will have a positive association with extraversion, whereas vulnerability will have a negative association with extraversion.

2. Grandiose narcissism will have a negative association with neuroticism, whereas vulnerable narcissism will have a positive association with neuroticism.

3. Grandiose narcissism will have a positive association with self-esteem, whereas vulnerable narcissism will have a negative association with self-esteem.

4. Grandiose narcissism will have a negative association with social anxiety, whereas vulnerable narcissism will have a positive association with social anxiety.

Finally, although it will be predicted that grandiose narcissism and vulnerable narcissism will both have a positive association with perfectionism, grandiose narcissism and vulnerable narcissism are also ultimately expected to have a weak association with each other.

Through structural equation modelling, the present study is also intended to increment upon present literature by implementing these narcissism subtypes and personality factors into a single model, instead of assessing these associations separately in different models as prior studies have typically done. This enables us to observe whether expected associations will hold in conjunction with each other, and therefore imply which personality factors may be more relevant in differentiating grandiose narcissism from vulnerable narcissism. Furthermore, the inclusion of social anxiety into the model in particular lessens a gap in literature as there are currently only a few studies that have addressed the relationship between narcissism and social anxiety.

Method

Participants

This study recruited participants from two sources. The first source was students at Macquarie University in Australia. Students were enrolled in first-year psychology courses and were invited to complete the study for course credit via an online recruitment portal. This study was available for completion over the duration of two semesters, from approximately April to August 2019. Using this source, 482 participants were recruited for the study. The second source of recruitment included international online communities (https://psych.hanover.edu/research/exponnet.html and https://www.socialpsychology.org), where invitations to participate included online advertisements on respective sites and supporting social networks (i.e., Facebook and Twitter). Using this source, 69 participants were recruited for the study.

In total, 551 individuals consented to participate in this study. However, in the data cleaning process, a number of cases were excluded on the basis of either not completing the majority of the survey or failing to complete at least 50% of a measure. Biased responding was also checked for, including acquiescence and extreme responding. This process resulted in the removal of 43 participants' data. The final number of participants in the study was therefore 508 individuals (419 females, 82.5%; 85 males, 16.7%), ranging from 17 to 80 years of age (*Mdn* = 19, *IQR* = 18-27 years).

The majority of participants were either full-time students (43.5%) or employed part-time (30.5%), whereas a smaller percentage were employed full-time (15.2%). Only a minority of participants were unemployed (2.6%), committed to full-time home duties (2.4%), self-employed (2.2%), retired (1.8%), or otherwise temporarily (0.6%) and permanently (0.4%) unable to work due to illness or injury. Furthermore, most participants had completed secondary school (64.2%), whereas a lesser percentage had either completed an undergraduate degree (18.3%) and trade certificate or apprenticeship (11.0%), with a minority having completed a postgraduate degree (3.7%).

Materials

Grandiose narcissism. The NPI (Raskin & Terry, 1988) and a brief version of PNI (B-PNI; Schoenleber et al., 2015) were used to assess grandiose narcissism. The NPI has 40 items. Each item is a dichotomous forced choice, where participants choose which option applies most appropriately to them (e.g., *Modesty doesn't become me* vs. *I am essentially a modest person*). Each item was scored as either 0 or 1 (i.e., *Modesty doesn't become me* was scored 1 as the more "narcissistic" choice). The potential score for this measure ranges between 0 and 40, a higher score indicating greater grandiose narcissism. The NPI is the most extensively used out of all narcissism measures (Cain et al., 2008) and has been

independently supported in regard to its construct validity (Emmons, 1984). The measure has

also previously displayed acceptable internal consistency ($\alpha = 0.80$; del Rosario & White,

2005) and in this study demonstrated acceptable internal consistency ($\alpha = .86$).

The B-PNI has 28 items (Schoenleber et al., 2015), reduced from the initial 52 items

of the PNI (Pincus et al., 2009). Each item comprised a statement (e.g., *I can read people like

a book*) that participants rate using a 5-point Likert scale (1 = *Not at all like me*, 5 = *Very

much like me*) based on the extent to which they feel the statement reflects them. The

potential score for this measure ranges between 28 and 140, a higher score indicating both

greater grandiose and vulnerable narcissism (as the B-PNI was also used to assess vulnerable

narcissism). Concurrent validity of the brief version is supported with the original measure

and subscales have produced adequate internal consistency ($\alpha = .73$-$.91$; Somma, Pincus,

Fontana, Cianfanelli, & Fossati, 2019). The current study demonstrated acceptable internal

consistency for the B-PNI ($\alpha = .92$).

Vulnerable narcissism. The B-PNI, the HSNS (Hendin & Cheek, 1997), and the

NVS (Crowe et al., 2018) were used to assess vulnerable narcissism.[1] The HSNS is a 10-item

measure designed to encapsulate a covert form of narcissism, characterised by psychological

insecurity, sensitivity to rejection, and negative affectivity. Each item comprised a statement

(e.g., *I dislike sharing the credit of an achievement with others*) that participants rate using a

5-point Likert scale (1 = *Very uncharacteristic,* 5 = *Very characteristic*) based on the degree

to which they feel the statement is characteristic of them. The potential score for this measure

ranges from 10 to 50, a higher score indicating greater vulnerable narcissism. The HSNS has

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[1] The B-PNI was allowed to assess both grandiose and vulnerable narcissism due to the theoretical foundation
behind the PNI (i.e., the fluctuation hypothesis) that suggests grandiose and vulnerable narcissism often occur in
tandem with each other (Gore & Widiger, 2016). Some analyses also suggest that items assessing grandiose
narcissism may produce crossover for elements relevant to vulnerable narcissism as well (Krizan & Herlache,
2018), and that subscales for grandiose narcissism and vulnerable narcissism correlate with each other
(Maxwell, Donnellan, Hopwood, & Ackerman, 2011).

previously demonstrated adequate internal consistency (α = .71). It also has evidence for construct validity as the measure produced a theoretically consistent and opposing pattern of correlations with other related factors compared to the NPI (Fossati et al., 2009). The present study demonstrated adequate internal consistency for the HSNS (α = .78).

The NVS is an 11-item measure that was devised to efficiently assess both state and trait measures of vulnerable narcissism. Each item is a singular adjective (e.g., *Fragile*) that participants rate according to a 7-point continuous scale (1 = *Not at all,* 7 = *Extremely*) based on the extent to which they feel the adjective describes them in general. The potential score for this measure ranges from 7 to 77, a higher score indicating greater vulnerable narcissism. The NVS evidences a one-factor structure with good internal consistency (α = .90-.91; Crowe et al., 2018). The measure also has independent support for its construct validity, exhibiting expected positive correlations with vulnerability subscales of the PNI and the Five Factor Narcissism Inventory (Edershile et al., 2019). The present study demonstrated adequate internal consistency for the NVS (α = .89).

Extraversion and neuroticism. The Mini-International Personality Item Pool was used to assess both extraversion and neuroticism (Donnellan, Oswald, Baird, & Lucas, 2006). This measure is a short form of the original 50-item International Personality Item Pool. For this study, only eight of the 20 items were included from the measure as other traits (agreeableness, conscientiousness, and openness) were not of interest. Extraversion and neuroticism are each assessed with four items and each item comprises a statement (e.g., *I am the life of the party*) that participants rate using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). The potential scores for both extraversion and neuroticism measures range from 4 to 20, a higher score indicating greater extraversion and neuroticism respectively. The Mini-International Personality Item Pool has exhibited acceptable internal consistencies (α = .77-.82 for extraversion; α = .68-.70 for neuroticism), as well as

convergent, discriminant, and criterion-related validity with other Big Five measures (Donnellan et al., 2006). The current study demonstrated acceptable internal consistency for extraversion (α = .80) but not neuroticism (α = .57).

Perfectionism. The Big Three Perfectionism Scale was used to assess perfectionism (Smith et al., 2016). Although the original measure contains 45 items, only 14 items were used as recent research has mainly looked at other-oriented (five items), self-oriented (five items), and socially prescribed perfectionism (four items) in relation to narcissism (reference needed). Each item comprises a statement (e.g., *People expect too much of me*) that participants rate using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). The potential score for this measure ranges between 14 and 70, a higher score indicating greater perfectionism. Internal consistency for the Big Three Perfectionism Scale has been supported by its authors and an independent source (α = .71-.93; Casale, Fioravanti, Rugai, Flett, & Hewitt, 2019). The current study demonstrated adequate internal consistency for this selected version of the Big Three Perfectionism Scale (α = .89).

Self-esteem. The Rosenberg Self-esteem Scale (Rosenberg, 1965) is a 10-item measure that was used to assess self-esteem. Each item comprises a statement (e.g., *On the whole, I am satisfied* with myself) that participants rate using a 4-point Likert scale (1 = *Strongly disagree*, 4 = *Strongly agree*). The potential score for this measure ranges between 10 and 40, a higher score indicating greater self-esteem. It is the most widely used measure for this construct and has typically displayed adequate internal consistency for various samples (α = .77-.88) (Blascovich & Tomaka, 1993; Rosenberg, 1986). It is also generally supported as a unidimensional measure of self-esteem (Swensen, 2003). The current study demonstrated adequate internal consistency for the Rosenberg Self-esteem Scale (α = .90).

Social anxiety. Brief versions of both the Fear of Negative Evaluation Scale (Leary, 1983) and the Social Interaction Anxiety Scale (Peters, Sunderland, Andrews, Rapee, & Mattick, 2012) were used to assess social anxiety. The brief version of the Fear of Negative Evaluation Scale is a 12-item measure and each item comprises a statement (e.g., *I am afraid that people will find fault with me*) that participants rate using a 5-point Likert scale (1 = *Not at all characteristic*, 5 = *Extremely characteristic*). The potential score for this measure ranges between 12 to 60, a higher score indicating greater social anxiety. Prior research has suggested acceptable internal consistency for the measure (α = .80; Duke, Krishnan, Faith, & Storch, 2006); the current study also demonstrated this result (α = .91). The brief version of the Social Interaction Anxiety Scale is a 6-item measure and each item comprises a statement (e.g., *I feel tense if I am alone with just one person*) that participants rate using a 5-point Likert scale (1 = *Not at all characteristic*, 5 = *Extremely characteristic*). The potential score for this measure ranges between 6 to 30, a higher score indicating greater social anxiety. This brief version has produced concurrent validity with the full version of the Social Interaction Anxiety Scale and convergent validity with the brief version of the Fear of Negative Evaluation Scale (Peters et al., 2012). Adequate internal consistency has been previously supported for this measure (α = .71; Erceg-Hurn & McEvoy, 2018); the current study also demonstrated good internal consistency (α = .86).

Procedure

This study and its procedures were approved by the Macquarie University Human Research Ethics Committee (Reference number: HREC 5201951987690). Participants provided informed consent online before they answered questions about demographic details, then proceeding to complete the questionnaires measuring narcissism and related constructs. Completion required approximately 30 minutes and measures within the battery were presented randomly to reduce possible order effects. Participants who completed the study as

Macquarie University undergraduate students were compensated with course credit, whereas participants otherwise recruited through online websites were not directly compensated. These participants could have benefitted from their experience as part of a research process.

Statistical Analysis Plan

Data were analysed using IBM SPSS and AMOS software, version 26. To assess possible associations between grandiose narcissism and vulnerable narcissism with other personality constructs, a structural equation model with maximum likelihood estimation was applied.[2] Although grandiose and vulnerable narcissism were classified as latent, exogenous variables (independent variables), and extraversion, neuroticism, perfectionism, self-esteem and social anxiety as latent, endogenous variables (dependent variables), this is not intended to be interpreted in a causational nature. The aim of this data analysis is to investigate the mere association between grandiose and vulnerable narcissism and other personality factors, without specifying a direction as it is unclear from current literature whether narcissism causes certain personality factors or vice versa.

Randomly generated item parcels were used to measure all latent variables in the model and therefore classified as observed variables. Given that maximum likelihood estimation was applied, multivariate normality analysis was conducted on the randomly generated item parcels, which indicated that no item parcel deviated from normality. Grandiose and vulnerable narcissism were attached with a covariance, representing that is also not defined whether grandiose narcissism causes vulnerable narcissism, or vice versa.

A single pathway for each set of item parcels was constrained to 1.00 to ensure identification. Modification indices were performed on this initial model (Appendix A), which later informed further refitting of the final model where errors between item parcels for

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[2] The measurement model prior to a structural model was not fitted.

each narcissism measure were also covaried. Errors for extraversion and neuroticism were also covaried with each other, in reference to the modification indices and within reason as these item parcels ultimately derived from the same measure (see Appendix B for error covariances).

Model fit was assessed using the chi-squared test (χ^2) with a pre-determined alpha of 0.05. However, this statistic may be questionable in its power to determine good fitting models as it is sensitive to larger sample sizes. A ratio of χ^2/df has been suggested to minimise the impact of sample size on the statistic, with recommendations ranging from as high as 5.0 (Wheaton, Muthen, Alwin, & Summers, 1977) to as low as 2.0 (Tabachnick & Fidell, 2007).

Other fit indices included the Comparative Fit Index (CFI; Bentler, 1990), the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), and the Standardised Root Mean Square Residual (SRMR; Bentler, 1995). Models are said to fit the data well when the CFI is above 0.90, although ideally it should exceed 0.95 (Hu & Bentler, 1999). The RMSEA is acceptable when below 0.08 (MacCallum, Browne, & Sugawara, 1996), however some stricter guidelines suggest a cut-off closer to 0.06, with a stringent upper limit of 0.07 (Hu & Bentler, 1999). Cut-offs for the SRMR also vary, with suggestions that anything less than 0.10 is acceptable (Bentler, 1995), while more stricter guidelines such as 0.08 and below may need to be considered for sample sizes larger than $n = 500$ (Weston & Gore Jr., 2006).

Results

Descriptive statistics and correlations for all the measures are provided in Table 1. As expected, the NPI was not significantly correlated to either the HSNS or the NVS, evidencing divergent validity. However, the NPI was moderately, positively correlated with the PNI. As expected, the PNI was also strongly, positively correlated with the HSNS and the NVS.

Table 1

Summary of Correlations, Means, and Standard Deviations for Measures

Measure	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*M*	*SD*	*Range*
1. NPI	–										10.54	6.48	0-32
2. PNI	.34*	–									79.96	18.87	33-134
3. HNS	.07	.60*	–								28.50	6.78	10-50
4. NVS	-.03	.53*	.59*	–							27.89	11.99	11-70
5. EXT	.47*	.02	-.29*	-.28*	–						11.58	3.93	$3^{\dagger}$-20
6. NEU	-.03	.39*	.42*	.53*	-.12*	–					12.62	3.25	4-20
7. BTPS	.26*	.54*	.42*	.38*	-.07	.25*	–				34.42	9.57	14-66
8. RSES	.32*	-.33*	-.40*	-.62*	.35*	-.50*	-.22*	–			26.99	5.96	$6^{\dagger}$-40
9. FNE	-.20*	.44*	.48*	.48*	-.27*	.46*	.34*	-.53*	–		39.91	10.56	12-60
10. SIAS	-.27*	.29*	.47*	.48*	-.56*	.32*	.23*	-.51*	.46*	–	13.28	5.43	6-30

Note. NPI = Narcissistic Personality Inventory; PNI = brief version of the Pathological Narcissism Inventory; HNS = Hypersensitive Narcissism Scale; NVS = Narcissistic Vulnerability Scale; EXT = extraversion items in the Mini-International Personality Item Pool; NEU = neuroticism items in the Mini-International Personality Item Pool; BTPS = devised Big Three Perfectionism Scale; RSES = Rosenberg Self-esteem Scale; FNE = brief Fear of Negative Evaluation Scale; SIAS = brief Social Interaction Anxiety Scale. * $p < .05$. † These minimums may differ from potential minimums assuming completed measures (stated in Materials), as cases whom completed more than 50% of items from each measure were allowed in analysis.

Lastly, the HSNS was strongly, positively correlated with the NVS, supporting construct validity for both measures as they assess vulnerable narcissism.

Preliminary observation of the relationships between the NPI and other personality factors showed that although the measure was predictably moderately, positively correlated with extraversion, it was also uncorrelated with neuroticism. The NPI was positively correlated with perfectionism and self-esteem, and negative correlated with measures of social anxiety. These correlations are expected, and all were weak to moderate strength.

The PNI, representing grandiose and vulnerable narcissism, was uncorrelated with extraversion but moderately, positively correlated with neuroticism. As predicted, the PNI was strongly, positively correlated with perfectionism and moderately, positively correlated with measures of social anxiety. Lastly, the measure was moderately, negatively correlated with self-esteem.

The grandiose subscale of the PNI was also strongly, positively correlated with the vulnerable subscale of the PNI, $r(508) = .666$, $p < .001$. The only other correlation of interest was the moderate, positive association between the brief Fear of Negative Evaluation Scale and the brief Social Interaction Anxiety Scale, supporting convergent validity as these measures both assess social anxiety.

Results from the structural equation model (see Figure 1) indicate mixed findings regarding fit to the data ($\chi^2 = 2304.03$; $p < .001$; $CFI = .859$, $RMSEA = .074$ [90% CI = .070-.077], $SRMR = .0693$). The model had 615 degrees of freedom and as per the χ^2/df ratio (3.75), there was also room for improvement (although acceptable according to some barometers, it is not for others, Wheaton, Muthen, Alwin, & Summers, 1997; Tabachnick & Fidell, 2007).
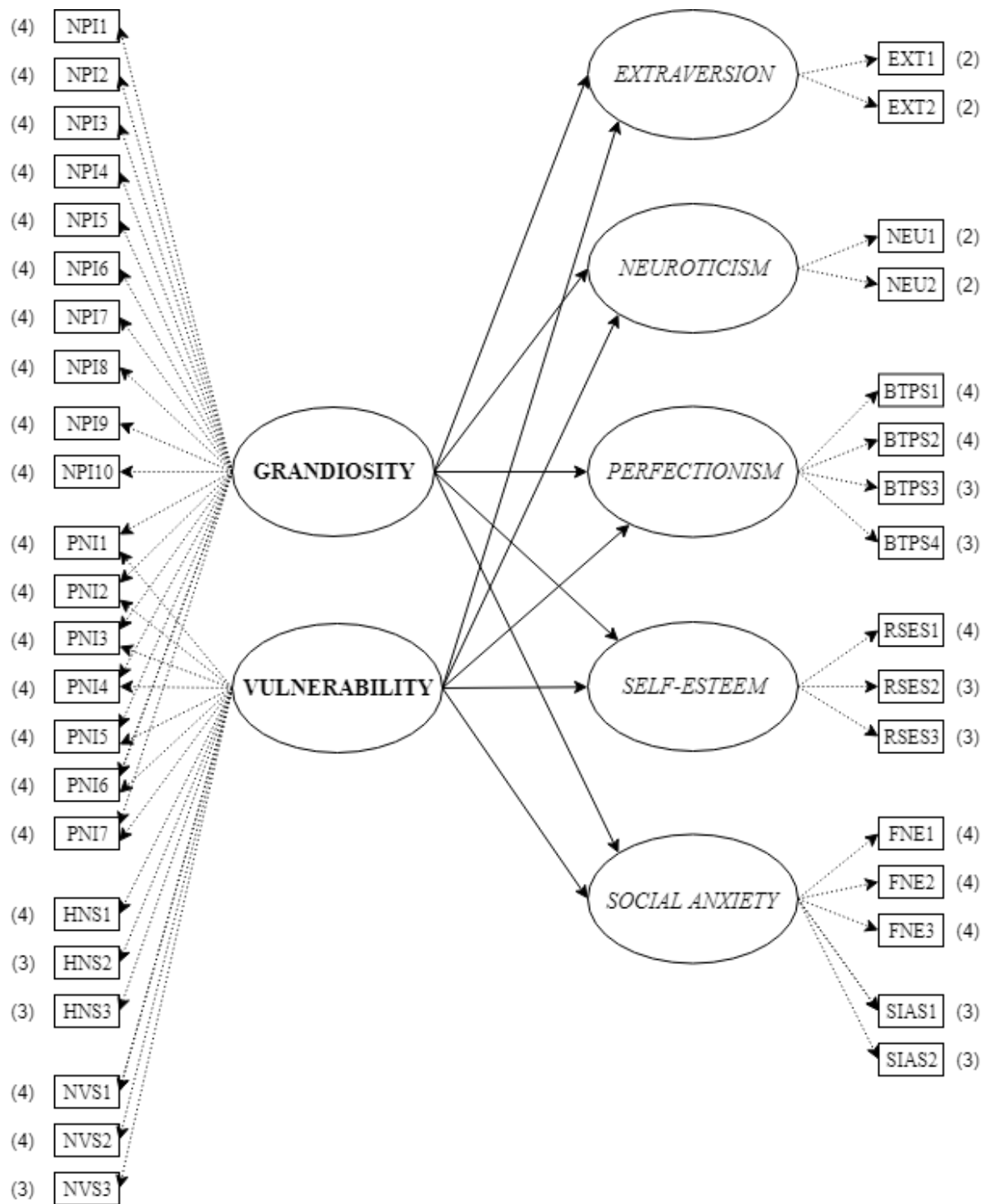
Figure 1. The structural equation model in AMOS, demonstrating that grandiose and vulnerable narcissism are independent variables that predict the other personality factors (latent variables). Rectangles represent randomly generated parcels from respective measures (observed variables). Numbers in brackets represent the number of items per randomly generated parcel. Factor loadings for these item parcels are provided in Appendix C.

Table 2

Unstandardised and Standardised Regression Weights for the Model

Variables	Unstandardised	Unstandardised *SE*	Standardised
Grandiosity → extraversion	2.01	.24	.62
Grandiosity → neuroticism	-.11	.08	-.08
Grandiosity → perfectionism	1.38	.24	.28
Grandiosity → self-esteem	1.88	.25	.37
Grandiosity → social anxiety	-1.76	.26	-.35
Vulnerability → extraversion	-.25	.04	-.36
Vulnerability → neuroticism	.25	.03	.81
Vulnerability → perfectionism	.59	.05	.57
Vulnerability → self-esteem	-.77	.05	-.72
Vulnerability → social anxiety	.90	.05	.84

Note. All pathways are significant ($p < .001$) regressions, with the exception of grandiosity and neuroticism ($p = .148$). Standardised regression weights are used for interpretation.

Associations between grandiose and vulnerable narcissism and other personality factors were as predicted (see Table 2), apart from the non-significant association between grandiose narcissism and neuroticism. Grandiose narcissism was most strongly associated with extraversion out of all personality factors. Nonetheless, vulnerable narcissism was strongly associated with most of the personality factors, aside from extraversion. Associations with social anxiety, neuroticism, and self-esteem were of particular strength. Accordingly, grandiose and vulnerable narcissism explained the most variance in social anxiety ($R^2 = .80$), followed by neuroticism ($R^2 = .65$), self-esteem ($R^2 = .64$), extraversion ($R^2 = .49$), and lastly perfectionism ($R^2 = .42$). This suggests that grandiose and vulnerable

narcissism are largely separate constructs, especially because perfectionism as a proposed common core had the least explained variance. Grandiose and vulnerable narcissism also did not covary significantly with each other ($\sigma_{g,v} = .06$, $p = .411$) and the strength of the correlation was very weak ($r = .05$).

Discussion

The aim of the present study was to assess whether grandiose narcissism and vulnerable narcissism are separate constructs by investigating their relationships with other personality factors. Therefore, the construct validity of a model of narcissism that specifies two subtypes was tested, under the assumptions that these two subtypes would only be marginally related to each other and show a predictable pattern of relationships with other constructs. Accordingly, it was expected that grandiose narcissism and vulnerable narcissism would have a weak association with each other. This hypothesis was supported as the correlation between these two constructs was very weak and non-significant.

It was also expected that grandiose narcissism would be positively associated with perfectionism, extraversion and self-esteem, and negatively associated with neuroticism and social anxiety. There was support for all these hypotheses with the exception of the association between grandiose narcissism and neuroticism, which was non-significant. However, the associations between grandiose narcissism and perfectionism, self-esteem and social anxiety were all moderate at best; grandiose narcissism only exhibited a strong relationship with extraversion.

Lastly, it was expected that vulnerable narcissism would be positively associated with perfectionism, neuroticism and social anxiety, and negatively associated with extraversion and self-esteem. All these hypotheses were supported, and in comparison to grandiose

narcissism, vulnerable narcissism returned notably strong relationships with all these factors aside from extraversion.

Construct Validity

Grandiose narcissism and vulnerable narcissism demonstrating a weak or non-existent relationship with each other has been commonly found in past studies (Miller et al., 2011); in some cases, the correlation is even negative (Jauk et al., 2017). Our results regarding this hypothesis therefore supported past research due to the non-significant association found between grandiose and vulnerable narcissism. However, these findings are restricted to subclinical samples. Therefore, a recommendation for future studies would be to recruit from both subclinical and clinical samples. It may be the case that normal and pathological narcissism differ from each other, but to date this has not yet been explored in the literature on narcissism (Pincus & Lukowitsky, 2010).

Although it was predicted that grandiose and vulnerable narcissism would share a positive association with perfectionism, the majority of our hypotheses predicted that grandiose and vulnerable narcissism would demonstrate diverging relationships with a number of personality factors, implicating these two constructs as largely unrelated. Grandiose narcissism was predicted to have a positive association with extraversion, whereas vulnerable narcissism was predicted to have a negative association with extraversion. Our results supported these hypotheses. Grandiose narcissism demonstrating a stronger relationship with extraversion than did vulnerability is consistent with the social-personality perspective that increased extraversion is prototypical of grandiosity, but decreased extraversion is not prototypical of vulnerability (Miller et al., 2017).

Our findings are also consistent with other empirical studies, such as Miller et al.'s (2010) factor analysis, which similarly examined the structure of the NPI, the PNI and the

HSNS. Out of these measures, subscales in the NPI (i.e., leadership/authority and entitlement/exploitation, largely associated with grandiosity) exhibited the strongest relationships with extraversion. On the other hand, their findings reflected weak to non-significant relationships with extraversion for the HSNS and subscales associated with vulnerability, such as those in the PNI (i.e., devaluing and entitlement rage). Further investigation into relations between grandiose and vulnerable narcissism and facets of extraversion continued to mirror these findings (e.g., grandiosity exhibited significant relationships with gregariousness, assertiveness, activity, and excitement seeking, whereas vulnerability had no significant relationships with these attributes).

However, continued research into the relationship between subtypes of narcissism and extraversion is still likely to be beneficial as there exists contrasting findings, such as Miller et al.'s (2014) later study that found vulnerable narcissism was significantly related to more extraversion attributes than grandiose narcissism (i.e., grandiosity was only positively related to assertiveness and activity, whereas vulnerability was negatively related to warmth, gregariousness, assertiveness, and positive emotions). Furthermore, the nature of causality between narcissism subtypes and extraversion (as well as neuroticism) could be further elucidated; this could also prompt new directions into longitudinal research that address the stability of narcissism and Big Five traits. All the same, our results in regard to extraversion continues the trend that suggests this trait can be used to separate grandiose and vulnerable narcissism from each other.

It was also hypothesised that grandiose narcissism would have a negative association with neuroticism, whereas vulnerable narcissism would have a positive association with neuroticism. There was only partial support for this prediction as grandiose narcissism had no significant relationship with neuroticism. However, the relationship between vulnerable narcissism and neuroticism was positively strong, and this is again consistent with the social-

personality perspective that increased neuroticism is prototypical of vulnerable narcissism (Miller et al., 2017). Perhaps the lack of a relationship between grandiose narcissism and neuroticism is due to the inclusion of other constructs, like social anxiety, to the model. In addition, other studies that reported a negative relationship between grandiose narcissism and neuroticism have typically used the NPI in isolation, which is a measure that remains dubious in its capability to assess non-adaptive or pathological features of grandiosity.

Instead, the present study integrated the NPI and the PNI, the latter measure which proclaims to capture a more holistic conceptualisation of grandiosity (Pincus et al., 2009). Nonetheless it should be recognised that the PNI has previously returned a positive association with neuroticism and we used this scale to represent grandiose narcissism as well as vulnerable narcissism. Grandiose narcissism returning a non-significant result with neuroticism despite this suggests that the PNI may very well tap into vulnerable narcissism better. The overall conclusion to make about this hypothesis is that more research may be needed to investigate the role of neuroticism in differentiating between grandiose and vulnerable narcissism.

Moreover, as predicted, grandiose narcissism demonstrated a positive association with self-esteem, and vulnerable narcissism demonstrated a negative association with self-esteem. The latter relationship was of more strength, and this is supported by prior literature as the relationship between grandiose narcissism and self-esteem typically manifests modest to moderate overlap (Crowe et al., 2018). Specifically, a strong relationship between grandiose narcissism and self-esteem is usually only observed at very high levels of self-esteem. Given that our current study mainly utilised a student sample, we cannot reasonably expect there to be many individuals of extreme high self-esteem; the histogram for this variable also reflects this, as it conforms to a normal distribution. Therefore, it makes sense that our current study returned a modest relationship between grandiose narcissism and self-esteem.

Vulnerable narcissism demonstrating a strong relationship with low self-esteem is also theoretically consistent; researchers argue that low self-esteem only inherently underlies vulnerability, but not grandiosity (Ronningstam, 2010). This is supported empirically as one study distinguishing grandiose narcissism from vulnerable narcissism in regard to explicit and implicit self-esteem (the Rosenberg self-esteem scale used in the current study assesses explicit self-esteem) found that vulnerable narcissism was associated with low explicit self-esteem, regardless of implicit self-esteem (Di Pierro et al., 2016). The relationship between grandiose narcissism and explicit self-esteem otherwise varied depending on self-esteem, consequently suggesting that the relationship between vulnerable narcissism and explicit self-esteem should be more robustly negative. However, the strong relationship found between vulnerable narcissism and self-esteem, and the comparatively high degree of variance in self-esteem that both narcissism constructs explained, is at odds with Brummelman et al.'s (2016) study which argued narcissism and self-esteem should be unrelated. Subsequently, future validation of our results is required, as research investigating the relationship between vulnerable narcissism and complex self-esteem is particularly lacking.

Social anxiety is the remaining factor used in this study to discriminate grandiose narcissism from vulnerable narcissism. Preliminary studies on this topic suggested that grandiose narcissism should have a negative association with social anxiety and vulnerable narcissism a positive association with social anxiety (Akehurst & Thatcher, 2010; Schurman, 2000; Williams, 2016). Our results supported these hypotheses, with a very strong relationship observed between vulnerable narcissism and social anxiety. Observed moderate strength of the negative relationship between grandiose narcissism and social anxiety is somewhat smaller compared to previous studies (Akehurst & Thatcher, 2010; Schurman, 2000) but this may be because these studies solely used the NPI to assess grandiose narcissism.

Grandiose narcissism as assessed by both the NPI and PNI may not produce such a robust relationship as these measures are likely to tap into grandiosity differently. The observed relationship between vulnerable narcissism and social anxiety in our study was also much stronger than in previous studies (Schurman, 2000; Williams, 2016), also possibly attributable to differential usage of measures, as previous studies solely used the HSNS for vulnerable narcissism and different social anxiety measures. Regardless, our findings propose that social anxiety may be a crucial factor in the divergence between grandiose narcissism and vulnerable narcissism, especially considering that grandiose and vulnerable narcissism explained the most variance in social anxiety out of any related factor.

Finally, the only factor proposed to form a common core between grandiose narcissism and vulnerable narcissism in the current study was perfectionism. Our results supported this hypothesis as grandiose narcissism and vulnerable narcissism had positive associations with perfectionism, although vulnerable narcissism again returned a stronger relationship than grandiose narcissism (which returned only a moderate association). On the whole, these results suggest that a unidimensional approach to perfectionism could be used to unite grandiose and vulnerable narcissism, but there is other research to evidence that multidimensional perfectionism can otherwise differentiate between the two. Prior research suggests that other-oriented perfectionism is positively correlated with grandiose narcissism and socially prescribed perfectionism is correlated with vulnerable narcissism (Sherry et al., 2014, Stroeber, 2014; Stoeber et al., 2015). However, one meta-analysis reviewing literature surrounding narcissism and perfectionism only found a modest, positive relationship between self-oriented perfectionism and grandiose narcissism (Smith et al., 2016), suggesting that with the research we have so far, grandiose narcissism demonstrates robust relationships with more forms of perfectionism than vulnerable narcissism.

Given that the devised measure of perfectionism that we used combines items about self-oriented, other-oriented and socially prescribed perfectionism, and this study did not delve into any of these specific relationships, we cannot make any definitive conclusions about a multidimensional approach to perfectionism and its relevance to narcissism. Further examination of the relationships between subtypes of narcissism and different dimensions of perfectionism is needed. Specifically, confirmatory factor analyses should examine the associations between a multidimensional model of perfectionism with narcissism, so that potentially it can be established how different forms of perfectionism may function in differentiating grandiosity from vulnerability. For example, a grandiose narcissist may be more concerned about their own perfectionism and believe that others should be perfect, whereas a vulnerable narcissism may be more concerned that others believe they need to be perfect (Smith et al., 2016).

Strengths and Implications

The combined results derived from these hypotheses suggest that grandiose narcissism and vulnerable narcissism are largely separate constructs. Grandiose and vulnerable narcissism explained the most variance for personality factors that differentiated between them, with the least variance explained in perfectionism. Moreover, the fact that grandiose and vulnerable narcissism explained a notably high degree of variance in social anxiety warrants the idea that future research should start exploring the specificities of social anxiety in discriminating grandiosity from vulnerability. Vulnerable narcissism also tended to exhibit stronger relationships with other personality factors than grandiose narcissism, possibly suggesting that grandiose narcissism may be more unique whereas vulnerable narcissism could potentially underlie other forms of psychopathology. A major advantage to our study was that the model did include these several factors in association with subtypes of narcissism. Additionally, almost all expected relationships between these variables were able

to hold in a non-clinical sample. This suggests that grandiose and vulnerable narcissism, from even a more normalised, trait approach, can still be regarded as separate constructs.

It is unknown from this study whether a sample with only individuals on the extreme end of these variables would produce the same relationships. However, findings from a trait approach remain relevant in the clinical context (Miller & Campbell, 2010), as recently an alternative model has been introduced in the DSM-5 (APA, 2013) that focuses on defining personality disorders as a collection of traits. Results from the current study may help inform what is particular to either grandiose or vulnerable narcissism. These results also suggest in turn that different treatment approaches may be necessary for individuals with NPD who either present as more grandiose or more vulnerable. For instance, as this study demonstrated that individuals higher in grandiose narcissism also exhibit more extraversion, self-esteem, perfectionism, and neuroticism seems not to be important, treatment approaches may need to be similar to those who have antisocial personality disorder or other externalising disorders. On the other hand, as this study also demonstrated that individuals higher in vulnerable narcissism also exhibit increased neuroticism and social anxiety, and decreased self-esteem, treatment approaches may be likened to that of internalising disorders (e.g., mood and anxiety disorders) or personality disorders that otherwise resemble disorganised personality organisation (e.g., borderline personality disorder, avoidant personality disorder).

Limitations and Future Directions

However, interpretations from our study should be treated with caution as our model produced mixed results of fit. Although our model was acceptable according to cut-offs for RMSEA and SRMR, the CFI was not acceptable (Hu & Bentler, 1999; MacCallum et al., 1996; Weston & Gore Jr., 2006). Our model and indices of fit may have also been affected by a sample size that was suitable; the χ^2/df ratio achieved by our model (3.75) could have been

improved. An online power calculator for structural equation models also similarly suggests that our ideal sample size should have been 600 participants minimum (Preacher & Coffman, 2006); a smaller sample size is known to artificially increase CFI, while a larger sample size may artificially decrease RMSEA.

Moreover, the item parcelling methods used in our study meant that alternate approaches could have resulted in different outcomes. For example, some measures could have been parcelled according to subscales (e.g., the NPI and the PNI in particular). Nonetheless, post-hoc performances of alternative models with different item parcelling methods failed to produce any superior model fit (Appendix D). Lastly, in particular some measures utilised in the study may have been problematic. The devised version of the perfectionism scale, although demonstrating very good internal consistency, may have not covered perfectionism holistically as a construct leading to relatively weak relationships with both of our narcissism constructs. Additionally, it was not ideal that for time-constraint purposes, a small number of items for the extraversion and neuroticism scales had to be used. Ideally for a structural equation model, parcels should have three items each at minimum. Aside from parcelling, the neuroticism scale had questionable internal consistency, and correlated exceptionally highly with the extraversion scale against expected standards.

Possible directions for future studies in narcissism are aplenty. Demographic information could be more closely assessed in their impact on narcissism, particularly gender and culture. For instance, the majority of participants being female in the current study could have moderated the associations between narcissism and personality factors, as previous studies have especially evidenced differences in grandiose narcissism amongst men and women (for a review, see Grijalva et al., 2015). Researchers should continue the emerging trend in narcissism models that integrate several personality factors, such as the narcissism spectrum model (Krizan & Herlache, 2018), as this could potentially precipitate defining

what traits are crucial to the expression of narcissism (both grandiose and vulnerable).

Findings from these integrative models could have substantial clinical ramifications if future

DSM criteria were to adopt a trait approach in diagnosing NPD; as this alternative model

specifies a vulnerable subtype (APA, 2013), personality factors that differentiate between

grandiose and vulnerable narcissism are particularly important. All the same, it remains

imperative that these integrative models will also be able to identify what is unique to

narcissism (and consequently shared by grandiosity and vulnerability), so that NPD retains

discriminant validity when compared to near-neighbour personality disorders such as

antisocial and borderline personality disorder (Stanton & Zimmerman, 2017).

We will especially recommend that more studies should be invested into vulnerable

narcissism, as an arising position in the field proposes that grandiose narcissism is unique to

pathological narcissism (Wright & Edershile, 2018), and vulnerable narcissism may instead

underlie several psychopathologies (Miller et al., 2018). In doing this, the usefulness of

recruiting both non-clinical and clinical samples cannot be restated enough, as it is unknown

how normal narcissism transitions into pathological narcissism or if there is even a

relationship between them at all (Pincus & Lukowitsky, 2010). Longitudinal studies also need

to be conducted to assess the stability of narcissism constructs alongside related personality

traits, because literature accounting for construct stability is almost non-existent (Dowgwillo,

Pincus, & Lenzenweger, 2019). Such research could potentially resolve conflicts between

trait and state conceptualisations of narcissism, as some clinical theories posit that grandiose

and vulnerable narcissism are instead not traits, but transient states in the narcissistic

experience (Gore & Widiger, 2016).

Finally, further validation of narcissism measures is required, such that it can be

established what these measures actually assess. For instance, if the NPI only assesses

grandiose narcissism, is this normal or pathological (or both)? If the PNI assesses both

grandiose and vulnerable narcissism, is grandiose narcissism as measured by the PNI the same as grandiose narcissism measured by the NPI? Is vulnerable narcissism, as measured by the PNI, equivalent to vulnerable narcissism as measured by the HSNS and the NVS? Although the current study utilised randomly generated item parcelling for its measures, ideally future studies should generate item parcels according to subscales or underlying factor structures if addressing these questions.

Conclusion

This study has improved on previous research regarding grandiose and vulnerable narcissism by integrating several personality factors into the one model. Findings revealed that grandiose and vulnerable narcissism exhibited contrasting relationships with extraversion, neuroticism, self-esteem, and social anxiety, with perfectionism the only personality factor shared between the two narcissism constructs. Vulnerable narcissism was observed to have strong relationships with all personality factors but extraversion, whereas grandiose narcissism returned at best moderate relationships with all personality factors but extraversion (a strong relationship) and neuroticism (a non-significant relationship). Vulnerable narcissism and grandiose narcissism also explained the most variance in social anxiety out of all the personality factors, whereas the variance in perfectionism was explained the least. These results suggest social anxiety may have a crucial role to play in separating grandiose narcissism from vulnerable narcissism, a gap in research previously only minimally addressed (Schurman, 2000; Williams, 2016). The current study therefore provides a strong recommendation toward the position that future research in narcissism should look into the role of social anxiety. In contrast, perfectionism as a common core to vulnerable and grandiose narcissism was only weakly evidenced; indeed, ultimately grandiose and vulnerable narcissism were found to be unrelated in this study.

Overall, this study supported the divergent validity of grandiose and vulnerable narcissism and incremented upon existent literature by assessing all these associations within the same model. This decision enabled us to see that by large, expected associations between grandiose and vulnerable narcissism and other personality factors held in conjunction with each other. Additionally, we were able to compare the relative strengths of these associations that indicated these personality factors were much more strongly associated with vulnerable narcissism than grandiose narcissism. This has the potential to advance the field of narcissism further into investigating whether vulnerable narcissism is an underlying feature to general psychopathology, in turn implicating the future of diagnostic criteria for NPD as only grandiose narcissism may be unique to the disorder. Subsequently, future studies should continue the trend of incorporating several personality factors into models of narcissism. Other suggestions include recruitment from both clinical and non-clinical samples and adopting longitudinal approaches in order to test construct stability. Validation of factor structures for narcissism measures should be persisted with, especially in regard to their clinical relevance, so that the relationship between normal and pathological narcissism can be defined. Ideally, clinical and social-personality perspectives on narcissism can come together to produce findings that inform more efficacious diagnoses and treatment of NPD.

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Appendix A

Modification Indices

Table A

Modification Indices Prior to Covarying Errors

Covariance			MI	Par Change
e33	<-->	e39	6.491	-0.29
e33	<-->	e36	6.546	0.1
e29	<-->	e36	11.6	-0.178
e29	<-->	e33	12.198	-0.404
e24	<-->	e39	7.586	0.477
e28	<-->	Vulnerability	8.409	0.611
e28	<-->	e39	5.823	-0.352
e11	<-->	Vulnerability	13.619	0.992
e11	<-->	e36	9.901	-0.201
e10	<-->	e29	7.428	-0.172
e9	<-->	e33	4.458	-0.099
e9	<-->	e11	10.169	-0.245
e8	<-->	e9	19.567	0.109
e7	<-->	e39	7.21	0.18
e7	<-->	e36	8.025	0.065
e7	<-->	e11	8.761	-0.246
e6	<-->	e24	6.031	0.202

e5	<-->	e36	4.511	-0.052
e5	<-->	e24	5.038	0.184
e5	<-->	e6	12.06	0.118
e4	<-->	Vulnerability	36.021	-0.669
e4	<-->	e28	10.021	-0.237
e4	<-->	e11	10.061	-0.304
e4	<-->	e10	6.025	0.078
e4	<-->	e9	4.515	0.068
e4	<-->	e7	7.693	0.095
e3	<-->	e33	15.346	0.186
e3	<-->	e29	9.043	-0.192
e3	<-->	e10	4.385	0.054
e3	<-->	e8	16.033	0.1
e1	<-->	e39	4.275	0.121
e1	<-->	e9	7.234	0.065
e1	<-->	e7	7.758	0.072
e1	<-->	e5	13.125	-0.1
e2	<-->	e39	10.238	0.23
e2	<-->	e28	4.432	-0.147
e2	<-->	e8	22.346	0.134
e2	<-->	e7	5.515	0.075
e2	<-->	e6	4.312	-0.071
e2	<-->	e5	4.782	-0.075
e2	<-->	e4	9.348	-0.113

e2	<-->	e1	32.663	0.159
e17	<-->	e11	11.047	0.705
e17	<-->	e6	11.493	-0.277
e17	<-->	e5	6.491	-0.208
e17	<-->	e4	4.087	-0.178
e16	<-->	e39	5.77	-0.402
e16	<-->	e33	5.925	-0.308
e16	<-->	e29	8.592	0.499
e16	<-->	e10	7.114	-0.183
e16	<-->	e8	6.038	-0.162
e16	<-->	e5	4.219	0.163
e16	<-->	e4	4.116	-0.174
e16	<-->	e1	5.205	-0.148
e16	<-->	e2	5.365	-0.185
e16	<-->	e17	27.971	1.004
e15	<-->	e33	4.178	0.293
e15	<-->	e28	4.97	-0.409
e15	<-->	e11	21.894	1.095
e15	<-->	e8	10.07	-0.238
e15	<-->	e4	5.719	-0.232
e15	<-->	e3	7.205	-0.212
e15	<-->	e16	7.723	0.582
e14	<-->	e28	10.96	0.551
e14	<-->	e8	16.305	-0.274

e14	<-->	e6	19.637	0.361
e14	<-->	e5	7.437	0.222
e14	<-->	e3	12.037	-0.249
e14	<-->	e1	19.241	-0.292
e14	<-->	e2	9.713	-0.255
e14	<-->	e16	22.578	0.903
e14	<-->	e15	10.32	0.693
e13	<-->	e33	6.084	0.339
e13	<-->	e11	28.954	1.208
e13	<-->	e10	5.397	-0.173
e13	<-->	e9	10.08	-0.238
e13	<-->	e8	5.225	-0.164
e13	<-->	e3	6.723	-0.197
e13	<-->	e17	11.839	0.71
e13	<-->	e15	9.593	0.705
e13	<-->	e14	7.198	0.555
e12	<-->	e36	11.235	-0.23
e12	<-->	e24	7.061	-0.612
e12	<-->	e28	6.948	-0.512
e12	<-->	e11	74.017	2.134
e12	<-->	e10	5.144	-0.187
e12	<-->	e8	14.532	-0.303
e12	<-->	e3	15.518	-0.33
e12	<-->	e15	24.144	1.236

e12	<-->	e14	4.502	0.485
e12	<-->	e13	26.553	1.244
e23	<-->	Grandiosity	5.416	0.118
e23	<-->	e29	7.173	0.424
e23	<-->	e9	6.216	0.16
e23	<-->	e16	8.615	0.507
e23	<-->	e15	8.868	-0.583
e23	<-->	e14	8.323	-0.513
e23	<-->	e13	8.818	-0.558
e22	<-->	Grandiosity	4.881	0.113
e22	<-->	e36	17.606	0.225
e22	<-->	e29	10.66	0.52
e22	<-->	e9	5.688	0.154
e22	<-->	e8	18.556	0.267
e22	<-->	e1	5.719	0.145
e22	<-->	e2	9.307	0.228
e22	<-->	e14	12.857	-0.641
e22	<-->	e13	7.106	-0.503
e22	<-->	e12	8.29	-0.6
e22	<-->	e23	34.777	0.955
e40	<-->	Vulnerability	77.828	3.342
e40	<-->	e39	15.979	1.022
e40	<-->	e33	6.383	0.502
e40	<-->	e24	10.484	0.976

e40	<-->	e11	7.102	0.867
e40	<-->	e8	4.331	-0.216
e40	<-->	e7	5.48	0.274
e40	<-->	e1	4.8	0.223
e40	<-->	e15	6.12	0.816
e40	<-->	e13	7.127	0.845
e35	<-->	Vulnerability	8.182	0.465
e35	<-->	e29	11.333	-0.385
e35	<-->	e3	12.997	0.169
e35	<-->	e16	4.168	-0.255
e44	<-->	Grandiosity	11.451	-0.189
e44	<-->	e33	37	-0.791
e44	<-->	e8	4.754	0.148
e44	<-->	e15	11.38	-0.728
e44	<-->	e13	8.311	-0.597
e44	<-->	e40	26.797	-1.539
e43	<-->	Vulnerability	26.393	-1.464
e43	<-->	e39	33.038	-1.075
e43	<-->	e33	31.908	-0.844
e43	<-->	e15	7.363	-0.673
e43	<-->	e13	6.731	-0.618
e43	<-->	e40	75.949	-2.972
e43	<-->	e35	4.143	-0.3
e43	<-->	e44	194.066	3.093

e42	<-->	Grandiosity	25.266	0.357
e42	<-->	e33	24.565	0.819
e42	<-->	e28	7.21	-0.568
e42	<-->	e7	7.576	0.267
e42	<-->	e2	8.328	0.3
e42	<-->	e15	11.697	0.938
e42	<-->	e13	9.479	0.81
e42	<-->	e23	4.677	-0.488
e42	<-->	e40	203.991	5.38
e42	<-->	e35	5.001	0.365
e42	<-->	e44	62.364	-1.936
e42	<-->	e43	77.915	-2.476
e41	<-->	Vulnerability	7.548	-0.857
e41	<-->	Grandiosity	11.032	-0.234
e41	<-->	e39	9.022	0.634
e41	<-->	e28	9.453	-0.644
e41	<-->	e11	9.018	-0.804
e41	<-->	e7	5.941	0.234
e41	<-->	e5	5.385	-0.238
e41	<-->	e22	6.227	0.56
e41	<-->	e40	32.922	2.152
e41	<-->	e44	24.924	-1.222
e41	<-->	e43	44.9	-1.883
e41	<-->	e42	113.75	3.311

e38	<-->	e24	4.07	-0.321
e38	<-->	e11	12.835	-0.615
e38	<-->	e7	6.337	0.155
e38	<-->	e12	7.629	-0.51
e38	<-->	e22	17.303	0.599
e37	<-->	e39	4.37	0.287
e37	<-->	e33	11.89	0.358
e37	<-->	e29	16.891	-0.574
e37	<-->	e16	13.914	-0.568
e37	<-->	e14	4.866	-0.346
e37	<-->	e23	9.77	-0.444
e37	<-->	e35	4.965	0.229
e37	<-->	e44	9.326	-0.478
e37	<-->	e42	11.239	0.667
e37	<-->	e41	11.262	0.661
e34	<-->	Vulnerability	15.281	-0.747
e34	<-->	e39	5.793	-0.319
e34	<-->	e24	7.014	-0.403
e34	<-->	e9	5.275	-0.125
e34	<-->	e1	7.5	-0.141
e34	<-->	e14	5.061	0.34
e34	<-->	e44	26.392	-0.775
e34	<-->	e43	14.279	-0.656
e34	<-->	e42	7.292	0.518

e34	<-->	e41	6.482	0.484
e32	<-->	e39	4.623	-0.219
e32	<-->	e36	7.085	-0.093
e32	<-->	e15	7.326	-0.346
e32	<-->	e23	4.754	0.23
e32	<-->	e22	4.716	0.23
e32	<-->	e35	6.489	-0.194
e32	<-->	e42	4.061	-0.297
e32	<-->	e37	4.655	-0.2
e31	<-->	Vulnerability	5.498	0.342
e31	<-->	Grandiosity	4.444	0.069
e31	<-->	e10	4.341	-0.086
e31	<-->	e3	9.729	-0.132
e31	<-->	e16	5.187	0.255
e31	<-->	e40	4.77	0.384
e31	<-->	e37	5.288	-0.211
e27	<-->	Grandiosity	10.858	-0.11
e27	<-->	e39	11.842	0.355
e27	<-->	e36	5.128	-0.08
e27	<-->	e33	4.567	-0.167
e27	<-->	e28	5.524	-0.225
e27	<-->	e14	7.539	-0.323
e27	<-->	e40	18.374	0.769
e27	<-->	e41	4.538	0.315

e26	<-->	Vulnerability	5.573	-0.659
e26	<-->	Grandiosity	7.599	0.173
e26	<-->	e39	13.599	0.713
e26	<-->	e28	45.818	-1.261
e26	<-->	e10	5.485	-0.186
e26	<-->	e4	4.85	0.218
e26	<-->	e15	7.448	0.663
e26	<-->	e14	6.078	-0.544
e26	<-->	e13	7.063	0.62
e26	<-->	e40	4.034	0.677
e26	<-->	e42	21.794	1.307
e26	<-->	e27	25.947	0.628
e25	<-->	Grandiosity	6.83	0.133
e25	<-->	e39	13.973	-0.585
e25	<-->	e28	57.088	1.136
e25	<-->	e8	8.285	-0.178
e25	<-->	e4	5.186	0.183
e25	<-->	e15	7.867	-0.551
e25	<-->	e14	12.529	0.632
e25	<-->	e12	10.809	-0.685
e25	<-->	e40	15.01	-1.056
e25	<-->	e43	4.642	0.442
e25	<-->	e42	8.638	-0.666
e25	<-->	e27	6.017	-0.239

e21	<-->	Vulnerability	38.599	-1.898
e21	<-->	e33	17.987	-0.68
e21	<-->	e29	13.407	0.788
e21	<-->	e28	4.651	0.443
e21	<-->	e11	5.567	-0.618
e21	<-->	e4	4.094	0.22
e21	<-->	e16	4.359	0.491
e21	<-->	e13	6.61	-0.656
e21	<-->	e12	7.819	-0.788
e21	<-->	e23	34.035	1.278
e21	<-->	e22	23.919	1.076
e21	<-->	e40	15.301	-1.445
e21	<-->	e35	8.127	-0.452
e21	<-->	e44	13.804	0.898
e21	<-->	e43	22.959	1.331
e21	<-->	e42	16.982	-1.265
e21	<-->	e37	10.556	-0.628
e21	<-->	e26	4.402	-0.571
e21	<-->	e25	6.913	0.579
e20	<-->	Grandiosity	7.109	-0.213
e20	<-->	e29	28.261	-1.326
e20	<-->	e28	8.338	0.687
e20	<-->	e11	4.257	-0.627
e20	<-->	e10	6.192	0.251

e20	<-->	e8	5.07	0.219
e20	<-->	e6	5.561	0.275
e20	<-->	e5	18.346	0.5
e20	<-->	e3	4.526	0.218
e20	<-->	e17	9.408	-0.858
e20	<-->	e16	14.096	-1.022
e20	<-->	e15	6.167	-0.766
e20	<-->	e13	5.166	-0.672
e20	<-->	e12	6.707	-0.846
e20	<-->	e23	7.888	-0.713
e20	<-->	e42	4.818	-0.781
e20	<-->	e41	4.025	-0.707
e20	<-->	e30	7.406	-0.546
e20	<-->	e26	8.827	-0.937
e20	<-->	e21	5.506	-0.81
e19	<-->	Grandiosity	8.959	-0.245
e19	<-->	e36	9.221	0.261
e19	<-->	e29	28.159	-1.355
e19	<-->	e11	19.886	-1.386
e19	<-->	e10	12.056	0.359
e19	<-->	e9	6.842	0.271
e19	<-->	e8	20.991	0.457
e19	<-->	e4	4.305	0.268
e19	<-->	e3	19.118	0.46

e19	<-->	e17	21.114	-1.315
e19	<-->	e16	11.726	-0.955
e19	<-->	e15	22.874	-1.509
e19	<-->	e14	10.51	-0.931
e19	<-->	e13	13.504	-1.113
e19	<-->	e12	11.943	-1.156
e19	<-->	e38	4.852	0.509
e19	<-->	e37	4.657	0.495
e19	<-->	e30	6.274	-0.515
e19	<-->	e26	5.527	-0.759
e19	<-->	e21	5.435	-0.823
e19	<-->	e20	129.642	4.659
e18	<-->	Vulnerability	7.656	1.166
e18	<-->	e39	4.329	-0.607
e18	<-->	e36	11.813	0.343
e18	<-->	e29	15.155	-1.156
e18	<-->	e11	21.074	-1.66
e18	<-->	e10	15.434	0.472
e18	<-->	e9	5.333	0.278
e18	<-->	e8	16.237	0.466
e18	<-->	e3	12.448	0.431
e18	<-->	e1	4.758	0.247
e18	<-->	e17	11.384	-1.124
e18	<-->	e15	9.784	-1.147

e18	<-->	e13	34.162	-2.058
e18	<-->	e12	32.702	-2.224
e18	<-->	e22	6.253	0.759
e18	<-->	e42	4.287	-0.876
e18	<-->	e38	6.636	0.692
e18	<-->	e37	4.909	0.59
e18	<-->	e30	10.252	-0.764
e18	<-->	e20	58.299	3.634
e18	<-->	e19	174.501	6.437

Note. MI = modification index, Par change = estimated perimeter change. e1 to e10 refers to errors for all NPI parcels; e11 to e17 refers to errors for each PNI parcel; e18 to e20 refers to errors for each NVS parcel; e21 to e23 refers to errors for each HSNS parcel; e24 refers to the error estimated for perfectionism; e25 to 28 refers to errors for each BTPS parcel; e29 refers to the error estimated for self-esteem; e30 to e32 refers to errors for each RSES parcel; e33 refers to the error estimated for extraversion; e34 to e35 refers to errors for each IPIP extraversion parcel; e36 refers to the error estimated for neuroticism; e37 to e38 refers to errors for each IPIP neuroticism parcel; e39 refers to the error estimated for social anxiety; e40 to e42 refers to errors for each FNE parcel; e43 to e44 refers to errors for each SIAS parcel. Referring back to Figure 1 (p. 34) for more clarity.

Appendix B

Error Covariances

Table B

Error Covariances After Refitting the Model due to Modification Indices

	Covariance		Estimate	*SE*	*CR*	*p*
Grandiosity	<-->	Vulnerability	0.058	0.071	0.822	0.411
e33	<-->	e36	0.157	0.056	2.807	0.005
e1	<-->	e2	0.189	0.038	4.908	***
e1	<-->	e3	0.008	0.033	0.247	0.805
e1	<-->	e4	0.048	0.04	1.206	0.228
e1	<-->	e5	-0.094	0.034	-2.764	0.006
e1	<-->	e6	-0.01	0.034	-0.287	0.774
e1	<-->	e7	0.111	0.038	2.951	0.003
e1	<-->	e8	0.072	0.032	2.247	0.025
e1	<-->	e9	0.097	0.033	2.949	0.003
e1	<-->	e10	0.044	0.032	1.404	0.16
e2	<-->	e3	0.049	0.039	1.246	0.213
e2	<-->	e4	-0.06	0.046	-1.292	0.197
e2	<-->	e5	-0.079	0.04	-1.971	0.049
e2	<-->	e6	-0.065	0.04	-1.613	0.107
e2	<-->	e7	0.108	0.044	2.485	0.013
e2	<-->	e8	0.165	0.039	4.274	***

e2	<-->	e9	0.043	0.038	1.146	0.252
e2	<-->	e10	-0.012	0.037	-0.325	0.745
e3	<-->	e4	0.07	0.044	1.602	0.109
e3	<-->	e5	-0.074	0.036	-2.029	0.042
e3	<-->	e6	0.013	0.037	0.34	0.734
e3	<-->	e7	0.029	0.039	0.732	0.464
e3	<-->	e8	0.111	0.035	3.164	0.002
e3	<-->	e9	0.026	0.034	0.751	0.452
e3	<-->	e10	0.049	0.034	1.45	0.147
e4	<-->	e5	0.02	0.045	0.435	0.664
e4	<-->	e6	0.007	0.045	0.151	0.88
e4	<-->	e7	0.124	0.048	2.549	0.011
e4	<-->	e8	0.041	0.041	1.006	0.315
e4	<-->	e9	0.095	0.043	2.23	0.026
e4	<-->	e10	0.09	0.041	2.17	0.03
e5	<-->	e6	0.058	0.04	1.436	0.151
e5	<-->	e7	-0.013	0.041	-0.312	0.755
e5	<-->	e8	0.022	0.036	0.611	0.541
e5	<-->	e9	-0.046	0.036	-1.273	0.203
e5	<-->	e10	-0.006	0.035	-0.182	0.855
e6	<-->	e7	-0.024	0.04	-0.6	0.549
e6	<-->	e8	0.012	0.035	0.334	0.738
e6	<-->	e9	-0.01	0.036	-0.278	0.781
e6	<-->	e10	-0.01	0.035	-0.295	0.768

e7	<-->	e8	0.033	0.037	0.896	0.37
e7	<-->	e9	0.024	0.038	0.629	0.53
e7	<-->	e10	0.031	0.037	0.843	0.399
e8	<-->	e9	0.134	0.034	3.933	***
e8	<-->	e10	0.063	0.033	1.925	0.054
e9	<-->	e10	0.042	0.033	1.275	0.202
e11	<-->	e12	3.719	0.413	9.01	***
e11	<-->	e13	2.583	0.364	7.098	***
e11	<-->	e14	1.215	0.32	3.795	***
e11	<-->	e15	2.387	0.36	6.632	***
e11	<-->	e16	1.132	0.317	3.574	***
e11	<-->	e17	2.02	0.345	5.85	***
e12	<-->	e13	2.756	0.384	7.171	***
e12	<-->	e14	1.707	0.342	4.995	***
e12	<-->	e15	2.646	0.382	6.924	***
e12	<-->	e16	1.561	0.337	4.636	***
e12	<-->	e17	1.87	0.358	5.217	***
e13	<-->	e14	1.469	0.329	4.462	***
e13	<-->	e15	1.898	0.345	5.496	***
e13	<-->	e16	1.073	0.314	3.413	***
e13	<-->	e17	1.894	0.341	5.558	***
e14	<-->	e15	1.537	0.321	4.782	***
e14	<-->	e16	1.506	0.312	4.82	***
e14	<-->	e17	1.075	0.314	3.429	***

e15	<-->	e16	1.549	0.315	4.91	***
e15	<-->	e17	0.962	0.322	2.985	0.003
e16	<-->	e17	1.886	0.32	5.899	***
e18	<-->	e19	6.079	0.62	9.805	***
e18	<-->	e20	3.731	0.567	6.579	***
e19	<-->	e20	4.343	0.529	8.208	***
e21	<-->	e22	1	0.241	4.144	***
e21	<-->	e23	1.284	0.251	5.12	***
e22	<-->	e23	0.888	0.184	4.819	***

Note. SE = standard error, *CR* = critical ratio, *p* = significance value. e1 to e10 refers to errors for all NPI parcels; e11 to e17 refers to errors for each PNI parcel; e18 to e20 refers to errors for each NVS parcel; e21 to e23 refers to errors for each HSNS parcel; e24 refers to the error estimated for perfectionism; e25 to 28 refers to errors for each BTPS parcel; e29 refers to the error estimated for self-esteem; e30 to e32 refers to errors for each RSES parcel; e33 refers to the error estimated for extraversion; e34 to e35 refers to errors for each IPIP extraversion parcel; e36 refers to the error estimated for neuroticism; e37 to e38 refers to errors for each IPIP neuroticism parcel; e39 refers to the error estimated for social anxiety; e40 to e42 refers to errors for each FNE parcel; e43 to e44 refers to errors for each SIAS parcel. Referring back to Figure 1 (p. 34) for more clarity.

Appendix C

Factor Loadings

Table C1

Factor Loadings for NPI and PNI Parcels onto Grandiose Narcissism

Parcel	Grandiose Narcissism
NPI1	.043
NPI2	.039
NPI3	.067
NPI4	.027
NPI5	.083
NPI6	.056
NPI7	.054
NPI8	.010
NPI9	.049
NPI10	.051
PNI1	-.002
PNI2	-.004
PNI3	.006
PNI4	.024
PNI5	.003
PNI6	.013
PNI7	.008

Table C2

Factor Loadings for PNI, HSNS, and NVS Parcels onto Vulnerable Narcissism

Parcel	Vulnerable Narcissism
PNI1	.043
PNI2	.005
PNI3	.024
PNI4	.006
PNI5	.028
PNI6	.026
PNI7	.064
HNS1	.064
HNS2	.081
HNS3	.075
NVS1	.003
NVS2	.063
NVS3	.042

Table C3

Factor Loadings for BTPS Parcels onto Perfectionism

Parcel	Perfectionism
BTPS1	.166
BTPS2	.112
BTPS3	.575
BTPS4	.111

Table C4

Factor Loadings for IPIP Extraversion Parcels onto Extraversion

Parcel	Extraversion
EXT1	.167
EXT2	.534

Table C5

Factor Loadings for IPIP Neuroticism Parcels onto Neuroticism

Parcel	Neuroticism
NEU1	.046
NEU2	.169

(*continues on next page*)

Table C6

Factor Loadings for RSES Parcels onto Self-esteem

Parcel	Self-esteem
RSES1	.466
RSES2	.216
RSES3	.327

Table C7

Factor Loadings for FNE and SIAS Parcels onto Social Anxiety

Parcel	Social Anxiety
FNE1	.080
FNE2	.093
FNE3	.140
SIAS1	.166
SIAS2	.167

Appendix D

Post-Hoc Alternative Models[3]

Table D1

Fit Indices for First Alternative Model

	RMSEA		CFI	SRMR
Low	Middle	High	Value	Value
.108	.113	.117	.764	.1395

Note. This model was produced using different item parcelling for the following measures: the NPI was parcelled according to a three-factor approach (leadership/authority, grandiosity/exhibitionism, and entitlement/exploitation; Ackerman et al., 2011), the PNI was parcelled according to a two-factor approach (grandiosity and vulnerability; Pincus et al., 2009), and the Big Three Perfectionism Scale was parcelled according to three subscales (self-oriented, other-oriented, and socially prescribed perfectionism; Smith et al., 2016).

Table D2

Fit Indices for Second Alternative Model

	RMSEA		CFI	SRMR
Low	Middle	High	Value	Value
.098	.102	.105	.772	.1171

Note. This model was produced using different item parcelling for the following measures: the NPI was parcelled according to a three-factor approach (leadership/authority, grandiosity/exhibitionism, and entitlement/exploration), the PNI was parcelled according to a seven-factor approach (contingent self-esteem,

(continues on next page)

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[3] All alternative models used the same rules for constraining pathways and covarying errors for item parcels as the original model.

exploitative, self-sacrificing self-enhancement, hiding the self, grandiose fantasy, devaluing, and entitlement rage; Pincus et al., 2009), and the Big Three Perfectionism Scale was parcelled according to three subscales (self-oriented, other-oriented, and socially prescribed perfectionism).

Table D3

Fit Indices for Third Alternative Model

	RMSEA		CFI	SRMR
Low	Middle	High	Value	Value
.093	.096	.099	.765	.1320

Note. This model was produced using different item parcelling for the following measures: the NPI was parcelled according to a seven-factor approach (authority, exploitativeness, superiority, self-sufficiency, entitlement, exhibitionism, and vanity; Raskin & Terry, 1988), the PNI was parcelled according to a seven-factor approach (contingent self-esteem, exploitative, self-sacrificing self-enhancement, hiding the self, grandiose fantasy, devaluing, and entitlement rage), and the Big Three Perfectionism Scale was parcelled according to three subscales (self-oriented, other-oriented, and socially prescribed perfectionism).

Table D4

Fit Indices for Fourth Alternative Model

	RMSEA		CFI	SRMR
Low	Middle	High	Value	Value
.078	.081	.85	.862	.0806

Note. This model was produced using the same amount of item parcels for each measure as the original model, but instead each measure was parcelled according to factor weights for each item (e.g., NPI1 would contain four items with the highest factor weights, followed by NPI2 that would contain the next four items with the next highest factor weights, and so on).