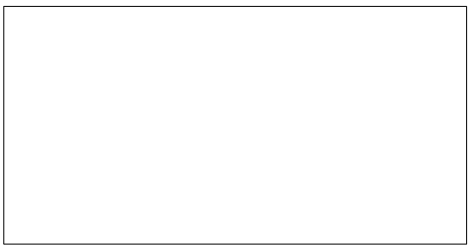

# Perfectionism and Narcissism: A Meta-Analytic Review

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Abstract

Theoretical accounts suggest an important relationship between perfectionism and narcissism, and 25 years of research has tested these accounts. We meta-analyzed this literature, providing the most comprehensive test of the perfectionism-narcissism relationship to date. Thirty studies were located ($N$ = 9,091). After controlling for overlap among perfectionism dimensions, random-effects meta-analysis indicated self-oriented perfectionism, other-oriented perfectionism, and perfectionistic self-promotion were related to narcissistic grandiosity, whereas socially prescribed perfectionism, perfectionistic self-promotion, and nondisclosure of imperfection were related to narcissistic vulnerability. Results suggest grandiose narcissists strive toward lofty goals, impose unrealistic demands on others, and promote an image of perfection. Results also suggest vulnerable narcissists actively promote an image of infallibility while defensively concealing imperfections in response to perceptions of others as demanding.

*Keywords:* perfectionism, narcissism, self-presentation, grandiosity, meta-analysis

## Highlights

- Conducted a comprehensive meta-analysis of the perfectionism-narcissism literature
- Located 30 relevant studies involving 9,091 participants
- Grandiose narcissists demand perfection from others and promote a “perfect” image
- Vulnerable narcissists defensively conceal their perceived flaws from others
- Long-held theoretical accounts of narcissistic perfectionism were supported

## 1. Introduction

More than a century of case histories and theoretical accounts suggest perfectionism is a central feature of the grandiose and the vulnerable aspects of narcissist's style of thinking, behaving, and relating (e.g., Beck, Freeman, & Davis, 2004; Freud, 1957; Horney, 1950; Ronningstam, 2010, 2011; Rothstein, 1999; Sorotzkin, 1985). Millon, for instance, noted that "narcissists cannot tolerate any flaw, however small, in the perfection of the self" (Millon & Davis, 2000, p. 284). There is also a recent upsurge in research on a constellation of narcissistic and perfectionistic traits termed narcissistic perfectionism (e.g., Flett, Sherry, Hewitt, & Nepon, 2014; Nealis, Sherry, Sherry, Stewart, & Macneil, 2015; Smith, Saklofske, Stoeber, & Sherry, in press). Yet, our understanding of the perfectionism-narcissism relationship is in need of clarification. In particular, it is unclear whether, and to what extent, perfectionism dimensions relate to the two core themes of narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain, Pincus, & Ansell, 2008; Dickinson & Pincus, 2003; Miller & Campbell, 2008; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009; Wink, 1991). The aim of our study is to bring greater coherence to our understanding of the perfectionism-narcissism relationship by comprehensively meta-analysing research on perfectionism (trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions) and narcissism (narcissistic grandiosity and narcissistic vulnerability).

### *1.1. Trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions*

Perfectionists strive to be faultless, hold unrealistically high standards, and experience overly negative reactions to perceived mistakes, setbacks, and criticisms. Several notable models of perfectionism exist (e.g., Dunkley, Zuroff, & Blankstein, 2003; Frost, Marten, Lahart, & Rosenblate, 1990), and one widely researched model is proposed by Hewitt and Flett (1991).

These authors posited three forms of perfectionism: self-oriented perfectionism (demanding perfection of oneself), other-oriented perfectionism (demanding perfection of others), and socially prescribed perfectionism (perceiving others are demanding perfection of oneself). More recently, Flett, Hewitt, Blankstein, and Gray (1998) and Hewitt et al. (2003) proposed two supplements to trait perfectionism—namely, perfectionistic self-presentation and perfectionistic cognitions.

Perfectionistic self-presentation (Hewitt et al., 2003) includes perfectionistic self-promotion (brashly promoting a perfect image to others), nondisclosure of imperfection (concern over verbal disclosures of imperfection to others), and nondisplay of imperfection (concern over behavioural displays of imperfection to others). Perfectionistic cognitions involve automatic thoughts with perfectionistic themes (self-critical, ruminative thoughts reflecting an excessive need for goal attainment and discrepancies between the actual and the ideal self; Flett et al., 1998). Trait perfectionism distinguishes the source and the direction of perfectionistic expectations; perfectionistic self-presentation involves the public, social expression of perfectionism; and perfectionistic cognitions involve the private, cognitive expression of perfectionism. These dimensions are differentially related to various outcomes, including disordered personality (Flett et al., 1998; Hewitt & Flett, 1991; Hewitt et al., 2003).

*1.2. Narcissistic grandiosity and narcissistic vulnerability*

Narcissism refers to a pervasive pattern of grandiosity, perceived superiority, self-focus, entitlement and self-importance (Caligor, Levy, & Yeomans, 2015; Pincus & Lukowitsky, 2010). According to Morf and Rhodelwalt's (2001) self-regulatory processing model, narcissists engage in strategic self-regulatory behaviours and processes, as a means of constructing and maintaining a relatively positive, albeit fragile, self-image. Moreover, these self-regulatory behaviours and

processes are theorized to be driven by an intense need for external validation and admiration (Pincus et al., 2009). While most individuals can effectively manage needs for self-validation and admiration, narcissism involves an impaired ability to satisfy these needs such that self-enhancement becomes an overriding goal (Pincus & Roche, 2011). Nonetheless, evidence has converged in support of two themes linked with narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain et al., 2008; Dickinson & Pincus, 2003; Pincus et al., 2009; Wink, 1991).

Although narcissistic grandiosity and narcissistic vulnerability overlap, research indicates important phenotypic differences in expression (Pincus et al., 2009). In particular, for people high on narcissistic grandiosity, self-esteem dysregulation triggers both aggression and envy; for people high on narcissistic vulnerability, self-esteem dysregulation triggers profound shame and a deep-seated sense of inadequacy (Besser & Priel, 2010; Cain et al., 2008; Pincus & Lukowitsky, 2010). Moreover, narcissistic grandiosity is characterized by the pursuit of interpersonal power and control, exaggerated self-importance, and a sense of entitlement (Pincus et al., 2009). In contrast, narcissistic vulnerability is characterized by a defensive and insecure grandiosity which leads to feelings of worthlessness and negative affect, as well as a hypervigilant readiness for criticism or failure (Cain et al., 2008; Pincus et al., 2009; Wink, 1991). Additionally, narcissistic grandiosity and narcissistic vulnerability manifest substantially different relations with self-esteem, with narcissistic grandiosity displaying small-to-moderate positive correlations and narcissistic vulnerability displaying moderate negative correlations (Miller & Campbell, 2008; Pincus et al., 2009). Finally, narcissistic grandiosity and narcissistic vulnerability generally display divergent patterns of correlations with other forms of personality pathology. Specifically, narcissistic grandiosity is typically a stronger correlate of antisocial and

histrionic personality disorders, whereas narcissistic vulnerability is typically a stronger correlate of avoidant and borderline personality disorders (Dickinson & Pincus, 2003).

*1.3. The perfectionism-narcissism relationship*

Perfectionism is long present in theoretical accounts of narcissism (e.g., Ellis, 1997). Sorotzkin (1985) asserted narcissists brazenly present themselves as perfect as a means of validating their grandiose self-image. Rothstein (1999) emphasized the "felt quality of perfection" experienced by narcissists (p.17). Morf and Rhodewalt's (2001) self-regulatory model describes perfectionism as an interpersonal strategy used as a means of protecting and enhancing narcissistic individuals' self-esteem. Similarly, Ronningstam (2010) theorized that narcissistic individual's grandiose self-concept is driven by a sustained sense of worthlessness, which prompts exhibition of an image of perfect capability in pursuit of others' respect and admiration. And Pincus, Cain, and Wright (2014) noted perfectionism in narcissism is particularly problematic as perfectionism contributes to a lack of positive reinforcement from occupational, social, and recreational activities as well as social withdrawal as a means "to hide an imperfect self" (p. 4). Furthermore, according to cognitive theorists, narcissistic schemas involve entitled and perfectionistic expectations for others and perpetual dissatisfaction with others' perceived flaws (Beck et al., 2004). Indeed, as noted by Ronningstam (2011), narcissists often 'readily announce their perfectionistic strivings and ideals, often in combination with their contempt for the perceived imperfections of other people' (p.93). Supporting these views, research indicates narcissism has moderate positive relationships with other-oriented perfectionism (Trumpeter, Watson, & O'Leary, 2006) and perfectionistic self-promotion (Hewitt et al., 2003). Nevertheless, only two studies explicitly address perfectionism's relationship with

measures of narcissistic grandiosity and narcissistic vulnerability (Flett et al., 2014; Stoeber, Sherry, & Nealis, 2015).

Flett et al. (2014) reported self-oriented and socially prescribed perfectionism were related to narcissistic grandiosity and vulnerability, whereas other-oriented perfectionism was inconsistently related to narcissistic grandiosity and unrelated to narcissistic vulnerability. Flett et al. (2014) also found perfectionistic self-presentation dimensions, as well as perfectionistic cognitions, displayed strong positive associations with narcissistic grandiosity and vulnerability. In addition, Stoeber et al. (2015) reported that, after removal of overlap in trait perfectionism dimensions, other-oriented perfectionism was predominantly related to narcissistic grandiosity, whereas socially prescribed perfectionism was predominantly related to narcissistic vulnerability.

*1.4. Advancing research on the perfectionism-narcissism relationship using meta-analysis*

Why do we, despite 25 years of research, still have a limited understanding of the link between perfectionism and narcissism? We assert there are four main reasons. First, there are notable between-study inconsistencies. Some studies report self-oriented perfectionism is unrelated to narcissistic grandiosity (Stoeber, 2014; Stoeber, 2015; Stober et al., 2015); other studies report self-oriented perfectionism is positively related to narcissistic grandiosity (Flett et al., 2014) or self-oriented perfectionism is positively related to narcissistic grandiosity in women but not men (Sherry, Gralnick, Hewitt, Sherry, & Flett, 2014). Likewise, some studies assert all perfectionistic self-presentation dimensions are related to narcissistic grandiosity (Flett et al., 2014), whereas others contend only perfectionistic self-promotion is related to narcissistic grandiosity (Hewitt et al., 2003). Second, several of these studies involve smaller sample sizes and are likely underpowered. Evidence suggests correlations do not stabilize until $N > 250$ (Schönbrodt & Perugini, 2013). A meta-analysis could overcome the limitations of smaller

samples sizes (e.g., Borenstein, Hedges, Higgins, & Rothstein, 2009) and bring greater clarity to our understanding of perfectionism's relationship with narcissistic grandiosity and vulnerability.

Third, the array of narcissism measures used has complicated understanding of the perfectionism-narcissism relationship. Some studies use scales primarily capturing narcissistic grandiosity (e.g., Stoeber et al., 2014); other studies use scales primarily capturing narcissistic vulnerability (e.g., Sherry, Hewitt, Flett, Lee-Baggley, & Hall, 2007). Thus, even though evidence of trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions relationships with narcissism is accumulating, there has been no systematic attempt to synthesize findings from studies primarily measuring narcissistic grandiosity in isolation from studies primarily measuring narcissistic vulnerability.

Fourth, most research on the link between perfectionism dimensions and narcissism does not evaluate the degree to which relationships stem from unique or shared variance (cf. Sherry et al., 2014; Stoeber et al., 2015). This is problematic given that failure to control for the overlap among perfectionism dimensions may obscure distinct relationships (see Stoeber & Otto, 2006 for review). A meta-analysis could rectify this by reanalyzing how trait perfectionism and perfectionistic self-presentation relate to narcissistic grandiosity and narcissistic vulnerability following removal of shared variance among perfectionism dimensions by calculating partial correlations coefficients (see Cohen, Cohen, West, & Aiken, 2003).

### *1.5. Hypotheses*

Numerous theoretical accounts propose that grandiose narcissists impose unrealistic demands onto others and promote an image of perfection to others (Hewitt et al., 2003). Building upon these theoretical accounts, and prior empirical findings (Nealis et al., 2015; Sherry, et al., 2014), we hypothesized that, after removing overlap among trait perfectionism dimensions,

other-oriented perfectionism would be predominately related to narcissistic grandiosity and that, after removing overlap among perfectionistic self-presentation dimensions, perfectionistic self-promotion would be predominately related to narcissistic grandiosity.

Much like socially prescribed perfectionism (Hewitt, Flett, Sherry, & Caelian, 2006; Millon & Davis, 2000), theory suggests for vulnerable narcissists, self-esteem dysregulation triggers shame with a profound sense of inadequacy and incompetence. And extensive evidence suggests people high in socially prescribed perfectionism also struggle with feelings of inferiority (Stoeber, 2015). Given this, and prior findings (Flett et al., 2014; Stoeber et al., 2015), we hypothesized that, after controlling for the correlation among trait perfectionism dimensions, socially prescribed perfectionism would be predominately related to narcissistic vulnerability and that, after controlling for overlap among perfectionistic self-presentation dimensions, nondisclosure of imperfection would be predominately related to narcissistic vulnerability. Finally, our examination of the relationship between perfectionistic cognitions, narcissistic grandiosity, and narcissistic vulnerability was considered exploratory as this topic is largely unstudied.

## 2. Method

### *2.1. Selection of studies*

A literature search using PsycINFO, PubMed, and ProQuest Dissertations and Theses was conducted using the keywords and Boolean search terms “perfect*” AND “narciss*.” This search yielded 233 studies from PsycINFO, 44 studies from PubMed, and 50 studies from ProQuest. The first and the third author reviewed the abstract and the method of all studies identified from this search, selecting studies meeting inclusion criteria. Studies were included that (a) reported an effect size (e.g., correlation coefficient), sufficient information for computing

an effect size, or this information was obtained from a corresponding author; (b) were a published journal article, dissertation, book chapter, or data provided directly from an author.

This literature search yielded a total of 36 studies for inclusion. Interrater-agreement on inclusion or exclusion in the meta-analysis was 100%. Following the literature search, the reference lists of included studies were examined in an attempt to locate other relevant studies (Card, 2012). We elected to include, rather than exclude, one sample of elementary school students (Thomaes & Sedikes, 2015) as the contention that the perfectionism-narcissism relationship differs across adolescents, young adults, and adults should not be assumed but rather tested empirically via moderation (see Borenstein, Hedges, Higgins, & Rothstein, 2009; Card, 2012). On May 19, 2016, we terminated all search strategies and started data reduction and analysis. We excluded seven studies (see Supplemental Material A for justification). The final sample of selected studies was composed of 30 studies with 36 samples.

*2.2. Coding of studies*

The first and the third author coded each study based on nine characteristics: sample size, sample type, mean age of participants, percent of female participants, percent ethnic minority, publication status, measure used to assess perfectionism, measure used to assess narcissistic grandiosity, and measure used to assess narcissistic vulnerability.

*2.3. Meta-analytic procedure*

Random-effects analyses were performed using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rosthstein, 2005). We chose random-effects models over fixed-effects models as the 30 included studies varied widely in design (see Table 1). Random-effects models are also generally preferable to fixed-effects models as they allow for generalizations beyond the set of selected studies to future studies (Bornstein et al., 2009; Card, 2012).

Weighted mean effect sizes were computed following the procedure prescribed by Hunter and Schmidt (1990). This allowed for estimation of mean effect sizes and the variance in observed scores after considering sampling error (Card, 2012). Effect size estimates were weighted by sample size and aggregated. We chose to weight effects by sample size as studies with larger sample sizes, relative to studies with smaller sample sizes, have greater precision (Borenstein et al., 2009). In studies that included more than one measure of narcissistic grandiosity or narcissistic vulnerability, effect sizes obtained using various measures were averaged such that one effect size was included in the analysis (Bornstein et al., 2009). This commonly used meta-analytic strategy guards against overrepresentation of studies that include multiple effects. We also used the formula provided by Borenstein et al. (2009) to calculate power under the random effects model for each weighted mean effect.

Additionally, partial correlations were computed using the "corpcor" package (Schafer, Opgen-Rhein, Zuber, Silva, & Strimmer, 2015) for R statistical software (R Core Team, 2013). Specifically, for trait perfectionism, partial effects were computed by residualizing trait perfectionism dimensions (self-oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism) based on their correlation with each other prior to being correlated with a total narcissism score. Likewise, for perfectionistic self-presentation, partial effects were computed by residualizing perfectionistic self-presentation dimensions (perfectionistic self-promotion, non-disclosure of imperfection, and non-display of imperfection) based on their correlation with each other prior to being correlated with a total narcissism score. This commonly used meta-analytic strategy (e.g., Hill & Curran, 2016) allows for evaluation of the unique effects.

To assess moderation, the total heterogeneity of weighted mean effect sizes ($Q_T$) was evaluated (see Table 3). If $Q_T$ is significant, it indicates the variance evident in the weighted mean effect sizes is greater than would be expected by sampling error (Card, 2012). A non-significant $Q_T$ suggests a weak basis for moderation. The inconsistency in observed relationships across studies ($I^2$) was also computed for each analysis. $I^2$ is a measure of inconsistency and indicates the percentage of total variation across studies attributable to heterogeneity; values of 25%, 50%, and 75% correspond to low, medium, and high heterogeneity, respectively (Higgins & Thompson, 2002). Unlike $Q_T$, $I^2$ is unbiased by the number of included studies (Card, 2012).

When $Q_T$ was significant, a categorical structure to the data was stipulated and the total heterogeneity explained by the categorization ($Q_B$) calculated. A significant $Q_B$ indicates significant difference in effect sizes between categories and provides a firm basis for moderation (Borenstein et al., 2009). In the presence of a significant $Q_B$, as well as sufficient content coverage, differences in effect sizes between studies grouped by publication status (articles, dissertations, book chapters, manuals), age (adult, young adult, adolescent), and sample (university undergraduates, community adults, psychiatric patients, regular exercisers, elementary school students) were examined by performing a series of all possible two-group comparisons to determine which groups differed significantly in the magnitude of effect sizes (Card, 2012). For each group comparison, the resultant $Q_B$ from the two groups was evaluated using a chi-square test with one degree of freedom. Additionally, when $Q_T$ was significant, we evaluated the potential moderating effect of gender using meta-regression.

To assess publication bias we calculated Rosenthal's (1979) fail-safe number (fail-safe *N*), inspected funnel plots with both observed studies and imputed studies, and computed Egger's test of regression to the intercept (Egger, Smith, Schneider, Minder, 1997). Fail-safe *N* indicates

the number of non-significant or missing studies with a mean effect size of zero that would be needed to change the statistical significance of an observed effect to a non-significant level. Rosenthal (1979) recommended that fail-safe *N* should be greater than $5k + 10$, where *k* equals the number of observed effect sizes. Funnel plots with observed and imputed studies allow for visual inspection of how the effect size shifts when imputed studies are included (Bornstein et al., 2009). Additionally, in the absence of publication bias, Egger's regression intercept does not differ significantly from zero (Egger et al., 1997).

## 3. Method

### *3.1. Description of studies*

Our literature search identified 30 studies and 36 samples containing relevant effect size data (Table 1). The total number of participants pooled across studies was 9,091. Relevant data were obtained from 24 journal articles, 4 dissertations, 1 book chapter, and 1 manual. Samples were available between 1991 and 2016, with a median year of 2009. There were 26 samples of university undergraduates, 5 samples of psychiatric patients, 2 samples of regular exercisers, 2 samples of community adults, and 1 sample of elementary school students. Sample size varied between 71 and 629, with an average of 252.53 (*SD* = 143.64). The mean age of participants was 23.3 years (*SD* = 6.3; range of 13.0 to 37.3). The average percent of female participants was 66.0%; the average percentage of ethnic minority participants was 21.0%.

### *3.2. Measures*

#### *3.2.1. Perfectionism*

Trait perfectionism was assessed using four measures (see Table 1): Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS), Hewitt and Flett's (1990) Other-Oriented Perfectionism subscale (MPS-90-OOP), Flett et al.'s (in press) Child-Adolescent Perfectionism

Scale (CAPS), and the high standards for others subscale of Hill et al.'s (2004) Perfectionism Inventory (PI-HSFO). Perfectionistic self-presentation was assessed with Hewitt et al.'s (2003) Perfectionistic Self-Presentation Scale; perfectionistic cognitions were measured using Flett et al.'s (1998) Perfectionistic Cognitions Inventory.

*3.2.2. Narcissistic grandiosity*

Narcissistic grandiosity was assessed using 10 measures (see Table 1): Raskin and Terry's (1988) Narcissistic Personality Inventory (NPI); the grandiosity subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory (PNI-gran); the narcissism subscale of Millon's (1983) Clinical Multiaxial Inventory (MCMI-N); the narcissism subscale of Morey, Waugh, and Blashfield's (1985) Minnesota Multiphasic Personality Inventory (MMPI-N); the narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale (DD-N); Campbell, Bonacci, Shelton, Exline, and Bushman's (2004) Psychological Entitlement Scale (PES); the narcissism subscale of Spitzer, Williams, Gibbon, and First's (1990) Structured Clinician Interview for *DSM-III-R* (SCID-II-N); the narcissism subscale of Krueger, Derringer, Markon, Watson, and Skodol's (2012) Personality Inventory for *DSM-5* (PID-5-NP); Thomaes, Stegge, Bushman, Olthof, and Denissen's (2008) Childhood Narcissism Scale (CNS); and the grandiosity subscale of Morey's (1991) Personality Assessment Inventory (PAI-Gran). Our decision to categorize the NPI, PNI-gran, MCMI-N, MMPI-N, DD-N, PES, SCID-II-N, PID-5-NP, CNS and PAI-Gran as measures of narcissistic grandiosity was guided by Pincus et al. (2009), by Pincus and Lukowitsky (2010), and by Miller, Gentile, Wilson, and Campbell (2013).

*3.2.3. Narcissistic vulnerability*

Narcissistic vulnerability was assessed using seven measures (see Table 1): the vulnerable narcissism subscale of Pincus et al.'s (2009) PNI (PNI-vul); Slyter's (1991)

Narcissistic Injury Scale (NIS); the narcissism subscale of Hyler, Rieder, Williams, Spitzer, Hendler, and Lyons's (1988) Personality Diagnostic Questionnaire (PDQ-N); the narcissism subscale of Livesley, Jackson, and Schroeder's (1992) Dimensional Assessment of Personality Pathology (DAPP-N); Ashby, Lee, and Duke's (1979) Narcissistic Personality Disorder Scale (NPDS); Hendin and Cheek's (1997) Hypersensitive Narcissism Scale (HSNS); and O'Brien's (1987) Multiphasic Narcissism Inventory (OMNI).

The PNI-vul, NIS, PDQ-N, DAPP-N, NPDS, HSNS, and OMNI are viewed as measures of narcissistic vulnerability. The PNI-vul was developed by Pincus et al. (2009) to specifically assess narcissistic vulnerability. Likewise, the NIS was designed to capture a central theme of narcissistic vulnerability–overly negative reactions when there is a failure to live up to an idealized image (Pincus et al. 2009). The PDQ-N is more a measure of narcissistic vulnerability than narcissistic grandiosity as it assesses an "emotionally unstable, negative affect-laden, introverted form of narcissism" (Miller & Campbell, 2008, p. 449; Pincus et al., 2009). The DAPP-N loads more strongly on an emotional deregulation factor than a dissocial factor and thus is also best conceptualized as a measure of narcissistic vulnerability (Maples, Collins, Miller, Fischer, & Seibert, 2011, p. 83; Miller & Maples, 2011). The HSNS is uncorrelated with the NPI (Pincus et al., 2009) and its use as a measure of narcissistic vulnerability is common (Stoeber et al., 2015). The NPDS has robust positive associations with hypersensitivity and is typically uncorrelated with the NPI (Wink & Gough, 1990). Research suggests the OMNI assess vulnerable, but not grandiose, aspects of narcissism (Maples et al., 2011; Miller & Maples, 2011). Nevertheless, we acknowledge that researchers rarely state whether their measures (particularly older measures) assess primarily narcissistic grandiosity or narcissistic vulnerability and thus we recognize that some readers may disagree with our categorization. Consequently, we

report findings individually by measure, as well as total effect sizes ignoring categorization, in Supplemental Material B.

## 4. Results

### *4.1. Overall effect sizes*

Weighted mean effect sizes for trait perfectionism dimensions, perfectionistic self-presentation dimensions, and perfectionistic cognitions' relationships with narcissistic grandiosity and vulnerability are in Table 3. Partial weighted mean effect sizes are in Table 4. Following Cohen's (1992) guidelines for small, medium, and large effect sizes ($r$ = .10, .30, .50, respectively), self-oriented, other-oriented, socially prescribed perfectionism, perfectionistic self-promotion, nondisclosure of imperfection, and perfectionistic cognitions had small-to-moderate positive relationships with narcissistic grandiosity. Nondisplay of imperfection's relationship with narcissistic grandiosity was non-significant. And the three trait perfectionism dimensions, the three perfectionistic self-presentation dimensions, and perfectionistic cognitions all had small-to-moderate positive relationships with narcissistic vulnerability.

Trait perfectionism dimensions also displayed small-to-large positive correlations with each other ($r$ = .07 to .71; see Supplemental Material C). After controlling for overlap between trait perfectionism dimensions, self-oriented perfectionism and other-oriented perfectionism had small positive relationships with narcissistic grandiosity, but non-significant relationships with narcissistic vulnerability. Conversely, partial effects revealed socially prescribed perfectionism had a non-significant relationship with narcissistic grandiosity but a moderate positive relationship with narcissistic vulnerability.

Perfectionistic self-presentation dimensions had moderate-to-large positive correlations with each other ($r$ = .46 to .76; see Supplemental Material C). After controlling for overlap

between perfectionistic self-presentation dimensions, perfectionistic self-promotion had small-to-moderate positive relationships with narcissistic grandiosity and vulnerability. Partial correlations also revealed nondisplay of imperfection had a small negative relationship with narcissistic grandiosity and a small positive relationship with narcissistic vulnerability. After removal of overlap between perfectionistic self-presentation dimensions, nondisclosure of imperfection's relationships with narcissistic grandiosity and vulnerability were non-significant.

Inspection of total heterogeneity indicated variability in weighted mean effect sizes exceeded variability associated with sampling error (see Table 3 and 4). The percentage of total variance owing to heterogeneity ranged from small to high, suggesting possible moderators.

*4.2. Moderator analysis*

Supplementary analyses (see Supplemental Material D) were conducted to test whether perfectionism's relationships with narcissistic grandiosity and vulnerability varied as a function of publication status (peer reviewed journal articles; dissertations and book chapters), age (adolescent samples ≥ 13 and ≤ 17 years; young adult samples ≥ 18 and ≤ 25 years; adult samples > 25 years), or sample type (university undergraduates; psychiatric patients; regular exercisers; community adults; elementary school students). Self-oriented perfectionism's relationship with narcissistic vulnerability was positive in university samples but non-significant in psychiatric samples and regular exercisers. Self-oriented perfectionism's relationship with narcissistic vulnerability was also positive in young adults but non-significant in adults. In addition, self-oriented perfectionism's relationship with narcissistic vulnerability was smaller for published studies relative to unpublished studies.

Furthermore, other-oriented perfectionism's unique relationship with narcissistic vulnerability was larger for published studies relative to unpublished studies. Conversely,

perfectionistic self-promotion's, nondisclosure of imperfection's, nondisplay of imperfection's, and perfectionistic cognitions' relationships with narcissistic grandiosity and narcissistic vulnerability were consistently smaller in published studies relative to unpublished studies. Moreover, meta-regression revealed the strength of perfectionistic self-promotion's partial relationship with narcissistic vulnerability was moderated by the percentage of females. Overall, we suggest caution in interpreting our moderator analyses given the number of tests conducted.

### *4.3. Publication bias*

Additional supplemental analyses (see Supplemental Material E and F) were conducted to evaluate publication bias. Funnel plots and Egger's regression intercept provided mixed evidence of publication bias. In particular, in four cases Egger's regression intercept was significant. Nonetheless, adjusted point estimates were consistently close to observed point estimates and provided the same substantive implications.

## 5. Discussion

Despite 25 years of sustained empirical research (e.g., Hewitt & Flett, 1991; Nealis Sherry, Sherry, Stewart, & Macneil, in press), our understanding of the perfectionism-narcissism relationship is obscured by notable between-study inconsistencies, underpowered studies, the array of narcissism measures used, and the dearth of research controlling for overlap between perfectionism dimensions. Our study addressed these challenges by meta-analyzing narcissistic grandiosity and narcissistic vulnerability in relation to trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions. Findings were derived from 30 studies with 36 samples and 9,091 participants, representing the most comprehensive test of the perfectionism-narcissism relationship thus far. Results arising from bivariate and partial effect sizes support more than a century of case histories and theoretical accounts suggesting perfectionism is

fundamental to understanding the personality profile of narcissists (e.g., Beck et al., 2004; Freud, 1957; Horney, 1950; Rothstein, 1999; Sorotzkin, 1985).

*5.1. An improved understanding of the perfectionism-narcissism relationship*

As hypothesized, partial correlations suggested other-oriented perfectionism was positively related to narcissistic grandiosity. This finding lends credence to longstanding theoretical accounts indicating grandiose narcissists harshly impose perfectionistic demands onto others while experiencing perpetual dissatisfaction with others' perceived flaws (Beck et al., 2004; Ronningstam, 2010, 2011). While such a demanding and disagreeable interpersonal style likely elicits little sympathy, evidence also suggests grandiose narcissists themselves suffer amid distressing daily conflict with others (Nealis et al., 2015; Nealis et al., in press).

Somewhat unexpectedly, partial correlations revealed self-oriented perfectionism was positively related to narcissistic grandiosity. Thus, self-oriented perfectionism's relationship with narcissistic grandiosity does not appear to stem merely from overlap with other-oriented perfectionism, as some authors suggest (Stoeber, 2014; Stoeber, 2015; Stoeber et al., 2015). Self-oriented perfectionism's overlap with narcissistic grandiosity complements a broader literature suggesting that, although self-oriented perfectionism is often labeled as "adaptive," such statements are overly simplistic (e.g., Sherry, Hewitt, Sherry, Flett, & Graham, 2010; Smith, Sherry, Rnic, Saklofske, Enns, & Gralnick, 2016). Specifically, our results indicate that self-oriented perfectionism is more than just an extreme need for achievement and may involve a willingness to exploit others in pursuit of status, power, dominance, and physical beauty (Besser & Priel, 2010; Fitzpatrick, Sherry, Hartling, Hewitt, Flett, & Sherry, 2011; Sherry et al., 2006).

Perfectionistic self-promotion was also associated with narcissistic grandiosity, even after controlling for overlap among perfectionistic self-presentation dimensions. Grandiose narcissists

may exhibit an image of perfect capability in pursuit of others' respect (Ronningstam, 2010, 2011). Sorotzkin (1985) also suggested narcissists may brashly present themselves as perfect to others in an attempt to confirm their grandiose self-image. And as Beck et al. (2004) observed, ''image [to grandiose narcissists] is everything because it is the armor of their self-worth'' (p. 252).

Interestingly, our finding that nondisplay of imperfection was negatively related to narcissistic grandiosity suggests that, despite being heavily invested in promoting an image of infallibility to others, grandiose narcissist's self-preoccupation and inflated sense of self may lead to indifference regarding the perceived costs of behaving imperfectly (Flett et al., 2014; Kernberg, 1984; Morf & Rhodewalt, 2001; Sherry et al., 2014). Indeed, grandiose narcissists may not be concerned about behavioral displays of imperfections because they believe that no such imperfections exist.

As with grandiose narcissists, our results also suggest vulnerable narcissists are fixated on promoting their (so-called) perfection to others, perhaps in pursuit of others' approval and validation (Hewitt et al., 2003). However, unlike grandiose narcissists, vulnerable narcissists appear to have a defensive and an insecure preoccupation with behaving imperfectly. In contrast to grandiose narcissists, vulnerable narcissists also appear to have a strong sense of falling short of others' expectations: Vulnerable narcissists expect and perceive criticism, judgment, and pressure from others. Our findings accord with theory and research suggesting that vulnerable narcissists, relative to grandiose narcissists, tend to rely more on external feedback from others to manage their self-esteem (Besser & Priel, 2010) and tend to experience greater shame when this external feedback suggests they are less than perfect (Pincus et al., 2009). Our research also joins

a wider literature suggesting that, to vulnerable narcissists, others' intentions are malevolent (Dickinson & Pincus, 2003; Pincus et al., 2009).

Finally, bivariate effects indicated that both narcissistic grandiosity and narcissistic vulnerability are related to the frequency of perfectionistic thoughts. This finding dovetails with Beck et al.'s (2004) observation that narcissists are prone to thoughts involving hyper-competitiveness and a need for perfection. As noted by Flett et al. (2014), grandiose narcissists may be prone to perfectionistic thoughts involving fantasies of achieving perfection, whereas vulnerable narcissist may be prone to perfectionistic thoughts encompassing ruminations about the perceived consequences of failing to be perfect.

Overall, our findings suggest trait perfectionism dimensions, perfectionistic self-presentation dimensions, and perfectionism cognitions are differentially related to narcissistic grandiosity and narcissistic vulnerability in ways that accord with longstanding theoretical accounts of narcissistic perfectionism (Beck et al., 2004; Freud, 1957; Horney, 1950; Rothstein, 1999; Sorotzkin, 1985), thereby supporting the validity of the perfectionism construct. Our results also complement research suggesting there is a theoretically meaningfully distinction between grandiose and vulnerable narcissism (Pincus et al., 2009; Pincus & Lukowitsky, 2010).

### *5.2. Limitations of the overall literature*

Research on the perfectionism-narcissism relationship is lopsided. We have extensive research on trait perfectionism's relationship with narcissism, but comparatively little research on perfectionistic self-presentation and perfectionistic cognitions' relationships with narcissism. Moreover, the majority of studies investigated narcissistic grandiosity instead of narcissistic vulnerability, making work on perfectionism and narcissistic vulnerability an important future direction. Additionally, except Nealis et al. (in press), all included studies relied on self-reports.

Self-reports are potentially problematic when studying perfectionism and narcissism, traits which can involve self-presentational biases (e.g., defensiveness). Future studies should advance this literature by using methods of data collection that go beyond self-report (e.g., informant reports or laboratory observation). Also, all research on perfectionism and narcissism uses cross-sectional designs, and multi-wave longitudinal data is needed to test whether perfectionism comes before and contributes to changes in narcissism (and vice versa). Furthermore, since 8 of the 30 included studies had sample sizes < 100, our research suggests many studies on the perfectionism-narcissism relationship are underpowered. Researchers are encouraged to move forward by using sample sizes large enough to detect small-to-medium effects.

*5.3. Limitations of the present study*

Certain limitations in the extant research translate into limitations in our meta-analysis. In this regard, some analyses were based on a small number of effect sizes, leading to relatively large confidence intervals. Included studies were also composed primarily of Caucasians from Canada, USA, and the UK. Our findings may have limited generalizability to more ethnically diverse samples. Furthermore, narcissistic grandiosity and narcissistic vulnerability are non-orthogonal and may even fluctuate within the same individual over time (Gore & Widiger, in press). Thus it follows that the present study's separation of narcissistic grandiosity from narcissistic vulnerability may be problematic. Indeed, a possibility which warrants further study is the extent to which perfectionism and narcissism are related via dynamic intrapersonal processes. For instance, deflated grandiosity may modify personality processes from narcissistic to perfectionistic in a dynamic manner. Given Morf and Rhodewalt's (2001) work on narcissism as a method of self-esteem maintenance, research comparing the intrapsychic processes underlying perfectionism, narcissistic grandiosity, and narcissistic vulnerability remains an

exciting and important area for further inquiry. A more finely grained analysis of perfectionism dimensions' relationships with lower-order facets of narcissism (e.g., entitlement rage) is also needed. Additionally, our age range for included studies was 13.0 to 37.3 years of age. Consequently, we were unable to include studies covering the full life span, particularly samples of adults over 37.3 years of age.

### *5.4. Concluding remarks*

The present meta-analysis offers the most rigorous, comprehensive test of the relationship between perfectionism and narcissism to date. Results corroborate more than a century of case histories and theoretical accounts suggesting perfectionism is important to understanding both grandiose and vulnerable narcissists. We add substantively to this literature by bringing greater specificity to the understanding of the perfectionism-narcissism relationship. In synthesizing this literature, we showed that self-oriented perfectionism and other-oriented perfectionism are predominantly related to narcissistic grandiosity, whereas socially prescribed perfectionism and nondisplay of imperfection are predominately related to narcissistic vulnerability.

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Table 1

*Characteristics of studies included in the meta-analysis*

| | Sample | | | | | | Measures | | |
|---|---|---|---|---|---|---|---|---|---|
| | *N* | Sample type | Mean age | Female % | Ethnic % | Status | Narcissistic grandiosity | Narcissistic vulnerability | Perfectionism |
| Albanese-Kotar (2001) | 230 | community[a] | 32.2 | 60.0 | 11.0 | dissertation | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Casale et al. (2016) | 305 | university[b] | 22.6 | 54.2 | NR | article | NPI | HSNS | PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP |
| Cassady (1996) | 368 | university[b] | NR | NR | NR | dissertation | SCID-II-N | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Davis et al. (2001) | 102 | university[b] | 21.5 | 100.0 | 0.0 | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Davis et al. (2005) | 100 | university[b] | 22.8 | 0.0 | NR | article | NPI | -- | MPS-SOP |
| Fitzpartick et al. (2011) | 305 | university[b] | 19.5 | 100.0 | NR | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDP |
| Flett et al. (2014) Study 1 | 229 | university[b] | 20.6 | 66.4 | NR | book chapter | PNI-Gran | PNI-Vul | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP |
| Flett et al. (2014) Study 2 | 168 | university[b] | 20.7 | 60.1 | NR | book chapter | PNI-Gran | PNI-Vul | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDP<br>PCI |
| Freudenstein et al. (2012) | 100 | psychiatric[c] | 16.6 | 47.0 | 12.0 | article | NPI | -- | CAPS-SOP<br>CAPS-SPP |
| Hewitt et al. (1992) | 90 | psychiatric[c] | 35.9 | 53.0 | 0.0 | article | MMPI-N | -- | MPS-SOP |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hewitt et al. (2003) | 222 | university[b] | 19.2 | 77.0 | NR | article | NPI | -- | MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP |
| Hewitt and Flett (1991) Study 1 | 93 | university[b] | 22.1 | 68.0 | NR | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Hewitt and Flett (1991) Study 2 | 77 | psychiatric[c] | 35.9 | 49.0 | NR | article | MCMI-N | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Hewitt and Flett (2004) | 71 | psychiatric[c] | NR | NR | NR | manual | PAI-Gran | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Mann (2004) | 200 | university[b] | 23.9 | 59.0 | 41.0 | article | -- | NIS | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Mann (2006) | 95 | university[b] | 23.4 | 79.0 | NR | dissertation | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| McCown and Carlson (2004) | 203 | psychiatric[c] | 32.2 | 20.0 | NR | article | -- | PDQ-N | PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP<br>MPS-SOP<br>MPS-OOP |
| Miller and Mesagno (2014) | 90 | exercisers[d] | 27.4 | 62.2 | 2.0 | article | NPI | -- | MPS-SPP<br>MPS-SOP<br>MPS-OOP |
| Nathanson et al. (2006) | 291 | university[b] | NR | 65.0 | 57.0 | article | NPI | -- | MPS-SPP<br>MPS-SOP<br>MPS-OOP |
| Nealis et al. (2015) Study 1 | 323 | university[b] | 20.6 | 81.7 | 20.0 | article | DD-N<br>PES | -- | MPS-SPP<br>MPS-90-OOP<br>MPS-SPP |
| Nealis et al. (2015) Study 2 | 155 | university[b] | 20.7 | 76.8 | 30.0 | article | DD-N<br>PES | -- | PI-HSFO<br>MPS-90-OOP<br>MPS-SPP |
| Nealis et al. (in press) Wave 2[f] | 155 | university[b] | 20.7 | 76.8 | 29.0 | article | DD-N<br>PES | -- | PI-HSFO<br>MPS-90-OOP<br>MPS-SPP |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Nealis et al. (in press) | 151 | informants[g] | 30.2 | 61.9 | 26.7 | article | DD-N<br>PES | -- | PI-HSFO<br>MPS-90-OOP<br>MPS-SPP |
| Ohtani and Sakurai (1995) | 414 | university[b] | NR | 63.0 | NR | article | NPI | -- | PI-HSFO<br>MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Sherry et al. (2007) Study 1 | 532 | university[b] | 19.5 | 56.0 | NR | article | -- | PDQ-N | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Sherry et al. (2007) Study 2 | 350 | university[b] | 19.1 | 82.6 | NR | article | -- | DAPP-N | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP<br>PCI |
| Sherry et al. (2014) men | 354 | university[b] | 19.7 | 0.0 | NR | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP<br>PCI |
| Sherry et al. (2014) women | 629 | university[b] | 19.8 | 100.0 | NR | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP<br>PSPS-PSP<br>PSPS-NDC<br>PSPS-NDP<br>PCI |
| Smith et al. (in press) Study 2 | 352 | community[a] | 36.4 | 42.0 | 26.0 | article | DD-N | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Sorento-Gerhart (1997) | 124 | exercisers[d] | 37.3 | 100.0 | 17.0 | dissertation | NPI | NPDS | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Stoeber (2014) | 338 | university[b] | 19.8 | 81.1 | 27.0 | article | DD-N | -- | MPS-SOP<br>MPS-OOP<br>MPS-90-OOP |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stoeber (2015) | 311 | university[b] | 19.9 | 87.5 | NR | article | PID-5-NP | -- | MPS-SPP<br>MPS-SOP<br>MPS-OOP |
| Stoeber et al. (2015) | 375 | university[b] | 19.6 | 81.9 | 30.0 | article | NPI<br>PNI-Gran | HSNS<br>PNI-Vul | MPS-SPP<br>MPS-SOP<br>MPS-OOP |
| Thomaes and Sedikides (2015) | 258 | grade school[e] | 13.0 | 100.0 | 2.0 | article | CNS | -- | MPS-SPP<br>CAPS-SOP<br>CAPS-SPP |
| Trumpeter et al. (2006) | 531 | university[b] | 19.3 | 64.6 | 36.0 | article | NPI | -- | MPS-SOP<br>MPS-OOP<br>MPS-SPP |
| Watson et al. (1999) | 400 | university[b] | 20.3 | 61.2 | 17.0 | article | NPI | OMNI | MPS-SOP<br>MPS-OOP<br>MPS-SPP |

*Note*. **NR** = not reported. **Ethnic %** = percentage ethnic minority. **MPS** = Hewitt and Flett's (1991) Multidimensional Perfectionism Scale; **MPS-90** = Hewitt and Flett's (1990) Multidimensional Perfectionism Scale; **PSPS** = Hewitt et al.'s (2003) Perfectionistic Self-Presentation Scale; **PCI** = Flett et al.'s (1998) Perfectionistic Cognitions Inventory; **CAPS** = Flett et al.'s (2000) Child-Adolescent Perfectionism Scale; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **PSP** = perfectionistic self-promotion; **NDC** = nondisclosure of imperfection; **NDP** = nondisplay of imperfection; **NPI** = Raskin and Terry's (1988) Narcissistic Personality Inventory; **SCID-II-N** = narcissism subscale of Spitzer et al.'s (1990) Structured Clinical Interview for *DSM-III-R* Personality Disorders; **PNI-Gran** = grandiosity subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PNI-Vul** = vulnerability subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PAI-Gran** = grandiosity subscale of Morey's (1991) Personality Assessment Inventory; **MCMI-N** = narcissism subscale of Millon's (1983) Clinical Multiaxial Inventory; **MMPI-N** = narcissism subscale of Morey et al.'s (1985) Minnesota Multiphasic Personality Inventory; **NIS** = Slyter's (1991) Narcissistic Injury Scale; **PDQ-N** = narcissism subscale of Hyler's (1994) Personality Diagnostic Questionnaire; **DD-N** = narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale; **PES** = Campbell et al.'s (2004) Psychological Entitlement Scale; **DAPP-N** = narcissism subscale of Livesley et al.'s (1992) Dimensional Assessment of Personality Pathology; **NPDS** = Ashby et al.'s (1979) Narcissistic Personality Disorder Scale; **PID-5-NP** = narcissistic personality subscale of Krueger et al.'s (2012) Personality Inventory for the *DSM-5*; **HSNS** = Hendin and Cheek's (1997) Hypertensive Narcissism Scale; **CNS =** Thomaes, Stegge, et al.'s (2008) Childhood Narcissism Scale; **OMNI** = O'Brien's (1987) Multiphasic Narcissism Inventory.

[a]community adults
[b]university undergraduates
[c]psychiatric patients
[d]regular exercisers
[e]elementary school students
[f] Wave 1 data were reported in the Nealis et al. (2015) Study 2.
[g]informant reports

Table 2

*Bivariate and partial correlations for the relationship between narcissism and trait perfectionism, perfectionistic self-presentation, and perfectionistic cognitions*

| | | SOP-N | | OOP-N | | SPP-N | | PSP-N | | NDC-N | | NDP-N | | PCI-N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Study | Outcome | *r* | *pr* | *r* | *pr* | *r* | *pr* | *r* | *pr* | *r* | *pr* | *r* | *pr* | *r* |
| Albanese-Kotar (2001) | NPI | .18 | .11 | .30 | .28 | -.04 | -.20 | -- | -- | -- | -- | -- | -- | -- |
| Casale et al. (2016) | NPI | -- | -- | -- | -- | -- | -- | .19 | .22 | .08 | .00 | .03 | -.13 | -- |
| | HSNS | -- | -- | -- | -- | -- | -- | .43 | .12 | .39 | .13 | .48 | .25 | -- |
| Cassady (1996) | SCID-II-N | .15 | -- | .18 | -- | .38 | -- | -- | -- | -- | -- | -- | -- | -- |
| Davis et al. (2001) | NPI | .18 | .11 | .28 | .23 | -.03 | -.14 | -- | -- | -- | -- | -- | -- | -- |
| Davis et al. (2005) | NPI | .41 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fitzpatrick et al. (2011) | NPI | .15 | .10 | .21 | .18 | .05 | -.06 | .20 | .32 | .09 | .03 | -.03 | -.28 | -- |
| Flett et al. (2014) study 1 | PNI-Gran | .38 | .19 | .12 | .07 | .47 | .36 | .50 | .18 | .39 | .08 | .51 | .19 | -- |
| | PNI-Vul | .39 | .17 | .00 | -.08 | .59 | .50 | .58 | .22 | .55 | .27 | .58 | .17 | -- |
| Flett et al. (2014) study 2 | PNI-Gran | .34 | .09 | .24 | .08 | .47 | .36 | .51 | .22 | .59 | .40 | .39 | -.08 | .52 |
| | PNI-Vul | .34 | .09 | .13 | -.07 | .56 | .48 | .52 | .04 | .50 | .17 | .63 | .39 | .62 |
| Freudenstein et al. (2012) | NPI | .29 | .24 | -- | -- | .17 | .03 | -- | -- | -- | -- | -- | -- | -- |
| Hewitt et al. (1992) | MMPI-N | .15 | .06[a] | .32 | .33[a] | .05 | -.15[a] | -- | -- | -- | -- | -- | -- | -- |
| Hewitt et al. (2003) | NPI | -- | -- | -- | -- | -- | -- | .34 | -- | .09 | -- | .11 | -- | -- |
| Hewitt and Flett (1991) Study 1 | NPI | .21 | -- | .29 | -- | -.02 | -- | -- | -- | -- | -- | -- | -- | -- |
| Hewitt and Flett (1991) Study 2 | MCMI-N | .13 | .17 | .31 | .29 | -.17 | -.31 | -- | -- | -- | -- | -- | -- | -- |
| Hewitt and Flett (2004) | PAI-Gran | -.01 | -- | .18 | -- | -.04 | -- | -- | -- | -- | -- | -- | -- | -- |
| Mann (2004) | NIS | .13 | -.11 | .15 | .01 | .58 | .57 | -- | -- | -- | -- | -- | -- | -- |
| Mann (2006) | NPI | .29 | .20 | .45 | .40 | .07 | -.12 | .24 | .39 | -.03 | -.19 | -.06 | -.24 | -- |
| McCown and Carlson (2004) | PDQ-N | -.03 | -- | .06 | -- | .19 | -- | -- | -- | -- | -- | -- | -- | -- |
| Miller and Mesagno (2014) | NPI | .17 | -.04 | .34 | .29 | .20 | .11 | -- | -- | -- | -- | -- | -- | -- |
| Nathanson et al. (2006) | NPI | .23 | .16 | .19 | .10 | .10 | .00 | -- | -- | -- | -- | -- | -- | -- |
| Nealis et al. (2015) Study 1 | DD-N | -- | -- | .33[b] | .27 | .29 | .22 | -- | -- | -- | -- | -- | -- | -- |
| | DD-N | -- | -- | .37[c] | .32 | .29 | .22 | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .45[b] | .41 | .23 | .12 | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .46[c] | .43 | .23 | .14 | -- | -- | -- | -- | -- | -- | -- |
| Nealis et al. (2015) Study 2 | DD-N | -- | -- | .44[b] | .31 | .39 | .23 | -- | -- | -- | -- | -- | -- | -- |
| | DD-N | -- | -- | .45[c] | .34 | .39 | .25 | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .59[b] | .51 | .37 | .12 | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .39[c] | .28 | .37 | .25 | -- | -- | -- | -- | -- | -- | -- |
| Nealis et al. (in press) Wave 2[d] | DD-N | -- | -- | .48[b] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | DD-N | -- | -- | .55[c] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .61[b] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .40[c] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nealis et al. (in press) informant | DD-N | -- | -- | .58[b] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DD-N | -- | -- | .51[c] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .76[b] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | PES | -- | -- | .69[c] | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ohtani and Sakurai (1995) | NPI | .26 | -- | .10 | -- | -.05 | -- | -- | -- | -- | -- | -- | -- | -- |
| Sherry et al. (2007) Study 1 | PDQ-N | .20 | .04 | .26 | .15 | .29 | .21 | .31 | .18 | .24 | .09 | .23 | .00 | .35 |
| Sherry et al. (2007) Study 2 | DAPP-N | .23 | .12 | .21 | .12 | .25 | .20 | .47 | .29 | .24 | -.09 | .42 | .18 | .34 |
| Sherry et al. (2014) men | NPI | .12 | -.02 | .30 | .26 | .13 | .06 | .14 | .21 | .11 | .13 | -.06 | -.24 | .12 |
| Sherry et al. (2014) women | NPI | .17 | .10 | .25 | .21 | .06 | -.07 | .22 | .32 | .09 | .03 | -.02 | -.27 | .12 |
| Smith et al. (in press) Study 2 | DD-N | .46 | .08 | .58 | .37 | .44 | .03 | -- | -- | -- | -- | -- | -- | -- |
| Sorento-Gerhart (1997) | NPI | .22 | .17 | .25 | .20 | .02 | -.18 | -- | -- | -- | -- | -- | -- | -- |
| | NPDS | .11 | -.16 | .15 | .01 | .41 | .42 | -- | -- | -- | -- | -- | -- | -- |
| Stoeber (2014) | PID-5-NP | .21 | .04[e] | .40 | .34[e] | .13 | -.03[e] | -- | -- | -- | -- | -- | -- | -- |
| Stoeber (2015) | DD-N | .08 | -.04 | .20 | .15 | .17 | .10 | -- | -- | -- | -- | -- | -- | -- |
| | DD-N | .08 | .03 | .26[b] | .22 | .17 | .05 | -- | -- | -- | -- | -- | -- | -- |
| Stober et al. (2015) | HSNS | .18 | .03[f] | .12 | .02[f] | .37 | .33[f] | -- | -- | -- | -- | -- | -- | -- |
| | PNI-Gran | .19 | .08[f] | .15 | .07[f] | .21 | .14[f] | -- | -- | -- | -- | -- | -- | -- |
| | PNI-Vul | .22 | .03[f] | .20 | .09[f] | .41 | .35[f] | -- | -- | -- | -- | -- | -- | -- |
| | NPI | .03 | -.03[f] | .17 | .17[f] | .01 | -.02[f] | -- | -- | -- | -- | -- | -- | -- |
| Thomaes and Sedikides (2015) | CNS | .27 | .21 | -- | -- | .18 | .05 | -- | -- | -- | -- | -- | -- | -- |
| Trumpeter et al. (2006) | NPI | .30 | -- | .32 | -- | .11 | -- | -- | -- | -- | -- | -- | -- | -- |
| Watson et al. (1999) | OMNI | .15 | -- | .15 | -- | .29 | -- | -- | -- | -- | -- | -- | -- | -- |
| | NPI | .27 | -- | .29 | -- | .12 | -- | -- | -- | -- | -- | -- | -- | -- |

*Note*. ***r*** = bivariate correlation; ***pr*** = partial correlation; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **PSP** = perfectionistic self-presentation; **NDC** = nondisclosure of imperfection; **NDP** = nondisplay of imperfection; **PCI** = perfectionistic cognitions; **N** = narcissism; **NPI** = Raskin and Terry's (1988) Narcissistic Personality Inventory; **SCID-II-N** = narcissism subscale of Spitzer et al.'s (1990) Structured Clinical Interview for *DSM-III-R* Personality Disorders; **PNI-gran** = grandiosity subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PNI-vul** = vulnerable subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PAI-gran** = grandiosity subscale of Morey's (1991) Personality Assessment Inventory; **MCMI-N** = narcissism subscale of Millon's (1983) Clinical Multiaxial Inventory; **MMPI-N** = narcissism subscale of Morey et al.'s (1985) Minnesota Multiphasic Personality Inventory; **DD-N** = narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale; **PES** = Campbell et al.'s (2004) Psychological Entitlement Scale; **PDQ-N** = narcissism subscale of Hyler's (1994) Personality Diagnostic Questionnaire; **HSNS** = Hendin and Cheek's (1997) Hypersensitive Narcissism Scale; **NIS** = Slyter's (1991) Narcissistic Injury Scale; **DAPP-N** = narcissistic personality disorder subscale of Livesley et al.'s (1992) Dimensional Assessment of Personality Pathology; **PID-5-NP** = narcissistic personality subscale of Krueger et al.'s (2012) Personality Inventory for the *DSM-5;* **CNS =** Thomaes, Stegge, et al.'s (2008) Childhood Narcissism Scale; **OMNI** = O'Brien's (1987) Multiphasic Narcissism Inventory.

[a]Partial correlations between each trait perfectionism dimensions and MMPI-N after controlling for the other two trait perfectionism dimensions reported on p.329 of Hewitt et al. (1992).

[b]Hewitt and Flett's (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.

[c]Hill et al.'s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.

[d]Wave 1 data were reported in the Nealis et al. (2015) Study 2.

[e]Multiple regression with SOP, OOP, and SPP as predictors of the PID-5-NP reported on p.117 of Stoeber (2014).

[f]Semi-partial correlations from regressions simultaneously entering SOP, OOP, SPP, and gender as predictors of the DD-N reported on p.88 of Stoeber (2015).

Table 3

*Summary of overall bivariate effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation, and perfectionistic cognitions*

| Variable | *k* | *N* | $r^+$ | 95% CI | Fail-safe *N* | $Q_T$ | $I^2$ (%) | Power |
|---|---|---|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | | | | |
| Self-oriented perfectionism | 26 | 6,495 | .23*** | [.18, .27] | 2,026 | 74.38*** | 66.39 | .99 |
| Other-oriented perfectionism | 27 | 6,821 | .32*** | [.26, .37] | 4,432 | 173.35*** | 85.00 | .99 |
| Socially prescribed perfectionism | 27 | 6,873 | .15*** | [.09, .21] | 949 | 163.19*** | 84.07 | .99 |
| Perfectionistic self-promotion | 8 | 2,307 | .30*** | [.20, .39] | 372 | 43.72*** | 83.99 | .99 |
| Nondisclosure of imperfection | 8 | 2,307 | .19** | [.06, .31] | 133 | 70.23*** | 90.04 | .79 |
| Nondisplay of imperfection | 8 | 2,307 | .12 | [-.04, .26] | 38[a] | 90.39*** | 92.26 | .33 |
| Perfectionistic cognitions | 3 | 1,151 | .26* | [.03, .47] | 41 | 28.88*** | 93.07 | .60 |
| *Narcissistic vulnerability* | | | | | | | | |
| Self-oriented perfectionism | 9 | 2,581 | .20*** | [.12, .27] | 215 | 27.91*** | 71.34 | .99 |
| Other-oriented perfectionism | 9 | 2,581 | .15*** | [.10, .20] | 124 | 14.89 | 46.29 | .99 |
| Socially prescribed perfectionism | 9 | 2,581 | .39*** | [.30, .47] | 883 | 51.09*** | 84.34 | .99 |
| Perfectionistic self-promotion | 5 | 1,584 | .46*** | [.36, .55] | 460 | 22.61*** | 82.31 | .99 |
| Nondisclosure of imperfection | 5 | 1,584 | .39*** | [.26, .50] | 291 | 33.43*** | 88.04 | .99 |
| Nondisplay of imperfection | 5 | 1,584 | .48*** | [.32, .60] | 461 | 50.46*** | 92.07 | .99 |
| Perfectionistic cognitions | 3 | 1,050 | .44*** | [.27, .58] | 151 | 18.43*** | 89.15 | .99 |

*Note.* ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r}^+$ = weighted mean *r*; ***CI*** = confident interval; $\boldsymbol{Q_T}$ = measure of heterogeneity of effect sizes; $\boldsymbol{I^2}$ = percentage of heterogeneity.

*$p < .05$; **$p < .01$; ***$p < .001$.

[a]Fail-safe N below threshold ($5k + 10$)

Table 4

*Summary of overall partial effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation*

| Variable | *k* | *N* | $r^{+}$ | $pr^{+}$ | 95% CI | Fail-safe *N* | $Q_T$ | $I^2$ (%) | Power |
|---|---|---|---|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | | | | | |
| Self-oriented perfectionism | 19 | 4,518 | .22*** | .09*** | [.06, .13] | 175 | 24.25 | 25.76 | .99 |
| Other-oriented perfectionism | 19 | 4,638 | .31*** | .24*** | [.19, .29] | 1,227 | 49.32*** | 63.50 | .99 |
| Socially prescribed perfectionism | 21 | 4,996 | .17*** | .02 | [-.05, .09] | 0[a] | 106.02*** | 81.14 | .10 |
| Perfectionistic self-promotion | 7 | 2,085 | .29*** | .27*** | [.21, .32] | 254 | 8.82 | 31.95 | .99 |
| Nondisclosure of imperfection | 7 | 2,085 | .20** | .07 | [-.04, .17] | 6[a] | 35.81*** | 83.25 | .22 |
| Nondisplay of imperfection | 7 | 2,085 | .12 | -.15* | [-.27, -.03] | 89 | 46.71*** | 87.15 | .67 |
| *Narcissistic vulnerability* | | | | | | | | | |
| Self-oriented perfectionism | 7 | 1,978 | .23*** | .04 | [-.04, .11] | 0[a] | 15.96* | 62.40 | .15 |
| Other-oriented perfectionism | 7 | 1,978 | .16*** | .04 | [-.03, .11] | 0[a] | 13.92* | 56.87 | .20 |
| Socially prescribed perfectionism | 7 | 1,978 | .43*** | .39*** | [.28, .50] | 509 | 49.70*** | 87.93 | .99 |
| Perfectionistic self-promotion | 5 | 1,584 | .46*** | .18*** | [.10, .25] | 60 | 9.53* | 58.04 | .99 |
| Nondisclosure of imperfection | 5 | 1,584 | .39*** | .11 | [-.01, .22] | 17[a] | 20.75*** | 80.72 | .22 |
| Nondisplay of imperfection | 5 | 1,584 | .48*** | .19** | [.07, .32] | 60 | 26.94*** | 85.15 | .83 |

*Note.* ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r}^{+}$ = weighted mean *r*; $\boldsymbol{pr}^{+}$ = weighted mean *pr*; ***CI*** = confident interval for *pr*; $\boldsymbol{Q_T}$ = measure of heterogeneity for *pr*; $\boldsymbol{I^2}$ = percentage of heterogeneity for *pr*.

*$p < .05$; **$p < .01$; ***$p < .001$.

[a]Fail-safe N below threshold ($5k + 10$)

# Supplemental Material A: Excluded Studies

Studies marked with an asterisk were excluded from the present meta-analysis.

*Borroni, S., Bortolla, R., Lucrezia, M., Lombardi, A., Maffei, C., & Fossati, A. (2016). The Italian version of Perfectionistic Self-Presentation Scale: Psychometric properties and its association with pathological narcissism and adult attachment in an adult non clinical sample. *Personality and Mental Health, 10,* 130-141.

*Clark, M. A., Lelchook, A. M., & Taylor, M. L. (2010). Beyond the Big Five: How narcissism, perfectionism, and dispositional affect relate to workaholism. *Personality and Individual Differences, 48,* 786-791.

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*Kuennen, M. R., & Waldron, J. T. (2007). Relationship between specific personality traits, fat free mass indices, and the Muscle Dysmorphia Inventory. *Journal of Sports Behavior, 30,* 453-470.

*Lopez, F. G., Fons-Scheyd, A., Bush-King, I., & McDermott, R. C. (2011). A latent class analysis of dyadic perfectionism in a college sample. *Measurement and Evaluation in Counseling and Development, 44,* 32-51.

*Marčinko, D., Jakšić, N., Ivezić, E., Skočić, M., Surányi, Z., Lončar, M., ... & Jakovljević, M. (2014). Pathological narcissism and depressive symptoms in psychiatric outpatients: Mediating role of dysfunctional attitudes. *Journal of Clinical Psychology, 70,* 341-352.

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development of a self-report scale. *Unpublished manuscript.*

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Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54,* 890.

Robbins, S. B., & Patton, M. J. (1985). Self-psychology and career development: Construction of the Superiority and Goal Instability scales. *Journal of Counseling Psychology*, 32, 221.

Shea, A. J., Slaney, R. B., & Rice, K. G. (2006). Perfectionism in intimate relationships: The dyadic almost perfect scale. *Measurement and Evaluation in Counseling and Development, 39*, 107.

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development, 34,* 130.

*Ward, A. M., & Ashby, J. S. (2008). Multidimensional perfectionism and the self. *Journal of College Student Psychotherapy, 22,* 51-65.

Table 1A

*Characteristics of studies excluded from the meta-analysis*

| | Sample | | | | | | Measures | | | Reason for exclusion |
|---|---|---|---|---|---|---|---|---|---|---|
| | *N* | Sample type | Mean age | Female % | Ethnic % | Status | Narcissistic grandiosity | Narcissistic vulnerability | Perfectionism | |
| Borroni et al. (2016) | 447 | community[a] | 36.7 | 63.5 | 0.0 | article | PNI | PNI | PSPS | Ignored PSPS factor structure and only reported PSPS total score |
| Clark et al. (2010) | 322 | university[b] | 24.0 | NR | 51.0 | article | NPI | -- | APS-HS<br>APS-D | Only study with sufficient data using APS |
| Coren and Luthar (2014) | 317 | grade school[c] | NR | 0.0 | 25.0 | article | NPI | -- | FMPS-PC | Only study using FMPS-PC |
| Kuennen and Waldron (2007) | 49 | exercisers[d] | 28.3 | 0.0 | 0.0 | article | NPI | -- | FMPS | Ignored FMPS factor structure and only reported FMPS total score |
| Lopez et al. (2011) | 369 | university[b] | 20.7 | 100.0 | 27.3 | article | EAS | -- | DAPS-HS<br>DAPS-O<br>DAPS-D | Only study with sufficient data using DAPS |
| Marčinko et al. (2014) | 234 | psychiatric[e] | 44.4 | 42.7 | 0.0 | article | PNI-Gran | PNI-Vul | DAS-P | Only study with sufficient data using DAS-P |
| Ward and Ashby (2008) | 271 | university[b] | NR | NR | NR | article | SGIS | -- | APS-HS<br>APS-O<br>APS-D | Insufficient data |

*Note*. **NR**= Not reported; **Ethnic %** = percentage ethnic minority. **HS** = high standards; **O** = order; **D** = discrepancy; **PC** = parental criticism; **P** = perfectionistic attitudes; **Gran** = grandiosity; **Vul** = vulnerability; **PSPS** = Hewitt et al.'s (2003) Perfectionistic Self-Presentation Scale; **APS** = Slaney et al.'s (2001) Almost Perfect Scale-Revised; **FMPS** = Frost et al.'s (1990) Multidimensional Perfectionism Scale; **DAPS** = Shea et al.'s (2006) Dyadic Almost Perfect Scale; **DAS** = Weissman and Beck's (1978) Dysfunctional Attitudes Scale; **PNI** = Pincus et al.'s (2009) Pathological Narcissism Inventory; **NPI** = Raskin and Terry's (1988) Narcissistic Personality Inventory; **EAS** = Nadkarni et al.'s (2009) Entitlement Attitude Scale; **SGIS** = Robbin's and Patton's (1985) Superiority and Goal Instability Scales.

[a]Community adults

[b]University undergraduates

[c]Elementary school students

[d]Regular exercisers

[e]Psychiatric patients

## Supplemental Material B: Results by Measure

Table 1B

*Summary of overall bivariate effect sizes for the relationship between perfectionism and narcissism*

| Variable | *k* | *N* | $r^{+}$ | 95% CI | Fail-safe N | $Q_T$ | $I^2$ (%) | Power |
|---|---|---|---|---|---|---|---|---|
| Self-oriented perfectionism | | | | | | | | |
| CNS | 1 | 258 | .27*** | [.15, .38] | - | 0.00 | 0.00 | .99 |
| DAPP-N | 1 | 350 | .23*** | [.13, .33] | - | 0.00 | 0.00 | .99 |
| DD-N | 2 | 690 | .28 | [-.12, .60] | - | 29.74 | 96.64 | .28 |
| HSNS | 1 | 375 | .18*** | [.08, .28] | - | 0.00 | 0.00 | .94 |
| MCMI | 1 | 77 | .13 | [-.10, .34] | - | 0.00 | 0.00 | .20 |
| MMPI | 1 | 90 | .15 | [-.06, .35] | - | 0.00 | 0.00 | .29 |
| NIS | 1 | 200 | .13 | [-.01, .26] | - | 0.00 | 0.00 | .45 |
| NPDS | 1 | 124 | .11 | [-.07, .28] | - | 0.00 | 0.00 | .23 |
| NPI | 16 | 4,233 | .21*** | [.17, .26] | 702 | 32.12** | 53.29 | .99 |
| OMNI | 1 | 400 | .15** | [.05, .24] | - | 0.00 | 0.00 | .85 |
| PAI-Gran | 1 | 71 | -.01 | [-.24, .22] | - | 0.00 | 0.00 | .00 |
| PDQ-N | 2 | 735 | .09 | [-.13, .31] | - | 7.68** | 87.28 | .13 |
| PID-5-NP | 1 | 311 | .21*** | [.10, .31] | - | 0.00 | 0.00 | .96 |
| PNI-Gran | 3 | 772 | .30*** | [.16, .42] | 49 | 7.73* | 74.12 | .99 |
| PNI-Vul | 3 | 772 | .31*** | [.20, .42] | 56 | 5.43 | 63.18 | .99 |
| SCID-II-N | 1 | 368 | .15** | [.05, .35] | - | 0.00 | 0.00 | .82 |
| Total | 30 | 7,780 | .21*** | [.17, .25] | 2,489 | 85.36 | 66.03 | .99 |
| Other-oriented perfectionism | | | | | | | | |
| DAPP-N | 1 | 350 | .21*** | [.11, .31] | - | 0.00 | 0.00 | .98 |
| DD-N[b] | 6 | 1,474 | .44*** | [.30, .56] | 466 | 46.63*** | 89.50 | .99 |
| DD-N[c] | 3 | 816 | .35*** | [.25, .45] | 80 | 5.56 | 64.04 | .99 |
| HSNS | 1 | 375 | .12* | [.02, .22] | - | 0.00 | 0.00 | .64 |
| MCMI | 1 | 77 | .31** | [.09, .50] | - | 0.00 | 0.00 | .79 |
| MMPI | 1 | 90 | .32** | [.12, .49] | - | 0.00 | 0.00 | .87 |
| NIS | 1 | 200 | .15* | [.01, .28] | - | 0.00 | 0.00 | .56 |
| NPDS | 1 | 124 | .15 | [-.03, ,32] | - | 0.00 | 0.00 | .38 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NPI | 14 | 4,033 | .26*** | [.21, .30] | 899 | 25.63 | 49.28 | .99 |
| OMNI | 1 | 400 | .15** | [.05, .24] | - | 0.00 | 0.00 | .85 |
| PAI-Gran | 1 | 71 | .18 | [-.06, .40] | - | 0.00 | 0.00 | .32 |
| PDQ-N | 2 | 735 | .17 | [-.03, .36] | - | 6.16* | 83.77 | .38 |
| PES[b] | 4 | 784 | .62*** | [.45, .75] | 383 | 32.61 | 90.80 | .99 |
| PES[c] | 2 | 478 | .44*** | [.36, .51] | - | 0.75 | 0.00 | .99 |
| PID-5-NP | 1 | 311 | .40*** | [.30, .49] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 3 | 772 | .16*** | [.09, .23] | 14[a] | 1.56 | 0.00 | .99 |
| PNI-Vul | 3 | 772 | .12 | [-.01, .24] | 6[a] | 5.78 | 65.40 | .44 |
| SCID-II-N | 1 | 368 | .18** | [.08, .28] | - | 0.00 | 0.00 | .94 |
| Total | 31 | 8,106 | .29*** | [.24, .34] | 5,090 | 201.87 | 85.14 | .99 |
| Socially prescribed perfectionism | | | | | | | | |
| CNS | 1 | 258 | .18** | [.06, .30] | - | 0.00 | 0.00 | .83 |
| DAPP-N | 1 | 350 | .25*** | [.15, .35] | - | 0.00 | 0.00 | .99 |
| DD-N | 4 | 1,168 | .32*** | [.19, .44] | 127 | 16.79** | 82.12 | .99 |
| HSNS | 1 | 375 | .37*** | [.28, .45] | - | 0.00 | 0.00 | .99 |
| MCMI | 1 | 77 | -.17 | [-.38, .06] | - | 0.00 | 0.00 | .31 |
| MMPI | 1 | 90 | .05 | [-.16, .35] | - | 0.00 | 0.00 | .09 |
| NIS | 1 | 200 | .58*** | [.48, .67] | - | 0.00 | 0.00 | .99 |
| NPDS | 1 | 124 | .41*** | [.25, .55] | - | 0.00 | 0.00 | .99 |
| NPI | 15 | 4,133 | .06** | [.02, .10] | 37[a] | 17.80 | 21.22 | .90 |
| OMNI | 1 | 400 | .29*** | [.20, .38] | - | 0.00 | 0.00 | .99 |
| PAI-Gran | 1 | 71 | -.04 | [-.27, .20] | - | 0.00 | 0.00 | .06 |
| PDQ-N | 2 | 735 | .25*** | [.16, .35] | - | 1.64 | 38.94 | .99 |
| PES | 2 | 478 | .29*** | [.15, .42] | - | 2.45 | 59.21 | .98 |
| PID-5-NP | 1 | 311 | .13* | [.02, .24] | - | 0.00 | 0.00 | .63 |
| PNI-Gran | 3 | 772 | .39*** | [.19, .55] | 85 | 16.80*** | 81.10 | .96 |
| PNI-Vul | 3 | 772 | .48*** | [.39, .56] | 155 | 4.70 | 57.43 | .99 |
| SCID-II-N | 1 | 368 | .28*** | [.18, .37] | - | 0.00 | 0.00 | .99 |
| Total | 31 | 8,158 | .19*** | [.13, .25] | 2,212 | 228.01 | 86.84 | .99 |
| Perfectionistic self-promotion | | | | | | | | |
| DAPP-N | 1 | 350 | .47*** | [.38, .55] | - | 0.00 | 0.00 | .99 |
| HSNS | 1 | 305 | .43*** | [.33, .52] | - | 0.00 | 0.00 | .99 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NPI | 6 | 1,910 | .21*** | [.16, .26] | 129 | 6.49 | 22.95 | .99 |
| PDQ-N | 1 | 532 | .31*** | [.23, .39] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 2 | 397 | .50*** | [.43, .57] | - | 0.02 | 0.00 | .99 |
| PNI-Vul | 2 | 397 | .55*** | [.48, .62] | - | 0.71 | 0.00 | .99 |
| Total | 10 | 3,189 | .31*** | [.25, .42] | 876 | 63.21 | 85.76 | .99 |
| Nondisclosure of imperfection | | | | | | | | |
| DAPP-N | 1 | 350 | .24*** | [.14, .34] | - | 0.00 | 0.00 | .99 |
| HSNS | 1 | 305 | .39*** | [.29, .48] | - | 0.00 | 0.00 | .99 |
| NPI | 6 | 1,910 | .09*** | [.04, .13] | 13[a] | 1.48 | 0.00 | .96 |
| PDQ-N | 1 | 532 | .24*** | [.16, .32] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 2 | 397 | .49*** | [.27, .67] | - | 6.74** | 85.17 | .99 |
| PNI-Vul | 2 | 397 | .53*** | [.45, .60] | - | 0.46 | 0.00 | .99 |
| Total | 10 | 3,189 | .20*** | [.10, .30] | 281 | 74.62 | 87.94 | .97 |
| Nondisplay of imperfection | | | | | | | | |
| DAPP-N | 1 | 350 | .42*** | [.33, .50] | - | 0.00 | 0.00 | .99 |
| HSNS | 1 | 305 | .48*** | [.39, .56] | - | 0.00 | 0.00 | .99 |
| NPI | 6 | 1,910 | -.01 | [-.05, .04] | 0[a] | 4.95 | 0.00 | .06 |
| PDQ-N | 1 | 532 | .23*** | [.15, .31] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 2 | 397 | .46 | [.33, .57] | - | 2.17 | 0.00 | .99 |
| PNI-Vul | 2 | 397 | .60*** | [.54, .66] | - | 0.00 | 0.00 | .99 |
| Total | 10 | 3,189 | .21*** | [.06, .35] | 292 | 162.43 | 94.46 | .99 |
| Perfectionistic cognitions | | | | | | | | |
| DAPP-N | 1 | 350 | .34*** | [.24, .43] | - | 0.00 | 0.00 | .99 |
| NPI | 2 | 983 | .12*** | [.06, .19] | - | 0.02 | 0.00 | .99 |
| PDQ-N | 1 | 532 | .35*** | [.27, .42] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 1 | 168 | .52*** | [.40, .62] | - | 0.00 | 0.00 | .99 |
| PNI-Vul | 1 | 168 | .62*** | [.52, .71] | - | 0.00 | 0.00 | .99 |
| Total | 5 | 2,033 | .31*** | [.16, .46] | 212 | 51.97 | 92.30 | .99 |

Note. ***k*** = number of studies; ***N*** = total number of participants in the ***k*** samples; $r^+$ = weighted mean *r*; ***CI*** = confident interval; $Q_T$ = measure of heterogeneity of effect sizes; $I^2$ = percentage of heterogeneity. **CNS =** Thomaes, Stegge, et al.'s (2008) Childhood Narcissism Scale; **DAPP-N** = narcissism subscale of Livesley et al.'s (1992) Dimensional Assessment of Personality Pathology; **DD-N** = narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale; **HSNS** = Hendin and Cheek's (1997) Hypertensive Narcissism Scale; **MCMI-N** = narcissism subscale of Millon's (1983) Clinical Multiaxial Inventory; **MMPI-N** = narcissism subscale

of Morey et al.'s (1985) Minnesota Multiphasic Personality Inventory; **NIS** = Slyter's (1991) Narcissistic Injury Scale; **NPDS** = Ashby et al.'s (1979) Narcissistic Personality Disorder Scale; **NPI** = Raskin and Terry's (1988) Narcissistic Personality Inventory; **OMNI** = O'Brien's (1987) Multiphasic Narcissism Inventory**; PAI-Gran** = grandiosity subscale of Morey's (1991) Personality Assessment Inventory; **PDQ-N** = narcissism subscale of Hyler's (1994) Personality Diagnostic Questionnaire; **PES** = Campbell et al.'s (2004) Psychological Entitlement Scale; **PID-5-NP** = narcissistic personality subscale of Krueger et al.'s (2012) Personality Inventory for the *DSM-5*; **PNI-Gran** = grandiosity subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PNI-Vul** = vulnerability subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **SCID-II-N** = narcissism subscale of Spitzer et al.'s (1990) Structured Clinical Interview for *DSM-III-R* Personality Disorders.

[a]Fail-safe N below threshold ($5k + 10$).

[b]Hewitt and Flett's (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.

[c]Hill et al.'s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 2B

*Summary of overall partial effect sizes for the relationship between perfectionism and narcissism*

| Variable | *k* | *N* | $r^{+}$ | 95% CI | Fail-safe N | $Q_T$ | $I^2$ (%) | Power |
|---|---|---|---|---|---|---|---|---|
| Self-oriented perfectionism | | | | | | | | |
| CNS | 1 | 258 | .21** | [.09, .32] | - | 0.00 | 0.00 | .93 |
| DAPP-N | 1 | 350 | .12* | [.02, .22] | - | 0.00 | 0.00 | .61 |
| DD-N | 2 | 690 | .04 | [-.05, .12] | - | 1.39 | 28.05 | .12 |
| HSNS | 1 | 375 | .03 | [-.07, .13] | - | 0.00 | 0.00 | .09 |
| MMCI-N | 1 | 77 | .17 | [-.06, .38] | - | 0.00 | 0.00 | .31 |
| MMPI-N | 1 | 90 | .06 | [-.15, .26] | - | 0.00 | 0.00 | .09 |
| NIS | 1 | 200 | -.11 | [-.25, .03] | - | 0.00 | 0.00 | .34 |
| NPI | 11 | 2,695 | .09*** | [.04, .14] | 46[a] | 16.89 | 40.79 | .91 |
| NPDS | 1 | 124 | -.16 | [-.33, .02] | - | 0.00 | 0.00 | .40 |
| PDQ-N | 1 | 532 | .04 | [-.05, .13] | - | 0.00 | 0.00 | .15 |
| PID-5-NP | 1 | 311 | .04 | [-.07, .15] | - | 0.00 | 0.00 | .11 |
| PNI-Gran | 3 | 772 | .12** | [.05, .18] | 6[a] | 1.90 | 0.00 | .89 |
| PNI-Vul | 3 | 772 | .09 | [.00, .17] | 2[a] | 2.83 | 29.25 | .53 |
| Total | 22 | 5,600 | .08*** | [.05, .11] | 167 | 32.34 | 35.06 | .99 |
| Other-oriented perfectionism | | | | | | | | |
| DAPP-N | 1 | 532 | .15** | [.07, .23] | - | 0.00 | 0.00 | .94 |
| DD-N[b] | 4 | 1,168 | .27*** | [.18, .35] | 86 | 7.30 | 58.88 | .99 |
| DD-N[c] | 2 | 478 | .33*** | [.24, .41] | - | 0.05 | 0.00 | .99 |
| HSNS | 1 | 375 | .02 | [-.08, .12] | - | 0.00 | 0.00 | .07 |
| MMCI-N | 1 | 77 | .29* | [.07, .48] | - | 0.00 | 0.00 | .73 |
| MMPI-N | 1 | 90 | .33** | [.13, .50] | - | 0.00 | 0.00 | .89 |
| NIS | 1 | 200 | .00 | [-.14, .14] | - | 0.00 | 0.00 | .00 |
| NPDS | 1 | 124 | .01 | [-.17, .19] | - | 0.00 | 0.00 | .05 |
| NPI | 10 | 2,595 | .22*** | [.17, .26] | 296 | 11.60 | 22.41 | .99 |
| PES[b] | 2 | 478 | .45*** | [.35, .54] | - | 1.67 | 39.95 | .99 |
| PES[c] | 2 | 478 | .37*** | [.21, .52] | - | 3.51 | 71.51 | .99 |
| PDQ-N | 1 | 350 | .12* | [.02, .22] | - | 0.00 | 0.00 | .61 |
| PID-5-NP | 1 | 311 | .34*** | [.24, .44] | - | 0.00 | 0.00 | .99 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PNI-Gran | 3 | 772 | .07* | [.00, .14] | 1[a] | 0.01 | 0.00 | .51 |
| PNI-Vul | 3 | 772 | -.01 | [-.13, .11] | 0[a] | 0.00 | 0.00 | .05 |
| Total | 22 | 5,720 | .20*** | [.16, .26] | 1,297 | 80.90 | 74.04 | .99 |
| Socially prescribed perfectionism | | | | | | | | |
| CNS | 1 | 258 | .05 | [-.07, .17] | - | 0.00 | 0.00 | .13 |
| DAPP-N | 1 | 350 | .20*** | [.10, .30] | - | 0.00 | 0.00 | .97 |
| DD-N | 4 | 1,168 | .12** | [.04, .20] | 13[a] | 6.15 | 51.20 | .79 |
| HSNS | 1 | 375 | .33*** | [.24, .42] | - | 0.00 | 0.00 | .99 |
| MCMI | 1 | 77 | -.31** | [-.50, -.09] | - | 0.00 | 0.00 | .79 |
| MMPI | 1 | 90 | -.15 | [-.35, .06] | - | 0.00 | 0.00 | .29 |
| NIS | 1 | 200 | .57*** | [.47, .66] | - | 0.00 | 0.00 | .99 |
| NPDS | 1 | 124 | .42*** | [.26, .55] | - | 0.00 | 0.00 | .99 |
| NPI | 11 | 2,695 | -.05 | [-.10, .00] | 8[a] | 17.13 | 41.61 | .48 |
| PDQ-N | 1 | 532 | .21*** | [.13, .29] | - | 0.00 | 0.00 | .99 |
| PID-5-NP | 1 | 311 | -.03 | [-.14, .08] | - | 0.00 | 0.00 | .08 |
| PNI-Gran | 3 | 772 | .28** | [.12, .43] | 43 | 10.61 | 81.16 | .92 |
| PNI-Vul | 3 | 772 | .44*** | [.33,.53] | 124 | 5.76 | 65.25 | .99 |
| Total | 24 | 6,078 | .09* | [.01, .17] | 280 | 215.37 | 89.32 | .59 |
| Perfectionistic self-promotion | | | | | | | | |
| DAPP-N | 1 | 350 | .29*** | [.19, .38] | - | 0.00 | 0.00 | .99 |
| HSNS | 1 | 305 | .12* | [.01, .23] | - | 0.00 | 0.00 | .55 |
| NPI | 5 | 1,688 | .28*** | [.22, .34] | 170 | 6.37 | 37.21 | .99 |
| PDQ-N | 1 | 532 | .18*** | [.10, .26] | - | 0.00 | 0.00 | .99 |
| PNI-Gran | 2 | 397 | .20*** | [.10, .29] | - | 0.17 | 0.00 | .98 |
| PNI-Vul | 2 | 397 | .14 | [-.04, .31] | - | 3.22 | 68.91 | .32 |
| Total | 10 | 2,967 | .24*** | [.19, .29] | 397 | 16.97* | 52.85 | .99 |
| Nondisclosure of imperfection | | | | | | | | |
| DAPP-N | 1 | 350 | -.09 | [-.19, .02] | - | 0.00 | 0.00 | .39 |
| HSNS | 1 | 305 | .13* | [.02, .24] | - | 0.00 | 0.00 | .62 |
| NPI | 5 | 1,688 | .01 | [-.07, .09] | 0[a] | 10.04* | 60.14 | .05 |
| PDQ-N | 1 | 532 | .09 | [.01, .17] | - | 0.00 | 0.00 | .55 |
| PNI-Gran | 2 | 397 | .24 | [-.09, .53] | - | 11.25** | 91.11 | .31 |
| PNI-Vul | 2 | 397 | .23*** | [.13, .32] | - | 1.05 | 5.25 | .99 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total | 9 | 2,967 | .06 | [-.02, .13] | 10[a] | 33.42*** | 76.06 | .30 |
| Nondisplay of imperfection | | | | | | | | |
| DAPP-N | 1 | 350 | .18** | [.08, .28] | - | 0.00 | 0.00 | .92 |
| HSNS | 1 | 305 | .25*** | [.14, .35] | - | 0.00 | 0.00 | .99 |
| NPI | 5 | 1,688 | -.24*** | [-.29, -.18] | 112 | 5.13 | 22.00 | .99 |
| PDQ-N | 1 | 532 | .00 | [-.09, .09] | - | 0.00 | 0.00 | .00 |
| PNI-Gran | 2 | 397 | .06 | [-.21, .33] | - | 7.63** | 86.90 | .07 |
| PNI-Vul | 2 | 397 | .28* | [.05, .48] | - | 5.50* | 81.82 | .67 |
| Total | 9 | 2,967 | -.05 | [-.19, .09] | 15[a] | 108.63*** | 92.64 | .10 |

Note. ***k*** = number of studies; ***N*** = total number of participants in the ***k*** samples; $r^+$ = weighted mean *r*; ***CI*** = confident interval; $Q_T$ = measure of heterogeneity of effect sizes; $I^2$ = percentage of heterogeneity. **CNS =** Thomaes, Stegge, et al.'s (2008) Childhood Narcissism Scale; **DAPP-N** = narcissism subscale of Livesley et al.'s (1992) Dimensional Assessment of Personality Pathology; **DD-N** = narcissism subscale of Jonason and Webster's (2010) Dirty Dozen Scale; **HSNS** = Hendin and Cheek's (1997) Hypertensive Narcissism Scale; **MCMI-N** = narcissism subscale of Millon's (1983) Clinical Multiaxial Inventory; **MMPI-N** = narcissism subscale of Morey et al.'s (1985) Minnesota Multiphasic Personality Inventory; **NIS** = Slyter's (1991) Narcissistic Injury Scale; **NPDS** = Ashby et al.'s (1979) Narcissistic Personality Disorder Scale; **NPI** = Raskin and Terry's (1988) Narcissistic Personality Inventory; **PAI-Gran** = grandiosity subscale of Morey's (1991) Personality Assessment Inventory; **PDQ-N** = narcissism subscale of Hyler's (1994) Personality Diagnostic Questionnaire; **PES** = Campbell et al.'s (2004) Psychological Entitlement Scale; **PID-5-NP** = narcissistic personality subscale of Krueger et al.'s (2012) Personality Inventory for the *DSM-5*; **PNI-Gran** = grandiosity subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory; **PNI-Vul** = vulnerability subscale of Pincus et al.'s (2009) Pathological Narcissism Inventory.

[a]Fail-safe N below threshold ($5k + 10$).

[b]Hewitt and Flett's (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.

[c]Hill et al.'s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.

*$p < .05$; **$p < .01$; ***$p < .001$.

# Supplemental Material C: Bivariate Correlations

Table 1C

*Bivariate correlations among trait perfectionism dimensions and perfectionistic self-presentation dimensions*

| | SOP-SPP | SOP-OOP | SPP-OOP | PSP-NDC | PSP-NDP | NDC-NDP |
|---|---|---|---|---|---|---|
| Study | *r* | *r* | *r* | *r* | *r* | *r* |
| Albanese-Kotar (2001) | .50 | .50 | .36 | -- | -- | -- |
| Casale et al. (in press) | -- | -- | -- | .57 | .67 | .54 |
| Davis et al. (2001) | .46 | .48 | .25 | -- | -- | -- |
| Fitzpatrick et al. (2011) | .50 | .38 | .34 | .57 | .75 | .54 |
| Flett et al. (2014) Study 1 | .47 | .16 | .08 | .56 | .76 | .61 |
| Flett et al. (2014) Study 2 | .52 | .42 | .30 | .64 | .73 | .60 |
| Freudenstein et al. (2012) | .51 | -- | -- | -- | -- | -- |
| Hewitt and Flett (1991) Study 2 | .56 | .42 | .23 | -- | -- | -- |
| Mann (2004) | .38 | .47 | .31 | -- | -- | -- |
| Mann (2006) | .43 | .32 | .23 | .59 | .61 | .46 |
| Miller and Mesagno (2014) | .47 | .49 | .31 | -- | -- | -- |
| Nathanson et al. (2006) | .34 | .45 | .36 | -- | -- | -- |
| Nealis et al. (2015) Study 1 | -- | -- | .28[a] | -- | -- | -- |
| Nealis et al. (2015) Study 1 | -- | -- | .24[b] | -- | -- | -- |
| Nealis et al. (2015) Study 2 | -- | -- | .48[a] | -- | -- | -- |
| Nealis et al. (2015) Study 2 | -- | -- | .42[b] | -- | -- | -- |
| Sherry et al. (2007) Study 1 | .34 | .47 | .33 | .53 | .69 | .51 |
| Sherry et al. (2007) Study 2 | .24 | .40 | .16 | .57 | .67 | .55 |
| Sherry et al. (2014) men | .19 | .45 | .24 | .53 | .66 | .58 |
| Sherry et al. (2014) women | .47 | .40 | .35 | .58 | .73 | .57 |
| Smith et al. (in press) Study 2 | .71 | .69 | .68 | -- | -- | -- |
| Sorento-Gerhart (1999) | .58 | .56 | .48 | -- | -- | -- |
| Stoeber (2015) | .50 | .37 | .42 | -- | -- | -- |
| Stoeber (2015) | .50 | .07[a] | .38[a] | -- | -- | -- |
| Thomaes and Sedikides (2015) | .51 | -- | -- | -- | -- | -- |

*Note*. ***r*** = bivariate correlation; **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **PSP** = perfectionistic self-promotion; **NDC** = nondisclosure of imperfection; **NDP** = nondisplay of imperfection.

[a]Hewitt and Flett's (1990) Other-Oriented Perfectionism Scale was used to measure other-oriented perfectionism.

[b]Hill et al.'s (2004) high standards for others subscale of the Perfectionism Inventory was used to measure other-oriented perfectionism.

Table 2C

*Summary of overall effect sizes for the relationships among trait perfectionism dimensions and the relationships among perfectionistic self-presentation dimensions*

| Variable | *k* | *N* | $r^+$ | 95% CI | Fail-safe *N* | $Q_T$ | $I^2$ (%) | Power |
|---|---|---|---|---|---|---|---|---|
| SOP and OOP | 17 | 4,466 | .44*** | [.37, .50] | 3,879 | 102.78*** | 84.43 | .99 |
| SOP and SPP | 19 | 4,824 | .46*** | [.40, .52] | 5,200 | 135.07*** | 86.67 | .99 |
| SPP and OOP | 19 | 4,944 | .33*** | [.26, .40] | 2,693 | 127.37*** | 85.87 | .99 |
| PSP and NDC | 9 | 2,967 | .56*** | [.54, .59] | 2,664 | 5.98 | 0.00 | .99 |
| PSP and NDP | 9 | 2,967 | .70*** | [.66, .73] | 4,728 | 22.22*** | 71.66 | .99 |
| NDC and NDP | 9 | 2,967 | .55*** | [.53, .58] | 2,512 | 6.86 | 0.00 | .99 |

*Note.* ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_T}$ = measure of heterogeneity of effect sizes; $\boldsymbol{I^2}$ = percentage of heterogeneity. **SOP** = self-oriented perfectionism; **OOP** = other-oriented perfectionism; **SPP** = socially prescribed perfectionism; **PSP** = perfectionistic self-promotion; **NDC** = nondisclosure of imperfection; **NDP** = nondisplay of imperfection.

*$p < .05$; **$p < .01$; ***$p < .001$.

[a]Fail-safe *N* below threshold.

## Supplemental Material D: Moderation

Table 1D

*Categorical moderation for bivariate effects between self-oriented perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 0.05 |
| Published[a] | 19 | 5,210 | .22*** | [.17, .27] | |
| Unpublished[a] | 7 | 1,285 | .23*** | [.15, .32] | |
| Age | | | | | 0.46 |
| Adult[a] | 7 | 1,034 | .22*** | [.13, .31] | |
| Young adult[a] | 17 | 5,103 | .22*** | [.17, .27] | |
| Adolescent[a] | 2 | 358 | .28** | [.12, .43] | |
| Sample | | | | | 4.15 |
| Psychiatric[a] | 5 | 431 | .16** | [.04, .28] | |
| Community[a] | 2 | 582 | .34*** | [.20, .46] | |
| Exercisers[a] | 2 | 214 | .20* | [.02, .36] | |
| University[a] | 16 | 5,010 | .22*** | [.17, .27] | |
| Grade school[a] | 1 | 258 | .27* | [.07, .45] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 4.27* |
| Published[a] | 6 | 2,060 | .16*** | [.08, .23] | |
| Unpublished[b] | 3 | 521 | .30*** | [.18, .41] | |
| Age | | | | | 6.17* |
| Adult[a] | 2 | 327 | .03 | [–.12, .17] | |
| Young adult[b] | 7 | 2,254 | .23*** | [.17, .29] | |
| Sample | | | | | 6.62* |
| Psychiatric[a] | 2 | 403 | .05 | [–.09, .19] | |
| Exercisers[a] | 1 | 124 | .11 | [–.12, .33] | |
| University[b] | 6 | 2,054 | .24*** | [.17, .31] | |

*Note*. Moderators with the same superscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed

journal articles; **Unpublished** = dissertations, book chapters, and manual; **Adult** = average age ≥ 25 years; **Young adult** = average age ≥ 18 and ≤ 25 years; **Adolescent** = average age ≥ 13 and ≤ 17 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates; **Grade School** = elementary school students.
$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 2D

*Categorical moderation for bivariate effects between other-oriented perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 2.00 |
| Published[a] | 20 | 5,536 | .34*** | [.28, .40] | |
| Unpublished[a] | 7 | 1,285 | .25*** | [.12, .36] | |
| Age | | | | | 0.02 |
| Adult[a] | 8 | 1,307 | .31*** | [.20, .42] | |
| Young adult[a] | 19 | 5,514 | .32*** | [.25, .39] | |
| Sample | | | | | 2.51 |
| Psychiatric[a] | 3 | 238 | .27** | [.07, .45] | |
| Community[a] | 2 | 582 | .46*** | [.27, .61] | |
| Exercisers[a] | 2 | 214 | .29* | [.06, .50] | |
| University[a] | 20 | 5,787 | .31*** | [.25, .37] | |

*Note.* Moderators with the same subscript do not differ significantly; other-oriented perfectionism's relationship with narcissistic vulnerability was excluded due to the total heterogeneity of the weighted mean effect sizes being non-significant and suggesting a weak basis for moderation. ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters; **Adult** = average age ≥ 25; **Young adult** = average age ≥ 18 and ≤ 25 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates.
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 3D

*Categorical moderation for bivariate effects between socially prescribed perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 2.28 |
| Published[a] | 21 | 5,659 | .12** | [.06, .19] | |
| Unpublished[a] | 6 | 1,214 | .23** | [.11, .35] | |
| Age | | | | | 1.44 |
| Adult[a] | 6 | 944 | .07 | [-.07, .20] | |
| Young adult[a] | 19 | 5,571 | .16*** | [.09, .24] | |
| Adolescent[a] | 2 | 358 | .18 | [-.06, .40] | |
| Sample | | | | | 3.03 |
| Psychiatric[a] | 4 | 338 | .01 | [-.17, .19] | |
| Community[a] | 2 | 582 | .22* | [.00, .42] | |
| Exercisers[a] | 2 | 214 | .11 | [-.14, .34] | |
| University[a] | 18 | 5,481 | .16*** | [.09, .23] | |
| Grade school[a] | 1 | 258 | .18 | [-.13, .46] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 3.86 |
| Published[a] | 6 | 2,060 | .34*** | [.24, .42] | |
| Unpublished[a] | 3 | 521 | .49** | [.36, .60] | |
| Age | | | | | 1.00 |
| Adult[a] | 2 | 327 | .34*** | [.24, .42] | |
| Young adult[b] | 7 | 2,254 | .49*** | [.36, .60] | |
| Sample | | | | | 2.09 |
| Psychiatric[a] | 1 | 203 | .19 | [-.12, .46] | |
| Exercisers[a] | 1 | 124 | .41* | [.11, .64] | |
| University[a] | 7 | 2,254 | .41*** | [.31, .50] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $r^+$ = weighted mean *r*; ***CI*** = confidence interval; $Q_B$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters; **Adult** = average age ≥ 25; **Young adult** = average age ≥ 18 and ≤ 25

years; **Adolescent** = average age ≥ 13 and ≤ 17 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates; **Grade School** = elementary school students.
$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 4D

*Categorical moderation for bivariate effects between perfectionistic self-promotion and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 13.34*** |
| Published[a] | 4 | 1,815 | .22*** | [.14, .29] | |
| Unpublished[b] | 3 | 492 | .45*** | [.34, .54] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 4.37* |
| Published[a] | 3 | 1,187 | .40*** | [.31, .49] | |
| Unpublished[a] | 2 | 397 | .55*** | [.42, .65] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 5D

*Categorical moderation for bivariate effects between nondisclosure of imperfection and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 8.00** |
| Published[a] | 5 | 1,815 | .09 | [-.02, .20] | |
| Unpublished[b] | 3 | 492 | .36*** | [.21, .50] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 12.66*** |
| Published[a] | 3 | 1,187 | .29*** | [.20, .37] | |
| Unpublished[b] | 2 | 397 | .53*** | [.43, .62] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 6D

*Categorical moderation for bivariate effects between nondisplay of imperfection and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 10.56** |
| Published[a] | 5 | 1,815 | .00 | [-.11, .12] | |
| Unpublished[b] | 3 | 492 | .33*** | [.17, .46] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 5.10* |
| Published[a] | 3 | 1,187 | .38*** | [.23, .51] | |
| Unpublished[b] | 2 | 397 | .61*** | [.46, .72] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 7D

*Categorical moderation for bivariate effects between perfectionistic cognitions and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | $28.85^{***}$ |
| Published[a] | 2 | 983 | $.12^{***}$ | [.06, .19] | |
| Unpublished[b] | 1 | 168 | $.52^{***}$ | [.40, .62] | |
| *Narcissistic vulnerability* | | | | | $18.40^{***}$ |
| Published[a] | 2 | 983 | $.35^{***}$ | [.29, .40] | |
| Unpublished[b] | 1 | 168 | $.62^{***}$ | [.52, .71] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 8D

*Categorical moderation for partial effects between self-oriented perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 0.07 |
| Published[a] | 4 | 1,456 | .03 | [-.08, .13] | |
| Unpublished[a] | 3 | 521 | .05 | [-.08, .18] | |
| Age | | | | | 3.65 |
| Adult[a] | 1 | 124 | -.16* | [-.36, .05] | |
| Young adult[a] | 6 | 1,854 | .06 | [-.01, .13] | |

*Note.* Moderators with the same subscript do not differ significantly; self-oriented perfectionism's partial relationship with narcissistic grandiosity was excluded due to the total heterogeneity of the weighted mean effect sizes being non-significant and suggesting a weak basis for moderation. ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r}^+$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters; **Adult** = average age ≥ 25 years; **Young adult** = average age ≥ 18 and ≤ 25 years; **Adolescent** = average age ≥ 13 and ≤ 17 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates; **Grade School** = elementary school students.

$^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 9D

*Categorical moderation for partial effects between other-oriented perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 1.01 |
| Published[a] | 14 | 3,792 | .26*** | [.20, .31] | |
| Unpublished[a] | 5 | 846 | .20*** | [.10, .29] | |
| Age | | | | | 2.06 |
| Adult[a] | 5 | 873 | .30*** | [.21, .39] | |
| Young adult[a] | 14 | 3,765 | .22*** | [.17, .27] | |
| Sample | | | | | 2.96 |
| Psychiatric[a] | 2 | 167 | .31** | [.13, .47] | |
| Community[a] | 2 | 582 | .33*** | [.20, .45] | |
| Exercisers[a] | 2 | 214 | .24** | [.07, .40] | |
| University[a] | 13 | 3,675 | .22*** | [.17, .27] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 9.13** |
| Published[a] | 4 | 1,457 | .10*** | [.05, .15] | |
| Unpublished[b] | 3 | 521 | -.06 | [-.14, .03] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $r^+$ = weighted mean *r*; ***CI*** = confidence interval; $Q_B$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters; **Adult** = average age ≥ 25 years; **Young adult** = average age ≥ 18 and ≤ 25 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 10D

*Categorical moderation for partial effects between socially prescribed perfectionism and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 0.36 |
| Published[a] | 16 | 4,150 | .01 | [-.07, .09] | |
| Unpublished[a] | 5 | 846 | .06 | [-.08, .20] | |
| Age | | | | | 5.93 |
| Adult[a] | 6 | 963 | -.11 | [-.24, .02] | |
| Young adult[a] | 13 | 3,675 | .04 | [-.01, .15] | |
| Adolescent[a] | 2 | 358 | .07 | [-.17, .25] | |
| Sample | | | | | 5.30 |
| Psychiatric[a] | 3 | 267 | -.14 | [-.33, .06] | |
| Community[a] | 2 | 582 | -.08 | [-.29, .13] | |
| Exercisers[a] | 2 | 214 | -.04 | [-.27, .19] | |
| University[a] | 13 | 3,675 | .04 | [-.01, .16] | |
| Grade school[a] | 1 | 258 | .05 | [-.25, .34] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 1.81 |
| Published[a] | 4 | 1,457 | .33*** | [.19, .46] | |
| Unpublished[a] | 3 | 521 | .47*** | [.31, .60] | |
| Age | | | | | 0.04 |
| Adult[a] | 1 | 124 | .42* | [.07, .68] | |
| Young adult[a] | 6 | 1,854 | .39*** | [.26, .50] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $r^+$ = weighted mean *r*; ***CI*** = confidence interval; $Q_B$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters; **Adult** = average age ≥ 25 years; **Young adult** = average age ≥ 18 and ≤ 25 years; **Adolescent** = average age ≥ 13 and ≤ 17 years. **Psychiatric** = psychiatric patients; **Community** = community adults; **Exercisers** = regular exercisers; **University** = university undergraduates; **Grade School** = elementary school students.
$^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 11D

*Categorical moderation for partial effects between perfectionistic self-promotion and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 0.94 |
| Published[a] | 3 | 1,187 | .27*** | [.21, .34] | |
| Unpublished[a] | 2 | 392 | .24*** | [.14, .34] | |

*Note.* Moderators with the same subscript do not differ significantly; perfectionistic self-promotion's relationship with narcissistic grandiosity was excluded due to the total heterogeneity of the weighted mean effect sizes being non-significant and suggesting a weak basis for moderation. ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r}^+$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 12D

*Categorical moderation for partial effects between nondisclosure of imperfection and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 0.55 |
| Published[a] | 4 | 1,593 | .00 | [-.14, .15] | |
| Unpublished[a] | 3 | 492 | .12 | [-.06, .29] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 3.29 |
| Published[a] | 3 | 1,187 | .04 | [-.07, .16] | |
| Unpublished[a] | 2 | 397 | .22** | [.07, .37] | |

*Note.* Moderators with the same subscript do not differ significantly; ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 13D

*Categorical moderation for partial effects between nondisplay of imperfection and narcissism across moderators*

| Moderator | *k* | *N* | $r^+$ | 95% CI | $Q_B$ |
|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | |
| Publication status | | | | | 5.22* |
| Published[a] | 4 | 1,593 | -.23*** | [-.34, -.12] | |
| Unpublished[a] | 3 | 492 | -.02 | [-.17, .13] | |
| *Narcissistic vulnerability* | | | | | |
| Publication status | | | | | 1.14 |
| Published[a] | 3 | 1,187 | .14 | [-.02, .30] | |
| Unpublished[a] | 2 | 397 | .28** | [.08, .46] | |

*Note.* Moderators with the same subscript do not differ significantly. ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r^+}$ = weighted mean *r*; ***CI*** = confidence interval; $\boldsymbol{Q_B}$ = between group heterogeneity statistic; **Published** = peer-reviewed journal articles; **Unpublished** = dissertations and book chapters.

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 14D

*Moderating effect of percent female on bivariate effects*

| Moderator | *β* | *95% CI* | *Z* | *p* |
|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | |
| Self-oriented perfectionism | | | | |
| % Female | -0.11 | [-.29, .06] | -1.27 | .203 |
| Other-oriented perfectionism | | | | |
| % Female | -0.03 | [-.18, .12] | -0.39 | .700 |
| Socially prescribed perfectionism | | | | |
| % Female | -0.08 | [-.33, .19] | -0.55 | .583 |
| Perfectionistic self-promotion | | | | |
| % Female | 0.06 | [-.32, .44] | 0.32 | .749 |
| Nondisclosure of imperfection | | | | |
| % Female | -0.09 | [-.58, .40] | -0.36 | .720 |
| Nondisplay of imperfection | | | | |
| % Female | -0.01 | [-.57, .55] | -0.03 | .997 |
| *Narcissistic vulnerability* | | | | |
| Self-oriented perfectionism | | | | |
| % Female | 0.23 | [-.13, .59] | 1.23 | .218 |
| Socially prescribed perfectionism | | | | |
| % Female | -0.41 | [-1.36, .54] | -0.85 | .396 |
| Perfectionistic self-promotion | | | | |
| % Female | 0.42 | [-.81, 1.64] | 0.67 | .505 |
| Nondisclosure of imperfection | | | | |
| % Female | -0.31 | [-1.97, 1.35] | 0.37 | .712 |
| Nondisplay of imperfection | | | | |
| % Female | 0.11 | [-1.91, 2.13] | 0.11 | .912 |

*Note.* Perfectionistic cognitions were excluded due to an insufficient number of studies for meta-regression. Other-oriented perfectionism's relationship with narcissistic vulnerability was excluded due to the total heterogeneity of the weighted mean effect sizes being non-significant and suggesting a weak basis for moderation. **β** = unstandardized regression coefficient; ***Z*** = significance test of continuous moderators; ***p*** = statistical significance.

Table 15D

*Moderating effect of percent female on partial effects*

| Moderator | *β* | *95% CI* | *Z* | *p* |
|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | |
| Other-oriented perfectionism | | | | |
| % Female | 0.00 | [.00, .00] | -0.18 | .858 |
| Socially prescribed perfectionism | | | | |
| % Female | -0.08 | [-.38, .21] | -0.56 | .577 |
| Nondisclosure of imperfection | | | | |
| % Female | -0.18 | [-.52, .17] | -1.01 | .311 |
| Nondisplay of imperfection | | | | |
| % Female | -0.06 | [-.50, .37] | -0.28 | .781 |
| *Narcissistic vulnerability* | | | | |
| Self-oriented perfectionism | | | | |
| % Female | -0.19 | [-.76, .38] | -0.66 | .511 |
| Other-oriented perfectionism | | | | |
| % Female | 0.00 | [-.01, .01] | 0.89 | .376 |
| Socially prescribed perfectionism | | | | |
| % Female | -0.24 | [-1.21, .74] | -0.48 | .629 |
| Perfectionistic self-presentation | | | | |
| % Female | 0.58 | [.07, 1.09] | 2.23 | .026 |
| Nondisclosure of imperfection | | | | |
| % Female | -0.68 | [-.170, .34] | -1.31 | .191 |
| Nondisplay of imperfection | | | | |
| % Female | -0.01 | [-1.56, 1.49] | -0.01 | .994 |

*Note.* Perfectionistic cognitions was excluded due to an insufficient number of studies for meta-regression. Self-oriented perfectionism and perfectionistic self-promotion's partial relationship with narcissistic grandiosity was excluded due to the total heterogeneity of the weighted mean effect sizes being non-significant and suggesting a weak basis for moderation. **β** = unstandardized regression coefficient; ***Z*** = significance test of continuous moderators; ***p*** = statistical significance.

Supplemental Material E: Funnel Plots with Imputed Studies

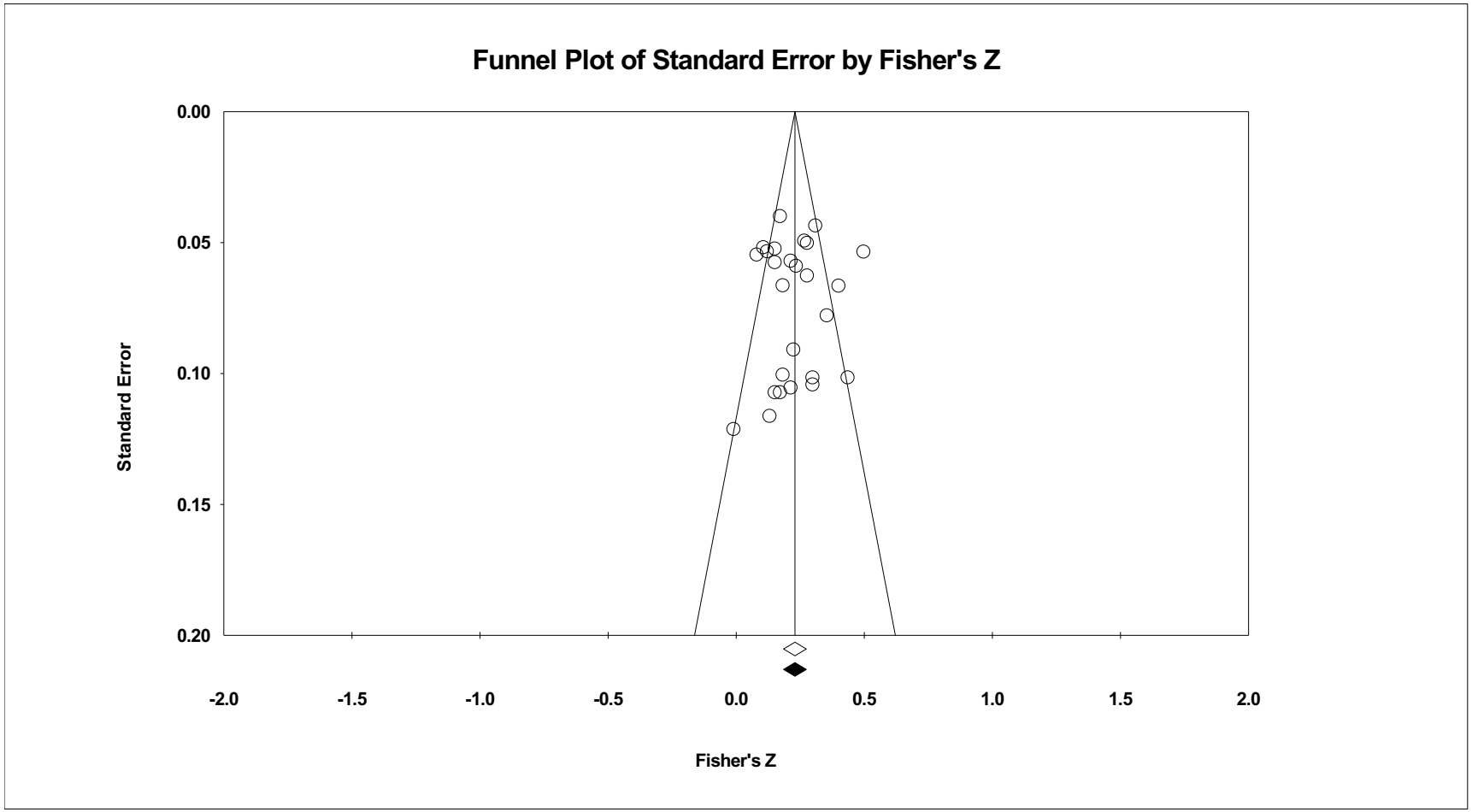


*Figure 1E.* Funnel plot for the bivariate relationship between grandiose narcissism and self-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

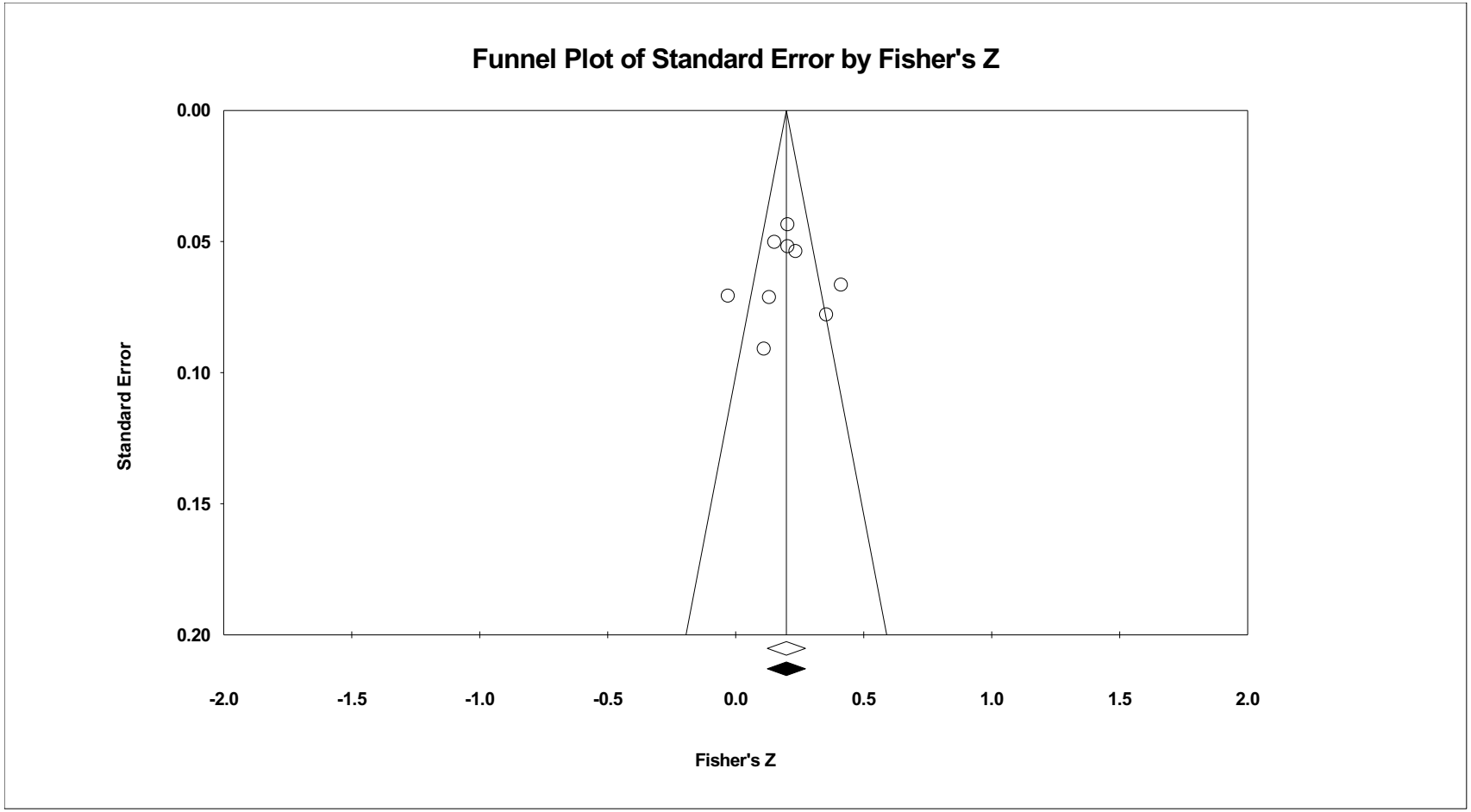


*Figure 2E.* Funnel plot for the bivariate relationship between vulnerable narcissism and self-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

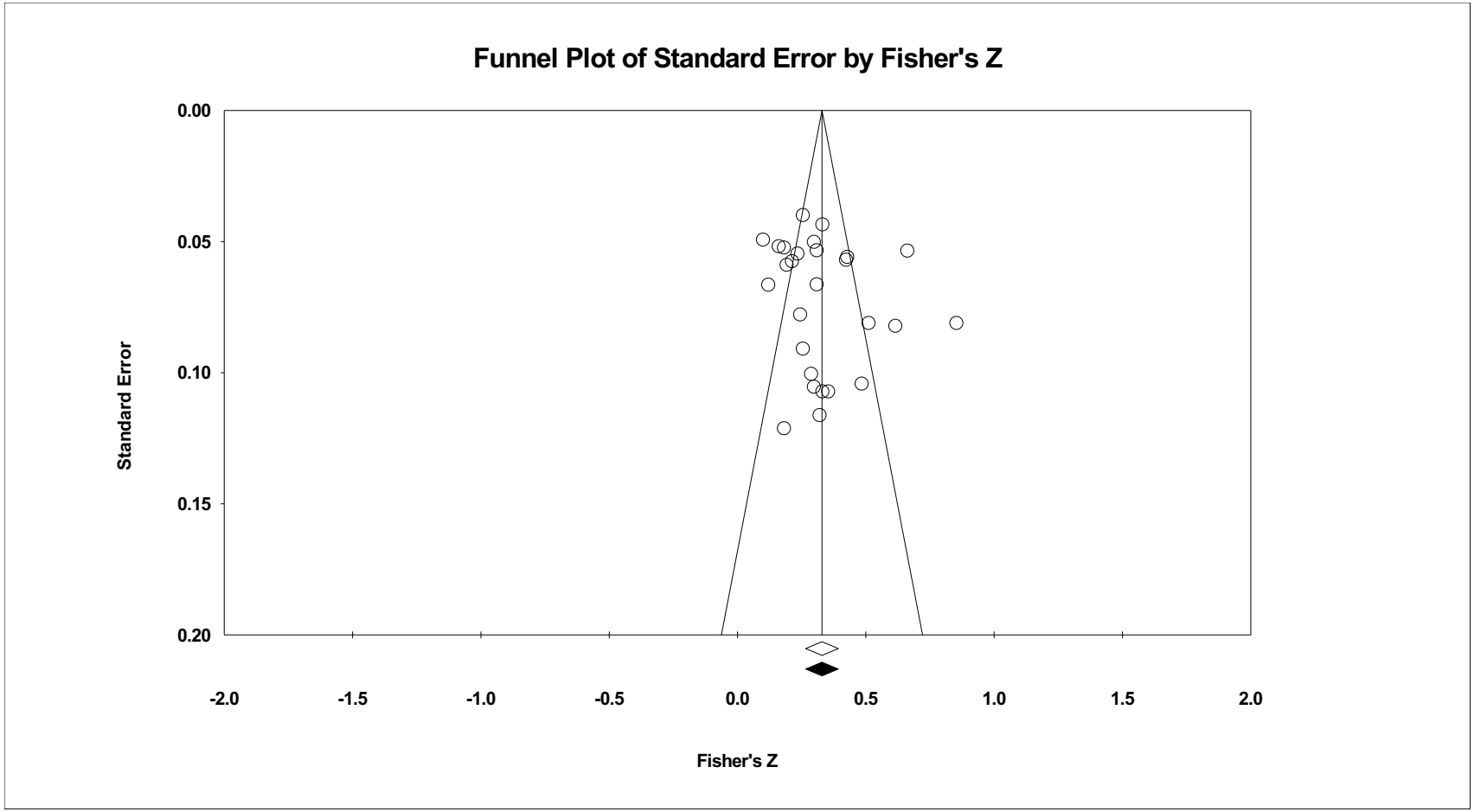


*Figure 3E.* Funnel plot for the bivariate relationship between grandiose narcissism and other-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

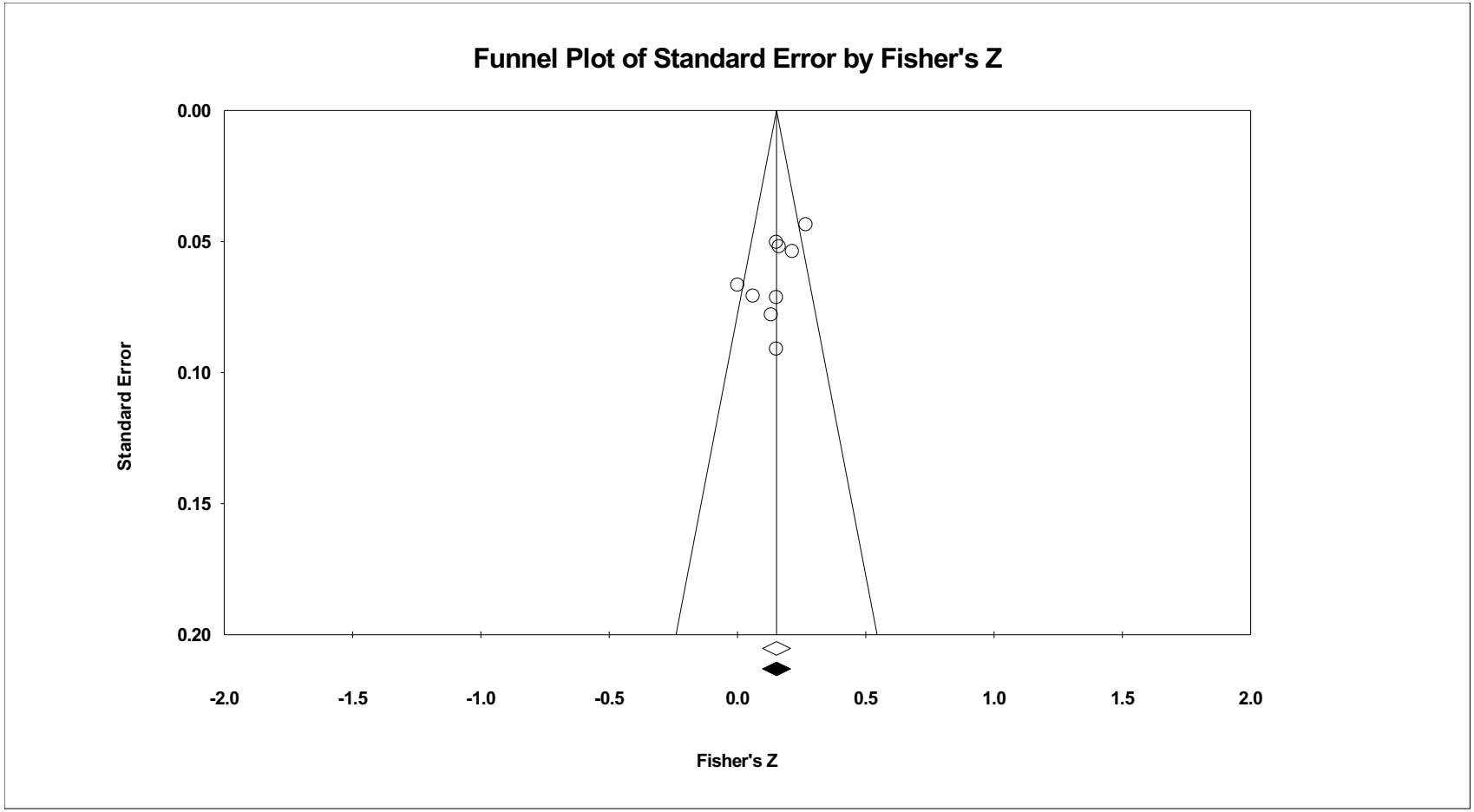


*Figure 4E.* Funnel plot for the bivariate relationship between vulnerable narcissism and other-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

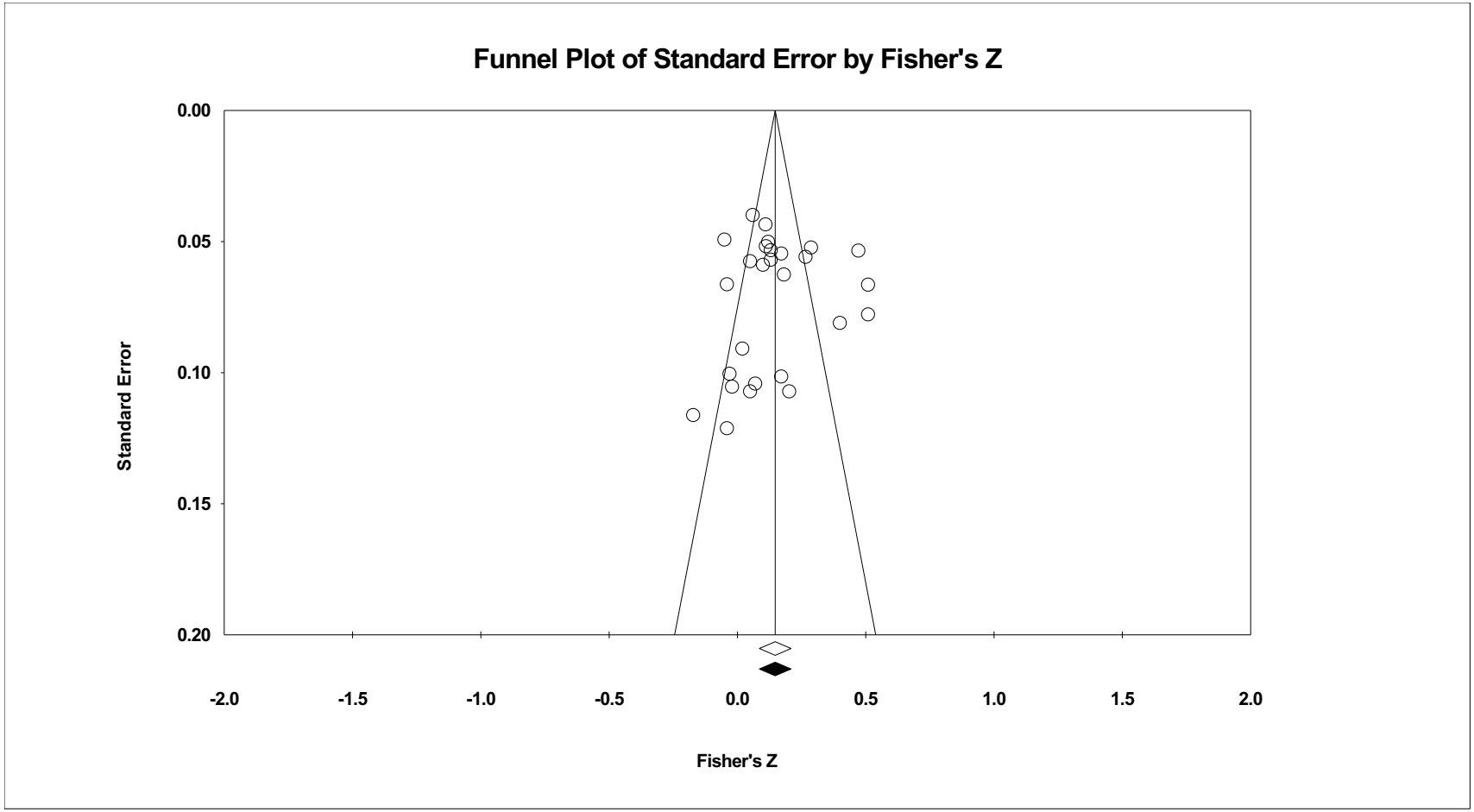


*Figure 5E.* Funnel plot for the bivariate relationship between grandiose narcissism and socially prescribed perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

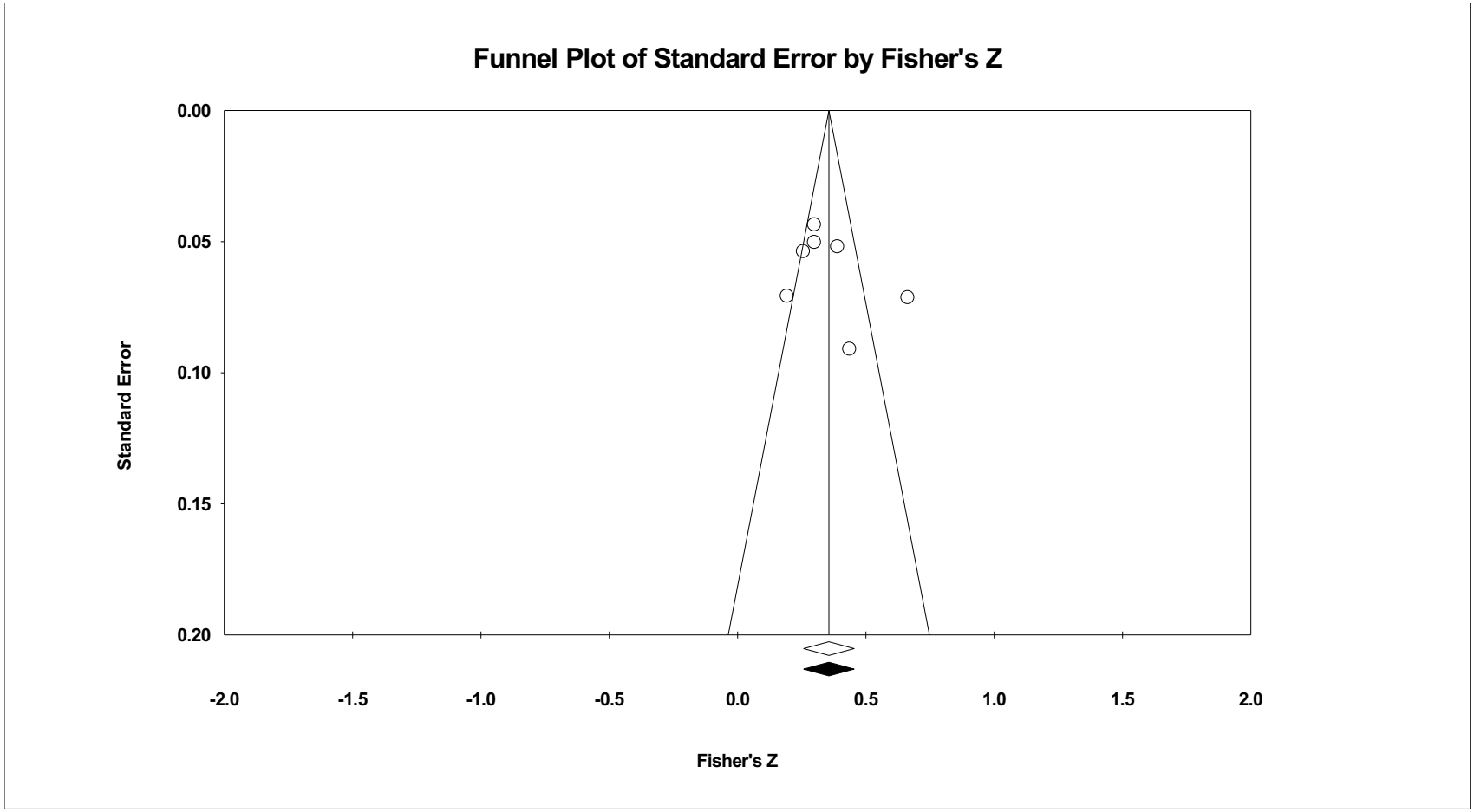


*Figure 6E.* Funnel plot for the bivariate relationship between vulnerable narcissism and socially prescribed perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

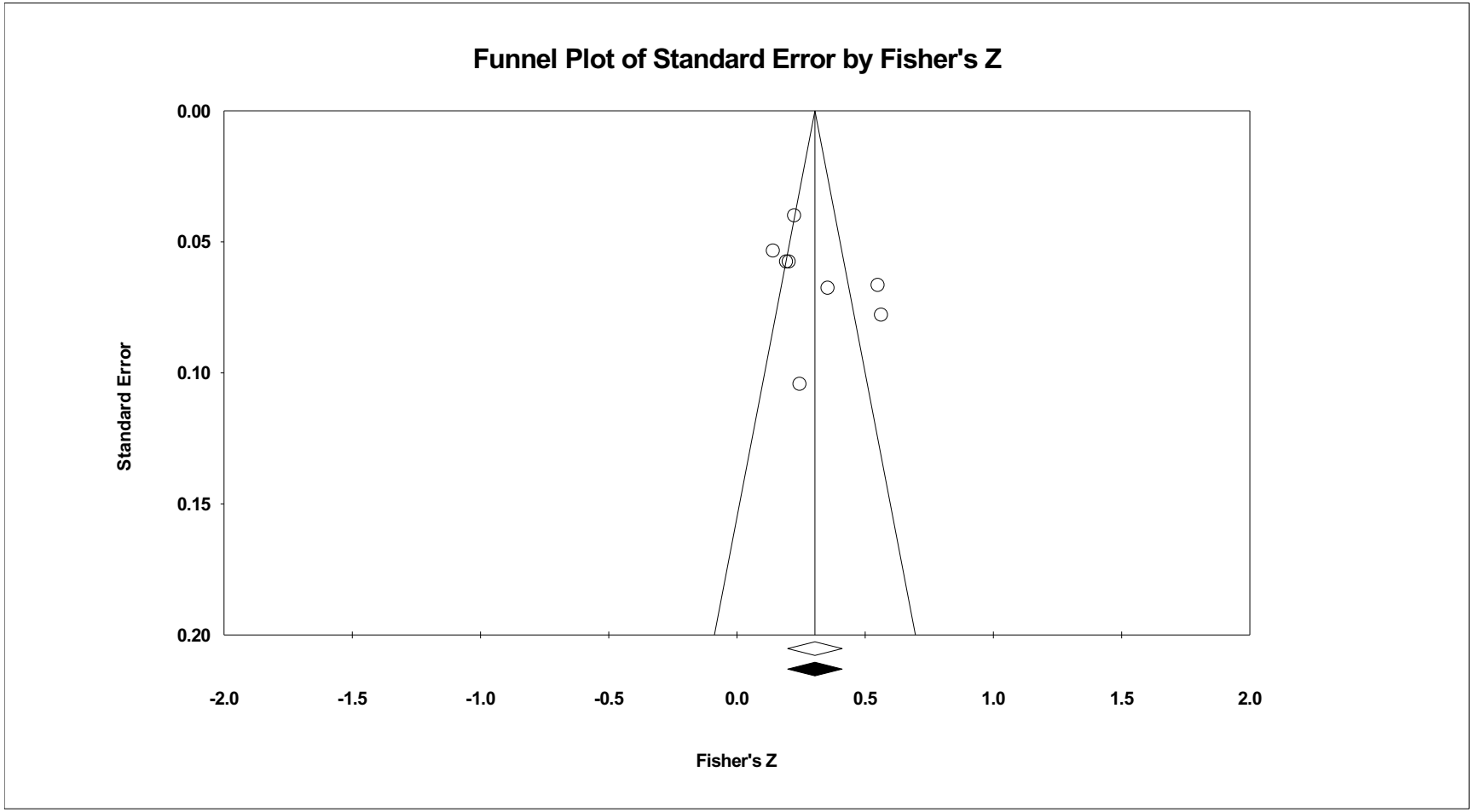


*Figure 7E.* Funnel plot for the bivariate relationship between grandiose narcissism and perfectionistic self-promotion with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

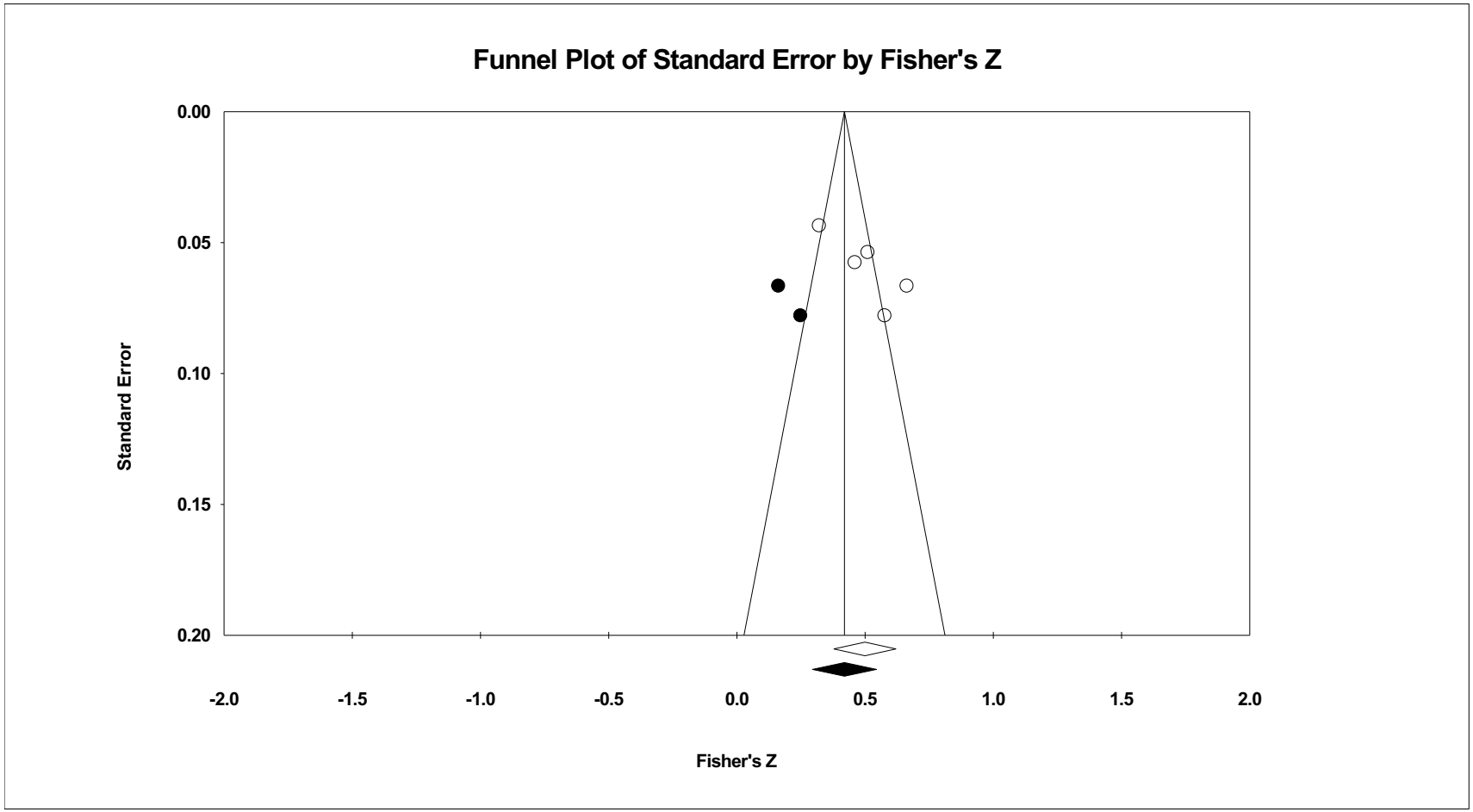


*Figure 8E.* Funnel plot for the bivariate relationship between vulnerable narcissism and perfectionistic self-promotion with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

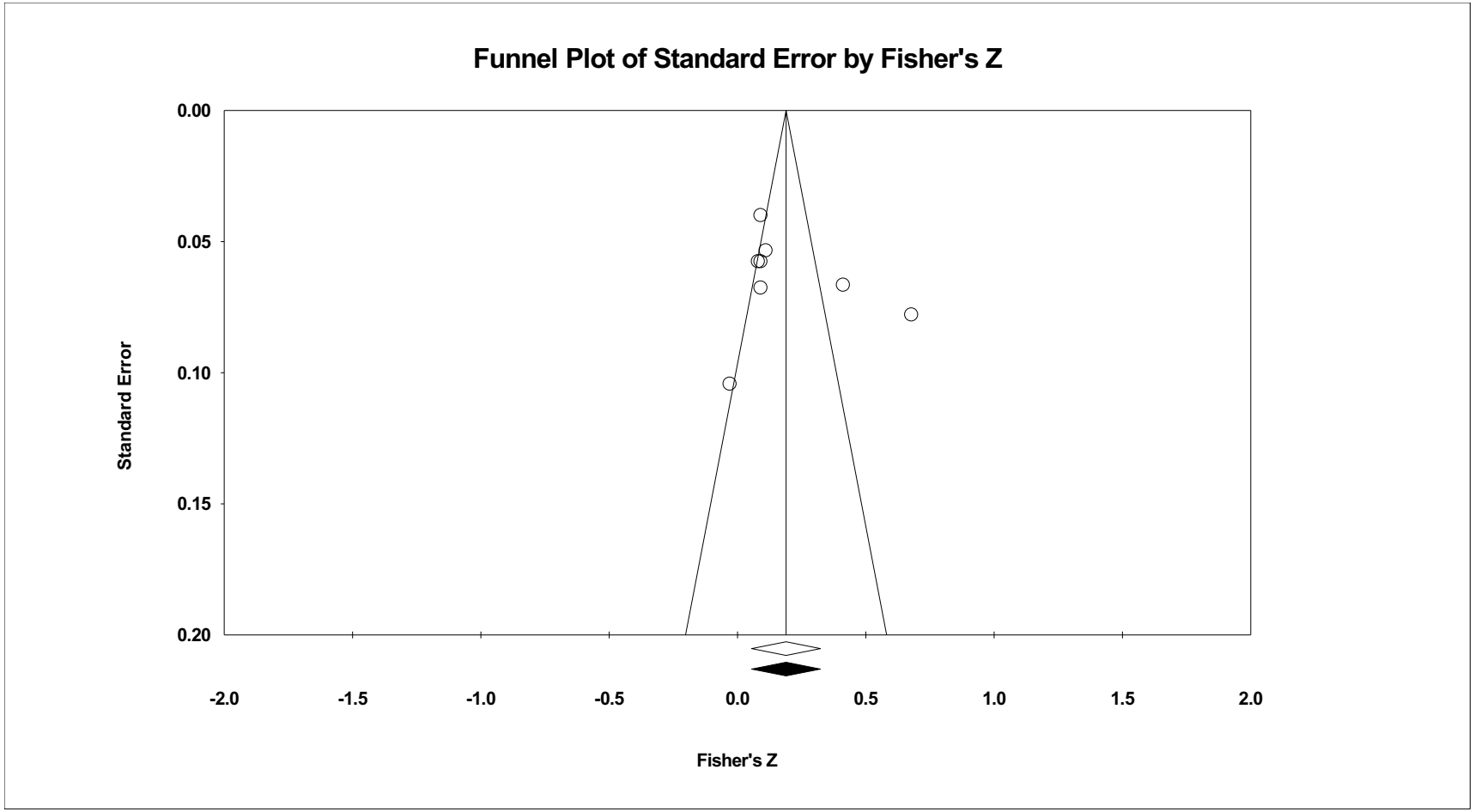


*Figure 9E.* Funnel plot for the bivariate relationship between grandiose narcissism and nondisclosure of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

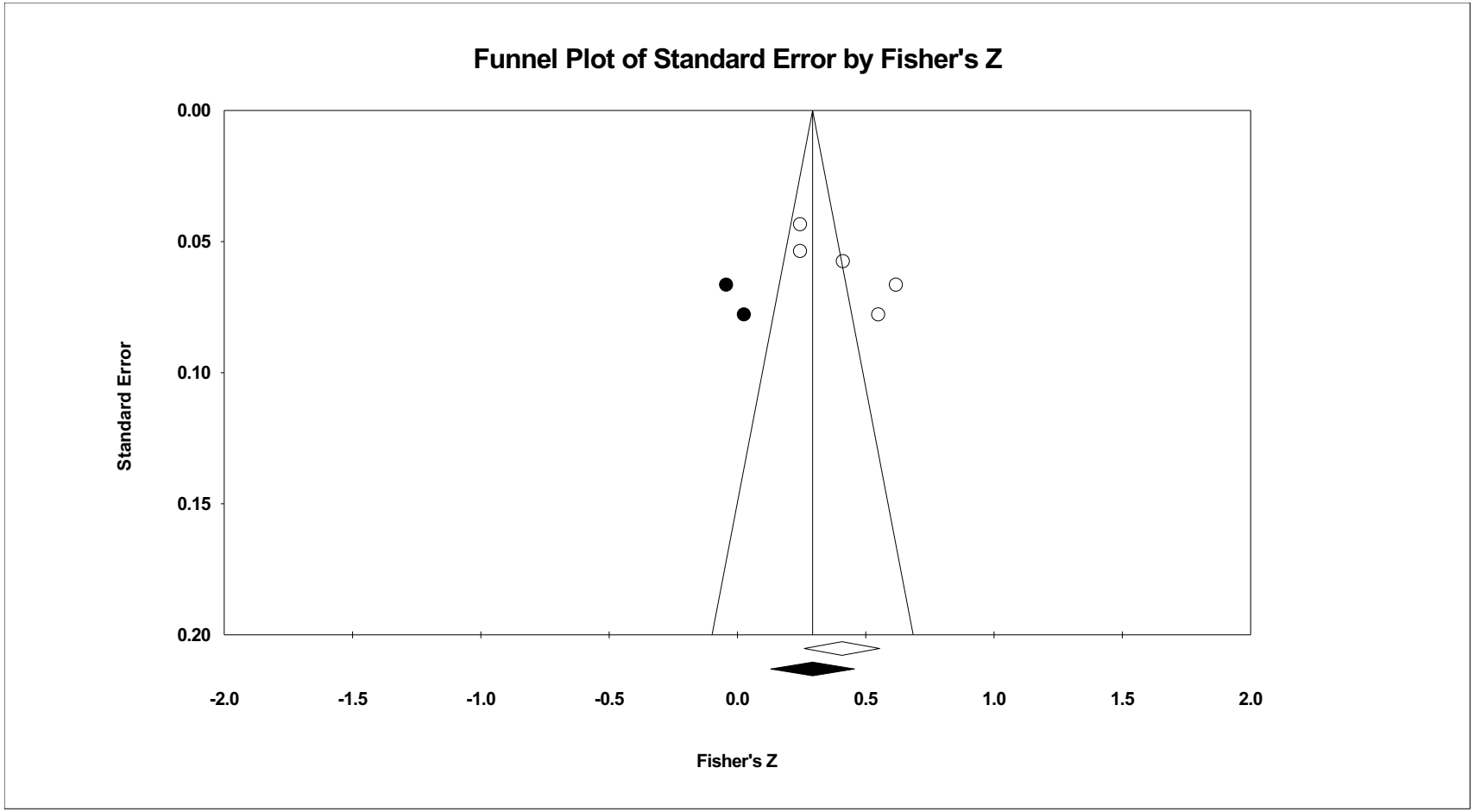


*Figure 10E.* Funnel plot for the bivariate relationship between vulnerable narcissism and nondisclosure of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

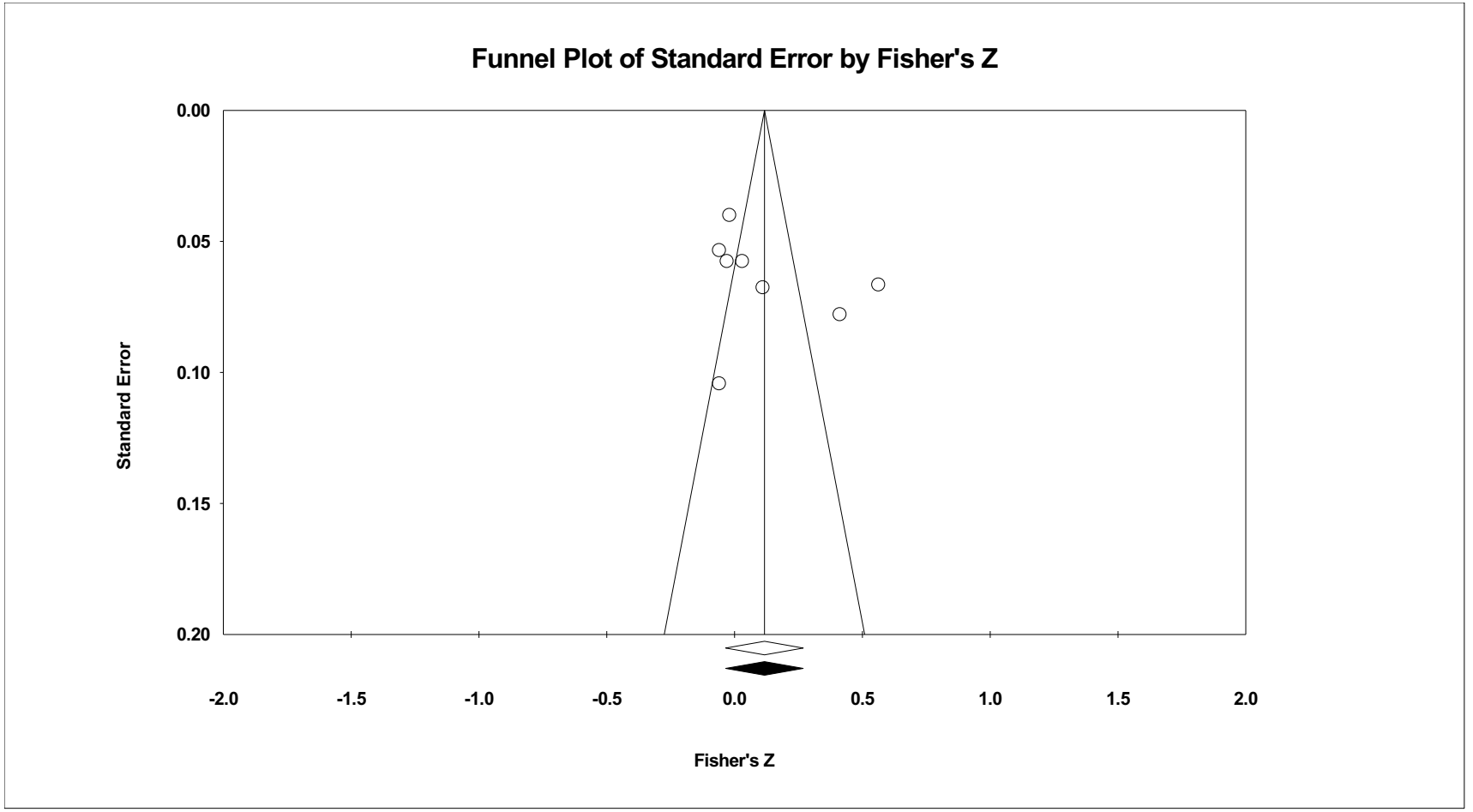


*Figure 11E.* Funnel plot for the bivariate relationship between grandiose narcissism and nondisplay of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

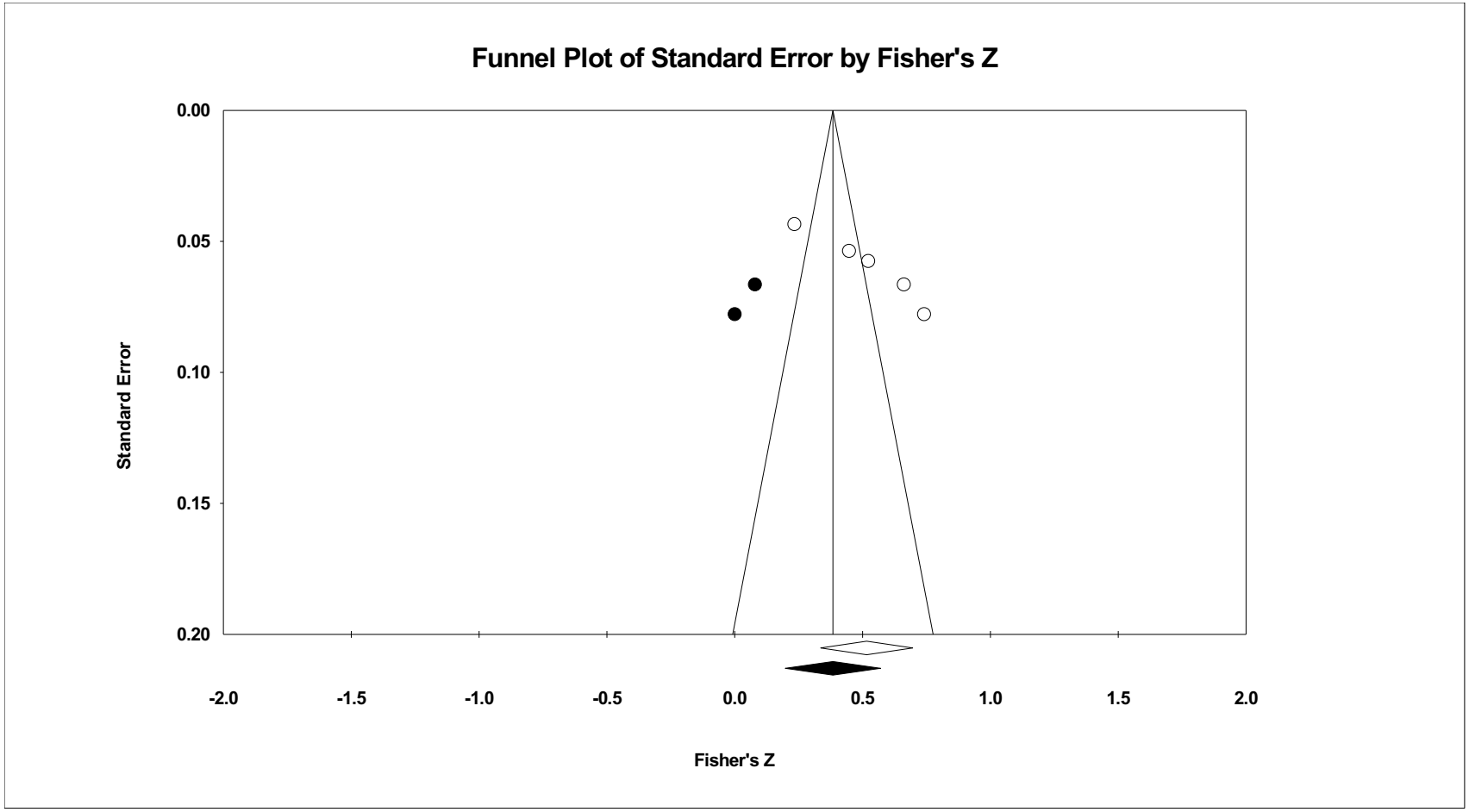


*Figure 12E.* Funnel plot for the bivariate relationship between vulnerable narcissism and nondisplay of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

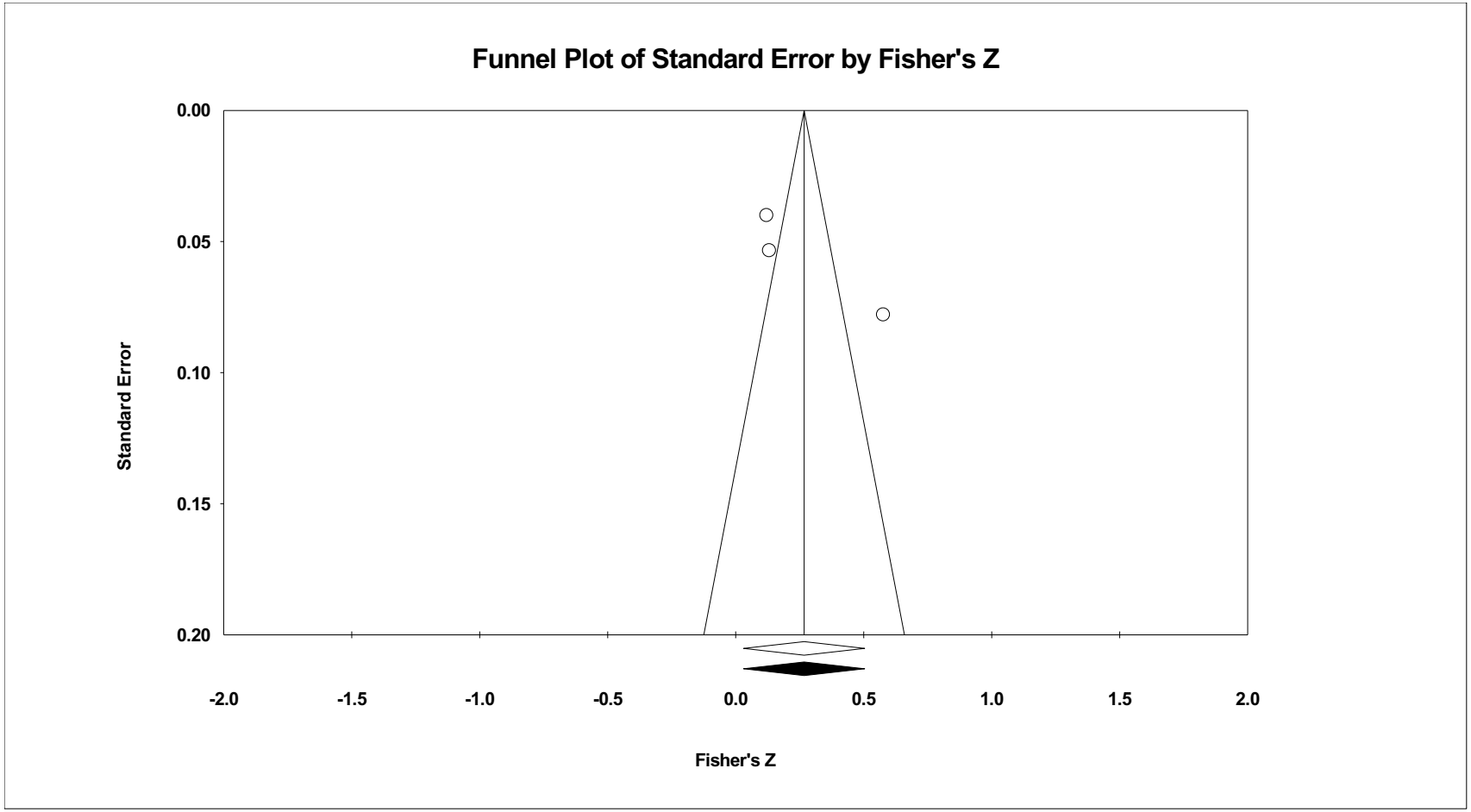


*Figure 13E.* Funnel plot for the bivariate relationship between grandiose narcissism and perfectionistic cognitions with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

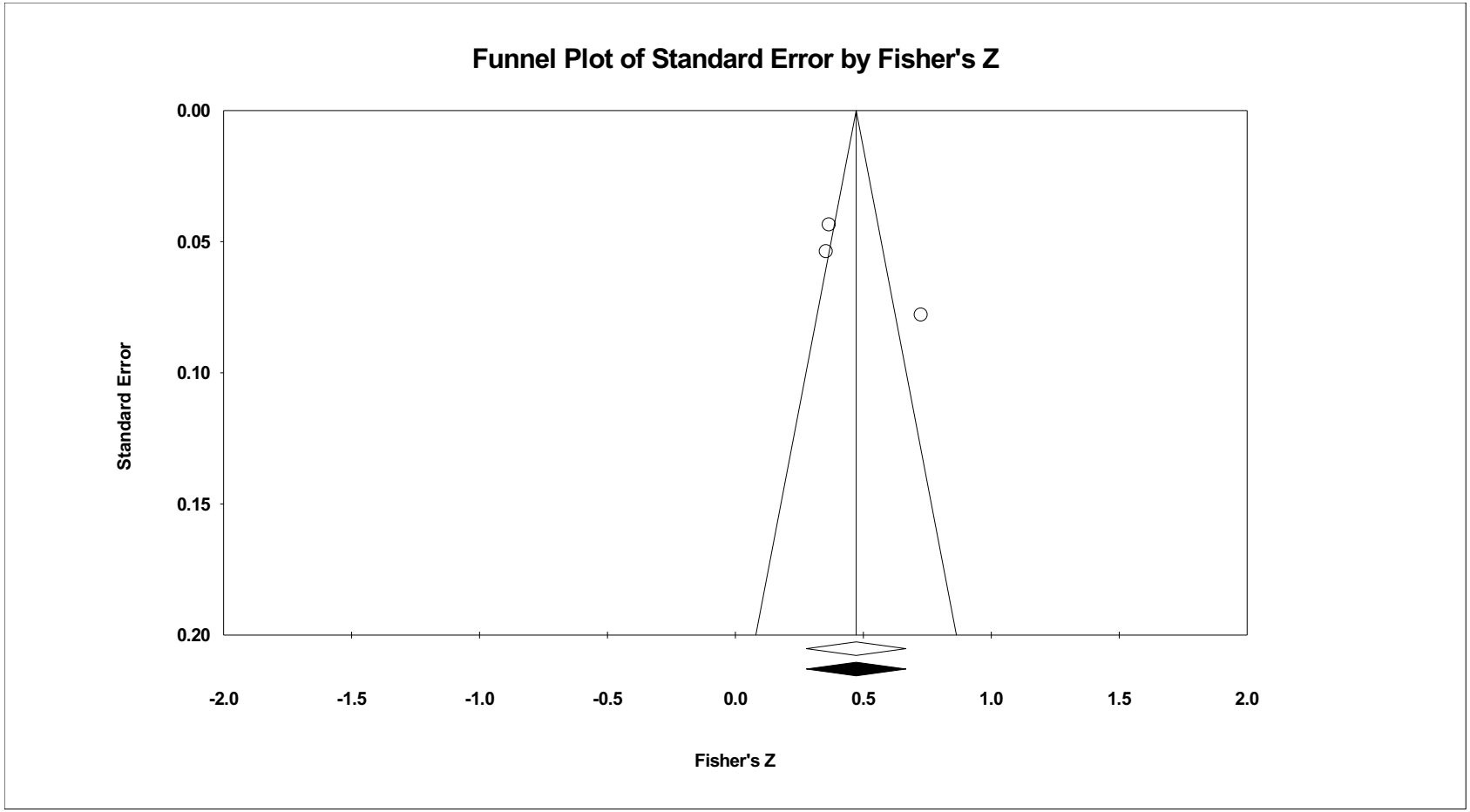


*Figure 14E.* Funnel plot for the bivariate relationship between vulnerable narcissism and perfectionistic cognitions with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

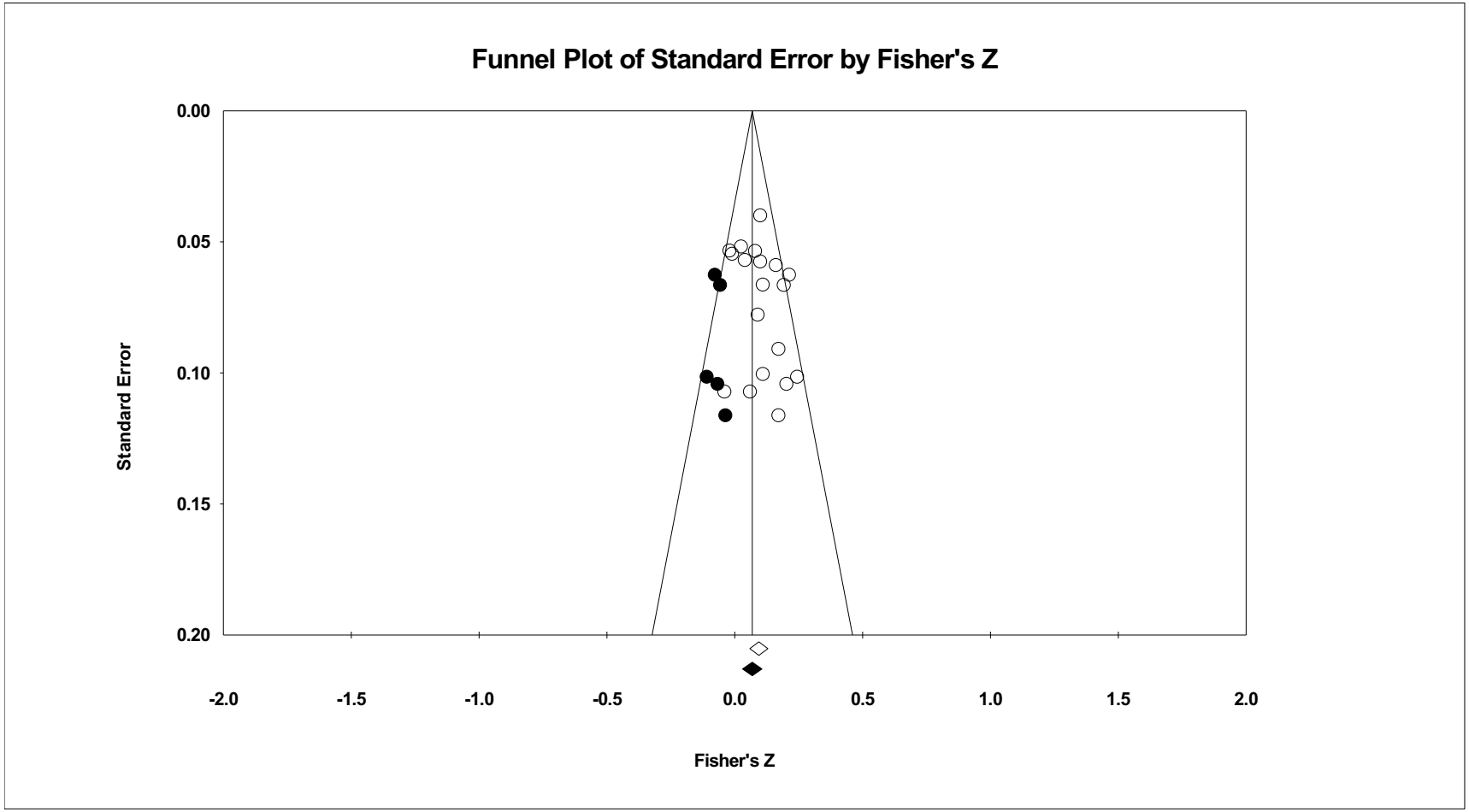


*Figure 15E.* Funnel plot for the partial relationship between grandiose narcissism and self-oriented perfectionism with imputed means. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

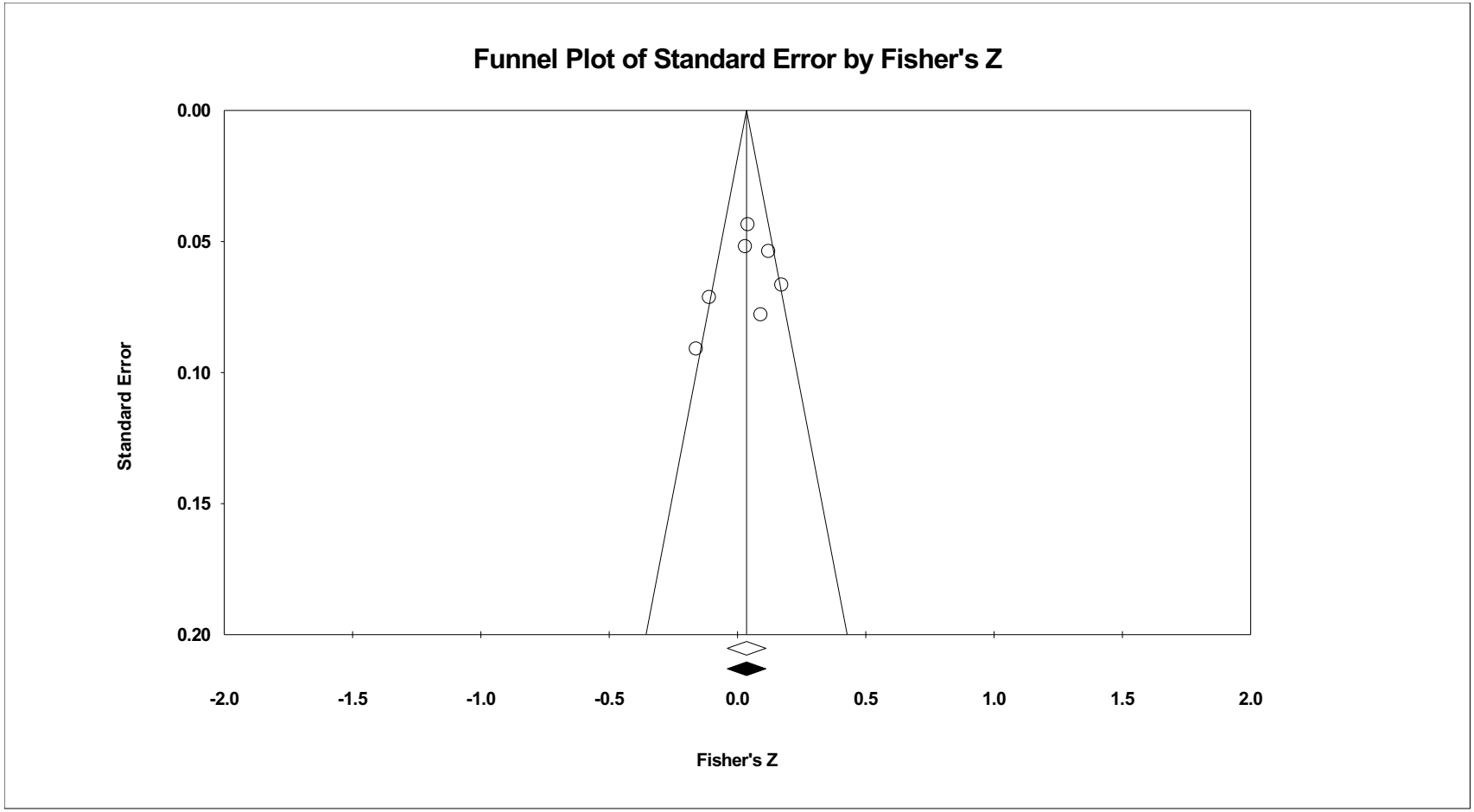


*Figure 16E.* Funnel plot for the partial relationship between vulnerable narcissism and self-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

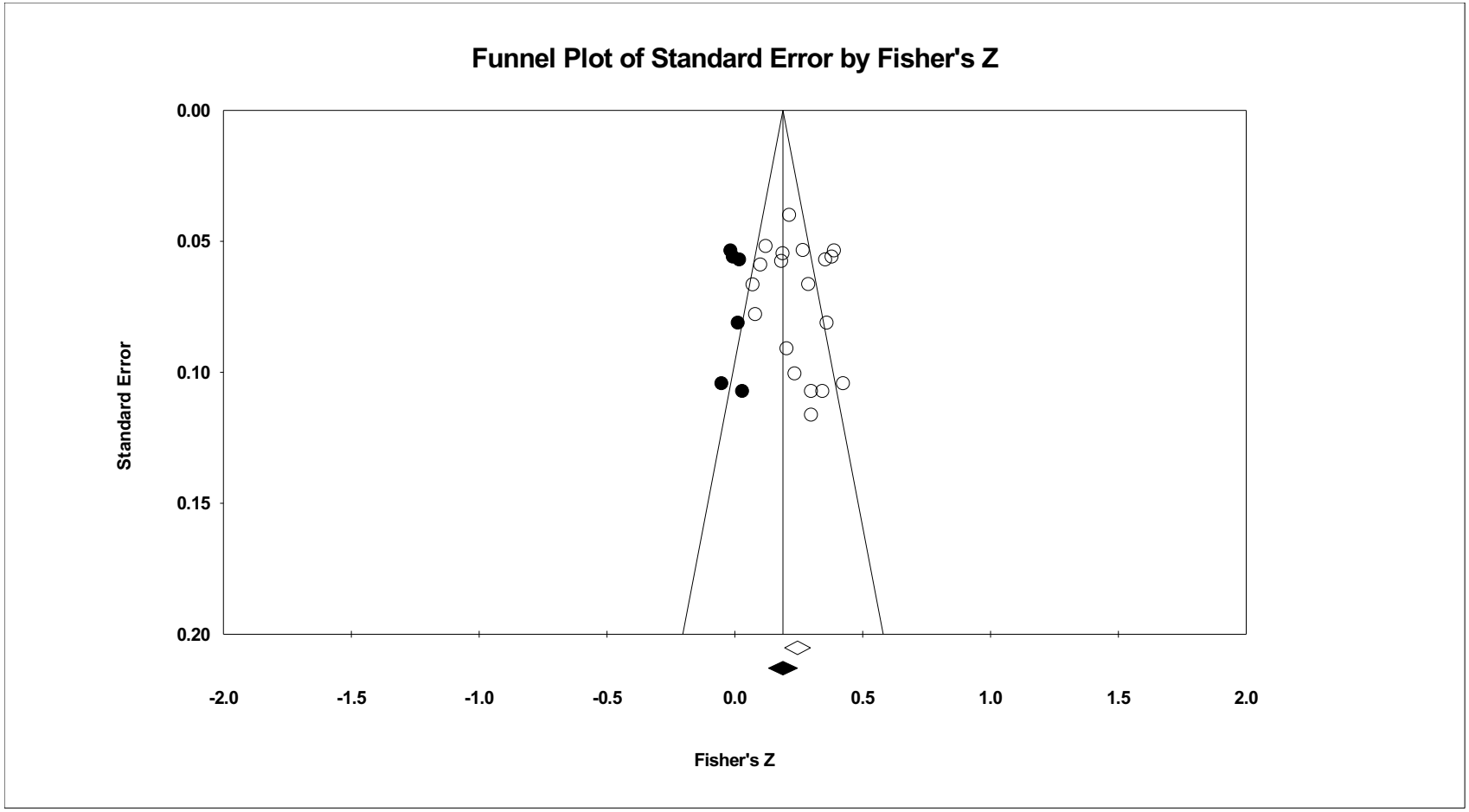


*Figure 17E.* Funnel plot for the partial relationship between grandiose narcissism and other-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

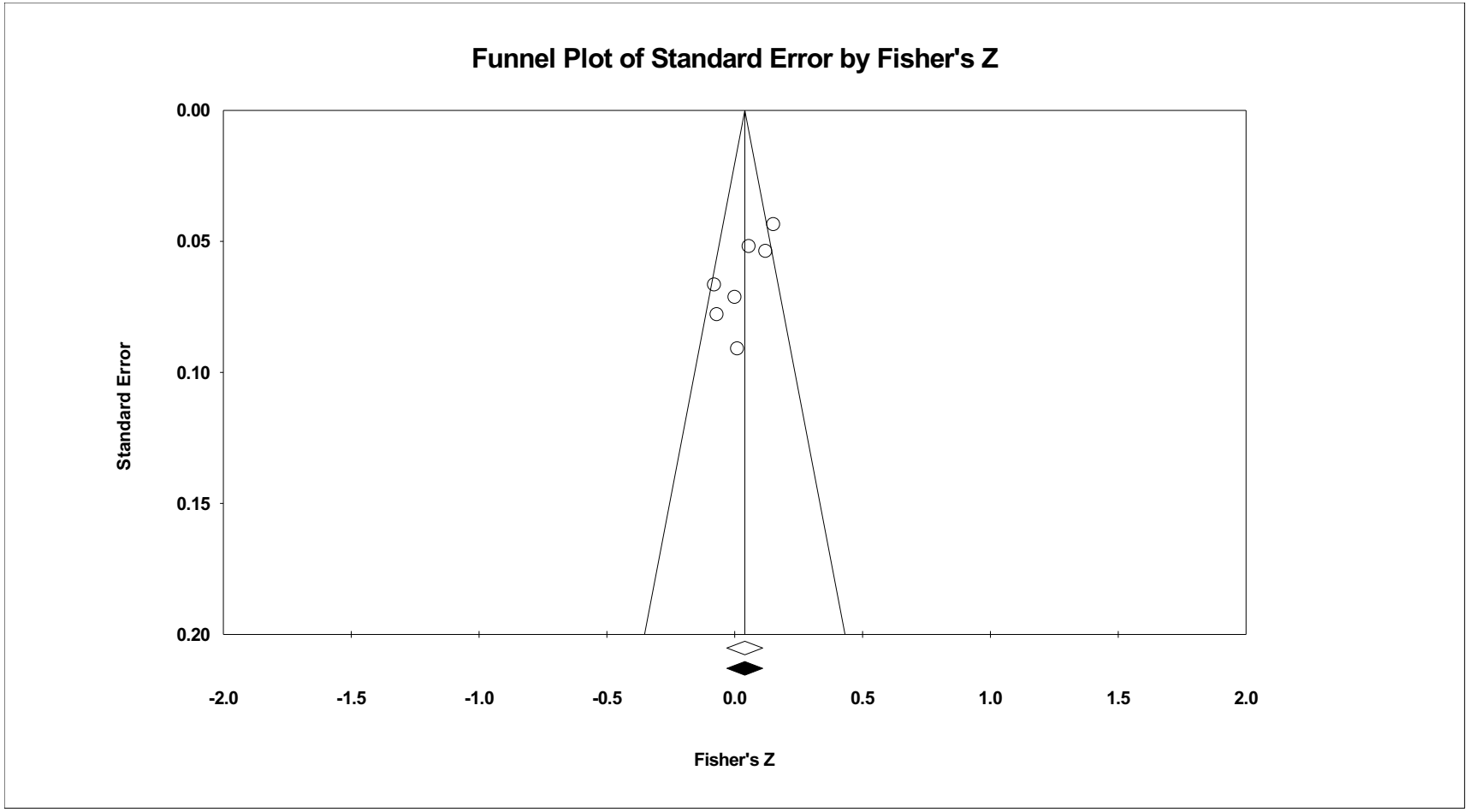


*Figure 18E.* Funnel plot for the partial relationship between vulnerable narcissism and other-oriented perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

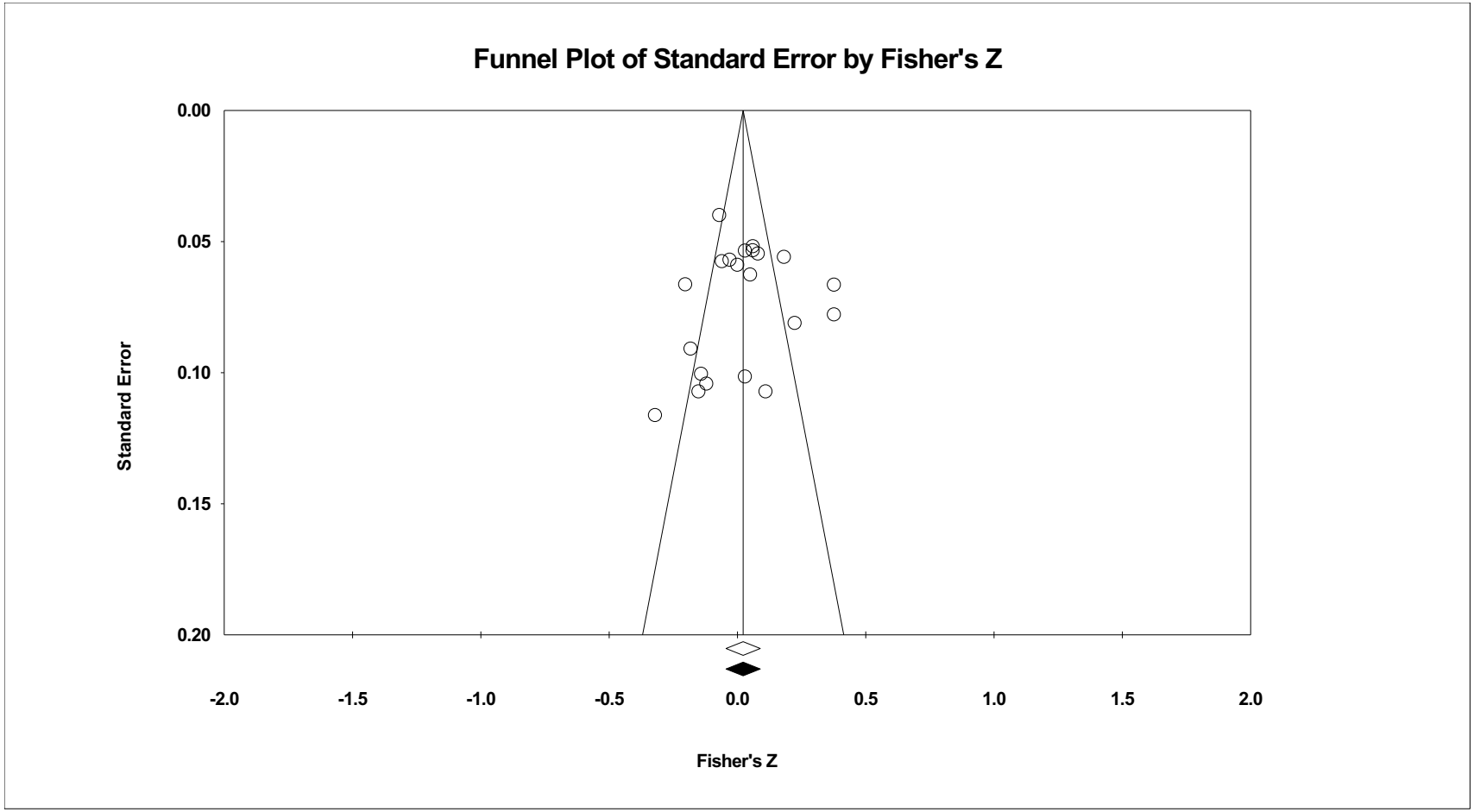


*Figure 19E.* Funnel plot for the partial relationship between grandiose narcissism and socially prescribed perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

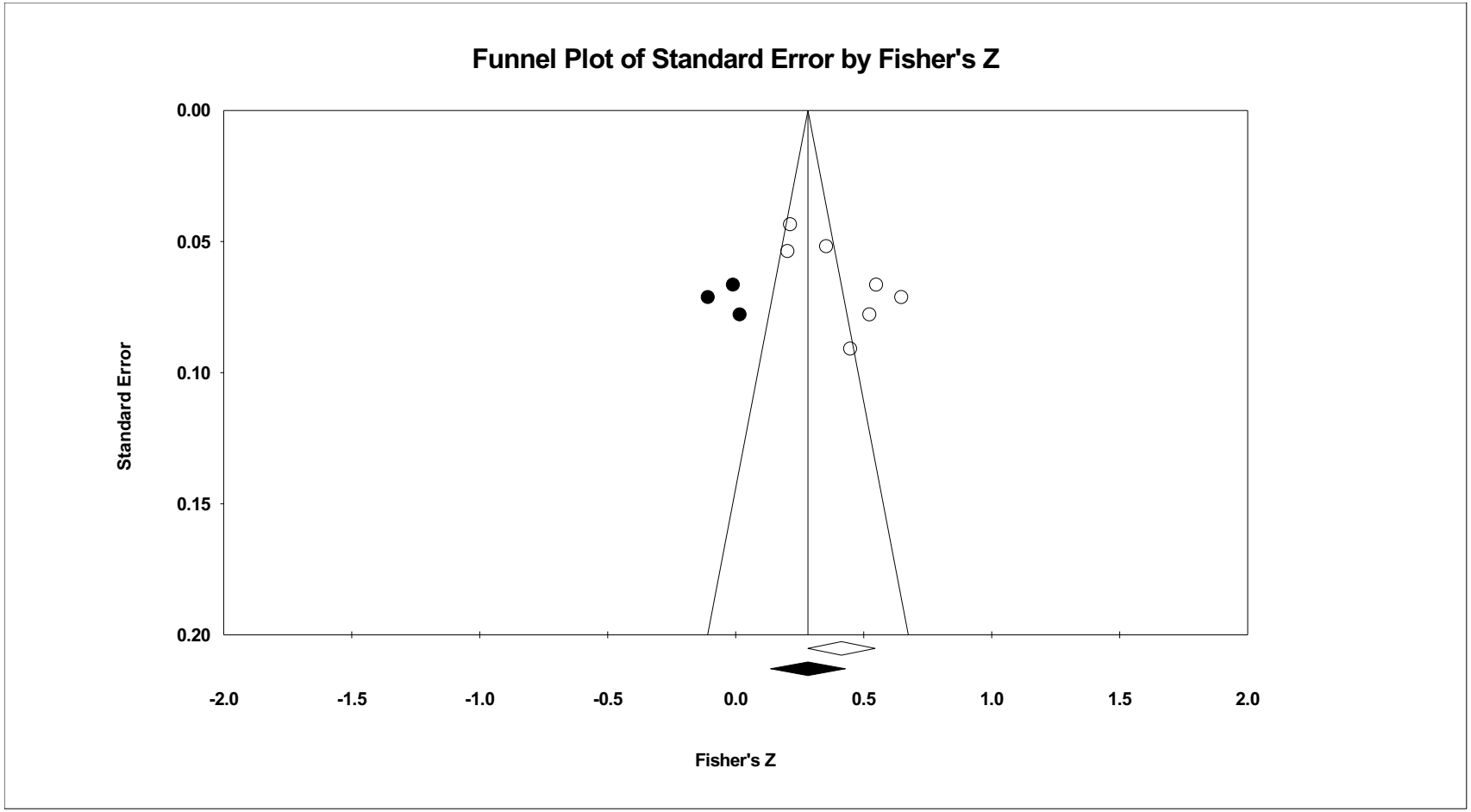


*Figure 20E.* Funnel plot for the partial relationship between vulnerable narcissism and socially prescribed perfectionism with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

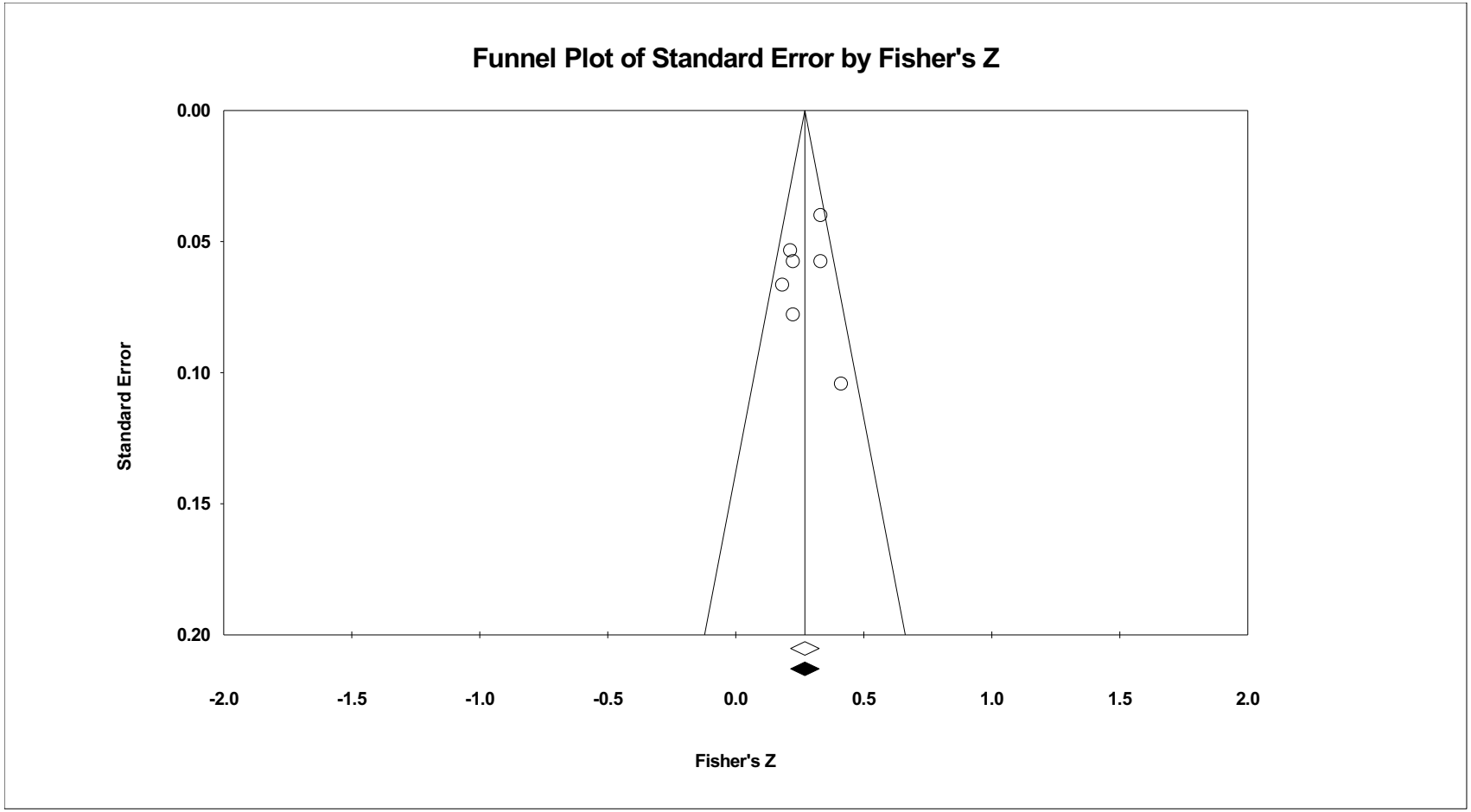


*Figure 21E.* Funnel plot for the partial relationship between grandiose narcissism and perfectionistic self-promotion with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

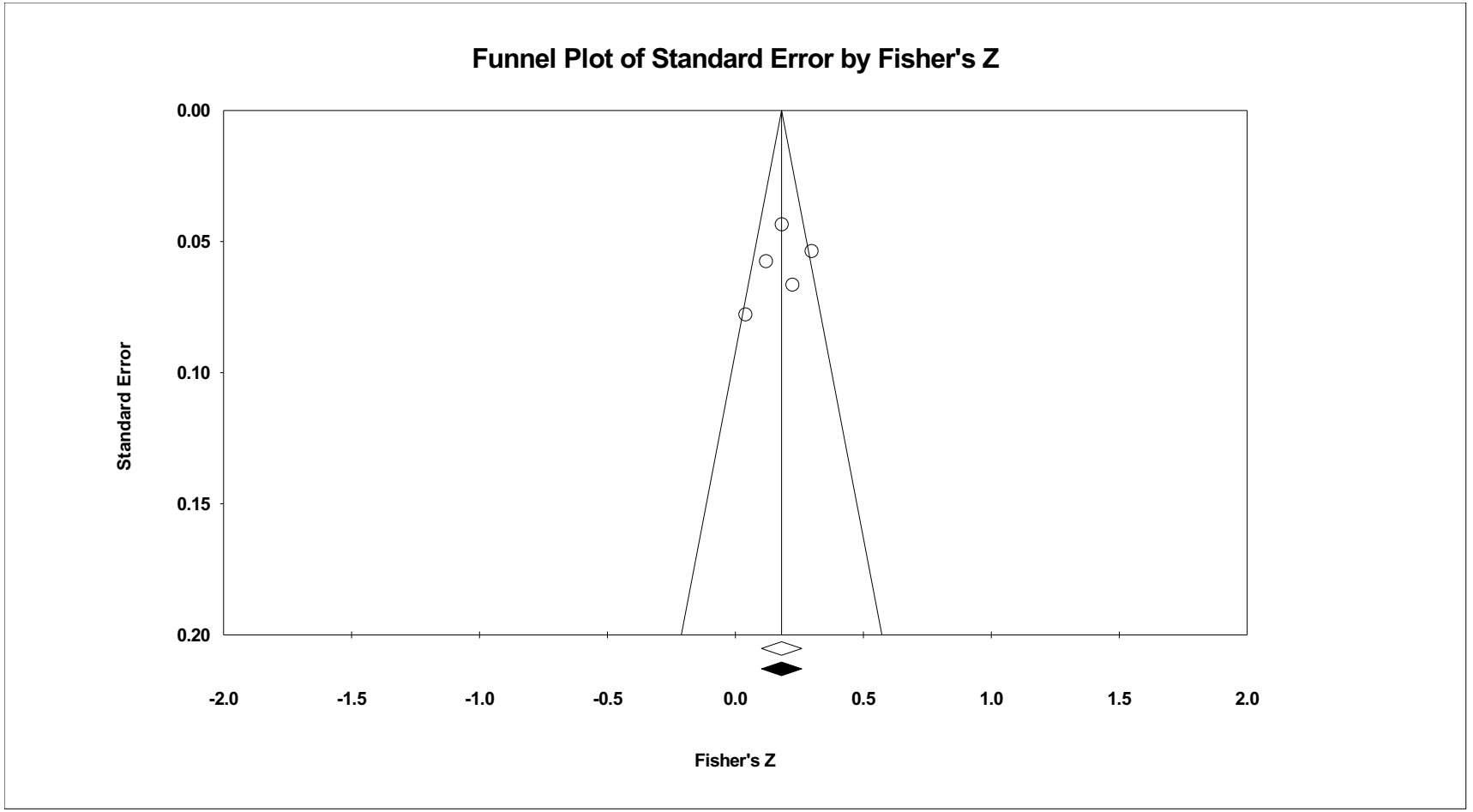


*Figure 22E.* Funnel plot for the partial relationship between vulnerable narcissism and perfectionistic self-promotion with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

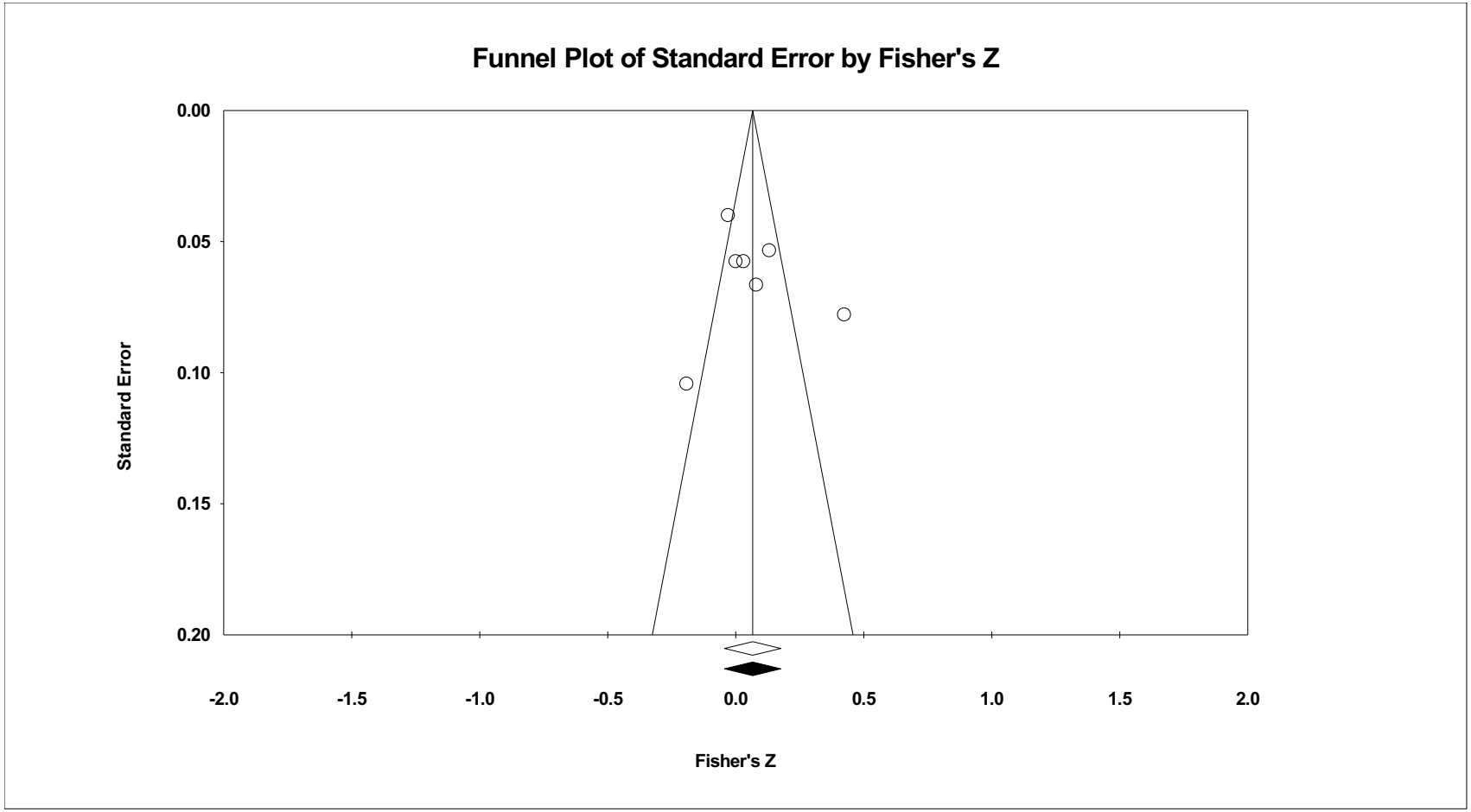


*Figure 23E.* Funnel plot for the partial relationship between grandiose narcissism and nondisclosure of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

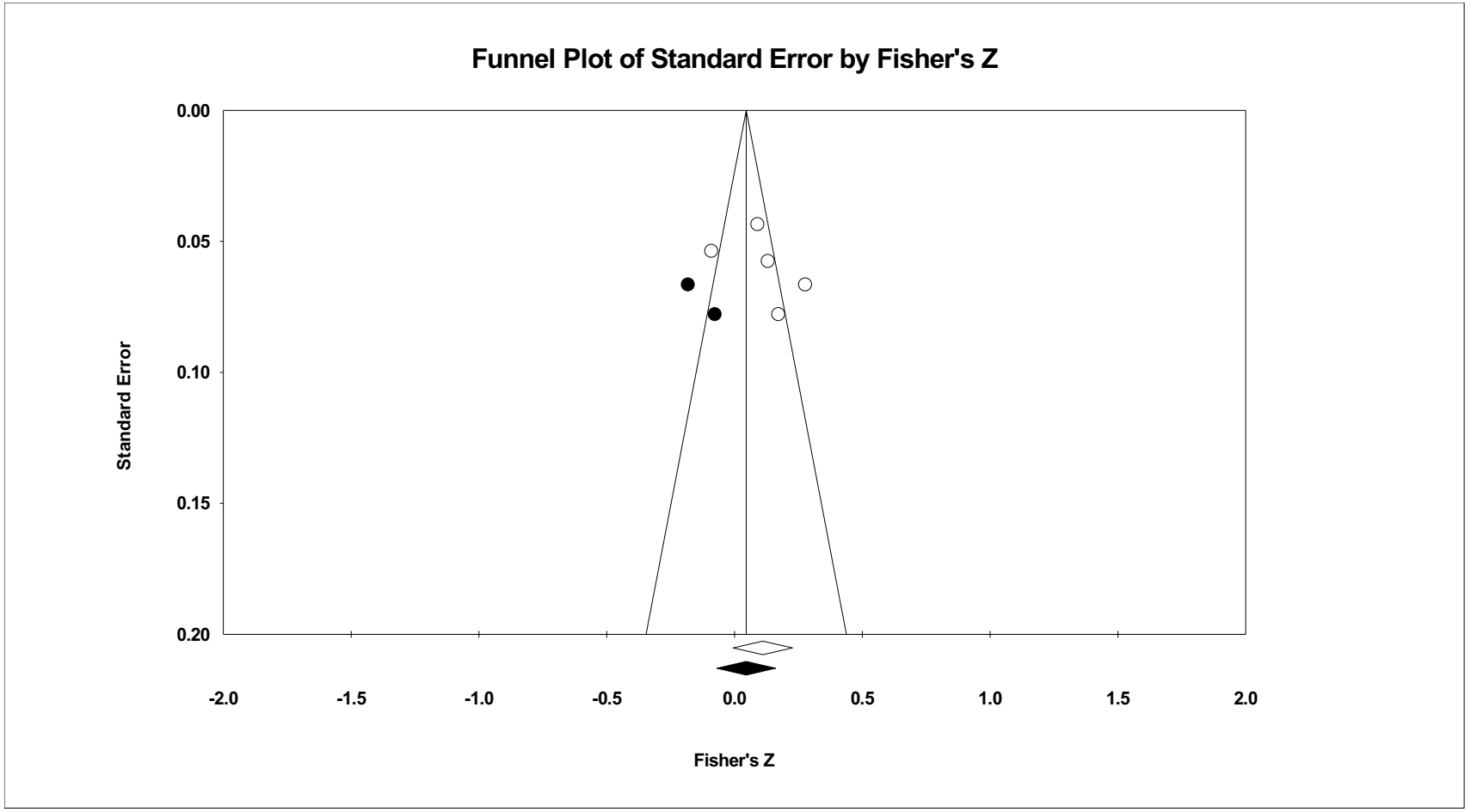


*Figure 24E.* Funnel plot for the partial relationship between vulnerable narcissism and nondisclosure of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

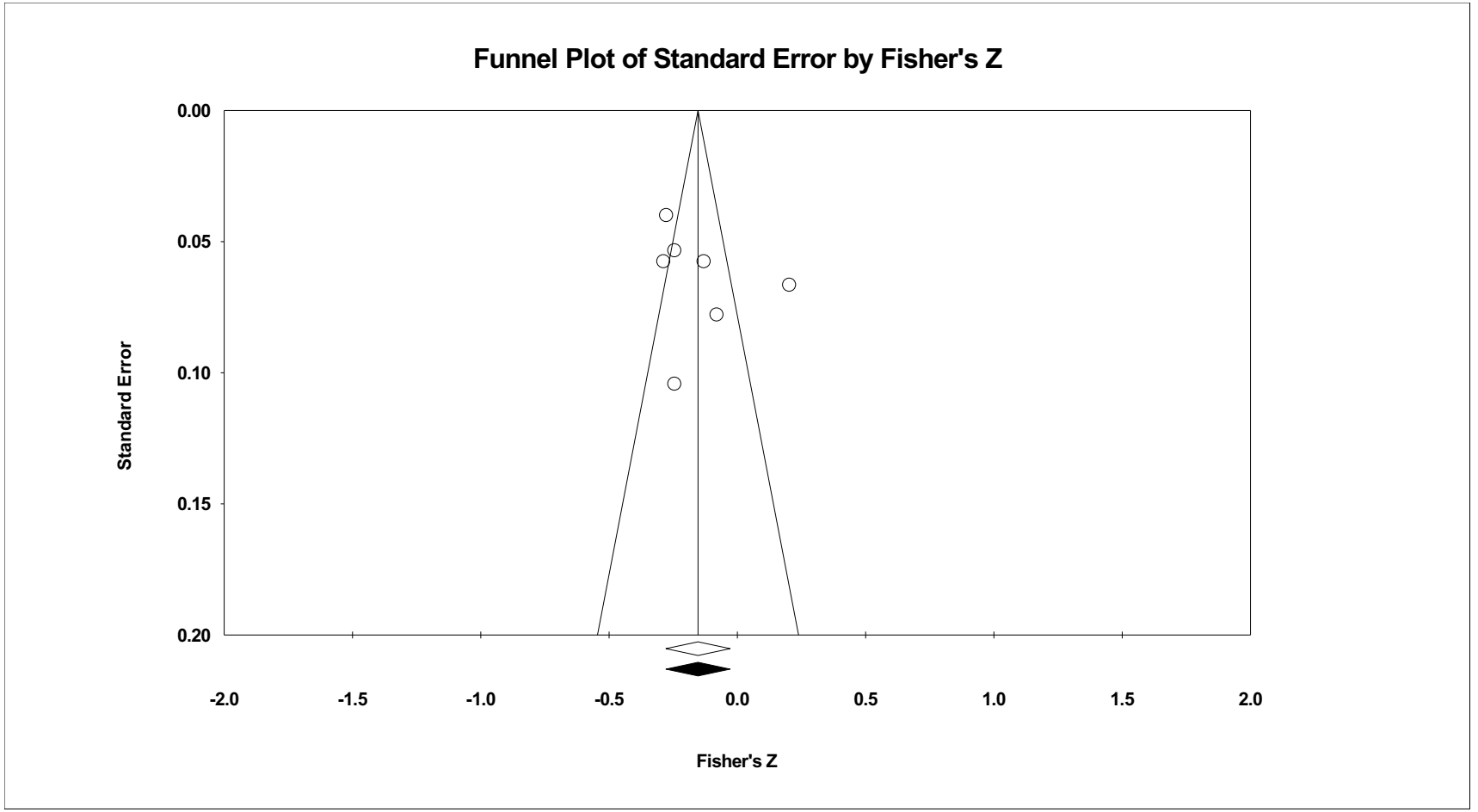


*Figure 25E.* Funnel plot for the partial relationship between grandiose narcissism and nondisplay of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

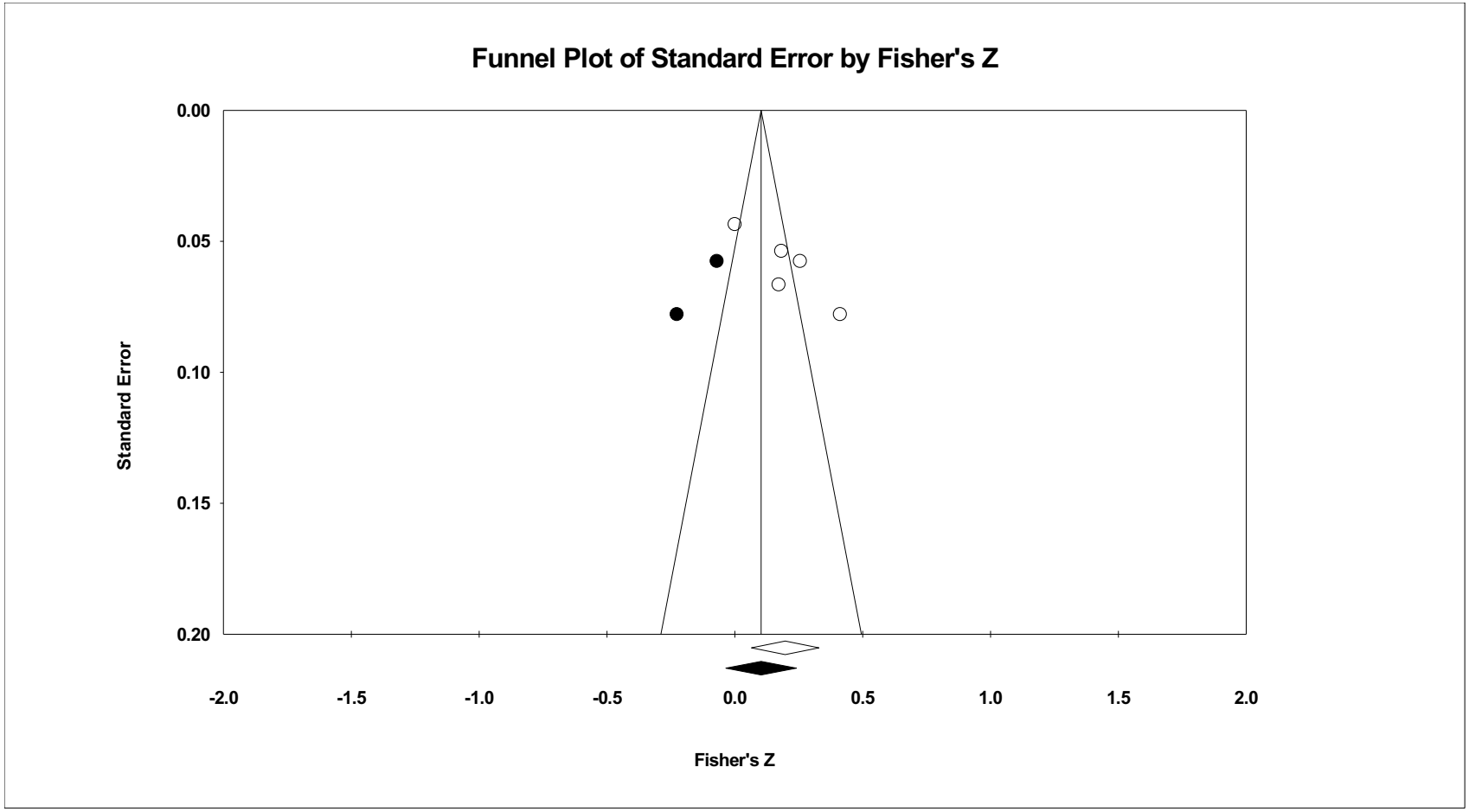


*Figure 26E.* Funnel plot for the partial relationship between vulnerable narcissism and nondisplay of imperfection with imputed studies. Open circles correspond to observed point estimates. Closed circles correspond to imputed studies. The filled in diamond corresponds to the imputed point estimate. The open diamond corresponds to the observed point estimates. The expected direction of missing studies was specified as being to the left of the mean.

# Supplemental Material F: Publication Bias

Table 1F

*Summary of overall bivariate effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation*

| Variable | *k* | *N* | $r^+$ | Fail-safe *N* | Egger's intercept | 95% CI | $K^{TF}$ | "Trim and Fill" estimates $r^+$ [95% CI] |
|---|---|---|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | | | | |
| Self-oriented perfectionism | 26 | 6,495 | .23*** | 2,026 | 0.00 | [-2.30, 2.30] | 0 | .23 [.18, .27] |
| Other-oriented perfectionism | 27 | 6,821 | .32*** | 4,432 | 1.91 | [-1.52, 5.34] | 0 | .32 [.26, .37] |
| Socially prescribed perfectionism | 27 | 6,873 | .15*** | 949 | -0.37 | [-3.76, 3.02] | 0 | .15 [.09, .21] |
| Perfectionistic self-promotion | 8 | 2,307 | .30*** | 372 | 4.60 | [-3.49, 12.63] | 0 | .30 [.20, .39] |
| Nondisclosure of imperfection | 8 | 2,307 | .19** | 133 | 4.16 | [-6.82, 15.14] | 0 | .19 [.06, .31] |
| Nondisplay of imperfection | 8 | 2,307 | .12 | 38[a] | 5.63 | [-6.45, 17.70] | 0 | .12 [-.03, .26] |
| Perfectionistic cognitions | 3 | 1,151 | .26* | 41 | 10.99 | [-55.67, 77.55] | 0 | .26 [.03, .47] |
| *Narcissistic vulnerability* | | | | | | | | |
| Self-oriented perfectionism | 9 | 2,581 | .20*** | 215 | -0.31 | [-7.46, 6.83] | 0 | .20 [.12, .27] |
| Other-oriented perfectionism | 9 | 2,581 | .15*** | 124 | -3.64 | [-7.73, 0.46] | 0 | .15 [.10, .20] |
| Socially prescribed perfectionism | 9 | 2,581 | .39*** | 883 | 5.97 | [-2.10, 14.04] | 1 | .36 [.27, .45] |
| Perfectionistic self-promotion | 5 | 1,584 | .46*** | 460 | 9.48 | [-0.56, 19.53] | 0 | .46 [.36, .55] |
| Nondisclosure of imperfection | 5 | 1,584 | .39*** | 291 | 11.55 | [-0.60, 23.70] | 0 | .39 [.25, .50] |
| Nondisplay of imperfection | 5 | 1,584 | .48*** | 461 | 16.02 | [10.00, 22.04] | 0 | .47 [.32, .60] |
| Perfectionistic cognitions | 3 | 1,050 | .44*** | 151 | 10.09 | [-48.74, 68.92] | 0 | .44 [.27, 58] |

*Note.* ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{r}^+$ = weighted mean *r*; ***CI*** = confident interval; $\boldsymbol{K}^{\mathbf{TF}}$ = number of imputed studies as part of "Trim and Fill" method.

*$p < .05$; **$p < .01$; ***$p < .001$.

[a]Fail-safe N below threshold ($5k + 10$)

Table 2F

*Summary of overall partial effect sizes for the relationship between narcissism and trait perfectionism and perfectionistic self-presentation*

| Variable | *k* | *N* | $pr^{+}$ | Fail-safe *N* | Egger's intercept | 95% CI | $K^{TF}$ | "Trim and Fill" estimates $pr^{+}$ [95% CI] |
|---|---|---|---|---|---|---|---|---|
| *Narcissistic grandiosity* | | | | | | | | |
| Self-oriented perfectionism | 19 | 4,518 | .09*** | 175 | 1.21 | [-0.68, 3.09] | 5 | .07 [.03, .11] |
| Other-oriented perfectionism | 19 | 4,638 | .24*** | 1,229 | 0.93 | [-1.95, 3.80] | 6 | .19 [.13, .24] |
| Socially prescribed perfectionism | 21 | 4,996 | .02 | 0[a] | -0.71 | [-4.53, 3.11] | 0 | .02 [-.04, .09] |
| Perfectionistic self-promotion | 7 | 2,085 | .26*** | 252 | -0.64 | [-5.61, 4.33] | 1 | .25 [.20, .31] |
| Nondisclosure of imperfection | 7 | 2,085 | .07 | 6[a] | 2.15 | [-7.44, 11.74] | 0 | .07 [-.04, .17] |
| Nondisplay of imperfection | 7 | 2,085 | -.15* | 89 | 4.12 | [-6.15, 14.39] | 0 | -.15 [-.27, -.03] |
| *Narcissistic vulnerability* | | | | | | | | |
| Self-oriented perfectionism | 7 | 1,978 | .04 | 0[a] | -2.31 | [-9.28, 4.66] | 0 | .04 [-.04, .11] |
| Other-oriented perfectionism | 7 | 1,978 | .04 | 0[a] | -4.83 | [-9.04, -0.62] | 0 | .04 [-.04, .11] |
| Socially prescribed perfectionism | 7 | 1,978 | .39*** | 509 | 8.90 | [0.62, 17.18] | 0 | .39 [.27, .50] |
| Perfectionistic self-promotion | 5 | 1,584 | .18*** | 60 | -2.81 | [-14.81, 9.19] | 0 | .18 [.10, .25] |
| Nondisclosure of imperfection | 5 | 1,584 | .11 | 17[a] | 4.79 | [-12.34, 21.93] | 0 | .11 [-.01, .22] |
| Nondisplay of imperfection | 5 | 1,584 | .19** | 60 | 10.70 | [0.94, 20.46] | 0 | .19 [.06, .32] |

*Note.* ***k*** = number of studies; ***N*** = total number of participants in the *k* samples; $\boldsymbol{pr}^{+}$ = partial correlation; ***CI*** = confident interval; $\boldsymbol{K}^{\mathbf{TF}}$ = number of imputed studies as part of "Trim and Fill" method.

*$p < .05$; **$p < .01$; ***$p < .001$.

[a]Fail-safe N below threshold ($5k + 10$).