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# Gender Differences in Narcissism: A Meta-Analytic Review

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## Abstract

Despite the widely held belief that men are more narcissistic than women, there has been no systematic review to establish the magnitude, variability across measures and settings, and stability over time of this gender difference. Drawing on the biosocial approach to social role theory, a meta-analysis performed for Study 1 found that men tended to be more narcissistic than women ( $d = .26$ ;  $k = 355$  studies;  $N = 470,846$ ). This gender difference remained stable in U.S. college student cohorts over time (from 1990 to 2013) and across different age groups. Study 1 also investigated gender differences in three facets of the Narcissistic Personality Inventory (NPI) to reveal that the narcissism gender difference is driven by the Exploitative/Entitlement facet ( $d = .29$ ;  $k = 44$  studies;  $N = 44,108$ ) and Leadership/Authority facet ( $d = .20$ ;  $k = 40$  studies;  $N = 44,739$ ); whereas the gender difference in Grandiose/Exhibitionism ( $d = .04$ ;  $k = 39$  studies;  $N = 42,460$ ) was much smaller. We further investigated a less-studied form of narcissism called vulnerable narcissism—which is marked by low self-esteem, neuroticism, and introversion—to find that (in contrast to the more commonly studied form of narcissism found in the DSM and the NPI) men and women did not differ on vulnerable narcissism ( $d = -.04$ ;  $k = 42$  studies;  $N = 46,735$ ). Study 2 used item response theory to rule out the possibility that measurement bias accounts for observed gender differences in the three facets of the NPI ( $N = 19,001$ ). Results revealed that observed gender differences were not explained by measurement bias and thus can be interpreted as true sex differences. Discussion focuses on the implications for the biosocial construction model of gender differences, for the etiology of narcissism, for clinical applications, and for the role of narcissism in helping to explain gender differences in leadership and aggressive behavior. Readers are warned against overapplying small effect sizes to perpetuate gender stereotypes.

**Keywords:** narcissism, gender differences, item response theory, narcissistic personality inventory, measurement equivalence

Researchers have long been interested in studying gender differences in personality attributes. Although gender similarities might far outnumber differences (Hyde, 2005), some consistent individual differences have been identified. For example, compared with women, men exhibit higher risk taking ( $d = .13$ ; Byrnes, Miller, & Schafer, 1999); higher sensation seeking ( $d = .41$ ; Cross, Copping, & Campbell, 2011); higher self-esteem ( $d = .21$ ; Kling, Hyde, Showers, & Buswell, 1999); higher assertive-

ness ( $d = .50$ ) and lower nurturance ( $d = -.97$ ; Feingold, 1994); lower emotional intelligence ( $d = -.47$ ; Joseph & Newman, 2010); lower neuroticism ( $d = -.40$ ; Schmitt, Realo, Voracek, & Allik, 2008); and a preference for working with things as opposed to people ( $d = .93$ ; Su, Rounds, & Armstrong, 2009). The present research extends previous work on gender differences in personality by evaluating gender differences in narcissism. Although neither gender might relish being labeled more narcissistic than

the other, some scholars have noted that “the symptomatology of narcissistic personality resembles very highly the masculine sex role stereotypic of men in our culture, including physical expressions of anger, a strong need for power, and an authoritative leadership style” (Corry, Merritt, Mrug, & Pamp, 2008, p. 593). In addition, the prevalence of lifetime narcissistic personality disorder (NPD) is greater for men (7.7%) than it is for women (4.8%), according to results from the *National Epidemiological Survey on Alcohol and Related Conditions* (Stinson et al., 2008). Thus, there are indications that men are more narcissistic than are women.

Despite beliefs that men are more narcissistic than women, relatively little research has precisely quantified the magnitude of the difference. Likewise, few studies have provided an integrative evaluation of the nature of sex differences in narcissism or provided a rigorous evaluation of measurement equivalence across genders. Accordingly, the current work attempts to make five contributions to theory and research on gender and narcissism by (a) estimating the magnitude and variability of gender differences in narcissism (b) investigating which subcomponents of narcissism are driving the gender difference in the most common measure of narcissism, the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988, see also Ackerman et al., 2011), to quantify gender differences in both the adaptive and maladaptive components of narcissism; (c) investigating whether the gender-narcissism relationship varies across generational cohorts and age groups; (d) examining whether the subscales of NPI narcissism exhibit measurement equivalence across genders, thereby addressing whether any observed gender differences are likely to be statistical artifacts; and (e) extending our investigation of gender differences to include a conceptualization of narcissism known as *vulnerable narcissism*—an insecure, negative affect-laden variant of narcissism that is generating increased attention in the literature (Cain, Pincus, & Ansell, 2008).

### Narcissism and Gender Differences

The American Psychiatric Association (APA) defines NPD in the *Diagnostic and Statistical Manual of Mental Disorders—5* (DSM-5; APA, 2013) as “a pervasive pattern of grandiosity (in fantasy and behavior), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts” (p. 645). Although this definition of narcissism is linked to the clinical conceptualization of NPD, the personality attribute of narcissism exists on a continuum that ranges from mild to extremely maladaptive manifestations (Raskin & Hall, 1979; Samuel & Widiger, 2008) and is frequently investigated by social and personality psychologists as a personality trait, not as a personality disorder (e.g., Miller & Campbell, 2008).

Indeed, there is considerable interest in the construct of narcissism across subfields within psychology (Cain et al., 2008; Miller & Campbell, 2008), perhaps because it has been linked to a wide range of consequential outcomes. Recent social psychological research has suggested a paradoxical portrait whereby narcissism seems to beget both positive and negative consequences. Narcissism is associated with various interpersonal dysfunctions, including the general inability to maintain healthy long-term interpersonal relationships, low levels of commitment to romantic relationships, aggression in response to perceived threats to self-esteem (Bushman & Baumeister, 1998; Foster &

Campbell, 2005; Paulhus, 1998), and unethical and/or exploitative behaviors, such as academic dishonesty, white-collar crime and destructive workplace behavior (Blair, Hoffman, & Helland, 2008; Blickle, Schlegel, Fassbender, & Klein, 2006; Brunell, Staats, Barden, & Hupp, 2011; Campbell, Bush, Brunell, & Shelton, 2005; see also Grijalva & Harms, 2014). At the same time, narcissism has a seemingly positive relationship with some indicators of psychological health such as self-esteem and emotional stability (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004; Trzesniewski, Donnellan, & Robins, 2008), and evidence suggests that narcissists tend to emerge as leaders (Grijalva, Harms, Newman, Gaddis, & Fraley, 2014). It has been proposed that examining narcissism at the facet level can help to clarify these seemingly paradoxical associations (i.e., that narcissism has both positive and negative outcomes), because the different facets of narcissism (which are described below) have been found to have different correlates (see Ackerman et al., 2011; Barry, Frick, & Killian, 2003; Brown, Budzek, & Tamborski, 2009; Emmons, 1984, 1987; Grijalva & Newman, 2014).

Considering that narcissism is a psychological trait associated with important outcomes, it therefore follows that gender differences in narcissism might help to explain observed gender disparities in these important outcomes, for example aggression (Eagly & Steffen, 1986a), leadership emergence (Eagly & Karau, 1991), and academic cheating (Whitley, Nelson, & Jones, 1999). Thus, the primary focus of the current article is on an area that has accumulated a substantial amount of empirical evidence but that has not been summarized before—gender differences in narcissism. The lack of previous systematic inquiry regarding gender differences in narcissism is somewhat surprising, given the interest in gender differences in self-esteem (Kling et al., 1999) and other personality constructs (e.g., Schmitt et al., 2008).

Originally, Freud (1914) believed that women were more narcissistic than men, based on his assumption that women were more preoccupied with their physical appearance and tend to “make object choices in reference to qualities desired for the self” (Wink & Gough, 1990, p. 448). However, empirical research generally appears to suggest the opposite pattern of results, with men displaying higher narcissism than women (e.g., Tschanz, Morf, & Turner, 1998 [ $d = .29$ ]; Paulhus & Williams, 2002 [ $d = .23$ ]; Watson, Taylor, & Morris, 1987 [ $d = .35$ ]). At the same time, other studies have found that the narcissism gender difference is near zero (Bizumic & Duckitt, 2008 [ $d = .04$ ]; Bleske-Rechek, Remiker, & Baker, 2008 [ $d = -.002$ ]; Furnham, 2006, [ $d = .00$ ]; Jackson, Ervin, & Hodge, 1992 [ $d = -.01$ ]). Consequently, the magnitude of the narcissism gender difference remains unclear. The primary purpose of the current meta-analysis is to pinpoint the size of the gender difference and investigate potential moderators of the gender difference that might be contributing to the observed variability across studies.

A second objective of the present article is related to a typically unacknowledged, yet core assumption in the study of gender differences—the assumption of measurement equivalence. Gender measurement bias (Drasgow, 1984) would occur if men and women with identical levels of narcissism (at the latent-trait level) receive different observed scores on the measure of narcissism. Put differently, a measure is unbiased if women and men with the same standing on the underlying trait of narcissism receive the same observed score. In the second half of the article, we evaluate measurement equivalence or bias in the most com-



monly used measure of narcissism, the NPI, to assess whether observed gender differences reflect true latent trait differences versus a measurement artifact.

### Narcissism and the Biosocial Approach to Social Role Theory

Social role theory is a useful framework for understanding gender differences and similarities (Eagly, 1987; Eagly & Wood, 1999), including those associated with personality traits such as narcissism. At the heart of social role theory is an emphasis on gender role beliefs (i.e., societal gender stereotypes; Eagly & Wood, 2012; see Spence & Helmreich, 1978). Gender role beliefs are thought to develop indirectly when women and men are observed engaging in different behaviors (e.g., Swim, 1994) and when these behavioral differences are assumed to reflect intrinsic dispositions (e.g., via a correspondence bias; Ross, 1977; see Eagly & Wood, 2012).

In articulating the origins of gender differences in personality, we rely heavily on Wood and Eagly's (2012) biosocial construction model, which posits that biological specialization of the sexes has produced a gendered division of labor in traditional societies, and it is this division of labor that has given rise to gender role beliefs (social roles). These gender role beliefs both reinforce the division of labor via gender socialization practices and also lead to gender differences in cognition and behavior via the adoption of gender identities and self-standards, others' gendered social expectations, and the situational elicitation of hormones. The biosocial model (see Wood & Eagly, 2002) has been described as an alternative to, and in some regards a blend of, two other theoretical traditions often used to explain gender differences: (a) the essentialist perspective on gender (exemplified by evolutionary psychology; e.g., Buss & Schmitt, 2011; Pérusse, 1993)—which emphasizes men's evolved dispositions to participate in dominance contests and to control women's sexuality, along with women's evolved dispositions to select mates who provide more resources; cf. Eastwick & Finkel, 2008), and (b) the social constructionist perspective on gender (exemplified in sociology and anthropology; see Geertz, 1974; Mead, 1963; West & Zimmerman, 1987—which emphasizes gender differences as a local cultural phenomenon only, similar to the choice of clothing or hairstyles). The biosocial model offers a constellation of explanations for gender differences that is distinct from its predecessor theories.

Specifically, Wood and Eagly's (2002, 2012) biosocial model posits that gender roles emerge as individuals observe men and women performing different everyday tasks and occupations (i.e., division of labor) from which corresponding dispositional differences between men and women are inferred. An example of the correspondent inference bias (Gilbert & Malone, 1995; Ross, 1977) includes the assumption that because women are more likely to perform childcare activities, they must be more nurturing and caring than are men. Most distally, social role theory attributes the origin of men's and women's differential social roles to the interaction between local cultural and ecological contexts and evolutionary pressures associated with men's speed and upper body strength and women's reproductive capabilities (childbearing and nursing children) that frequently made it more efficient for men and women to perform different activities (e.g., especially in preindustrial societies; Whyte, 1978). Gender

stereotypes and the division of labor itself are then maintained by socialization practices through which children learn what is considered normal, acceptable behavior for each gender. In addition, individuals tend to internalize gender roles as "self-standards against which they regulate their own behavior," which are also known as gender identities (Eagly & Wood, 2012, p. 459; Frable, 1997; Sherif, 1982). In this way, gender stereotypes can work as self-fulfilling prophecies through which societal expectations produce behavior that confirms them (Merton, 1948; Rosenthal & Rubin, 1978).

Social role theory thus provides an explanatory framework for why men and women differ, but research concerning the content of gender stereotypes predates the theory (Bakan, 1966; Bem, 1974; Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972; McKee & Sherriffs, 1957; Parsons & Bales, 1955; Spence & Helmreich, 1978). Most gender stereotypes can be categorized into the following two dimensions: *agentic* characteristics, which include competitiveness, dominance, assertiveness, and need for achievement or high achievement goals; and *communal* characteristics, which include friendliness, nurturance, tenderness, and selflessness. In the context of social role theory, communal characteristics are consistent with the social roles that emerged from women's reproductive activities, whereas agentic characteristics are consistent with the social roles emanating from men's greater historical access to activities that garnered economic resources within hunting and fishing (nonforaging) societies (Ember, 1978).

It is important to the current discussion that many of the correlates of narcissism seemingly reflect high levels of agency, including competitiveness, dominance, assertiveness, and a need for achievement (Bradlee & Emmons, 1992; Emmons, 1984; Luchner, Houston, Walker, & Houston, 2011). Likewise, communal characteristics focused on maintaining and strengthening social relationships tend to be negatively correlated with narcissism, particularly the exploitative/entitlement component of narcissism (Bradlee & Emmons, 1992). Indeed, Campbell and colleagues have conceptualized narcissism itself by using an agency model (Campbell, Brunell, & Finkel, 2006; Campbell & Foster, 2007; Campbell & Green, 2008). One of the main tenets of this theory is that narcissists emphasize agentic over communal interests, such that more value is placed on getting ahead than getting along socially (Foster & Brennan, 2011). Agentic characteristics are often consistent with male stereotypes; thus, this line of reasoning supports the prediction that men will exhibit higher narcissism than women.

Finally, social role theory also proposes that individuals are penalized for deviating from gender role expectations. Rudman (1998) referred to this penalty as *backlash*. She expanded on the phenomenon of backlash against counterstereotypical behavior in her backlash and stereotype maintenance model (Rudman, Moss-Racusin, Glick, & Phelan, 2012a), which she argued is "rooted in motivations to maintain stereotypes as a means of preserving the social status quo" (p. 170). According to this perspective, "not only are men and women stereotyped as agentic and communal, respectively, they also face pressure to behave as such" (Rudman et al., 2012a, p. 181). For example, Rudman, Moss-Racusin, Phelan, and Nauts (2012b) asked 832 participants to rate 64 gender-stereotypical traits for how desirable-undesirable each was for men versus women. Traits viewed as more desirable for men (prescriptive traits)

included career-oriented, leadership ability, aggressive, assertive, and independent; whereas the most undesirable traits (proscriptive traits) for men included emotional, naïve, weak, insecure, and gullible. For women, desirable (prescriptive) traits included emotional, warm, interested in children, sensitive to others, and good listener; whereas the most undesirable (proscriptive) traits for women included aggressive, intimidating, dominating, arrogant, and rebellious. Essentially, these results suggest men should be agentic and they should not be “weak,” whereas, women should be communal and they should not be dominant—dominance is reserved for men.

Therefore, women will face harsher sanctions for displaying dominant behaviors, such as those consistent with narcissism, in comparison to the sanctions faced by men, making the adoption of narcissism less adaptive for women than for men. There is substantial research evidence supporting the “dominance penalty” for women (De Hoogh, Den Hartog, & Neveika, 2013; Phelan & Rudman, 2010; Rudman & Glick, 2001); that is, the contention that women face backlash after displaying dominance. Examples include more negative perceptions of women when they display an assertive, directive leadership style (Eagly, Makhijani, & Klonsky, 1992); penalties for women who desire power (Okimoto & Brescoll, 2010); and punishments for women who exhibit high levels of self-promotion (Rudman, 1998 see also the review by Wood & Eagly, 2012). Notably, De Hoogh and colleagues (2013) found that female narcissistic leaders were judged to be more ineffective than male narcissistic leaders, but that this result was completely driven by ratings from the male subordinates. In summary, we believe that backlash against behavior that violates gender role stereotypes creates societal pressure for women, more so than for men, to suppress displays of narcissism. The positive association between narcissism and agency (Bradlee & Emmons, 1992), coupled with the fact that it is more socially accepted for men to display agentic characteristics than it is for women, leads to our hypothesis that men, on average, will be more narcissistic than women.

### Women's Change in Narcissism Over Time

In Western cultures, status comes from social indicators such as an individual's educational and occupational attainment (e.g., Eagly, 1987; Eagly & Steffen, 1986b; Eagly & Wood, 1982; Lockwood, 1986; Twenge, 2009) and is positively linked to agency and assertiveness (Eagly, 1983; Eagly & Wood, 1982; Miller, 1986; Rudman et al., 2012a; Slater, 1970). In the past, the social roles traditionally occupied by women were of lower status than those occupied by men (e.g., Lockwood, 1986; Meeker & Weitzel-O'Neill, 1977; Unger, 1978), which is a sign of cultural patriarchy (Wood & Eagly, 2002). In this system, women conventionally performed more domestic tasks and men tended to be primarily responsible for supporting households financially (Eagly, 1987; Eagly, Wood, & Diekmann, 2000). An extension of the logic behind the biosocial approach to social role theory is that if men and women occupied the same social roles (i.e., no division of labor), then they would behave more similarly. Relatedly, women's roles in Western society have changed in recent years with women now making up 47% of the U.S. labor market (U.S. Department of Labor, 2012) as compared with 38% in 1970 (U.S. Department of Labor, 2012). Women are also now more likely than men to earn a college degree (women earned 59%

of the degrees conferred in 2009; U.S. Census Bureau, 2012), as compared with their earning of 34% of college degrees conferred in 1960. It might be that women's shifting social roles are precipitating increases in agency and thus in narcissism.

There are hints of these social changes in the literature. For example, Roberts and Helson (1997) showed that cultural changes in gender roles coincided with women having an increased self-focus. In addition, there is evidence that women have become more similar to men on a variety of other agentic traits over time, such as assertiveness (Twenge, 2001) and masculinity or instrumentality (Twenge, 1997). Twenge's (1997) meta-analysis that examined Bem's sex role inventory (BSRI; Bem, 1974) found that women's scores on the masculine (i.e., agentic) scale of the BSRI increased over time, and that gender differences on the masculine scale decreased over time. Concurrently, men did not increase in femininity, and gender differences in femininity remained stable (Twenge, 1997). Further examples of change over time include women increasingly using more assertive speech (Leaper & Ayres, 2007), decreases in the tendency for men to have an advantage over women by emerging as leaders (Eagly & Karau, 1991), and changes in women's vocational goals and preferences to become more similar to men's vocational goals and preferences (i.e., women increasingly value leadership, prestige, and power; Konrad, Ritchie, Lieb, & Corrigan, 2000; younger cohorts show smaller gender differences in the Enterprising dimension of vocational interests; Su et al., 2009). On the basis of these results, it appears that women might be becoming more agentic over time. If so, this would suggest a narrowing of the gender gap in narcissism, due to narcissism's overlap with agency.

When examining changes in narcissism over time, however, some caution is merited because most of the change in women's social roles (greater labor force participation and increasing employment in high-status professions) occurred in the 1970s and 1980s, with actual role changes remaining fairly consistent in the mid 1990s (U.S. Department of Labor, 2012). In addition, women's weekly earnings are only 82% of men's median weekly earnings (U.S. Bureau of Labor Statistics, 2013), and women are still underrepresented in high-level government and managerial positions in the U.S. (Hausmann, Tyson, Bekhouche, & Zahidi, 2013).

This timeline of social change in the United States (with change primarily occurring in the 1970s and 1980s and then stabilizing in the 1990s) is problematic from a methodological standpoint, because large-scale research on narcissism did not really begin until the inclusion of NPD in the *DSM-III* in 1980 and the publication of a self-report measure of narcissism (the NPI) by Raskin and Hall in 1979. This timing thus makes it difficult in a practical sense to comprehensively evaluate whether gender differences in narcissism are decreasing on the basis of women's changing social roles (because most of the social role change predates the boom in quantitative research on narcissism in the U.S.). By contrast, all of the other previously mentioned studies on women's changing agentic characteristics over time covered considerably longer time spans than that available for narcissism; that is, Eagly and Karau (1991) extended back to 1956; Konrad et al. (2000) extended back to 1972; Leaper and Ayres (2007) extended back to 1962; Su et al. (2009) extended back to 1965; Twenge (1997) extended back to 1973; and Twenge (2001) extended back to 1931.



Twenge, Konrath, Foster, Campbell, and Bushman (2008) briefly discussed changes in the narcissism gender difference over time in the context of a meta-analysis focused on "generation me" or increases in undergraduates' narcissism over time. Although their narcissism data (for their gender difference subanalyses) only went back to 1992, they found indications that undergraduate men scored higher in narcissism than did undergraduate women and that the mean difference decreased over time. Accordingly, one goal of the current study is to consider gender differences in narcissism over time by using a larger, updated database. On the basis of past findings and the theoretical framework provided by social role theory, in the current article we cautiously hypothesize that the year of data collection will be a moderator of the gender-narcissism relationship. That is, we expect there will be a positive relationship between women's narcissism levels and the year of each sample's data collection, such that the mean difference between men and women will decrease over time, driven by women's narcissism levels increasing over time (across cohorts).

In addition to investigating cohort effects, we also assess age effects on narcissism gender differences. To clarify, a *cohort effect* in this case refers to gender differences that are attributed to the historical year someone was born (e.g., Baby Boomers vs. Generation X), whereas an *age effect* refers to gender differences that correspond to developmental age (e.g., comparing 15 year-olds to 30 year-olds; see Schaie, 1965). Narcissism has been shown to decrease with age (Foster, Campbell, & Twenge, 2003; Roberts, Edmonds, & Grijalva, 2010), and it is possible that gender differences are more or less pronounced at different age periods, as seems to be case for self-esteem (e.g., Kling et al., 1999). As it stands, it is unknown whether gender differences in narcissism ought to be moderated by age, and thus this question is approached in an exploratory fashion.

### Gender Differences in the Facets of the NPI

In addition to investigating gender differences in overall narcissism, we also evaluated gender differences in the facets of the NPI. The NPI is the most popular measure of narcissism (Raskin & Terry, 1988). Specifically, Cain and colleagues (2008) stated that 77% of narcissism studies in the field of social-personality psychology use the NPI. Although there are different interpretations of the NPI's facet structure, with different scholars concluding that there exist between two and seven subcomponents (Ackerman et al., 2011; Corry et al., 2008; Emmons, 1984; Kubarych, Deary, & Austin, 2004; Raskin & Terry, 1988), the three-facet structure recently developed by Ackerman et al. (2011) seems to hold considerable promise. The advantages of the Ackerman et al. facet structure are that it (a) is based on modern factor analytic techniques (cf., both Emmons, 1984, and Raskin & Terry, 1988, had used principal components analysis—a technique which capitalizes on unreliable variance and fails to assess theoretical latent constructs; see Ford, MacCallum, & Tait, 1986), (b) the Ackerman et al. factor solution replicated across three samples (including confirmatory factor analyses on two independent samples), and (c) Ackerman et al. established the nomological validity of their three facets by using self- and informant ratings. The different, alternative facet structures for the NPI are summarized in Table 1. The current study focuses on Ackerman et al.'s three-facet structure of nar-

cissism, but we also include analyses based on alternative facet structures (i.e., Emmons, 1984; Raskin & Terry, 1988).

The three facets in the Ackerman et al. (2011) structure are Exploitative/Entitlement (E/E), Leadership/Authority (L/A), and Grandiose/Exhibitionism (G/E). Tables 2, 3, and 4 list the items in each subscale. Because the Ackerman et al. (2011) facet structure is relatively new, and the authors did not report how these facets relate to gender, the following discussion draws on theory and empirical findings derived from past NPI facet structures. Indeed, the Ackerman et al. (2011) facet structure appears to overlap to a large degree with past facet structures (see Tables 2 through 4 for a breakdown of item overlap).

### Exploitative/Entitlement (E/E)

The E/E facet seems to have the strongest correlations with negative outcomes compared with the other two facets of narcissism. It has been described as the most maladaptive facet of the NPI and is associated with toxic behaviors such as aggression ( $r = .40$ ; Reidy, Zeichner, Foster, & Martinez, 2008), counterproductive work behavior (e.g., theft, sharing confidential company information, and harassing coworkers;  $r = .20$ ; Grijalva & Newman, 2014), deliberate cheating on a lab task ( $\beta = .26, p < .05$ ; Brown et al., 2009), and refusal to forgive and increasing insistence upon repayment for perceived injustices ( $r = -.35$ ; Exline, Baumeister, Bushman, Campbell, & Finkel, 2004). Illustrative items from the E/E facet are, "I insist upon getting the respect that is due to me" and "I find it easy to manipulate people."

Tschanz et al. (1998) investigated gender differences on the NPI using Emmons' (1984) four-factor structure, hypothesizing that women would score lower on the E/E facet under the rationale that, "For females, such displays might carry a greater possibility of negative social sanctions because they would violate stereotypical gender role expectancies for women" (p. 864). Consistent with Tschanz et al. (1998) and drawing on social role theory, it seems likely that women are particularly penalized for demonstrating the type of behaviors associated with the E/E facet (e.g., demanding and arrogant behaviors; Rudman et al., 2012b). Thus, we hypothesize that men exhibit higher levels of Exploitative/Entitlement than do women, on average.

Supporting evidence comes from research by Major and colleagues (Bylsma & Major, 1992; Major, 1994; Major, McFarlin, & Gagnon, 1984), which found that men's sense of personal entitlement with respect to pay is higher than is women's. For example, in a now classic experiment, women and men were asked to perform the same task, after which they were given the opportunity to pay themselves what they thought was a fair amount for their work (Major et al., 1984). In the absence of social comparison information, women paid themselves less than men did (men's  $M = \$3.18$ ; women's  $M = \$1.95$ ; Major et al., 1984). This finding makes sense in light of the history of gender-based wage discrimination in the United States, which is only gradually changing (U.S. Bureau of Labor Statistics, 2013, Table 16). In a more recent article (O'Brien, Major, & Gilbert, 2012), the authors observed significant gender differences in pay entitlement, but only for individuals who were high in system-justifying beliefs. According to system justification theory (Jost & Banaji, 1994), people need to believe that the world is fair and as a result tend to create justifications for observed social inequali-



**Table 1.** Narcissistic Personality Inventory Subscale Structures

Factor	Emmons (1984) <sup>a</sup>	Raskin & Terry (1988) <sup>b</sup>	Kubarych, Deary, & Austin (2004) <sup>c</sup>	Corry, Merritt, Mrug, & Pamp (2008) <sup>d</sup>	Ackerman et al. (2011) <sup>e</sup>
Highest loading item	Leadership/Authority "I would prefer to be a leader"	Authority "I would prefer to be a leader"	Power "I would prefer to be a leader"	Leadership/Authority "I see myself as a good leader"	Leadership/Authority "I would prefer to be a leader"
(Number of items in factor)	(9)	(8)	(10)	(9)	(11)
Highest loading item	Exploitative/Entitlement "I will never be satisfied until I get all that I deserve"	Exploitative "I can read people like a book"		Exploitative/Entitlement "I get upset when people don't notice how I look when I go out in public"	Exploitative/Entitlement "I find it easy to manipulate people"
(Number of items in factor)	(10)	(5)		(14)	(4)
Highest loading item		Entitlement "I will never be satisfied until I get all that I deserve"			
(Number of items in factor)		(6)			
Highest loading item	Superiority/Arrogance "I can make anybody believe anything"	Superiority "I am an extraordinary person"	Special Person "I am going to be a great person"		
(Number of items in factor)	(11)	(5)	(8)		
Highest loading item	Self-Absorption/Self-Admiration "I like to look at my body"	Exhibitionism "I am apt to show off if I get the chance"	Exhibitionism "I really like to be the center of attention"		Grandiose/Exhibitionism "I really like to be the center of attention"
(Number of items in factor)	(9)	(7)	(5)		(10)
Highest loading item		Self-Sufficiency "I like to take responsibility for making decisions"			
(Number of items in factor)		(6)			
Highest loading item		Vanity "I like to look at my body"			
(Number of items in factor)		(3)			

a Emmons, R. A. (1984). Factor analysis and construct validity of the Narcissistic Personality Inventory. *Journal of Personality Assessment*, 48, 291–300.

b 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, 890–902.

c Kubarych, T. S., Deary, I. J., & Austin, E. J. (2004). The narcissistic personality inventory: Factor structure in a non-clinical sample. *Personality and Individual Differences*, 36, 857–872.

d Corry, N., Merritt, R. D., Mrug, S., & Pamp, B. (2008). The factor structure of the narcissistic personality inventory. *Journal of Personality Assessment*, 90, 593–600.

e Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment*, 18, 67–87.

**Table 2.** Leadership/Authority Facet

Ackerman et al. (2011) <sup>a</sup> Leadership/Authority	Emmons (1984) <sup>b</sup> Leadership/Authority	Raskin & Terry (1988) <sup>c</sup> Authority	Corry et al. (2008) <sup>d</sup> Leadership/Authority
1. I have a natural talent for influencing people.	x	x	x
5. If I ruled the world, it would be a much better place.			
10. I see myself as a good leader.	x	x	x
11. I am assertive.	x	x	x
12. I like having authority over people.	x	x	x
27. I have a strong will to power.			x
32. People always seem to recognize my authority.	x	x	x
33. I would prefer to be a leader.	x	x	x
34. I am going to be a great person.			
36. I am a born leader.		x	x
40. I am an extraordinary person.			
EXTRA ITEMS			
	I really like to be the center of attention. I will be a success.		I will be a success.
	I like to be the center of attention.		
	I would be willing to describe myself as a strong personality.		

a Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment*, 18, 67–87.

b Emmons, R. A. (1984). Factor analysis and construct validity of the Narcissistic Personality Inventory. *Journal of Personality Assessment*, 48, 291–300.

c 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, 890–902.

d Corry, N., Merritt, R. D., Mrug, S., & Pamp, B. (2008). The factor structure of the narcissistic personality inventory. *Journal of Personality Assessment*, 90, 593–600.

ties between groups. For pay disparity, this would manifest as people observing that men make more money than women and then inferring that men are for some reason more deserving than women—entitled to more resources than are women. The use of system-justifying beliefs to rationalize gender differences in pay represents an example of how division of labor could more generally lead to men's internalizing chronically higher entitlement than women.

### Leadership/Authority (L/A)

The L/A facet reflects an individual's motivation to lead and her or his desire for authority and power. It is generally considered the most adaptive facet of narcissism (Ackerman et al., 2011) because of its positive correlation with self-esteem ( $r = .33$ ; Trzesniewski et al., 2008; see also Watson & Biderman, 1993) and its negative correlations with neuroticism ( $r = -.22$ ; Trzesniewski et al., 2008) and with actual-ideal self-discrepancy ( $r = -.38$ ; Emmons, 1984). Examples of L/A items include, "I would prefer to be a leader," and, "I like having authority over people."

A gender difference in L/A would be consistent with results showing that men are more motivated than are women to obtain managerial roles ( $d = .22$ ; Eagly, Karau, Miner, & Johnson, 1994) and that men are more likely to emerge as leaders ( $d = .32$ ; Eagly & Karau, 1991). In fact, leader stereotypes are linked to both agency and masculinity, but there is a mismatch between leader stereotypes and stereotypes of women (see Koenig, Eagly, Mitchell, & Ristikari, 2011; Powell & Butterfield, 1979; Schein, 1973). As mentioned previously, *leadership ability* is a prescriptive trait for men (representing a consensual belief about how men ought to behave), but it is not a prescriptive trait for women (Rudman et al., 2012b, p. 168).

Therefore, we hypothesize that men will exhibit stronger L/A than will women.

### Grandiose/Exhibitionism (G/E)

The third NPI facet in the Ackerman et al. (2011) structure—G/E—measures vanity, self-absorption, superiority, and exhibitionistic tendencies. Accordingly, this factor "seems to illustrate the features of self-love and theatrical self-presentation emphasized in early writings on narcissism" (Ackerman et al., 2011, p. 72). Illustrative items from the G/E facet are, "I like to display my body," and "I really like to be the center of attention." Objectification theory posits that girls and women are socialized (through continual exposure to sexualized images and sexual objectification) to know that they will be evaluated on the basis of their physical appearance (Fredrickson & Roberts, 1997; Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998). Additionally, men tend to place greater weight on physical appearance when choosing a romantic partner than women do (Feingold, 1990), and because of the gendered division of social roles, women have traditionally been dependent on men as breadwinners to obtain material resources. Thus, women are more likely to be preoccupied with their own physical appearance than are men (Fredrickson et al., 1998). Items directly assessing vanity, such as "I like to look at myself in the mirror" (Raskin & Terry, 1988), coupled with findings from objectification theory, provide an indication that women might score higher on some G/E items. In fact, Buss and Chiodo (1991) found that the subset of narcissistic items that were endorsed more frequently by women were those items that focused on physical appearance, such as wanting to look perfect before going out in public and being upset if others did not notice how one looks.

1 An expert reviewer on the current article laments that the term *exhibitionism* appears in the name of this facet (e.g., Ackerman et al., 2011; Kubarych et al., 2004; Raskin & Terry, 1988) because exhibitionism is a well-defined sexual variation and is not measured by the NPI.

**Table 3.** Grandiosity/Exhibitionism Facet

Ackerman et al. (2011) <sup>a</sup> Grandiosity/Exhibitionism	Emmons (1984) <sup>b</sup> Self-Absorption/Self-Admiration	Raskin & Terry (1988) <sup>c</sup> Exhibitionism	Raskin & Terry (1988) <sup>c</sup> Vanity
4. I know that I am good because everyone keeps telling me so.	x		
7. I like to be the center of attention.		x	
15. I like to display my body.	x		x
19. I like to look at my body.	x		x
20. I am apt to show off if I get the chance.		x	
26. I like to be complimented.			
28. I like to start new fads and fashions.		x	
29. I like to look at myself in the mirror.	x		x
30. I really like to be the center of attention.	x		
38. I get upset when people don't notice how I look when I go out in public.		x	
EXTRA ITEMS			
	I think I am a special person.	Modesty doesn't become me.	
	I am witty and clever.		
	I am an extraordinary person.	I would do almost anything on a dare.	
	I am going to be a great person.		
	I like to take responsibility for making decisions		

a Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment*, 18, 67–87.

b Emmons, R. A. (1984). Factor analysis and construct validity of the Narcissistic Personality Inventory. *Journal of Personality Assessment*, 48, 291–300.

c The Raskin and Terry facets of exhibitionism and vanity were composited. 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, 890–902.

However, G/E items do not exclusively focus on physical appearance, and there is reason to believe that women might score lower than men on many other G/E items, such as those reflecting self-absorption (e.g., “I really like to be the center of attention”), which is inconsistent with the communally focused (i.e., other-focused) female self-identity. Given that some G/E items should favor women and other G/E items should favor men, we do not predict that there will be an overall gender difference on the G/E facet of narcissism.

### Vulnerable Narcissism Versus Grandiose (DSM/NPI) Narcissism

A rather confusing caveat to the current discussion is that, in addition to the narcissism construct described up to this point, there appears to be a second (less frequently studied) form of narcissism—associated with neuroticism and introversion—that has variously been labeled *vulnerability-sensitivity* (Wink, 1991), *covert narcissism* (Rose, 2002; Wink, 1991), *hypersensitive narcissism* (Hendin & Cheek, 1997), and *vulnerable narcissism* (Pincus & Lukowitsky, 2010; for additional labels, see Table 1 from Cain et al., 2008). In the current article, we refer to this second form of narcissism as simply *vulnerable narcissism*. The motivation for this form of narcissism—i.e., the observation that a subset of individuals high in narcissism displays emotional variability, whereas others do not—has been around for some time (e.g., Kernberg, 1975, 1986; Kohut, 1977).

However, the formal study of two distinct types of narcissism gained traction when Wink (1991) published an article titled, “Two Faces of Narcissism.” Using principal components analysis on data from six different Minnesota Multiphasic Personality Inventory (MMPI) narcissism scales, Wink identified

two different narcissism components: a “vulnerability-sensitivity” factor and a “grandiosity-exhibitionism” factor. A closer look at Wink’s results reveals that it is the older MMPI narcissism measures (i.e., measures created between 1958 and 1979, before NPD was added to the *DSM-III* in 1980) that loaded onto the vulnerability-sensitivity factor. On the other hand, it was the newer MMPI narcissism measures (i.e., measures created between 1985 and 1990, which were based on the *DSM-III* definition of narcissism) that loaded onto the grandiosity-exhibitionism factor. In other words, the more modern measures of narcissism were focused on grandiosity-*DSM-III* NPD, whereas the older measures of narcissism were focused on vulnerable narcissism. Likewise, the currently dominant measure of narcissism, the NPI, was also explicitly developed to assess the grandiosity-NPD form of narcissism as described in the *DSM-III* (Raskin & Hall, 1979).

In the current article we label Wink’s (1991) grandiose narcissism component *grandiose (DSM/NPI) narcissism*, and we label Wink’s (1991) vulnerable-sensitive component *vulnerable narcissism*. We note that the vast majority of narcissism research in social and personality psychology has focused on grandiose (DSM/NPI) narcissism. In the contemporary literature on vulnerable narcissism, it has been customary to refer to the two faces of narcissism as simply *vulnerable narcissism* and *grandiose narcissism* (e.g., Cain et al., 2008). This labeling creates a potentially confusing situation for the current article, because nearly the same label (i.e., grandiose-exhibitionism [G/E]) is used to refer to a facet of narcissism as measured by the NPI (see Ackerman et al., 2011). So to distinguish between the G/E facet of the NPI, versus Wink’s (1991) broad construct of grandiosity-exhibitionism, in the current article we will use the label *grandiose (DSM/NPI) narcissism* to refer to the latter.

**Table 4.** Exploitative/Entitlement Facet

Ackerman et al. (2011) <sup>a</sup> Exploitative/Entitlement	Emmons (1984) <sup>b</sup> Exploitative/Entitlement	Raskin & Terry (1988) <sup>c</sup> Entitlement
13. I find it easy to manipulate people	x	
14. I insist upon getting the respect that is due to me	x	x
24. I expect a great deal from other people	x	x
25. I will never be satisfied until I get all that I deserve	x	x
EXTRA ITEMS		
	I am envious of other people's good fortune	I want to amount to something in the eyes of the world
	I have a strong will to power	I have a strong will to power
	I am apt to show off if I get the chance	If I ruled the world it would be a better place
	I get upset when people don't notice how I look when I go out in public	
	When I play a game I hate to lose	
	I am more capable than other people	

a Ackerman, R. A., Witt, E. A., Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., & Kashy, D. A. (2011). What does the narcissistic personality inventory really measure? *Assessment*, 18, 67–87.

b Emmons, R. A. (1984). Factor analysis and construct validity of the Narcissistic Personality Inventory. *Journal of Personality Assessment*, 48, 291–300.

c 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, 890–902.

To get a sense of the conceptual difference between the two types of narcissism, grandiose (DSM/NPI) narcissism is positively related to extraversion (i.e., social dominance and sociability), exhibitionism, and aggression (Wink, 1991), whereas vulnerable narcissism is associated with low well-being, anxiety, and introversion (e.g., “a lack of self-confidence in social settings” Wink, 1991, p. 596). Despite these differences, the two factors share “core features of narcissism such as conceit, self-indulgence, and disregard for others” (Wink, 1991, p. 590). For example, people who scored high on either grandiose (DSM/NPI) narcissism or vulnerable narcissism were described by their spouses as being bossy, intolerant, and arrogant (Wink, 1991).

Although the idea that psychological brittleness is a feature of narcissism has frequently appeared in clinical psychology (see Miller & Campbell, 2008), more recent work has generated renewed interest in vulnerable narcissism. For example, research by Pincus and colleagues (e.g., Dickinson & Pincus, 2003; Miller et al., 2011; Pincus & Lukowitsky, 2010) has discussed two distinct phenotypic themes associated with narcissistic personality attributes (very similar to the two factors identified by Wink, 1991). Vulnerable narcissism is considered to be more firmly rooted in a brittle sense of self, such that individuals high in vulnerable narcissism are especially prone to feelings of shame and deep-seated feelings of inadequacy that produce defensive reactions (Cain et al., 2008; Pincus & Lukowitsky, 2010). Cain and colleagues (2008) noted that “subjective reports of positive or negative self-esteem seem to be a primary characteristic differentiating narcissistic grandiosity and narcissistic vulnerability” (p. 643). To be sure, efforts to clearly distinguish grandiose (DSM/NPI) narcissism from vulnerable narcissism have recently characterized some of the contemporary literature (Miller, Widiger, & Campbell, 2010; Pincus & Lukowitsky, 2010). Because of this

recent trend, in the current article we separately estimate gender differences for grandiose (DSM/NPI) narcissism versus vulnerable narcissism.

In contrast to our predictions in the previous sections of this article, which all involved grandiose (DSM/NPI) narcissism, we expect that the gender difference will likely be weaker for vulnerable narcissism. Although much less research has examined vulnerable narcissism, we know that vulnerable narcissism differs from grandiose (DSM/NPI) narcissism in that it is a negative affect-laden form of narcissism that is positively associated with the Big Five trait of neuroticism (Pincus et al., 2009). Relatedly, past work has established that women tend to exhibit higher neuroticism (less emotional stability) than do men (Schmitt et al., 2008) – a phenomenon that can also be explained via social role theory and the lesser backlash against women’s (as opposed to men’s) expressions of emotional variability (see Rudman et al., 2012a, 2012b). In specifying gender differences in vulnerable narcissism, we believe that the neuroticism component of vulnerable narcissism should increase women’s levels of vulnerable narcissism in comparison to men’s levels, which might counteract men’s otherwise elevated entitlement-based narcissism attributable to agentic masculine social roles. Given that existing theory does not clearly support either a female or a male tendency toward vulnerable narcissism, we treat this as an exploratory research question. Unfortunately, at the time we are writing this, there are simply not enough available primary studies to examine the same moderators for vulnerable narcissism as those hypothesized above for grandiose (DSM-NPI) narcissism (e.g., cohort effects).

We now summarize the hypotheses and research questions that were described in the sections above. Men will exhibit higher levels of narcissism than women, on average (Hypothesis



esis 1). The gender difference in narcissism will decrease over time (across cohorts; Hypothesis 2a) because women's narcissism will increase over time (across cohorts; Hypothesis 2b). Men will exhibit higher levels of E/E than will women, on average (Hypothesis 3). Men will exhibit higher levels of L/A than will women, on average (Hypothesis 4). Finally, we also investigate the following two research questions (RQs): (RQ 1) Does the gender difference in narcissism vary across age groups?, and (RQ 2) Is there a gender difference in vulnerable narcissism?

### Study 1

#### Method

##### Literature Search

We searched the literature using eight different databases, including: PsycINFO, Web of Science, ProQuest Digital Dissertations, Educational Resources Information Center (ERIC), Sociological Abstracts, Medline, Google Scholar, and Index to Theses for the following keywords: *narcissism*, *narcissist*, *narcissistic*, *gender*, *sex*, *male*, *female*. Next, although the NPI has been used in 77% of narcissism research in the fields of social and personality psychology (Cain et al., 2008), there are other well-validated alternative measures of the construct. Indeed, the NPI has been critiqued for having a high degree of adaptive (vs. maladaptive) content (Cain et al., 2008) and for its inability to distinguish NPD-diagnosed individuals from non-NPD controls (Vater et al., 2013). As such, we additionally investigated measures of narcissism that are primarily used in the clinical domain (as opposed to the social-personality domain). Overall, we searched the literature for studies referencing narcissism measures such as the NPI, OMNI Personality Inventory, Structured Clinical Interview for DSM Disorders (SCID), Personality Diagnostic Questionnaire-4 (PDQ-4), Diagnostic Interview for DSM-IV Personality Disorders, International Personality Disorders Examination (IPDE), Personality Disorder Interview-IV, Structured Interview for DSM-IV Personality Disorders, Diagnostic Interview for Narcissism, Pathological Narcissism Inventory (PNI), Narcissism-Hypersensitivity Scale, Hypersensitivity Narcissism Scale (HSNS), Schedule for Nonadaptive and Adaptive Personality, Millon Clinical Multiaxial Inventory, MMPI (MMPI-2), Dirty Dozen, Narcissistic Grandiosity Scale, Hogan Developmental Survey-Bold Scale (HDS-Bold), and California Personality Inventory (CPI). We identified the aforementioned narcissism measures through the *Handbook of Narcissism and Narcissistic Personality*, which contains chapters that specifically address the measurement of narcissism (Tamboarski & Brown, 2011; Watson & Bagby, 2011), but we did not restrict our inclusion to these measures. We included any measure of narcissism that appeared to tap into either grandiose (DSM/NPI) or vulnerable narcissism.

The search did not include any additional restrictions related to date, geography, or population—although only materials published in English were included. Unfortunately, the searches including *gender* and *sex* as keywords (in addition to the narcissism keywords) appeared to miss many relevant articles, so we also did a very broad search using only the narcissism/narcissist/narcissistic keywords in the aforementioned databases.

In addition to these search strategies, we posted a request for unpublished data on psychology Listservs (i.e., *Association for Research in Personality*; *Society for Personality Assessment*). We contacted researchers directly to obtain effect sizes from unpublished data sets and conference presentations; we also contacted authors of published articles who had measured narcissism and gender but did not report enough information to compute gender differences.

##### Inclusion Criteria

Studies were included in the meta-analysis according to the following rules. First, studies had to use a measure of narcissism; although the NPI is by far the most common narcissism measure, we also included all of the other measures of narcissism we found and examined whether measurement instrument moderated the narcissism-gender effect size. If a primary study reported only the effect size for a single subscale of a broader narcissism scale, then that subscale was included in our global narcissism analyses (as subscales were considered to be indicators of the broader narcissism construct; e.g., Ryan, Weikel, & Sprechini, 2008). Second, studies included in the meta-analysis had to report enough information to calculate a standardized difference score (Cohen's *d*) for gender. Most studies reported information on subgroup sample sizes, means, and standard deviations; but when other types of effect sizes or statistics were reported (e.g., *r*, *F*, *t*, or *ORs*) we converted them to *d* values (Lipsey & Wilson, 2001).

When a study reported multiple effects sizes (e.g., when there was a gender difference effect size for multiple narcissism measures in the same sample), we created a composite of the effect sizes across measures (Borenstein, Hedges, Higgins, & Rothstein, 2009). This method creates a single effect size for each sample. Specifically, we used a formula that estimates the effect size, taking into consideration the correlation between the different measures to estimate the overall composite *d* (Borenstein et al., 2009). When the correlation between different narcissism inventories was not available, we used a correlation provided by other studies in the literature. In some primary studies, not enough information was available to compute a composite, so we computed an average of the available effect sizes.

These inclusion criteria resulted in a final database of 360 independent samples with 475,495 participants. These samples comprised a mix of published journal articles (*k* = 220), dissertations/theses (*k* = 47), unpublished manuscripts (*k* = 61), and technical manuals (*k* = 32). In Appendix A, we provide the main codes and input values for all the primary study samples included in the overall gender-narcissism meta-analysis. Appendix B provides the main codes and input values for all primary studies included in the facet-level gender-narcissism meta-analyses.

##### Coding

One of the benefits of meta-analytic methodology is that it allows the examination of study-level variables that might moderate the magnitude and direction of the narcissism-gender effect size. When we investigated type of narcissism measure as

3 The numbers in this paragraph differ from Table 7, because this paragraph reflects a combination of sample sizes from grandiose (DSM/NPI) and vulnerable narcissism, as well as the NPI facets.

a moderator, we examined each narcissism measure individually and then also combined these measures into two categories: grandiose (DSM/NPI) narcissism measures and vulnerable narcissism measures. Most of the available measures (including the NPI) were categorized into the grandiose (DSM/NPI) narcissism category because they were developed on the basis of either the *DSM-III* or *DSM-IV* definition of narcissism. At the same time, we acknowledge that scholars often have not clearly stated which category individual inventories fall into, (particularly older inventories). Thus, in the following paragraphs we describe how we identified inventories that we believe represent vulnerable narcissism (for readers who might disagree with our categorization, we also present our results individually by inventory in Table 5, thus allowing readers to examine the meta-analytic effect sizes for scales that they perceive to be the purest representations of vulnerable narcissism).

Wink (1991) empirically classified the following inventories as measuring vulnerable narcissism (for similar results see also Rathvon & Holmstrom, 1996): (a) the Narcissism-Hypersensitivity subscale of the MMPI (Serkownek, 1975), which was described as "indicative of self-centeredness and a lack of self-confidence, concern with appearance, and extreme sensitivity to hurt" (Graham, 1987; Wink, 1991, p. 590); (b) Ashby, Lee, and Duke's (1979) NPD Scale of the MMPI (NPDS); and (c) the Pepper and Strong (1958) subscale of the MMPI, which was also associated with themes related to "vulnerability and sensitivity" (Dahlstrom & Welsh, 1960; Wink, 1991, p. 590). On the basis of Wink's (1991) results, Hendin and Cheek (1997) developed the HSNS (Hendin & Cheek, 1997) specifically to measure vulnerable narcissism, thus the HSNS was assigned to the vulnerable category, as was a single study that used the Dutch Narcissism Scale (DNS; Ettema & Zondag, 2002; i.e., we coded the DNS Vulnerable Narcissism subscale, which is based on the HSNS, as a measure of vulnerable narcissism). The PNI (Pincus et al., 2009) was also explicitly developed to measure vulnerable narcissism, but in addition to the vulnerable content, the PNI has a Grandiose subscale. The PNI Grandiose subscale was coded as grandiose (DSM-NPI) narcissism, and the PNI Vulnerable subscale was coded as vulnerable narcissism (the Grandiose and Vulnerable PNI subscales were based on the PNI second-order factors provided by Wright, Lukowitsky, Pincus, & Conroy, 2010). When only the PNI total score was available, it was coded as vulnerable because the measure was predominantly designed to measure vulnerable narcissism. Finally, Rohmann, Neumann, Herner, and Bierhoff (2012) used a new measure of vulnerable narcissism (the Narcissistic Inventory; Neumann & Bierhoff, 2004), which we included in the vulnerable category. All other narcissism measures in the available primary studies were developed on the basis of the NPI or the DSM and as such were coded as grandiose (DSM-NPI) measures.

In addition, when coding primary articles that only reported a range of the number of participating individuals (e.g., 130 to 185), the lower bound was recorded as a conservative estimate of sample size. Finally, we coded methodological moderators

that are typically examined in meta-analyses, such as the type of sample—that is, samples identified as being more pathological (psychiatric/prisoner/juvenile offender samples), versus nonpathological (student/community/Internet samples). We also coded the source of the primary sample (published vs. unpublished; i.e., dissertations/theses, technical manuals, and unpublished samples received directly from researchers). Next, to enable us to examine age as a moderator, studies were coded according to the mean age of the participants. Many undergraduate samples did not report the age of their participants, so we used the mean age of the available undergraduate samples in our meta-analysis for these missing values (mean age for undergraduate samples = 21.45). Participant nationality was coded and then divided into North American (Canada and the United States) and Other. If authors did not report the country in which data were collected, then samples were coded as being from the United States when the first author was affiliated with an institution in the United States.

To obtain the male–female effect sizes for the three facets of NPI narcissism (i.e., L/A, G/E, and E/E) we used facet measures as described in Tables 2 through 4. First, the L/A facet was indicated by Ackerman et al.'s (2011) L/A, Emmons' (1984) L/A, Raskin and Terry's (1988) Authority, and Corry et al.'s (2008) L/A. G/E was indicated by Ackerman et al.'s (2011) G/E, Emmons' (1984) Self-Absorption/Self-Admiration, and two of Raskin and Terry's (1988) facets (Exhibitionism and Vanity), which we composited. It should be noted that we decided not to include Emmons' (1984) Superiority/Arrogance or Raskin and Terry's (1988) Superiority facet as G/E facets, because they had little to no item overlap with G/E. Also, we excluded Corry et al.'s (2008) Exhibitionism/Entitlement from our G/E facet because the items in the Corry et al. (2008) facet overlapped with both G/E and E/E. Finally, E/E was indicated by Ackerman et al.'s (2011) E/E, Emmons' (1984) E/E, and Raskin and Terry's (1988) Entitlement. If effect sizes were reported for the same sample using both the Raskin and Terry (1988) and Emmons (1984) facets, then we coded the effect sizes from the Raskin and Terry (1988) facets because they exhibited slightly better overlap with Ackerman et al.'s (2011) facets than did the Emmons (1984) facets (see Tables 2 through 4).

Further, to verify our decision to treat these not-completely overlapping item subsets as alternate reflections of the same three narcissism facets, we examined the intercorrelations among the facets from the different factor structures. This was accomplished by using a very large dataset of undergraduate participants (details of the dataset are described in the Method section of Study 2). The overlaps among the different measures of the three core narcissism facets are displayed in Table 6. Results in Table 6 lend support to our choice of factors to represent the three narcissism facets because all of the alternative measures of L/A, G/E, and E/E were correlated ( $r > .70$ ) with Ackerman et al.'s (2011) three facets. Finally, for the sake of completeness, in addition to the Ackerman et al. (2011) three facets of narcissism, we separately calculated meta-analytic facet

4 It should be further noted that the 40-item forced choice NPI is the most common form of the NPI; but there are also 16-item, 37-item, and 54-item versions, and measures designed for children (i.e., the NPI-Child [Barry et al., 2003] and the NPI-Juvenile Offender versions [Calhoun, Glaser, Stefurak, & Bradshaw, 2000]).

5 When calculating composite correlations (Borenstein et al., 2009), if the intercorrelation between Raskin and Terry's Exhibitionism and Vanity facets was not provided by the primary source, then we used  $r = .402$ , which is the intercorrelation between Exhibitionism and Vanity obtained from the large sample used for Study 2.

**Table 5.** Narcissism Gender Differences by Measure

Narcissism measure	<i>k</i>	<i>N</i>	<i>d</i>	<i>SE d</i>	95% CI	80% CV	<i>Q</i>
<b>Grandiose (DSM/NPI) Narcissism</b>							
NPI (All)	234	133,958	.26	.01	.24, .28	.11, .41	631.77*
NPI-16	37	10,514	.33	.04	.25, .41	.09, .57	108.8*
HDS-Bold	10	200,736	.10	.04	.02, .18	-.07, .27	355.50*
CPI	32	33,002	.34	.03	.28, .40	.18, .50	116.63*
Dirty Dozen	16	33,474	.33	.03	.27, .40	.24, .43	24.16
APSD	8	10,921	.20	.05	.10, .29	.04, .36	24.83*
PNI-Grandiosity	8	8,172	.16	.08	.005, .31	-.14, .46	85.75*
PDQ-4	13	5,923	.16	.05	.06, .25	-.02, .33	28.21*
SCID	7	3,287	.27	.08	.11, .43	.05, .49	9.22
NGS	7	2,618	.25	.06	.14, .36	.09, .42	10.57
NARQ-Admiration	6	2,112	.24	.07	.11, .37	.05, .43	8.14
NARQ-Rivalry	6	2,112	.42	.05	.32, .52	.34, .49	4.33
Short D3	6	2,233	.38	.05	.29, .47	.31, .45	2.24
MMPI Scales							
Wink & Gough	6	1,876	.58	.08	.43, .73	.43, .72	5.42
Morey, Waugh, & Blashfield	7	2,182	.27	.06	.15, .39	.18, .36	5.40
Smaller Samples ( <i>N</i> < 2,000 or <i>k</i> ≤ 3):							
MMPI Scales							
Raskin & Novacek	3	1,274	.48				
Margolis & Thomas	2	492	.39				
Somwaru & Ben-Porath	1	115	-.004				
MCMI	6	1,782	-.31	.17	-.64, .01	-.87, .24	24.44*
IPDE	3	1,484	.18				
OMNI	2	991	-.10				
NESARC	1	34,653	.32				
AHNS	1	1,162	.69				
SNAP-2	2	575	.06				
NPQC-R	1	698	.24				
SQ	1	650	.26				
SIDP-IV	2	599	.19				
DIPD-IV	2	335	.39				
Selfism Scale	1	325	.10				
CNS	2	302	.52				
NEO-PI-R	1	242	.49				
DNS-Grandiose	1	209	.09				
MAPP	1	209	.20				
MACI	1	110	.14				
Observation/Nomination	3	1,064	-.07				
<b>Vulnerable Narcissism</b>							
HSNS	13	31,820	.01	.07	-.14, .15	-.31, .33	82.95*
PNI total	15	11,576	.02	.03	-.04, .09	-.10, .15	31.83*
PNI-Vulnerability	8	8,172	-.004	.04	-.08, .07	-.12, .12	16.48*
MMPI Scales							
NPDS; Ashby, Lee, & Duke	11	2,633	-.003	.05	-.11, .10	-.17, .17	16.72
Smaller Samples ( <i>N</i> < 2,000 or <i>k</i> ≤ 3):							
MMPI Scales							
Serkownek - Hypersensitivity	5	1,152	-.18	.09	-.35, -.01	-.43, .08	7.68
Pepper & Strong (1958)	3	614	-2.25				
DNS-Vulnerable	1	209	-.28				
NI-R	1	124	.42				

*k* = number of effect sizes; *d* = the inverse variance weighted mean observed effect size estimate (Hedge's *g*); *SE d* = is the standard error of *d*; 95% CI = lower and upper bounds of the 95% CI for *d*; 80% CV = lower and upper bounds of the 80% credibility value for *d*; *Q* = chi-square test for the homogeneity of true correlations across studies.

**NPI-40** = Total Narcissistic Personality Inventory (Raskin & Terry, 1988); **NPI-16** = 16 item NPI (Ames, Rose, & Anderson, 2006); **HDS-Bold** = Hogan Development Survey (Hogan & Hogan, 1997; 2009); **CPI** = California Personality Inventory (Gough & Bradley, 1996); **Dirty Dozen** = Dirty Dozen (Jonason & Webster, 2010); **APSD** = Antisocial Process Screening Device (Frick et al., 2000); **PNI** = Pathological Narcissism Inventory (Pincus et al., 2009); **PDQ-4** = Personality Diagnostic Questionnaire-4 (Hyler, 1994); **SCID** = Structured Clinical Interview for DSM-IV Personality Disorders (First et al., 1997); **NGS** = Narcissistic Grandiosity Scale (Rosenthal, Hooley, & Steshenko, 2007); **NARQ** = Narcissistic Admiration and Rivalry Questionnaire (Back et al., 2013); **SD3** = Short Dark Triad (Jones & Paulhus, 2014); **MMPI** = Minnesota Multiphasic Personality Inventory; **MCMI** = Millon Clinical Multiaxial Inventory (Millon, Millon, Davis, & Grossman, 2006b); **IPDE** = International Personality Disorders Examination (Loranger, 1999); **OMNI** = O'Brien Multiphasic Narcissism Inventory (O'Brien, 1987); **NESARC** = National Epidemiological Survey on Alcohol and Related Conditions; **AHNS** = Add Health Narcissism Study (Davis & Brunell, 2012); **SNAP-2** = Schedule for Nonadaptive and Adaptive Personality (Clark, 1993); **NPQC-R** = Narcissistic Personality Questionnaire for Children-Revised (Ang & Raine, 2009); **SQ** = The Schema Questionnaire (Young, 1990); **SIDP-IV** = Structured Interview for DSM-IV Personality (Pfohl, Blum, & Zimmerman, 1997); **DIPD-IV** = The Diagnostic Interview for DSM-IV personality disorders (Zanarini, Frankenburg, Sickel, & Yong, 1996); **Selfism Scale** (Phares & Erksine, 1984); **CNS** = Childhood Narcissism Scale (Thomaes, Stegge, Bushman, Olthof, & Denissen, 2008); **NEO-PI-R** = NEO Personality Inventory-Revised (Miller, Lyman, Widiger, & Leukefeld, 2001); **DNS** = Dutch Narcissism Scale (Ettema & Zondag, 2002); **MAPP** = Multi-Source Assessment of Personality Pathology (Oltmanns & Turkheimer, 2006); **MACI** = Millon Adolescent Clinical Inventory (Millon, Millon, Davis, & Grossman, 2006a); **HSNS** = Hypersensitive Narcissism Scale (Hendin & Cheek, 1997); **NPDS** = Narcissistic Personality Disorder Scale (Ashby et al., 1979); **NI-R** = Narcissistic Inventory (Neumann & Bierhoff, 2004).

\* *p* < .05



**Table 6.** Intercorrelations Among the NPI-40, NPI-16, and Different NPI Facets

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Facet																	
1. NPI-40	—																
2. NPI-16	.905	—															
Ackerman et al. (2011)																	
3. L/A	.838	.740	—														
4. G/E	.734	.645	.419	—													
5. E/E	.449	.521	.241	.229	—												
Raskin & Terry (1988)																	
6. Superiority	.648	.633	.494	.591	.123	—											
7. Exhibitionism	.705	.653	.423	<b>.817</b>	.293	.395	—										
8. Exploitative	.620	.630	.441	.312	.420	.268	.366	—									
9. Vanity	.508	.370	.260	<b>.760</b>	.119	.374	.402	.178	—								
10. Entitlement	.592	.546	.478	.306	<b>.752</b>	.248	.339	.310	.171	—							
11. Authority	.773	.649	<b>.929</b>	.386	.216	.375	.404	.407	.225	.357	—						
12. Self-Sufficiency	.562	.514	.490	.198	.116	.299	.174	.268	.165	.209	.390	—					
Emmons (1984)																	
13. L/A	.806	.725	<b>.884</b>	.550	.217	.415	.599	.419	.281	.349	.923	.345	—				
14. S/A	.736	.710	.556	.439	.312	.343	.544	.836	.259	.336	.521	.420	.515	—			
15. S/S	.722	.648	.544	<b>.748</b>	.112	.790	.439	.273	.737	.240	.416	.481	.455	.377	—		
16. E/E	.617	.640	.414	.375	<b>.878</b>	.236	.442	.460	.201	.798	.345	.276	.348	.413	.234	—	
Corry et al. (2008)																	
17. L/A	.794	.663	<b>.944</b>	.396	.253	.377	.417	.417	.230	.441	.984	.396	.911	.527	.418	.423	—

$N = 16,912$ – $18,618$ . Correlations in bold represent facet intercorrelations, for facets that were used as alternate forms to represent the three Ackerman et al. (2011) subdimensions of narcissism. NPI-40 = 40 item NPI Narcissistic Personality Inventory; NPI-16 = 16 item NPI; L/A = Leadership/Authority; G/E = Grandiosity/Exhibitionism; E/E = Exploitative/Entitlement; S/S = Self-Sufficiency; S/A = Superiority/Arrogance; S/S = Self-Absorption/Self-Admiration

scores for the two most common facet structures— Raskin and Terry's (1988) seven-facet structure and Emmons' (1984) four-facet structure.

To determine the accuracy of the coding process, the level of agreement among raters was calculated for a random subset (20%) of the articles, which were coded by two authors of the current study. The Cohen's kappa was .96 for narcissism measure, .76 for publication type (e.g., published vs. unpublished), 1.00 for type of sample (e.g., pathological vs. nonpathological), and .97 for country of primary data collection (i.e., United States/Canada vs. Other). Any disagreements were discussed and resolved between the coders.

**Cohort effect.** Next, for our analysis of generational cohort effects, we used more conservative inclusion criteria, as modeled after the criteria used for previous meta-analyses that examined change in narcissism over time (Roberts et al., 2010; Twenge et al., 2008). That is, we only included samples of undergraduates at conventional 4-year institutions in the United States and that used the 40-item forced choice NPI. If a sample did not report which version of the NPI they used, but cited Raskin and Terry (1988), then it was assumed that they used the 40-item NPI (e.g., Gabriel, Critelli, & Ee, 1994). These additional restrictions were put into place for this analysis because we were trying to measure change in personality traits over time that were due to societal changes, which should not be confounded with differences due to, for example, developmental age or cross-cultural differences in the samples. The samples should resemble one another as closely as possible to rule out alternative explanations for any observed differences between cohorts in the narcissism-gender effect size.

tions for any observed differences between cohorts in the narcissism-gender effect size.

To perform the analyses examining change in gender differences over time, we coded the year that the data were collected. If this information for year of data collection was not provided, then we coded the data collection as 2 years prior to the study's publication. If the sample was not published, such as conference articles and dissertations, we coded the year of data collection as the year it appeared in the conference or the year the dissertation was completed. Occasionally, data were collected over a range of years (e.g., 2007–2008; Carr, 2008), in which case the first year of the range was coded as the year of data collection.

### Computation of Meta-Analytic Coefficients

We calculated gender difference effect sizes for the NPI and its facets using Cohen's  $d$ , defined as the mean for men minus the mean for women, divided by the pooled standard deviation (or using other statistics converted to  $d$  values, as described earlier). Thus, positive values of  $d$  occurred when men scored higher on narcissism. There exists a slight statistical bias in estimates of  $d$  (particularly for small samples; Hedges, 1981), which we corrected using a simple conversion from  $d$  to Hedge's  $g$ —although we continue to refer to our results as " $d$  values."

The current study followed the random effects meta-analytic procedure outlined by Borenstein et al. (2009), which is based on Hedges' approach to meta-analysis (Hedges & Olkin, 1985; Hedges & Vevea, 1998). Following this approach, each sample was weighted by the inverse of its variance. The  $Q$  sta-

6 The majority of the Study 1 sample from Jonason and Tost (2010) consisted of undergraduates at conventional 4-year institutions (i.e., 93%), thus we included the sample in the cohort analysis even though 7% of the sample came from students at a community college.



tistic (which is distributed as chi-square) was used to investigate whether there was significant variation across studies in the  $d$  estimate, which would allow us to reject the null hypothesis that all studies shared a common effect size. The  $Q$  statistic is used to determine whether there is evidence for nonrandom variation in effect size estimates, which points to the existence of between-study moderators. At the same time, it has been noted that  $Q$  is strongly affected by sample size; therefore (as recommended by Borenstein et al., 2009), we also reference the 80% credibility interval for each effect size. Whereas the 95% confidence interval (CI) provides an estimate of the accuracy of the mean (taking into account sampling error of the meta-analytic mean), the credibility interval (CV) estimates true dispersion across settings (due to moderators).

To examine whether categorical moderators explained variability among effect sizes, we performed subgroup analyses (Borenstein et al., 2009). To assess whether age (a continuous moderator) influenced the narcissism–gender effect size, we performed meta-regression. Random effects meta-regression was calculated by using inverse variance weights (Borenstein et al., 2009).

**Analysis of generational cohort effect.** To determine whether the gender difference in narcissism changed over time, we compared data that were collected in different years. Similar to past research (Twenge et al., 2008), we performed our analyses by regressing our effect sizes onto the year of data collection and weighting each primary effect in the regression equation by its inverse variance. Because all samples for this analysis were undergraduate samples, they had roughly the same age; thus the year of data collection would be a reasonable proxy for cohort effects. We were primarily interested in whether the gender difference ( $d$ ) changed over cohorts, but we also examined whether the narcissism means (for men and for women separately) were related to year of data collection.

## Results

Table 7 displays the results of the meta-analyses for narcissism (i.e., grandiose (DSM/NPI) narcissism and vulnerable narcissism). We found that the grandiose (DSM/NPI) narcissism gender difference was  $d = .26$  ( $k = 355$ ;  $N = 470,846$ ; 95% CI = [.23, .28]), supporting Hypothesis 1. The credibility interval was relatively wide and  $Q$  was statistically significant, indicating that the samples did not share a common effect size (80% CV = [.01, .51];  $Q [354] = 4256.08$ ,  $p < .05$ ;  $T = .20$ ,  $T^2 = .04$ ). Also, a substantial portion of the between-study variance might be explained by true between-study differences, rather than sampling error ( $I^2 = 92\%$ ). Thus, we examined several potential moderating variables. First, we investigated whether the narcissism gender difference varied by publication source: for published articles  $d = .27$ , and for all unpublished sources combined  $d = .24$  (i.e.,  $d = .21$  for dissertations/theses,  $d = .24$  for unpublished manuscripts, and  $d = .27$  for effect sizes from technical manuals). The between-groups homogeneity test comparing published to un-

published samples was not statistically significant,  $QB (1) = .86$ ,  $p > .05$ . Second, we compared the gender difference in pathological samples ( $d = .25$ ;  $k = 31$ ;  $N = 9,615$ ; 95% CI = [.17, .34]; 80% CV = [.02, .48];  $Q [30] = 66.22$ ,  $p < .05$ ) to that found in nonpathological samples ( $d = .26$ ;  $k = 323$ ;  $N = 460,854$ ; 95% CI = [.23, .28]; 80% CV = [.01, .51];  $Q [322] = 4167.99$ ,  $p < .05$ ) and found that the gender difference for the two groups did not differ,  $QB (1) = .01$ ,  $p > .05$ . Finally, we found that Canadian/U.S. samples ( $d = .26$ ;  $k = 259$ ;  $N = 274,402$ ; 95% CI = [.23, .29]; 80% CV = [-.04, .56];  $Q [258] = 3281.04$ ,  $p < .05$ ), compared with samples from other countries ( $d = .24$ ;  $k = 72$ ;  $N = 87,817$ ; 95% CI = [.20, .29]; 80% CV = [.08, .41];  $Q [71] = 348.56$ ,  $p < .05$ ), did not appreciably differ from one another,  $QB (1) = .32$ ,  $p > .05$ . In sum, the gender difference for grandiose (DSM/NPI) narcissism was not affected by publication source, pathological versus nonpathological sample, or the nationality of the sample.

In contrast to the statistically significant gender effect size found for grandiose (DSM/NPI) narcissism, the gender effect size for vulnerable narcissism was  $d = -.04$  ( $k = 42$ ,  $N = 46,735$ ; 95% CI = [-.12, .03]) and did not significantly differ from zero. A between-groups heterogeneity analysis confirms that the gender  $d$  for Grandiose (DSM/NPI) Narcissism was larger than that found for vulnerable narcissism ( $QB (1) = 57.53$ ,  $p < .05$ ). The difference between the two effects was  $\Delta d = .30$ .

In addition, the credibility interval of the gender  $d$  for vulnerable narcissism was relatively wide (80% CV = [-.32, .23];  $T = .21$ ;  $T^2 = .04$ ;  $Q (41) = 380.67$ ,  $p < .05$ ). Also, a substantial portion of the variance might be explained by true between study differences, not random error ( $I^2 = 89\%$ ). Thus, we examined several potential moderating variables. First, the gender  $d$  for vulnerable narcissism did not vary by publication source (i.e.,  $d = -.05$  for published samples and  $d = -.06$  for unpublished samples;  $QB [1] = .01$ ,  $p > .05$ ). Next, pathological vulnerable samples ( $d = -.62$ ;  $k = 4$ ,  $N = 1,407$ ; 95% CI = [-1.26, .02]; 80% CV = [-1.97, .73],  $Q [3] = 82.87$ ,  $p < .05$ ) were compared with non-pathological vulnerable samples ( $d = .0004$ ;  $k = 38$ ;  $N = 45,328$ ; 95% CI = [-.07, .07]; 80% CV = [-.22, .22];  $Q [37] = 240.37$ ,  $p < .05$ ), and the difference between the two was not statistically significant,  $QB (1) = 3.55$ ,  $p > .05$ ; but because there were only four pathological samples, these results should be interpreted with caution. Finally, we found that Canadian/U.S. samples ( $d = -.05$ ;  $k = 35$ ;  $N = 15,652$ ; 95% CI = [-.13, .02]; 80% CV = [-.29, .19];  $Q (34) = 163.48$ ,  $p < .05$ ) as opposed to samples from other countries ( $d = -.05$ ;  $k = 5$ ,  $N = 2,348$ ; 95% CI = [-.25, .16]; 80% CV = [-.40, .31];  $Q [4] = 16.60$ ,  $p < .05$ ) did not differ from one another,  $QB (1) = .003$ ,  $p > .05$ .

Table 5 reports meta-analytic estimates of narcissism gender differences, broken down by narcissism inventory and grouped by grandiose (DSM/NPI) narcissism versus vulnerable narcissism. By far, the most commonly used narcissism inventory was the NPI, with 234 independent samples and 133,958 participants. The NPI accounted for 234 of the 444 effect sizes in Table 5 (53%). The weighted mean observed gender difference for

7 On the basis of reviewer feedback, we also examined whether gender differences in narcissism were moderated by cross-cultural variation in gender egalitarianism (i.e., derived from Hofstede's (1998) masculinity–femininity dimension), which assesses the extent to which girls (vs. boys) in a country are encouraged to attain higher education, are likely to serve in a position of high office, and so forth (GLOBE Study; Emrich, Denmark, & Den Hartog, 2004). We coded each sample's country of data collection using gender egalitarianism ratings as reported in Emrich et al. (2004). Neither egalitarian practices ( $\beta = -.09$ ,  $p > .05$ ) nor egalitarian values ( $\beta = -.10$ ,  $p > .05$ ) affected the strength of the gender difference in narcissism ( $k = 325$  studies). These results should be interpreted with caution, however, because most of the samples were from the United States and Canada, and we only had 18 countries represented in the set of available primary studies.

**Table 7.** Gender Differences in Narcissism by Narcissism Type, Publication Status, and Sample Type

Publication status/ Sample type	<i>k</i>	<i>N</i>	<i>d</i>	<i>SE d</i>	95% CI	80% CV	<i>Q</i>
Grandiose (DSM/NPI) Narcissism							
Overall	355	470,846	.26	.01	.23, .28	.01, .51	4256.08*
Publication Type							
Published	219	209,333	.27	.01	.24, .29	.09, .44	1076.94*
Unpublished papers	136	261,338	.24	.02	.20, .29	-.04, .53	2442.41*
Dissertations	45	11,061	.21	.03	.14, .27	-.02, .43	115.95*
Unpublished Manuscripts	59	112,668	.24	.03	.17, .30	-.01, .48	622.31*
Technical manual	32	137,784	.27	.07	.14, .40	-.18, .71	1453.79*
Sample type <sup>a</sup>							
Pathological	31	9,615	.25	.04	.17, .34	.02, .48	66.22*
Non-Pathological <sup>b</sup>	323	460,854	.26	.01	.23, .28	.01, .51	4167.99*
Students	229	119,521	.27	.01	.24, .29	.05, .49	1085.06*
Internet	32	76,598	.27	.02	.22, .31	.14, .40	161.87*
Community	54	258,762	.21	.03	.14, .27	-.05, .46	1752.84*
Sample nationality <sup>c</sup>							
Canada/U.S.	259	274,402	.26	.02	.23, .29	-.04, .56	3281.04*
Other	72	87,817	.24	.02	.20, .29	.08, .41	348.56*
Vulnerable Narcissism							
Overall	42	46,735	-.04	.04	-.12, .03	-.32, .23	380.67*
Publication Type							
Published	24	14,158	-.05	.03	-.10, .01	-.18, .09	56.46*
Unpublished Papers	18	32,577	-.06	.08	-.22, .11	-.50, .39	200.49*
Dissertations	13	3,218	-.13	.12	-.36, .11	-.70, .45	117.31*
Unpublished Manuscripts	5	29,359	.10	.09	-.07, .28	-.20, .40	14.40*
Sample Type							
Pathological	4	1,407	-.62	.33	-1.26, .02	-1.97, .73	82.87*
Non-Pathological <sup>d</sup>	38	45,328	.0004	.03	-.07, .07	-.22, .22	240.37*
Students	31	14,780	-.005	.03	-.05, .05	-.12, .11	55.65*
Internet	4	29,394	.06	.13	-.20, .32	-.46, .59	27.49*
Community	2	605	-.22				
Sample nationality <sup>e</sup>							
Canada/U.S.	35	15,652	-.05	.04	-.13, .02	-.29, .19	163.48*
Other	5	2,348	-.05	.11	-.25, .16	-.40, .31	16.60*

*k* = number of effect sizes; *d* = the inverse variance weighted mean observed effect size estimate (Hedge's *g*); *SE d* = is the standard error of *d*; 95% CI = lower and upper bounds of the 95% CI for *d*; 80% CV = lower and upper bounds of the 80% credibility value for *d*; *Q* = chi-square test for the homogeneity of true correlations across studies.

a) One sample could not be categorized because it was a mix of pathological and non-pathological samples.

b) Eight samples could not be categorized because of missing information or because a sample consisted of a mix of student/internet/community populations.

c) Twenty-four samples could not be categorized because of missing information or because a sample consisted of participants from more than one country.

d) One sample could not be categorized because it consisted of a mix of students/internet/community populations.

e) Two samples could not be categorized because of missing information or because a sample consisted of participants from more than one country.

the NPI (across all the versions of the NPI) was  $d = .26$  (95% CI = [.24, .28]). Thus, on the NPI men reported higher levels of narcissism than did women. This narrow 95% CI for the NPI gender *d* indicates that we have a precise estimate of the mean narcissism gender difference for this measure. At the same time, the 80% credibility interval was much wider (80% CV = [.11, .41];  $T = .11$ ,  $T^2 = .01$ ), indicating that the gender difference varied somewhat across local contexts. A substantial portion of the variance might be explained by true between-study differences rather than sampling error ( $I^2 = 63\%$ ;  $Q [233] = 631.77$ ,  $p < .05$ ).

We also reported results for the shortened version of the NPI (the NPI-16) separately. The gender difference for the NPI-16 was  $d = .33$  ( $k = 37$ ;  $N = 10,514$ ; 95% CI = [.25, .41]; 80% CV = [.08, .57]), and the gender difference for the full-length NPI-40 was

$d = .27$  ( $k = 128$ ;  $N = 72,209$ ; 95% CI = [.24, .29]; 80% CV = [.14, .39]). The gender difference for the NPI-16 was not statistically larger than that for the NPI-40,  $QB (1) = 2.33$ ,  $p > .05$ .

Table 5 separates narcissism measures into grandiose (DSM/NPI) narcissism versus vulnerable narcissism, and to facilitate interpretation, breaks down the results into those based on large samples ( $N > 2,000$  and  $k > 3$ ) versus results based on smaller meta-analytic samples ( $N < 2,000$  or  $k \leq 3$ ; which would be expected to provide less reliable *d* estimates). Similar to the NPI, other measures of grandiose (DSM/NPI) narcissism with large samples consistently showed that men had higher narcissism than did women, with weighted average *d* ranging from .10 to .58, and with all of the 95% CIs excluding zero (i.e., men consistently exhibited greater grandiose (DSM/NPI) narcissism than did

8 The number of effect sizes in Table 5 (i.e., 444) was computed using the PNI total (excluding the PNI Grandiose and Vulnerable subscales) and excluding the NPI-16.

women). A full summary of the results can be found in Table 5.

Some of the more common measures of grandiose (DSM/NPI) narcissism (aside from the NPI) include the CPI ( $d = .34$ ;  $k = 32$ ;  $N = 33,002$ ; 95% CI = [.28, .40]; Gough & Bradley, 1996), the Hogan Developmental Survey-Bold Scale (HDS-Bold;  $d = .10$ ;  $k = 10$ ;  $N = 200,736$ ; 95% CI = [.02, .18]; Hogan & Hogan, 1997, 2009), the Dirty Dozen ( $d = .33$ ;  $k = 16$ ;  $N = 33,474$ ; 95% CI = [.27, .40]; Jonason & Webster, 2010), the Antisocial Process Screening Device (APSD;  $d = .20$ ;  $k = 8$ ;  $N = 10,921$ ; 95% CI = [.10, .29]; Frick, Bodin, & Barry, 2000), the PNI Grandiose subscale ( $d = .16$ ;  $k = 8$ ;  $N = 8,172$ ; 95% CI = [.005, .31]; Pincus et al., 2009), the PDQ-4 ( $d = .16$ ;  $k = 13$ ;  $N = 5,923$ ; 95% CI = [.06, .25]; Hyster, 1994), and the SCID ( $d = .27$ ;  $k = 7$ ;  $N = 3,287$ ; 95% CI = [.11, .43]; First, Gibbon, Spitzer, Williams, & Benjamin, 1997).

In contrast, for studies of vulnerable narcissism, some of the more common measures (as indicated by the numbers of studies we were able to locate through our literature search) include the HSNS ( $d = .01$ ;  $k = 13$ ;  $N = 31,820$ ; 95% CI = [-.14, .15]; Hendin & Cheek, 1997), the PNI total score (which includes the Vulnerable Narcissism subscale;  $d = .02$ ;  $k = 15$ ;  $N = 11,576$ ; 95% CI = [-.04, .09]; Pincus et al., 2009), the PNI-Vulnerability subscale ( $d = -.004$ ;  $k = 8$ ;  $N = 8,172$ ; 95% CI = [-.08, .07]; Pincus et al., 2009), and the NPDS ( $d = -.003$ ;  $k = 11$ ;  $N = 2,633$ ; 95% CI = [-.11, .10]; Ashby et al., 1979). These gender effect sizes for vulnerable narcissism were relatively small, and all of their 95% CIs included zero.

### Age Effects

Because sample age is a continuous variable, we examined its potential moderation effects on gender  $d$  using meta-regression (Borenstein et al., 2009). In answer to RQ 1, we found that age does not statistically predict the gender difference in grandiose (DSM/NPI) narcissism (regression coefficient for age  $\beta = .08$ ,  $p > .05$ ;  $k = 267$  studies). Overall, this result indicates that the narcissism gender gap does not differ statistically significantly across age groups. The gender difference consistently favors men, regardless of age. Whereas narcissism levels might decline with age—after young adulthood (e.g., Foster et al., 2003; Roberts et al., 2010), it appears that the mean difference between men and women remains stable across age.

### Generational Cohort Effect

Next, we regressed  $d$  from our meta-analytic database ( $k = 75$ ) onto the year of each sample's data collection, weighted by inverse variance. The results were not statistically significant ( $\beta = -.06$ ,  $p > .05$ ). In other words, there has been no systematic change in the gender difference in narcissism scores in U.S. undergraduate samples over the last 23 years, from 1990 to 2013. This lack of change over time is demonstrated in Figure 1. The vertical axis in Figure 1 depicts  $d$  values. These results failed to support Hypothesis 2a, which predicted that the gender difference would decrease over time (across birth cohorts).

We also examined single gender means to test whether men's or women's narcissism scores changed over time. It is technically possible that women's scores can be decreasing over time (as reported by past researchers; Twenge et al., 2008)

but without affecting the overall gender difference over time. This analysis was based on a reduced number of effect sizes ( $k = 50$ ) from those used to calculate the gender difference over time, because not every sample reported means broken down for men and women separately. Men's scores were not significantly correlated with the year of data collection ( $\beta = -.19$ ,  $p > .05$ ). Contradictory to previous research findings (Twenge et al., 2008), we also found that women's scores were not positively related to the year of data collection ( $\beta = -.18$ ,  $p > .05$ ), failing to support Hypothesis 2b. Figure 2 displays male and female college students' mean scores on the NPI from 1990 to 2013. Our results are consistent with a recent meta-analysis that did not find a generational increase in college students' narcissism over time (i.e., there was no "generation me" effect; Roberts et al., 2010).

### Facet Analyses

Results from the narcissism facet analyses are reported in Table 8. Several different facet structures were analyzed, but we were primarily interested in the Ackerman et al. (2011) three-facet structure: the mean gender difference for E/E was  $d = .29$  ( $k = 44$ ;  $N = 44,108$ ; 95% CI = [.26, .32]; 80% CV = [.21, .37];  $Q [43] = 75.85$ ,  $p < .05$ ; supporting Hypothesis 3), the mean gender difference for L/A was  $d = .20$  ( $k = 40$ ;  $N = 44,739$ ; 95% CI = [.16, .24]; 80% CV = [.07, .33];  $Q [39] = 131.38$ ,  $p < .05$ ; supporting Hypothesis 4), and the mean gender difference for G/E was  $d = .04$  ( $k = 39$ ;  $N = 42,460$ ; 95% CI = [.01, .08]; 80% CV = [-.06, .14];  $Q [38] = 106.17$ ,  $p < .05$ ). The gender difference in the E/E facet was larger than that observed for both the L/A facet,  $QB (1) = 9.77$ ,  $p < .05$ , and the G/E facet,  $QB (1) = 96.70$ ,  $p < .05$ . Further, the gender difference in the L/A facet was larger than that associated with the G/E facet,  $QB (1) = 30.94$ ,  $p < .05$ . Thus, the E/E facet had the largest gender difference, whereas the G/E facet had the smallest gender difference. Notably, we did not hypothesize the statistically significant gender difference in G/E, although the effect size ( $d = .04$ ) is quite small.

### Discussion

Study 1 found that men have higher levels of narcissism than do women ( $d = .26$ ). This gender difference in grandiose (DSM/NPI) narcissism was found to be stable across age groups and generational cohorts. Further, Study 1 found that all three facets of grandiose (DSM/NPI) narcissism, as measured by the NPI, exhibited statistically significant gender differences favoring men; however the E/E facet had the largest gender difference, followed by L/A and then G/E. We also found no gender difference in vulnerable narcissism, answering RQ 2.

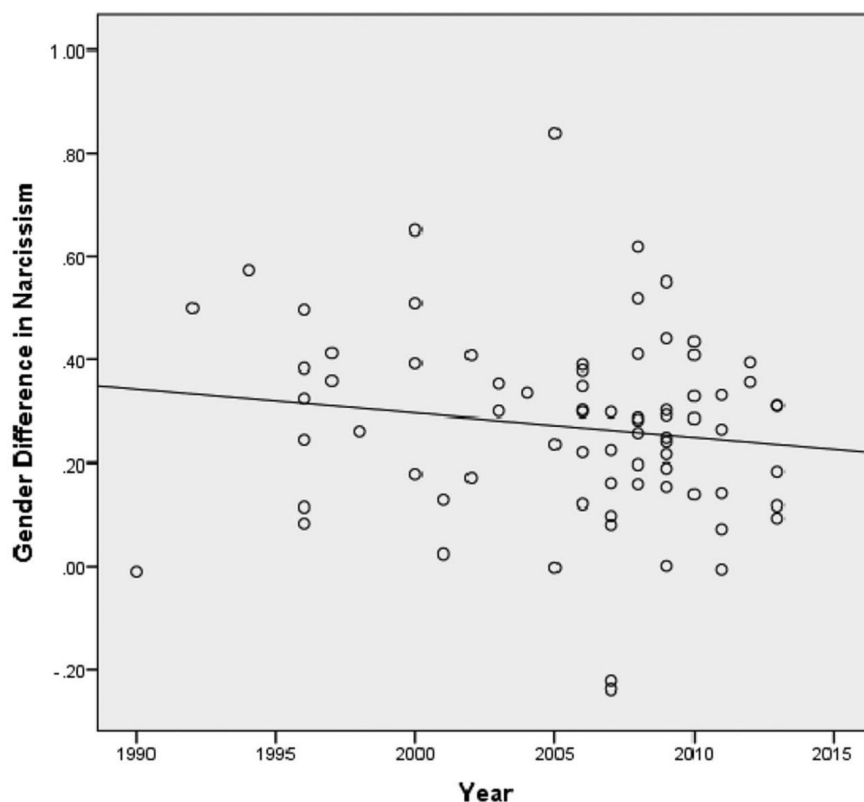
### Study 2

#### Gender Measurement Bias on the NPI Facets

Any investigation of gender differences on the NPI is predicated on the assumption that the scales have equivalent measurement properties across genders. If the scales have different

9 Not all primary study samples reported the average sample age.





**Figure 1.** Gender differences in college students' Narcissistic Personality Inventory (NPI) scores from 1990 to 2013. Positive  $d$  values indicate men scoring higher on the NPI.

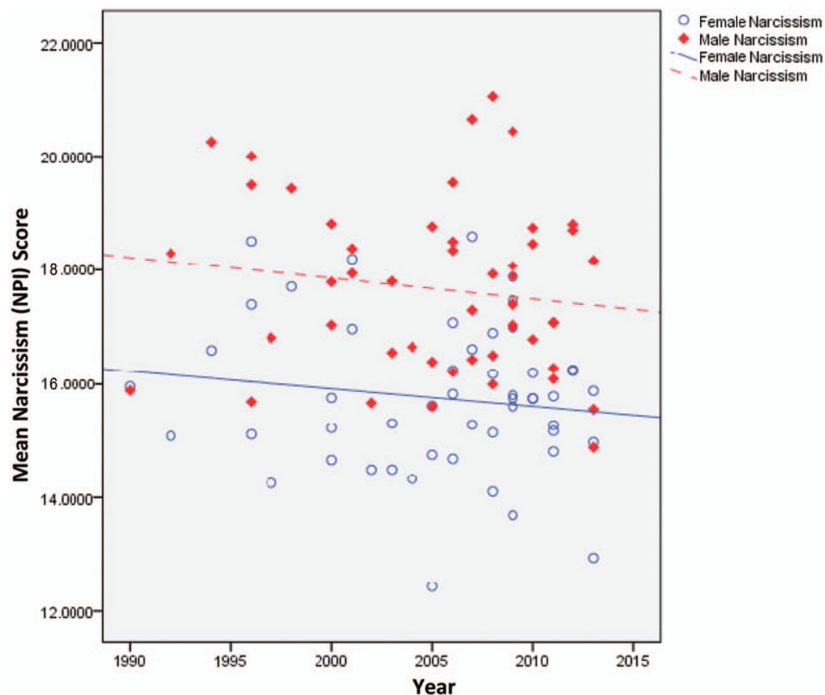
properties, then any observed mean difference cannot be interpreted as a true difference between genders. In general, measurement bias occurs when scales have different psychometric properties in one group compared with another (Drasgow, 1984; Raju & Ellis, 2002; Stark, Chernyshenko, & Drasgow, 2006; Vandenberg & Lance, 2000). For example, in the context of gender differences, previous research has shown that negative affectivity items exhibit measurement bias across genders. Specifically, stress reaction items, such as "Feelings get hurt easily," "Easily startled," and "Easily rattled" are more likely to be endorsed by women than by men, for any given trait level (Smith & Reise, 1998). This means that even when a man and a woman have the same true level of negative affectivity, the woman will have higher scores on negative affectivity measures than will the man. Measurement bias has often been attributed to group norms that create different frames of reference (Riordan & Vandenberg, 1994). Smith and Reise (1998) proposed that the negative affectivity items exhibiting measurement bias "reflect emotional vulnerability and sensitivity in situations that involve self-evaluation," (p. 1359), and gender differences in endorsements might additionally reflect current cultural acceptability of men's and women's having such emotions. In line with our previous theoretical arguments, it is possible that similar cultural processes could lead men and women to endorse narcissism items differently, particularly for items that are less socially acceptable for women to express. It is important to note that Smith and Reise's (1998) result that men are reticent to endorse items such as "Feelings get hurt easily" represents a measurement phenom-

enon in the assessment of negative affectivity and does not reflect true gender differences in the underlying trait of negative affectivity. A man and a woman with *the same* level of trait negative affectivity can exhibit different mean responses to items due to measurement bias.

The concept of differential item functioning (DIF) considers the issue of measurement bias at the item level. An item is said to exhibit DIF "when individuals from different groups who have the same standing on the attribute assessed by the item have different probabilities of answering the item correctly or have different expected raw scores on the item" (Raju & Ellis, 2002, p. 156). It is important to note that item-level instances of DIF might or might not translate to measurement bias at the entire subscale or test level. Often, different items from the same subscale show DIF in opposite directions (e.g., one item is biased against women, and one item is biased against men), which would result in the DIF canceling out at the scale or test level. This is important to take into consideration, because it means that items flagged as having DIF do not necessarily impact overall subscale scores. In such cases, the incidence of DIF is not practically meaningful and can be ignored.

Given the importance of testing for measurement biases to make accurate interpretations of gender differences, we investigate DIF for items on the Ackerman et al. (2011) subscales of the NPI. In seemingly related work on measurement bias, Tschanz et al. (1998) investigated whether the four Emmons (1984) NPI facets displayed equivalent factor covariances between genders. In contrast to Tschanz et al.'s focus on factor





**Figure 2.** College students' mean Narcissistic Personality Inventory (NPI) scores from 1990 to 2013, by gender. See the online article for the color version of this figure.

covariances, however, the current study is looking at *scalar equivalence*, or the extent to which measured indicators have equivalent difficulty parameters between genders. The key difference is that the nonequivalence of factor covariances between genders does not impact differences in observed mean scores; that is, it will not affect inferences about the mean difference between groups. However, in the current article, by studying scalar equivalence, we can determine whether mean

scores on the Ackerman et al. (2011) NPI subscales are comparable between gender groups. That is, we can psychometrically evaluate whether NPI items have equal difficulty parameters (hence equal expected rates of endorsements for the same trait level of narcissism) for women as for men. Addressing this issue is important because the demonstration of scalar equivalence across groups is a prerequisite for making group mean comparisons (Vandenberg & Lance, 2000).

**Table 8.** Gender Differences in the Narcissistic Personality Inventory (NPI) Facets

Facet	<i>k</i>	<i>N</i>	<i>d</i>	<i>SE d</i>	95% CI	80% CV	<i>Q</i>
Ackerman et al. (2011)							
Leadership/Authority	40	44,739	.20	.02	.16, .24	.07, .33	131.38*
Grandiose/Exhibitionism	39	42,460	.04	.02	.01, .08	-.06, .14	106.17*
Exploitative/Entitlement	44	44,108	.29	.02	.26, .32	.21, .37	75.85*
Raskin & Terry (1988)							
Authority	26	35,669	.16	.02	.11, .20	.05, .27	69.21*
Self-Sufficiency	25	35,162	.22	.02	.18, .25	.15, .28	38.63*
Superiority	25	35,266	.15	.02	.10, .20	.04, .26	67.16*
Exhibitionism	27	35,980	.04	.02	.005, .07	-.03, .10	41.56*
Exploitativeness	26	35,645	.22	.02	.17, .27	.11, .33	70.25*
Vanity	26	35,594	-.03	.02	-.08, .02	-.15, .09	78.05*
Entitlement	28	35,651	.32	.02	.28, .36	.24, .40	51.96*
Emmons (1984)							
Leadership/Authority	17	34,411	.12	.02	.09, .16	.06, .19	30.64*
Self-Absorption/Self-Admiration	17	34,016	.08	.02	.04, .12	.003, .16	37.25*
Superiority/Arrogance	18	34,628	.28	.02	.23, .32	.18, .37	50.66*
Exploitative/Entitlement	20	34,874	.24	.02	.20, .27	.18, .30	32.14*

*k* = number of effect sizes; *d* = the inverse variance weighted mean observed effect size estimate (Hedge's *g*); *SE d* = the standard error of *d*; 95% CI = lower and upper bounds of the 95% confidence interval for *d*; 80% CV = lower and upper bounds of the 80% credibility value for *d*; *Q* = chi-square test for the homogeneity of true correlations across studies.

\*  $p < .05$

## Method

### Sample

A subset of data from Donnellan, Trzesniewski, and Robins (2009) was used in this analysis, comprising data collected between 2002 and 2007. The data were from 19,001 college students (64.0% women) from a large university in Northern California who completed the 40-item forced-choice NPI (see also Ackerman, Donnellan, & Robins, 2012).

### Analysis

The analysis of measurement bias was performed following an item response theory (IRT) procedure described by Tay, Newman, and Vermunt (2011). This method can directly assess whether gender relates to a narcissism item, after controlling for the relationship between gender and the underlying narcissism trait that the item is meant to assess. Recent simulations have demonstrated that this method has several advantages over alternatives: (a) it is more effective at identifying measurement bias than conventional techniques, such as the Mantel Haenzel technique or even confirmatory factor analytic techniques; (b) it allows us to directly estimate the extent of measurement bias on each item; (c) there is no need to preidentify measurement-equivalent referent items that are assumed to have unbiased measurement properties (that is, the incorrect identification of invariant (i.e., linking) items can lead to spurious results); and (d) sample size has not been shown to unduly affect the significance testing with this method, which is particularly important for the present large-sample analyses (Tay, Vermunt, & Wang, 2013). Another important reason for choosing the IRT method is because NPI items have a dichotomous (forced choice) response format, and measurement equivalence of dichotomous items is conventionally assessed using IRT (Stark et al., 2006).

To determine the extent to which measurement bias affected scores, we used a stepwise procedure (Tay et al., 2011). Iterative procedures for assessing item bias (such as our stepwise procedure)

are based on recommendations for best practice in IRT assessment of DIF (Candell & Drasgow, 1988; Kim & Cohen, 1992; Park & Lautenschlager, 1990; Tay, Meade, & Cao, 2014). Specifically, we compared two models at a time. First, we estimated an initial model where all items were assumed to be equivalent (unbiased) across men and women. Items were flagged for possible nonequivalence on the basis of a statistic known as the bivariate residuals (BVR), which is akin to modification indices in a confirmatory factor analysis framework. If an item was found to have significant nonequivalence, we permitted nonequivalence for that item in subsequent models. We then moved on to examine the item with the next highest BVR. The procedure ended when the item with the highest BVR did not have significant measurement bias or if the Bayesian information criterion (BIC) for the specified nonequivalence model was higher than the BIC for the prior model, indicating less parsimony. This procedure identified all the items that should be treated as non-equivalent (i.e., biased) to establish the final, best-fitting model.

To cross-validate our results, we used a split-half technique. A random selection of half the sample was chosen for the first round of measurement equivalence analysis. The remaining, nonoverlapping sample was used to validate our initial results in a subsequent analysis. Consistency of results across the split-half samples can provide strong evidence that the results replicate. This follows best practice in measurement equivalence analysis but is not often used because of limited sample sizes.

## Results

Study 2 examined the gender measurement equivalence (i.e., gender bias) of the three Ackerman et al. (2011) NPI facets. These analyses demonstrate whether the gender differences in the NPI facets are partly attributable to measurement bias. As shown in Table 9, two NPI items included in the L/A facet (i.e., Items 5 and 27) had differential item functioning. Both items exhibiting DIF were biased against women, meaning that it was harder for women to endorse these items but easier for men to endorse them. Before accounting for DIF, men had a higher score on L/A

**Table 9.** Item Response Theory Analysis of the Leadership/Authority (L/A) Scale

Model iterations	BIC(LL)	Npar	Focal item	<i>p</i>	Bias	DIF item
Calibration Sample						
0	114978.31	23				
1	114830.46	24	5	<.001	Women (+)	<b>5</b>
2 <sup>a</sup>	114816.30	25	27	<.001	Women (+)	<b>5, 27</b>
3	114824.27	26	32	.29		5, 27, 32
0	114665.57	23	None			
Validation Sample						
1	114451.48	24	5	<.001	Women (+)	<b>5</b>
2 <sup>a</sup>	114429.67	25	27	<.001	Women (+)	<b>5, 27</b>
3	114437.81	26	40	.33		5, 27, 40

As recommended by a helpful reviewer, we estimated the correlation between the appropriate gender adjusted scores (accounting for differential item functioning [DIF]) with scores using the inappropriate gender adjusted parameters (not accounting for DIF). This correlation was 1.00 for both women and men (calculated separately for each gender), which helps to verify that DIF procedures did not result in different constructs being defined by gender. BIC = Bayesian information criterion; LL = log-likelihood; Npar = number of model parameters.

a) Final model. The approach uses a step-wise procedure to identify biased items, by comparing consecutive models until no biased item is detected. If an item was found to have significant nonequivalence, we moved on to examine the item with the next-highest bivariate residual. Items 5 and 27 (in bold) are the biased items identified by consecutive iterative models. Items that are biased against women are harder for them to endorse but are easier for men to endorse.

( $\beta d = .26, p < .05$ ). After accounting for DIF, it can be shown that men still had a higher score on L/A ( $\beta d = .22, p < .05$ ). The effect size of the measurement bias is thus approximately .04 (i.e.,  $.26 - .22 = .04$ ), which is a very small effect size. The validation data set identified the same two DIF items, replicating the aforementioned result. That is, although a few L/A items consistently exhibited DIF (at the item level), these findings suggested overall that the test-level L/A gender difference was not attributable to measurement bias.

As shown in Table 10, the results for the G/E facet revealed that six out of 10 items had differential item functioning (Items 28, 4, 20, 29, 38, and 7). Although a large percentage of items exhibited DIF, four items were biased against men whereas two were biased against women. Before accounting for DIF, there was no significant difference between men and women on G/E ( $\beta d = .02, p > .05$ ). It is important to note that this result is consistent with the meta-analytic findings from Study 1 (i.e., meta-analytic  $d = .04$ ; 95% CI = [.01, .08]) because the current Study 2 result falls within the 95% CI from the meta-analysis. After accounting for DIF, it can be shown that men had a higher score on G/E ( $\beta d = .10, p < .05$ ). Thus there was measurement bias on the G/E facet, but the effect size of the bias was small (i.e.,  $.02 - .10 = -.08$ ). The small change in the effect size, despite the large number of items exhibiting DIF, is at least partly a result of items being biased in different directions (some against men, and some against women, thus partly cancelling out). Overall, measurement bias does not appear to play an important role in interpreting the small observed gender difference in G/E. The validation data set identified the same DIF items.

Finally, the results for the E/E facet are reported in Table 11. We found that one item (i.e., Item 13) had DIF (see Table 4 for a list of the items in the E/E facet). Before accounting for DIF, men had a higher score on E/E ( $\beta d = .29, p < .05$ ). After accounting for DIF, it can be shown that men continue to have a higher score on E/E ( $\beta d = .20, p < .05$ ), although the gender difference was smaller after the correction because the one DIF item was biased against women, making it more difficult for women to endorse. The effect size of the bias was approximately .09, which was a small effect size. The validation data set identified the same DIF item, again replicating the findings from the first half of the data set.

## Discussion

Overall, results from the current study suggested that each of the three Ackerman et al. (2011) facets exhibits some item-level measurement nonequivalence (i.e., DIF) but that at the scale level of analysis, each facet exhibits adequate measurement equivalence. In other words, results showing that men score higher than do women on the NPI can be interpreted at face value, without much concern about measurement bias. This finding helps bolster the conclusions that were drawn about the NPI in Study 1. Although far from definitive, the results of Study 2 do not suggest that the NPI measures narcissism in dramatically different

ways for women than for men. This increases our confidence in the observed mean differences obtained in Study 1.

## General Discussion

The present study focuses on gender differences in narcissism, to test several hypotheses derived from the biosocial construction model of social role theory (Wood & Eagly, 2012). We summarized 31 years of narcissism research (including 355 independent samples and 470,846 participants) to reveal that there was a consistent gender difference in narcissism, with men scoring a quarter of a standard deviation higher in narcissism than do women ( $d = .26$ ). To the extent that narcissism is seen as a problematic or maladaptive personality attribute, then women would hold an advantage over men. However, the critical question is how this effect size should be interpreted in light of existing psychological research on gender differences. The effect size standards proposed by Hyde (2005) offer one reasonable interpretation of the current meta-analytic results. She suggested that differences between .11 and .35 are classified as “small” gender differences (Hyde, 2005, p. 581). Although the gender difference in narcissism might be considered small by some conventions (cf. Cohen, 1988), it is comparable in magnitude to gender differences in risk taking ( $d = .13$ ; Byrnes et al., 1999), neuroticism ( $d = -.28$ ; Feingold, 1994), and self-esteem ( $d = .21$ ; Kling et al., 1999). Therefore, the size of the narcissism gender difference is consistent with some of the other known gender differences found for personality attributes.

## Facets

To address which aspects of narcissism might be driving the gender difference in overall narcissism, we evaluated gender differences in the NPI at the facet level. This contribution allowed us to determine whether the NPI facets show different magnitudes of gender gap. We found the largest gender difference for the E/E facet. This result suggests that compared with women, men are more likely to exploit others and to believe that they themselves are special and therefore entitled to privileges. The second largest gender difference (also favoring men) was for the L/A facet of narcissism. In other words, compared with women men exhibit more assertiveness, motivation to lead, and a desire for power and authority over others. Finally, across the three facets, the smallest gender difference (which was near zero) was for the G/E facet. In other words, both genders were almost equally likely to endorse characteristics consistent with vanity, exhibitionism, and self-absorption. Further, the results from the Emmons (1984) and Raskin and Terry (1988) facets largely coincided with those from Ackerman et al.’s (2011) three facets. The facets representing entitlement showed the largest gender difference; the facets representing authority showed the second largest gender difference, and the facets representing exhibitionism and self-admiration showed a small gender difference with effect sizes hovering near zero.

10 In this particular model, the gender effect sizes ( $\beta s$ ) are scaled to be equivalent to a standardized mean difference (akin to a Cohen’s  $d$ -metric effect size). As such, we use the notation  $\beta d$ .

11 For the measurement bias analyses, we estimated the difference between the male–female effect size ( $\Delta d$ ) from a model with bias versus the male–female effect size ( $\Delta d$ ) from a model without bias. This yields an index of the portion of the standardized latent score difference between men and women (which is also similar to a Cohen’s  $d$ -metric effect size) that is attributable to measurement bias. We used effect sizes of .20, .50, and .80 to represent small, medium, and large effect sizes in the  $d$  metric, respectively (cf. Cohen, 1992).

**Table 10.** Item Response Theory Analysis of the Grandiosity/Exhibitionism (G/E) Scale

Model iteration	BIC(LL)	Npar	Focal item	<i>p</i>	Bias	DIF item
Calibration Sample						
0	97776.52	21	None			
1	97609.00	22	28	<.001	Men (–)	<b>28</b>
2	97529.98	23	4	<.001	Women (+)	28, <b>4</b>
3	97430.54	24	20	<.001	Women (+)	28, 4, <b>20</b>
4	97365.75	25	29	<.001	Men (–)	28, 4, 20, <b>29</b>
5	97309.73	26	38	<.001	Men (–)	28, 4, 20, 29, <b>38</b>
6 <sup>a</sup>	97304.66	27	7	<.001	Men (–)	28, 4, 20, 29, 38, <b>7</b>
7	97309.70	28	26	.05	Men (–)	28, 4, 20, 29, 38, 7, 26
Validation Sample						
0	98303.91	21	None			
1	98136.09	22	20	<.001	Women (+)	<b>20</b>
2	98017.60	23	28	<.001	Men (–)	20, <b>28</b>
3	97944.73	24	4	<.001	Women (+)	20, 28, <b>4</b>
4	97898.31	25	29	<.001	Men (–)	20, 28, 4, <b>29</b>
5	97888.15	26	38	<.001	Men (–)	20, 28, 4, 29, <b>38</b>
6 <sup>a</sup>	97883.46	27	7	<.001	Men (–)	20, 28, 4, 29, 38, <b>7</b>
7	97884.31	28	26	.004	Men (–)	20, 28, 4, 29, 38, 7, 26

BIC = Bayesian information criterion; LL = log-likelihood; Npar = number of model parameters

a) Final model. The approach uses a step-wise procedure to identify biased items, by comparing consecutive models until no biased item is detected. If an item was found to have significant nonequivalence, we moved on to examine the item with the next-highest bivariate residual. Items 28, 4, 20, 29, 38, and 7 (in bold) are the biased items identified by consecutive iterative models. Items that are biased against women are harder for them to endorse but are easier for men to endorse. The correlation between appropriate gender adjusted scores (accounting for differential item functioning [DIF]) with scores using the inappropriate gender adjusted parameters (not accounting for DIF) for women and men separately are 1.00 and 1.00, respectively.

### Generational Cohort Differences

It has been reported that recent generations are more narcissistic than are previous generations (Twenge et al., 2008), with the idea that this generational increase is driven, at least in part, by women closing the narcissism gap to become more similar to men. This argument is usually based on evidence that women's social roles have changed over time. However, we did not find evidence for a narrowing of the gender gap in narcissism over time and across cohorts. In fact, we found no evidence that the gender difference in narcissism changed from 1990 to 2013 among U.S. college students (i.e., we found no generational co-

hort differences). This is relevant to the ongoing debates about cohort differences in the NPI (Donnellan et al., 2009; Roberts et al., 2010; Trzesniewski et al., 2008) because the current results revealed that neither male nor female college students are becoming more narcissistic across generations.

One potential explanation for the stability of the narcissism gender gap in the current study might stem from the fact that researchers did not begin to measure narcissism until the 1980s (after the inclusion of NPD in the *DSM-III* [1980] and the introduction of the NPI; Raskin & Hall, 1979), whereas most social change affecting women's social roles occurred during the 1960s and 1970s – after which time women's social roles have plateaued

**Table 11.** Item Response Theory Analysis of Exploitative/Entitlement (E/E) Scale

Model iteration	BIC(LL)	Npar	Focal item	<i>p</i>	Bias	DIF item
Calibration Sample						
0	41007.33	9	None			
1 <sup>a</sup>	40912.49	10	13	<.001	Females (+)	<b>13</b>
2	40916.68	11	24	.03	Females (+)	13, 24
Validation Sample						
0	41205.06	9	None			
1 <sup>a</sup>	41110.34	10	13	<.001	Females (+)	<b>13</b>
2	41115.61	11	14	.05	Males (–)	13, 14

BIC = Bayesian information criterion; LL = log-likelihood; Npar = number of model parameters.

a) Final model. The approach uses a step-wise procedure to identify biased items, by comparing consecutive models until no biased item is detected. If an item was found to have significant nonequivalence, we moved on to examine the item with the next-highest bivariate residual. Item 13 (in bold) is the biased item identified by consecutive iterative models. Items that are biased against women are harder for them to endorse but are easier for men to endorse. The correlation between appropriate gender adjusted scores (accounting for differential item functioning [DIF]) with scores using the inappropriate gender adjusted parameters (not accounting for DIF) for women and men separately are 1.00 and 1.00, respectively.



(see Cotter, Hermsen, & Vanneman, 2004; Chang, 2000; Nermo, 1996; Weeden, 1998). Women continue to be concentrated in gender stereotypical occupations and fields of study, and to perform the bulk of unpaid household work (Charles, 2011; Krantz-Kent, 2009; Van der Lippe & van Dijk, 2002). Therefore, despite previous researchers' initial observation of a cohort effect for the narcissism gender difference (Twenge et al., 2008), when the current study brought slightly more data to bear on the issue, we did not find evidence to support either of the twin claims that women's narcissism levels increased from 1990 to 2013 or that the gender difference in narcissism decreased from 1990 to 2013.

Finally, we examined whether the gender difference in narcissism varies across age groups. We found that the narcissism gender difference remained consistent from childhood to adulthood. Previous research reported that narcissism levels tend to peak in adolescence and then decline as individuals age (e.g., Carlson & Gjerde, 2009; Foster et al., 2003; Hill & Roberts, 2011; Roberts et al., 2010). Regardless of developmental changes that occur over a lifetime, our results show that the mean difference between men and women remains consistent across age groups. Put differently, men and women tend to increase or decrease in narcissism at about the same rate across developmental stages, thus the size of the difference between them is relatively constant. Further research is needed to examine the narcissism gender difference across a wider age range and with individual-level longitudinal data.

#### *Narcissism and Gender Measurement Equivalence*

The purpose of Study 2 was to assess measurement bias in the three facets of the NPI. The assessment of measurement bias is necessary before firm conclusions can be drawn regarding gender differences in the NPI. Although we found some measurement nonequivalence at the item level, reasonable gender measurement equivalence was established at the overall scale level of analysis for each of the three facets of narcissism. Therefore, the gender differences resulting from Ackerman et al.'s (2011) three NPI facets can be accurately interpreted as true gender differences in narcissistic personality and not as measurement artifacts.

#### *Theoretical and Practical Implications*

According to the biosocial construction model of social role theory (Wood & Eagly, 2012), gender differences in personality should arise from gender role beliefs and expectations (i.e., men are more agentic; women are more communal; Bem, 1974; Lippa, 2001; Spence & Helmreich, 1978; Spence & Buckner, 2000) that have their distal roots in biological specialization and a mutually reinforcing system of gendered division of labor and gender socialization practices. Evidence for this model can be seen most directly in the observed gender difference in the L/A facet of narcissism.

The L/A facet of narcissism assesses a motivation to lead, desire for authority, and self-perceived leadership ability (Ackerman et al., 2011), and thus L/A is directly linked to agency and can be considered an indicator of people's vocational interest in leadership (Epitropaki & Martin, 2004; Offermann, Kennedy, & Wirtz, 1994). Indeed, the L/A facet might help to explain why narcissists tend to be chosen for leadership roles (Grijalva et al., 2014). Unfortunately, role incongruity, or mismatch between ste-

reotypes about women and leader stereotypes, is theorized to act as a barrier to women's advancement into leadership positions (Eagly & Karau, 2002; Koenig et al., 2011). The subsequent lack of women leaders would then continue to reinforce shared beliefs about inherent differences between men's and women's leadership abilities, which people infer from observing men's and women's behavior, according to theory. Despite greater representation of women in managerial jobs over time (U.S. Bureau of Labor Statistics, 2013), there are still stark gender differences when it comes to senior leadership roles; that is, in the United States women make up 51% of managers, but only 17% of Fortune 500 board members, 15% of corporate executive officers, and 8% of Fortune 500 top earners (U.S. women in business, 2014). One possible implication of our L/A result could be that women are less likely to hold senior leadership roles than are men because women continue to internalize proscriptive gender stereotypes related to agency and leadership. For a woman who has deeply internalized a feminine gender identity, endorsing gender-stereotypical occupational preferences might be a mechanism used to avow her femininity to herself and to others. A potential outcome of gender role beliefs is how they affect (and perhaps limit) "individuals' understandings of their own competencies, likes, and dislikes" (Charles, 2011, p. 364). However, because we were unable to directly test the influence of gender stereotypes in the current article, this would be a fruitful avenue for future research that investigates the development and consequences of the narcissism gender gap.

We also theorize that gender differences in the entitlement facet of narcissism might reflect the fact that the division of labor affords men roles imbued with greater social status and resources (e.g., leadership roles) in those cultures that predominate in our current samples (i.e., patriarchal cultures). One possibility is that this greater access to resources among men could give rise to men's greater entitlement. As a related example of resource entitlement, researchers interested in social justice have often used lab tasks in which participants are asked to fairly distribute rewards. Results from this genre of studies show that when men are asked to work on a shared lab task, they tend to take more rewards for themselves and give fewer rewards to their partners (especially when men believe they performed relatively better than their partners), whereas women share rewards more equally, when performing at the same level as men (Kahn, Nelson, & Gaeddert, 1980; see Major & Deaux, 1982, for a review).

In addition, our meta-analytic finding that men feel they are more entitled than women suggests a potential mechanism for the inertia of the gendered division of labor (which might help explain why women's occupational progress has plateaued since the 1980s). Specifically, achieving equality between men and women, whereby women can garner an equal portion of available resources (e.g., equal pay), might be more difficult to accomplish because of men's greater sense of entitlement. Entitlement is a resource expectation, which helps to maintain the male-female division of labor that is a core feature of the biosocial construction model. Men are likely to support the current division of labor and existing wage inequalities not simply because they have an economic incentive to benefit from the unbalanced apportioning of resources between traditionally male versus female jobs, but also because men tend to believe they deserve it. Of course, occupational and pay disparities are complex

issues that likely have many interrelated causes, and we are not suggesting that these disparities are entirely because of gender difference in sense of entitlement. Also, we should make clear that the current article was not able to test the effect of men's greater entitlement on social inequality, we are simply speculating about one possible implication of our results.

It is also important to realize that, in contrast to possible societal advantages, men can also face disadvantages in certain life domains because of their heightened sense of entitlement. Ackerman et al. (2011) have pointed out that entitlement is the most socially maladaptive component of narcissism. This is evidenced by the tendency for high E/E individuals to display antisocial and counterproductive behaviors at both work (Grijalva & Newman, 2014; Penney & Spector, 2002) and at school, as well as to suffer poor college adjustment and compromised relationship satisfaction (for both self and peers; Ackerman et al., 2011; Campbell & Foster, 2002; Campbell, Foster, & Finkel, 2002; Paulhus, 1998). Narcissism and entitlement might also turn out to be partial mechanisms for men's heightened antisocial behavior and aggression (see Eagly & Steffen, 1986a; cf. Cross et al., 2011).

Beyond the theoretical implications of the current study for the biosocial construction model and for theories of gender differences in leadership and antisocial behavior, the current results also highlight recent conceptual advancements that have emphasized the difference between measures of grandiose (DSM/NPI) narcissism and vulnerable narcissism (Cain et al., 2008). Specifically, the fact that measures of grandiose (DSM/NPI) narcissism show a more pronounced gender difference than do measures of vulnerable narcissism helps to reaffirm discriminant validity between the grandiose (DSM/NPI) and vulnerable notions of narcissism (see Pincus & Lukowitsky, 2010). Further, to the extent that narcissism measures are dominated by content related to emotional instability, we would predict that women would score higher than men (given existing results showing women's higher neuroticism; Costa, Terracciano, & McCrae, 2001). However, if narcissism measures emphasize entitlement and antagonism, we would predict that men would score higher than women, given the results of the current article. In this way, gender differences can be one tool researchers use to improve their understanding of (or at least to provide hints about) the underlying structure and content of vulnerable versus grandiose (DSM/NPI) narcissism.

Our results showing moderate gender differences favoring men on grandiose (DSM/NPI) narcissism, but no difference or near-zero differences favoring women on vulnerable narcissism, might also have implications for clinical practice. There is an interesting paradox whereby individuals with vulnerable narcissism might be more likely to seek treatment (Pincus & Lukowitsky, 2010), but grandiose (DSM/NPI) narcissists might be more likely to be diagnosed with NPD. This paradox is mirrored in the current study on gender, where those with vulnerable narcissism, who are slightly more likely to be women (e.g., women have higher contingent self-esteem; Pincus et al., 2009) might be more likely to seek treatment; whereas men are the ones more likely to be diagnosed with NPD (Hartung & Widiger, 1998; Stinson et al., 2008). This suggests a mismatch between the presenting problems of narcissism (i.e., the features of vulnerable narcissism, which are gender neutral or tend to be slightly more problematic for women) and the DSM definition (which tends to diagnose men; Wright et al., 2013). Our results, therefore, can be

interpreted as supporting recent changes in the DSM-5 definition and measurement of NPD to include more vulnerable narcissism content (cf. APA, 2013: "features of NPD are variable and vulnerable self-esteem . . .", p. 767).

### *Limitations and Future Research Directions*

Narcissism is a trait with a relatively negative connotation (Buss & Chiodo, 1991). We must therefore emphasize that the gender differences referred to in this article do not apply to every individual within a group. Not all men are entitled or exploitative. Not all women are low in a sense of leadership and motivation for authority. The current results are consistent with the finding that within-group trait differences are generally larger than differences between gender groups (Hyde, 2005). Although we are saying that the average man tends to be more narcissistic than the average woman, we are not making generalizations to specific individuals. In fact, the current results might be seen as consistent with the gender similarities hypothesis, or the idea that women and men are often more similar than different when it comes to many psychological attributes (Hyde, 2005, 2014). To be sure, Hyde (2005) has made a persuasive case about the cost of inflated claims about gender differences in terms of relationships, opportunities in the workplace, and impressions of risk for psychological problems.

Second, some of the subanalyses we performed were based on a small number of effect sizes. Consequently, some of the confidence and credibility intervals were relatively wide. We were unable to conduct analyses examining moderators of vulnerable narcissism. The same can be said for research on cohort effects that goes beyond undergraduate samples. Also, it would have been interesting to test whether gender differences in the facets of the NPI changed over time, but the available primary studies did not report enough information at the facet level to permit these analyses. Finally, the age range (for sample mean age) from the available primary studies in the current analysis was 8 to 55 years. It is a limitation that we were not able to include samples from across the full life span, particularly samples of adults over the age of 55. For example, gendered division of labor might change during retirement, or biological hormones might change following the reproductive years.

The current results have implications for research and theorizing about gender differences in psychological attributes in general, but also point out limitations and a need for future research on the structure and etiology of narcissism. It is important to note that the findings presented in this article bring to light our current relative ignorance regarding how gender differences in narcissism develop. Although we draw on theory from the biosocial construction model, future research is needed to investigate the specific contextual factors (i.e., local, cultural, and ecological), social factors (i.e., gender identities and social regulation), and biological factors (i.e., hormonal activation) that contribute to gender differences in the development of narcissistic personality attributes. In the past, the study of gender differences has helped to precipitate new theory on trait etiology in the service of explaining those differences (Byrnes et al., 1999; Halpern, 1992). Current theories of narcissism have not attempted to explain why gender differences would emerge for this particular trait. In the current article, we suggest that it is sociocultural differences in the division of labor

and the acceptability of expressing agentic behaviors and attitudes that contributes to the gender difference, but further empirical study is needed to verify this explanation.

Relatedly, there has long been speculation about whether certain parenting styles might be associated with the development of narcissism (Kernberg, 1975; Kohut, 1977; Miller, 1981), with some scholars suggesting that narcissism is the result of cold, critical, and strict parenting (Kernberg, 1975), and other scholars arguing that narcissism results from overly indulgent parenting (Imbesi, 1999; see Horton, Bleau, & Drwecki, 2006, for a review). If indeed particular parenting styles contribute to the development of narcissism, then the observed gender difference would suggest that parents are using the parenting styles associated with narcissism more frequently with boys than with girls.

Modern empirical research investigating the development of narcissism has found that personality attributes consistent with narcissism emerge at an early age. There are indicators of narcissism visible even in preschool age children, and these indicators are correlated with observer-reported narcissism at age 23 (Carlson & Gjerde, 2009). Additional findings from the Block and Block (1980) longitudinal study showed that narcissism at age 23 was associated with parental reports of child rearing practices when participants were 3 to 4 years of age (Cramer, 2011). Participants' Willful narcissism (i.e., maladaptive narcissism) at age 23 was associated with having an indifferent father ( $r = .22$ ) and with an interaction in which having an authoritarian mother (i.e., a mother who is controlling and unresponsive) enhanced the development of a child's initial tendencies to behave narcissistically (at 3 to 4 years of age) into adult narcissism (Cramer, 2011). These results are consistent with Cramer's (2011) initial prediction that unresponsive parenting styles "... might create a sense of neediness and an expectation that others will not naturally be responsive to those needs. To obtain this gratification, the child might develop compensatory defensive behaviors, including the development of a grandiose self" (Cramer, 2011, p. 20). Referring back to biosocial role theory, we speculate that differences in parenting styles based on child gender could reflect a type of socialization designed by parents to make boys more agentic (i.e., denying affection to make boys more independent), and to make girls more caring and communal. That is, gender socialization processes might align with those parenting practices that lead to narcissism, to some extent.

Finally, empirical investigations of personality disorders using monozygotic and dizygotic twins have concluded that NPD has a genetic component (Coolidge, Thede, & Jang, 2001; Jang, Livesley, Vernon, & Jackson, 1996). Therefore, it is plausible that genetic factors play a role in the narcissism gender difference (perhaps via the biological specialization component of the biosocial model, or perhaps via some other mechanism). More research is needed to evaluate the role that other biological factors (such as hormones like testosterone, which has been linked to dominance; Archer, 2006) play in the narcissism gender difference.

## Conclusion

The gender difference in narcissism ( $d = .26$ ) is consistent with some of the larger gender differences discovered in the personality domain (Hyde, 2014). It is important to note that the gender difference in narcissism (as measured by the NPI) is

not just a measurement artifact but represents true differences in the latent trait, driven by men's heightened sense of entitlement and authority. Further research is needed to study the etiology of narcissism and to test the effect of gender stereotypes on the emergence of narcissistic personality traits.

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\*References marked with an asterisk indicate studies included in the meta-analysis.

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**Appendix A.** Main Codes and Input Values for the Narcissism Gender Difference Meta-Analysis

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Ackerman (2012) Sample 1	N/A	Grandiose	Unpublished	US	.50			NPI	238	.65
		Vulnerable						PNI	237	.00
Ackerman (2012) Sample 2	N/A	Grandiose	Unpublished	US	.77			NPI	226	.18
		Vulnerable			.78			PNI	225	.19
Akehurst & Thatcher (2010)	N/A	Grandiose	Article	UK	.45			NPI-40	160	.49
Akinola (2009)	N/A	Grandiose	Unpublished	US	.67			NPI-40	113	-.01
Allen et al. (2009)	N/A	Grandiose	Article	Unclear	.66			NPI	118	-.04
Ames, Rose, & Anderson (2006) Study 1	1996	Grandiose	Article	US	.56	Yes		NPI-40	776	.11
Ames, Rose, & Anderson (2006) Study 2	N/A	Grandiose	Article	US	.26			NPI-16	167	.27
Ames, Rose, & Anderson (2006) Study 3	N/A	Grandiose	Article	US	.75			NPI-16	158	.55
Ames, Rose, & Anderson (2006) Study 4	1997	Grandiose	Article	US	.60	Yes		NPI-40	176	.36
Ames, Rose, & Anderson (2006) Study 5	N/A	Grandiose	Article	US	.35			NPI-16	43	.55
Arthur, Woodman, Ong, Hardy & Ntoumanis (2011)	N/A	Grandiose	Article	Singapore	.51			NPI-40	209	.48
Back et al. (2013) Study A	N/A	Grandiose	Article	Germany	.27			NPI & NARQ	219	.32
Back et al. (2013) Study B	N/A	Grandiose	Article	Germany	.27			NPI, NARQ, PNI-Grandiosity, NGS	510	.31
		Vulnerable						PN-Vulnerability	510	-.17
Back et al. (2013) Study C	N/A	Grandiose	Article	Germany	.25			NPI & NARQ	854	.19
Back et al. (2013) Study D	N/A	Grandiose	Article	Germany	.17			NPI & NARQ	231	.28
Back et al. (2013) Study E	N/A	Grandiose	Article	Germany	.37			NARQ	202	.59
Back et al. (2013) Study F	N/A	Grandiose	Article	Germany	.50			NARQ	96	.26
Bagby, Farvolden, Toneatto, & Oakman (2003) Sample 1	N/A	Grandiose	Technical Manual	US	.48		Yes	PDQ-4 & SCID	96	.46
Bagby, Farvolden, Toneatto, & Oakman (2003) Sample 2	N/A	Grandiose	Technical Manual	US	.30		Yes	PDQ-4 & SCID	43	.09
Bagby, Farvolden, Toneatto, & Oakman (2003) Sample 3	N/A	Grandiose	Technical Manual	US	.57		Yes	PDQ-4 & SCID	103	-.21
Balestri (1999)	1999	Grandiose	Dissertation	US	.69	Yes		NPI-40	149	.41
		Vulnerable						SHNS, NPDS, & Pepper	149	.10
Barelids & Dijkstra (2010) Sample 1	N/A	Grandiose	Article	Netherlands	.49			NPI-40	460	.30
Barelids & Dijkstra (2010) Sample 2	N/A	Grandiose	Article	Netherlands	.67			NPI-40	515	.28
Barry, Chaplin, & Grafeman (2006)	2001	Grandiose	Article	US	.50	Yes		NPI-40	120	.02
Barry, Grafeman, Adler, & Pickard (2007)	N/A	Grandiose	Article	US	.15		Yes	NPI-C (Adaptive)	349	.35
Barry & Malkin (2010)	N/A	Grandiose	Article	US	.20		Yes	NPI-C & APSD	534	.20
Barry, Pickard, & Ansel (2009)	N/A	Grandiose	Article	US	.21		Yes	NPI-C	213	.20
Baughman, Dearing, Giammarco & Vernon (2012)	N/A	Grandiose	Article	Mix	.69			SD3	657	.39
Becker (2008)	N/A	Grandiose	Dissertation	US	.57			NPI-40	100	.004
		Vulnerable						NPDS	100	-.10



Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Becker, Luebbe, Fite, Greening, & Stoppelbein (2013)	N/A	Grandiose	Article	US	.27		Yes	APSD	699	.01
Becoña, del Río, López-Duran, Piñeiro & Martínez (2013)	N/A	Grandiose	Article	Spain	.49			IPDE	1081	.15
Bergman, Fearrington, Davenport, & Bergman (2011)	2010	Grandiose	Article	US	.46	Yes		NPI-40	361	.41
Birchfield (1994)	N/A	Grandiose	Dissertation	US	.53			MWB	315	.21
Bizumic & Duckitt (2008)	N/A	Grandiose	Article	New Zealand	.74			NPI-40	264	.04
Bleske-Recheck, Remiker, & Baker (2008)	2005	Grandiose	Article	US	.50	Yes		NPI-40	102	-.002
Brown & Bernieri (2012)	2012	Grandiose	Unpublished	Unclear	.60	Yes		NPI-40	97	.36
Brown, Budzek & Tamborski (2009)	N/A	Grandiose	Article	US	.62			NPI-37 & NGS	740	.18
Brunell (2009) Sample 1	2009	Grandiose	Unpublished	US	.61	Yes		NPI-40	208	.25
Brunell (2010) Sample 2	2010	Grandiose	Unpublished	US	.55			NPI-40	243	.33
Brunell (2011a) Sample 3	N/A	Grandiose	Unpublished	US	.60			NPI-16	187	.55
Brunell (2011b) Sample 4	2011	Grandiose	Unpublished	US	.56	Yes		NPI & NGS	290	.18
Brunell (2011c) Sample 5	2011	Grandiose	Unpublished	US	.60	Yes		NPI-40	214	.27
Brunell (2011d) Sample 6	2011	Grandiose	Unpublished	US	.63	Yes		NPI-40	291	.33
Brunell (2011e) Sample 7	2011	Grandiose	Unpublished	US	.56	Yes		NPI & NGS	243	.05
Brunell et al. (2008) Study 1	2006	Grandiose	Article	US	.45	Yes		NPI-40	432	.12
Brunell et al. (2008) Study 2	2006	Grandiose	Article	US	.68	Yes		NPI-40	407	.30
Burns (2003)	N/A	Grandiose	Dissertation	US	.50			NPI-JO	234	.12
Burton & Hoobler (2011)	N/A	Grandiose	Article	US	.44			NPI-7	262	-.12
Bushman & Baumeister (1998) Study 1	1996	Grandiose	Article	US	.50	Yes		NPI-40	260	.38
Bushman & Baumeister (1998) Study 2	1996	Grandiose	Article	US	.50	Yes		NPI-40	280	.25
Cai, Kwan, & Sedikides (2012) Sample 1	N/A	Grandiose	Article	China	.54			NPI	10655	.25
Cai, Kwan, & Sedikides (2012) Sample 2	N/A	Grandiose	Article	China	.53			NPI	15517	.16
Calabrese (2011)	N/A	Grandiose	Unpublished	Unclear	.57			SNAP-2	195	.19
Calvete & Orue (2012)	N/A	Grandiose	Article	Spain	.57			SQ	650	.26
Carlson & Gjerde (2009)	N/A	Grandiose	Article	US	.51			Observation (CCQ/CAQ)	103	.41
Carpenter (2012)	N/A	Grandiose	Article	US	.68			NPI	294	.21
Carr (2008)	2007	Grandiose	Dissertation	US	.50	Yes		NPI-40	129	.30
		Vulnerable						HSNS	259	-.19
Carroll (1987)	N/A	Grandiose	Article	US	.43			NPI-54	65	.53
Carroll (1989)	N/A	Grandiose	Article	US	.49			NPI-54	232	.47
Cheek & Cheek (2014)	N/A	Grandiose	Unpublished	Mix	.35			Dirty Dozen	28493	.34
		Vulnerable						HSNS	28493	.24
Chen, Ferris, Hong, Kwan, Yan, & Zhou (2013) Sample 1	N/A	Grandiose	Article	China	.26			NPI-16	235	-.02
Chen, Ferris, Hong, Kwan, Yan, & Zhou (2013) Sample 2	N/A	Grandiose	Article	China	.45			NPI-40	204	-.18
Chiaradonna (2004)	N/A	Grandiose	Dissertation	US	.41			NPI-40	1240	.04
Chopik (2013) Sample 1	N/A	Grandiose	Unpublished	US	.59			NPI-16	670	.17
Chopik (2013) Sample 2	2013	Grandiose	Unpublished	US	.50	Yes		NPI-40, NGS, & NARQ	330	.32
Chopik (2013) Sample 3	2013	Grandiose	Unpublished	US	.62	Yes		NPI-40, NGS, & NARQ	357	.31
Chowning & Campbell (2009)	N/A	Grandiose	Article	US	.59			NPI-37	442	.19

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Cohen, Panter, Turan, Morse, & Kim (2014)	N/A	Grandiose	Unpublished	US	.54			NPI-16	510	.12
Cooper (2010)	N/A	Grandiose	Dissertation	US	.55			NPI-C	236	-.31
Corry, Merritt, Mrug, & Pamp (2008) Sample 1	2006	Grandiose	Article	US	.51	Yes		NPI-40	724	.39
Corry, Merritt, Mrug, & Pamp (2008) Sample 2	2006	Grandiose	Article	US	.51	Yes		NPI-40	724	.30
Crysel & Webster (2012) Study 1	N/A	Grandiose	Unpublished	US	.64			Dirty Dozen	1094	.24
Crysel & Webster (2012) Study 2	N/A	Grandiose	Unpublished	US	.53			Dirty Dozen	227	.45
Da Silva (2007)	N/A	Grandiose	Dissertation	Canada	.55		Yes	MACI	110	.14
Davis & Brunell (2012) Study 1	N/A	Grandiose	Article	US	.61			AHNS	1162	.69
Davis & Brunell (2012) Study 2	N/A	Grandiose Vulnerable	Article	US	.58			NPI-40 PNI	376 376	.24 .08
De Hoogh, Den Hartog, & Nevicka (2013)	N/A	Grandiose	Article	Netherlands	.46			NPI-16	145	.26
DeYoung (2009)	2009	Grandiose	Dissertation	US	.53	Yes		NPI-40	471	.22
Dillon (1988)	N/A	Grandiose	Article	US	.40			MCMI	50	-.04
Dillon (2011)	N/A	Vulnerable	Thesis	Unclear	.79			HSNS	549	.04
Donnellan, Trzesniewski, & Robins (2009)	1996	Grandiose	Article	US	.58	Yes		NPI-40	571	.08
Donnellan, Trzesniewski, & Robins (2009)	2002	Grandiose	Article	US	.69	Yes		NPI-40	3,096	.17
Donnellan, Trzesniewski, & Robins (2009)	2003	Grandiose	Article	US	.67	Yes		NPI-40	4,804	.30
Donnellan, Trzesniewski, & Robins (2009)	2004	Grandiose	Article	US	.66	Yes		NPI-40	4,747	.34
Donnellan, Trzesniewski, & Robins (2009)	2005	Grandiose	Article	US	.66	Yes		NPI-40	4,404	.24
Donnellan, Trzesniewski, & Robins (2009)	2006	Grandiose	Article	US	.67	Yes		NPI-40	4,958	.22
Donnellan, Trzesniewski, & Robins (2009)	2007	Grandiose	Article	US	.65	Yes		NPI-40	5,077	.16
Donnellan, Trzesniewski, & Robins (2009)	2008	Grandiose	Article	US	.68	Yes		NPI-40	2,403	.20
Dufner, Denisson, Sedikides, van Zalk, Meeus, & Van Aken (2013) Study 1	N/A	Grandiose	Article	Germany	.77			NPI-German	337	.17
Dufner, Denisson, Sedikides, van Zalk, Meeus, & Van Aken (2013) Study 2	N/A	Grandiose	Article	Germany	.84			NPI-German	183	.44
Edelstein (2011)	2011	Grandiose	Unpublished	US	.51	Yes		NPI-40	218	-.01
Edelstein, Yim, & Quas (2010)	2008	Grandiose	Article	US	.49	Yes		NPI-40	90	.16
Eksi (2012)	N/A	Grandiose	Article	Turkey	.32			NPI	398	.06
Ettensohn (2011)	N/A	Grandiose Vulnerable	Dissertation	US	.64			NPI-16 HSNS	149 149	.58 .36
Exline et al., (2004)	N/A	Grandiose	Article	US	.46			NPI	155	.28
Farwell & Wohlwend-Lloyd (1998) Study 1	1996	Grandiose	Article	US	.65	Yes		NPI-40	152	.50
Faulkner (2012)	N/A	Grandiose	Dissertation	US	.51			NPI-40	195	-.14
Feintuch (1998)	1998	Grandiose	Dissertation	US	.64	Yes		NPI & OMNI	538	.08
Finzi-Dottan & Cohen (2011)	N/A	Grandiose	Article	Israel	.61			NPI-40	188	.06

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Fite, Stoppelbein & Greening (2009)	N/A	Grandiose	Article	US	.31		Yes	APSD	105	-.04
Fontaine, Barker, Salekin & Viding (2008)	N/A	Grandiose	Article	England	.54			APSD	4713	.25
Fossati, Borroni, Eisneberg, & Maffei (2010)	N/A	Grandiose Vulnerable	Article	Italy	.51			NPI-40 HSNS	674 674	.26 -.20
Foster, Campbell, & Twenge (2003)	N/A	Grandiose	Article	Mix	.75			NPI-40	3,445	.27
Foster, Gaddis, & Hogan (2013)	N/A	Grandiose	Unpublished	Mix	.37			HDS-Bold	61032	.03
Fraley & Roberts (2012)	N/A	Grandiose	Unpublished	Mix	.72			NPI-40	8174	.23
Frick, Bodin, & Barry (2000)	N/A	Grandiose	Article	US	.52			APSD	804	.28
Frimer (2013)	N/A	Grandiose	Unpublished	US	.60			NPI-40	140	.21
Fung, Gao, & Raine (2010)	N/A	Grandiose	Article	Hong Kong	.47			APSD	3675	.13
Furnham (2006)	N/A	Grandiose	Article	UK	.25			HDS-Bold	1140	.00
Furnham, Crump, & Ritchie (2013)	N/A	Grandiose	Article	UK	.17			HDS-Bold	7484	.03
Furnham, Hyde, & Trickey (2014)	N/A	Grandiose	Article	UK	.37			HDS-Bold	2022	.24
Furnham & Trickey (2011)	N/A	Grandiose	Article	UK	.34			HDS-Bold	18366	.15
Gabriel, Critelli, & Ee (1994)	1992	Grandiose	Article	US	.58	Yes		NPI-40	146	.50
Galvin, Waldman, & Balthazard (2010)	N/A	Grandiose	Article	US	.55			NPI-34	55	.61
Gebauer, Sedikides, Verplanken, & Maio (2012)	N/A	Grandiose	Article	Mix	.78			NPI-40/NPI-16	2291	.43
Gordon & Dombeck (2010)	2008	Grandiose Vulnerable	Article	US	.53	Yes		NPI-40 HSNS	355 355	.62 -.11
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.50			CPI	522	.55
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.56			CPI	7361	.51
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.50			CPI	180	.5
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.62			CPI	238	.49
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.63			CPI	399	.48
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.51			CPI	9436	.43
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.42			CPI	98	.43
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.14			CPI	641	.43
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.64			CPI	700	.43
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.52			CPI	61	.42
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.64		Yes	CPI	541	.42
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.39			CPI	1028	.40
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.50			CPI	180	.40
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.51			CPI	178	.37
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.50			CPI	180	.36
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.38			CPI	71	.34
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.15			CPI	115	.33
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.50			CPI	6000	.30
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.42		Yes	CPI	131	.25
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.65			CPI	477	.23
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.39			CPI	716	.22
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.31			CPI	180	.17
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.2			CPI	453	.15
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.33			CPI	150	.12
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.38			CPI	115	.11
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.59			CPI	61	-.06
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.45		Yes	CPI	75	-.15
Gough & Bradley (1996)	N/A	Grandiose	Technical Manual	US	.41			CPI	118	-.71



Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Grabon (1997) Patient Sample	N/A	Vulnerable	Dissertation	US	.40		Yes	NPDS	167	-.07
		Grandiose					Yes	Wink & Gough	167	.85
Grabon (1997) Student Sample	N/A	Vulnerable	Dissertation	US	.56			NPDS	179	.18
		Grandiose						Wink & Gough	179	.56
Griffin & Samuel (2013)	2013	Grandiose	Unpublished	US	.38	Yes		NPI-40 & SCID	397	.28
Grilo, Sanislow & McGlashan (2002)	N/A	Grandiose	Article	US	.32		Yes	DIPD-IV	95	.17
Harms (2011) Classroom Study	N/A	Grandiose	Unpublished	US	.36			NPI-16	105	.48
Harms (2012) Online Study Sequel	N/A	Grandiose	Unpublished	US	.50			NPI-40	1,489	.27
Harms, Spain, & Hannah (2011)	N/A	Grandiose	Article	US	.15			NPI-40	2532	.39
Harrison (2011)	N/A	Grandiose	Dissertation	US	.57			NPI-JO	214	.19
Helland (2006) Study 2	N/A	Grandiose	Dissertation	US	.47			NPI-37	235	.40
Helland (2006) Study 3	N/A	Grandiose	Dissertation	US	.21			CPI	125	.16
Henington (1996)	N/A	Grandiose	Dissertation	US	.49			Peer Nomination	904	-.08
Hill (1999)	N/A	Grandiose	Dissertation	Canada	.66			NPI-40	170	.36
Hogan & Hogan (2009)	N/A	Grandiose	Technical Manual	US	.49			HDS-Bold	107137	-.08
Holtzman (2009)	2009	Grandiose	Unpublished	US	.68	Yes		NPI-40	156	.29
Holtzman (2011) Sample 1	2009	Grandiose	Article	US	.56	Yes		NPI-40 & MAPP	209	.22
Holtzman, Vazire, & Mehl (2010)	2008	Grandiose	Article	US	.53	Yes		NPI-40	79	.29
Hooper (2000)	2000	Grandiose	Dissertation	US	.55	Yes		NPI-40	395	.39
Hopwood et al. (2013) Sample 1	N/A	Grandiose	Article	US	.5		Yes	PDQ-4	200	-.23
Hopwood et al. (2013) Sample 2	N/A	Grandiose	Article	US	.5			PDQ-4	808	.02
Hopwood et al. (2013) Sample 3	N/A	Grandiose	Article	US	.5			PDQ-4	545	.22
Hopwood et al. (2013) Sample 4	N/A	Grandiose	Article	US	.5			PDQ-4	922	.11
Horton, Bleau, & Drwecki (2006) Sample 1	2001	Grandiose	Article	US	.69	Yes		NPI-40	201	.13
Horton, Bleau, & Drwecki (2006) Sample 2	N/A	Grandiose	Article	US	.59			NPI-40	214	.30
Horvath (2006)	N/A	Grandiose	Unpublished	Switzerland	.69			NPI-40	147	.36
Horvath (2012)	N/A	Grandiose	Unpublished	US	.64			NPI-40	92	.22
Hyman (2009)	N/A	Grandiose	Dissertation	US	.49			NPI-54	155	-.05
Jackson, Ervin, & Hodge (1992)	1990	Grandiose	Article	US	.66	Yes		NPI-40	301	-.01
Jane, Oltmanns, South, & Turkheimer (2007) Sample 1	N/A	Grandiose	Article	US	.41			SIDP-IV	433	.06
Jane, Oltmanns, South, & Turkheimer (2007) Sample 2	N/A	Grandiose	Article	US	.64			SIDP-IV	166	.43
Johnson et al., (2003)	N/A	Grandiose	Article	US	.73		Yes	DIPD-IV	240	.55
Jonason, Jones, & Lyons (2013)	N/A	Grandiose	Article	UK	.72			NPI-40	263	.61
Jonason & Kavanagh (2010)	N/A	Grandiose	Article	Mix	.81			NPI-40	302	.23
Jonason, Koenig, & Tost (2010) Sample 1	N/A	Grandiose	Article	US	.59			Dirty Dozen	246	.51
Jonason, Koenig, & Tost (2010) Sample 2	2008	Grandiose	Article	US	.69	Yes		NPI-40	321	.26
Jonason & Krause (2013)	N/A	Grandiose	Article	Mix	.76			NPI-40	320	.51
Jonason, Li, & Buss (2010)	N/A	Grandiose	Article	Unclear	.66			NPI-40	336	.55

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Jonason, Li, & Czarna (2013)	N/A	Grandiose	Article	US/Singapore/Poland	.60			Dirty Dozen	626	.27
Jonason, Luevano, & Adams (2012)	N/A	Grandiose	Article	US	.57			NPI-40	210	.40
Jonason, Lyons, Bethell, & Ross (2013)	N/A	Grandiose	Article	UK	.83			NPI-40	352	.42
Jonason, Slomski, & Partyka (2012)	N/A	Grandiose	Article	US & Canada	.65			Dirty Dozen	419	.33
Jonason & Tost (2010) Sample 1	2008	Grandiose	Article	US	.72	Yes		NPI-40	259	.29
Jonason & Tost (2010) Sample 2	N/A	Grandiose	Article	US	.73			Dirty Dozen	97	.56
Jonason & Webster (2010) Sample 1	N/A	Grandiose	Article	US	.67			Dirty Dozen	273	.4
Jonason & Webster (2010) Sample 2	N/A	Grandiose	Article	US	.59			Dirty Dozen	246	.62
Jonason & Webster (2010) Sample 3	N/A	Grandiose	Article	US	.62			Dirty Dozen	60	.34
Jones (2011) Online Study 1	N/A	Grandiose	Unpublished	Mix	.58			Dirty Dozen	203	.22
Jones (2011) Online Study 2	N/A	Grandiose	Unpublished	Mix	.50			Dirty Dozen	210	.95
Jones (2011) Online Study 3	N/A	Grandiose	Unpublished	Mix	.67			Dirty Dozen	150	.51
Jones (2011) Online Study 4	N/A	Grandiose	Unpublished	Mix	.74			Dirty Dozen	123	.01
Jones & Brunell (2014)	2012	Grandiose	Unpublished	US	.58	Yes		NPI-40	227	.40
Jones & Paulhus (2014) Sample 1	N/A	Grandiose	Article	Canada/US	.47			SD3	489	.30
Jones & Paulhus (2014) Sample 2	N/A	Grandiose	Article	Canada/US	.46			SD3	279	.34
Jones & Paulhus (2014) Sample 3	N/A	Grandiose	Article	Canada/US	.58			NPI-40 & SD3	230	.38
Jonkmann, Becker, Marsh, Lüdtke & Trautwein (2012)	N/A	Grandiose	Article	Germany	.55			NPI-6	4973	.43
Joubert (1998)	N/A	Grandiose	Article	US	.55			NPI	69	.53
Kaiser (2014)	N/A	Grandiose	Unpublished	Unclear	.26			HDS-Bold	625	.04
Kaiser, LeBreton, & Hogan (2013)	N/A	Grandiose	Unpublished	Unclear	.28			HDS-Bold	318	.14
Kalliopuska (1987)	N/A	Grandiose	Article	Finland	.41			NPI-36	1379	.72
Kapidzic (2013)	N/A	Grandiose	Article	US	.51			NPI-16	288	.26
Karterud, Øien, & Pedersen (2011)	N/A	Grandiose	Article	Norway	.71		Yes	SCID	2277	.50
Kavanagh, Signal, & Taylor (2013)	N/A	Grandiose	Article	Australia	.9			NPI-16	227	.43
Kerig & Stellwagen (2010)	N/A	Grandiose	Article	US	.56			APSD	252	.55
Khoo & Burch (2008)	N/A	Grandiose	Article	New Zealand	.44			HDS Bold	80	.22
Kirkpatrick, Waugh, Valencia, & Webster (2002) Study 1	2000	Grandiose	Article	US	.55	Yes		NPI-40	91	.66
Kirkpatrick, Waugh, Valencia, & Webster (2002) Study 2	2000	Grandiose	Article	US	.50	Yes		NPI-40	340	.18
Koch (2009)	N/A	Grandiose	Unpublished	Unclear	.73			NPI-16	239	.29
Konrath (2007) Study 1	2007	Grandiose	Dissertation	US	.63	Yes		NPI-40	40	.23
Konrath (2007) Study 2	2007	Grandiose	Dissertation	US	.83	Yes		NPI-40	111	-.24
Lannin, Guyll, Krizan, Madon, & Cornish (2014)	N/A	Grandiose Vulnerable	Article	US	.65			NPI-16 HSNS	220 220	.53 .21

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Lau & Marsee (2013)	N/A	Grandiose	Article	US	.51			APSD	139	.00
Lau, Marsee, Kunimatsu, & Fassnacht (2011)	N/A	Grandiose	Article	US	.62			NPI-C	157	.12
Lee & Ashton (2005)	N/A	Grandiose	Article	Canada	.56			NPI-40	164	.64
Le (2005)	2003	Grandiose	Article	US	.79	Yes		NPI-40	179	.36
Lee (2004)	N/A	Grandiose	Dissertation	US	.44			MWB	255	.41
		Vulnerable						SNHS	255	-.18
Lee, Gregg, & Park (2013) Study 1	N/A	Grandiose	Article	Canada/South Korea	.52			NPI-40	102	.03
Lehmann, Huis in't Veld, & Vingerhoets (2013)	N/A	Grandiose	Article	Netherlands	.52			NPI-16	516	.35
Leung (2013)	N/A	Grandiose	Article	China	.51			NPI-40	419	-.01
Lima (2007)	2007	Grandiose	Dissertation	US	.45	Yes		NPI-40	259	.08
Linamen (1983)	N/A	Grandiose	Dissertation	US	.52			NPI-52	377	.46
Lindsay (1997)	N/A	Grandiose	Dissertation	US	.62		Yes	PDQ-4, MCMI, & MWB	82	.11
Liu, Sang, & Paulhus (2013) Sample 1	N/A	Grandiose	Unpublished	China	.56			ONQ	179	-.34
Liu, Sang, & Paulhus (2013) Sample 2	N/A	Grandiose	Unpublished	Canada	.59			ONQ	58	.15
Lukowitsky (2011)	N/A	Vulnerable	Dissertation	US	.39			PNI	869	-.16
Lustman (2011)	N/A	Grandiose	Dissertation	Canada	.82			NPI-40	117	-.01
Lustman, Wiesenthal, & Flett (2010)	N/A	Grandiose	Article	Canada	.69			NPI-40	210	.36
Lyons, Kenworthy, & Popan (2010)	2008	Grandiose	Article	US	.73	Yes		NPI-40	282	.41
MacLaren & Best (2013)	N/A	Grandiose	Article	Canada	.63			NPI-40	346	.60
Malkin, Zeigler Hill, Barry & Southard (2013)	N/A	Grandiose	Article	US	.86			PNI	288	.15
		Vulnerable						PNI	288	-.11
Marion & Sellbom (2011)	2009	Grandiose	Article	US	.50	Yes		NPI-40	403	.30
Maxwell, Donnellan, Hopwood, & Ackerman (2011)	2009	Grandiose	Article	US	.50	Yes		NPI & PDQ-4	586	.22
		Vulnerable						PNI	586	.12
Maynard, Brondolo, Connelly, & Sauer (2013)	N/A	Grandiose	Unpublished	US	.45			NPI-37	292	.19
McCarley (2009)	N/A	Grandiose	Dissertation	US	.73			NPI-28	210	.14
McDonald, Donnellan, & Navarrete (2012)	N/A	Grandiose	Article	US	.49			NPI	296	.29
McIntyre, Barrett, McDermott, Johnson, Cowden, & Rosen (2007)	N/A	Grandiose	Article	US	.43			NPI	176	.20
McMurrin, Nezu, & Nezu (2010)	N/A	Grandiose	Book Chapter	US	.59		Yes	IPDE	171	.42
Meier & Semmer (2012)	N/A	Grandiose	Article	Switzerland	.27			NPI-15	209	.14
Meier & Semmer (2012)	N/A	Grandiose	Article	Switzerland	.56			NPI-15	197	.22
Menard & Pincus (2012)	N/A	Grandiose	Article	US	.54			PNI-Grandiosity	1717	.23
		Vulnerable						PNI-Vulnerability	1717	-.03
Menon (2011)	N/A	Grandiose	Article	England	.50			NPI-C	357	.24
Miller & Campbell (2008) Sample 1	2006	Grandiose	Article	US	.56	Yes		NPI & PDQ-4	271	.37
Miller & Campbell (2008) Sample 2	N/A	Grandiose	Article	US	.58			NPI & PDQ-4	211	.36
Miller, Dir, Gentile, Wilson, Pryor, & Campbell (2010)	2008	Grandiose	Article	US	.63	Yes		NPI-40	360	.52
		Vulnerable						HSNS & PNI	360	-.05
Miller, Price, & Campbell (2012)	2010	Grandiose	Article	US	.53	Yes		NPI-40 & NGS	148	.18
		Vulnerable						PNI	148	-.05
Miller & Richardson (2007)	2007	Grandiose	Unpublished	Unclear	.76	Yes		NPI	112	-.22
Morales (1994)	N/A	Grandiose	Dissertation	US	.59			NPI-40	148	.05



Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Mudrak (2000)	N/A	Grandiose	Dissertation	US	.77		Yes	SCID	139	.65
Muris, Meesters, & Timmermans (2013)	N/A	Grandiose	Article	Netherlands	.56			Dirty Dozen	117	.18
Nevicka, De Hoogh, Van Vianen, Beersma, & Mclwain (2011)	N/A	Grandiose	Article	Netherlands	.60			NPI-15	221	.50
Park & Colvin (2013)	2013	Grandiose	Unpublished	US	.47	Yes		NPI-40	72	.09
Pauletti, Menon, Menon, Tobin, & Perry (2012)	N/A	Grandiose	Article	US	.55			NPI-C	236	-.31
Paulhus (1993) OCQ Study 1	N/A	Grandiose	Unpublished	Canada	.71			NPI-16	253	.55
		Grandiose						NPI-40	260	.65
Paulhus (1996) OCQ Study 2	N/A	Grandiose	Unpublished	Canada	.69			NPI-16	285	.37
		Grandiose						NPI-40	290	.40
Paulhus (2001) Entertainment Study	N/A	Grandiose	Unpublished	Canada	.62			NPI-16	349	.36
		Grandiose						NPI-40	349	.40
Paulhus (2000) Interview Study	N/A	Grandiose	Unpublished	Canada	.74			NPI-16	68	.10
		Grandiose						NPI-40	70	.16
Paulhus (2003) Moral Development Study	N/A	Grandiose	Unpublished	Canada	.77			NPI-16	298	.48
		Grandiose						NPI-40	299	.53
Paulhus(2000) Dark Triad Study 1	N/A	Grandiose	Unpublished	Canada	.64			NPI-16	108	.15
		Grandiose						NPI-40	112	.39
Paulhus (2001) Dark Triad Study 2	N/A	Grandiose	Unpublished	Canada	.71			NPI-16	126	.25
		Grandiose						NPI-40	127	.22
Paulhus (2003) Classroom Study	N/A	Grandiose	Unpublished	Canada	.74			NPI-16	208	.39
		Grandiose						NPI-40	218	.45
Paulhus (2000) OCQ Study 3	N/A	Grandiose	Unpublished	Canada	.64			NPI-16	223	.68
		Grandiose						NPI-40	229	.58
Paulhus (2000) High School	N/A	Grandiose	Unpublished	Canada	.30			NPI-40	56	.26
Paulhus & Williams (2002)	N/A	Grandiose	Article	Canada	.65			NPI-40	245	.23
Peterson, Galvin, & Lange (2012)	N/A	Grandiose	Article	US	.10			NPI-16	126	.10
Phares & Erskine (1984)	N/A	Grandiose	Article	US	.54			Selfism Scale	325	.10
Phillips, Sellbom, BenPorath, & Patrick (2014)	N/A	Grandiose	Article	US	.26		Yes	NPI-40	885	.37
Pickard (2011)	N/A	Grandiose	Dissertation	US	.15		Yes	NPI-C	219	.11
Pickard, Barry, Wallace & Zeigler-Hill (2013)	N/A	Grandiose	Article	US	.20		Yes	NPI-C	348	.30
Pincus, Ansell, Pimentel, Cain, Wright, & Levy (2009) Sample 2	N/A	Grandiose	Article	US	.61			PNI-Grandiosity	2801	-.10
		Vulnerable						PNI-Vulnerability	2801	.06
Plante (2013)	2013	Grandiose	Unpublished	US	.53	Yes		NPI-40	102	.31
Plante & Apodaca (2011) Sample 1	N/A	Grandiose	Article	US	.47			MCMI	34	1.22
Plante & Apodaca (2011) Sample 2	N/A	Grandiose	Article	US	.55			MCMI	20	1.79
Porter, Lin, Knee, & Uysal (2010)	N/A	Grandiose	Unpublished	US	.89			NPI-37	171	.23
Price (2010)	2010	Grandiose	Dissertation	US	.60	Yes		NPI-40	128	.44
		Vulnerable						HSNS	128	-.09
Quigley (2013)	N/A	Grandiose	Unpublished	US	.60			NPI-40	225	-.17
Raskin & Novacek (1989) Sample 1	N/A	Grandiose	Article	US	.51			NPI-54	57	.00
Raskin & Novacek (1989) Sample 2	N/A	Grandiose	Article	US	.50			NPI-54	173	.12
Rataj (2003)	N/A	Grandiose	Dissertation	US	.52		Yes	MWB, RNNS, Wink & Gough, & SWB	115	.12
		Vulnerable					Yes	Composite of SHNS NPDS & Pepper	115	2.17

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Rathvon & Holmstrom (1996)	1994	Grandiose	Article	US	.64	Yes		NPI-40, MWB, and Wink & Gough	283	.52
		Vulnerable						SHNS & NPDS	283	-.23
Reinhard, Konrath, Lopez, & Cameron (2012)	2009	Grandiose	Article	US	.75	Yes		NPI-40	106	.002
Rhodewalt & Morf (1998) Study 2	N/A	Grandiose	Article	US	.52			NPI-37	127	.24
Robbins (2007)	N/A	Grandiose	Dissertation	US	.61			NPI-39	165	.56
Rohmann, Bierhoff, & Schmohr (2011)	N/A	Grandiose	Article	Germany	.61			NPI-40	246	-.06
Rohmann, Neumann, Herner, & Bierhoff (2012)	N/A	Vulnerable	Article	Germany	.7			NI-R	124	.42
Roseborough (2010)	N/A	Grandiose	Dissertation	Canada	.60			NPI-40	157	.48
Rosen, Whaling, Rab, Carrier, & Cheever (2013)	N/A	Grandiose	Article	US	.60			MCMI-III	1143	-.29
Rosenthal & Hooley (2010)	N/A	Grandiose	Article	US	.44			NPI-37 & SCID-II	232	.32
Ryan, Weikel, Sprechini (2008)	N/A	Grandiose	Article	US	.5			NPI-54 - E/E	126	.34
		Vulnerable						HSNS	126	-.07
Sawrie, Watson, Sherbak, Greene & Arredondo (1997)	N/A	Grandiose	Article	US	.48		Yes	RNNS, MWB, & Wink & Gough	782	.52
		Vulnerable					Yes	NPDS	782	-.15
Schippell (2001)	N/A	Grandiose	Dissertation	US	.41			NPI-40	97	.25
Schoenleber & Berenbaum (2012)	N/A	Grandiose	Article	US	.59			SNAP-2	380	-.03
Schoenleber, Sadeh, & Verona (2011)	N/A	Grandiose	Article	US	.33		Yes	NPI-16	343	.26
		Vulnerable					Yes	HSNS	343	-.21
Schreer (2002)	2000	Grandiose	Article	US	.69	Yes		NPI-40	91	.51
Seah & Ang (2008)	N/A	Grandiose	Article	Singapore	.45			NPQC-R	698	.24
Shahar (1996)	1996	Grandiose	Article	US	.68	Yes		NPI-40	203	.33
Sommer, Kirkland, Newman, Estrella, & Andreassi (2009)	2002	Grandiose	Article	US	.57	Yes		NPI-40 & Margolis-Thomas	74	.27
Sonnenberg (2012)	N/A	Grandiose	Dissertation	US	.70			PNI-Grandiosity	179	.15
		Vulnerable						PNI-Vulnerability	179	.30
Southard (2010)	N/A	Grandiose	Dissertation	US	.61			NPI-54 - E/E	120	.19
		Vulnerable						HSNS	120	.15
Spano (1998)	N/A	Grandiose	Dissertation	US	.68			NPI-40	206	.27
Stead (2012)	N/A	Grandiose	Unpublished	US	.70			NPI-40	520	-.18
Stevens (2006)	N/A	Grandiose	Dissertation	Canada	.79			NPI E/E, PDQ-4, OMNI, & MCMI	453	.12
Stinson et al. (2008)	N/A	Grandiose	Article	US	.58			NESARC interview	34653	.32
Svindseth et al. (2009) Study 1	N/A	Grandiose	Article	Norway	.56		Yes	NPI-29	55	.44
Svindseth et al. (2009) Study 2	N/A	Grandiose	Article	Norway	.57		Yes	NPI-29	91	.40
Svindseth et al. (2009) Study 3	N/A	Grandiose	Article	Sweden	.55			NPI-29	51	.32
Svindseth et al. (2009) Study 4	N/A	Grandiose	Article	Norway	.49		Yes	NPI-29	98	.15
Svindseth et al. (2009) Study 5	N/A	Grandiose	Article	Sweden	.58		Yes	NPI-29	65	.12
Svindseth et al. (2009) Study 6	N/A	Grandiose	Article	Norway	.49			NPI-29	65	.12
Svindseth et al. (2009) Study 7	N/A	Grandiose	Article	Sweden	.6			NPI-29	45	-.02
Svindseth et al. (2009) Study 8	N/A	Grandiose	Article	Sweden	.59			NPI-29	61	-.02

Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	N	d
Sweet (2013)	N/A	Grandiose	Dissertation	China	.42			NPI-16	175	.18
Tamkins (2007)	N/A	Grandiose	Dissertation	Unclear	.73			NPI	217	.06
Terrell, Hill & Nagoshi (2008)	N/A	Grandiose	Article	US	.52			NPI-37	150	.40
Thiry (2012)	N/A	Grandiose	Article	Belgium	.07		Yes	NEO PI-R	242	.49
Thomaes., Stegge & Olthof (2007)	N/A	Grandiose	Article	US	.53			Narcissism Scale Developed for Study	119	.55
Traiser & Eighmy (2011) Sample 1	2009	Grandiose	Article	US	.46	Yes		NPI-40	120	.55
Traiser & Eighmy (2011) Sample 2	2009	Grandiose	Article	US	.34	Yes		NPI-40	145	.44
Tschanz, Morf, & Turner (1998)	N/A	Grandiose	Article	US	.49			NPI-37	2089	.29
Visser, Pozzebon & Reina Tamayo (2014) Sample 1	N/A	Grandiose	Unpublished	US	.70			SD3	165	.5
Visser, Pozzebon & Reina Tamayo (2014) Sample 2	N/A	Grandiose	Unpublished	US	.77			SD3	413	.48
Visser, Pozzebon & Reina Tamayo (2014) Sample 3	N/A	Grandiose	Unpublished	US	.52			Dirty Dozen	178	.32
Wai & Tiliopoulos (2012)	N/A	Grandiose	Article	Australia	.76			NPI-40	139	.31
Watson (2013)	N/A	Grandiose	Unpublished	Mix	.48			NPI-40 and PNI-Grandiosity	242	.14
		Vulnerable						HSNS & PNI-Vulnerability	242	-.15
Watson, Grisham, Trotter, & Biderman (1984)	N/A	Grandiose Vulnerable	Article	US	.63			NPI NPDS	160 160	.29 .06
Watson, Hood, Morris & Hall (1987)	N/A	Grandiose Vulnerable	Article	US	.56			NPI NPDS	145 145	.43 .22
Watson, Jones, & Morris (2004)	N/A	Grandiose	Article	US	.67			Margolis & Thomas	418	.57
Watson, Taylor, & Morris (1987)	N/A	Grandiose Vulnerable	Article	US	.59			NPI-54 NPDS	203 203	.35 -.18
Webster, Gesselman, Crysel, Brunell, & Jonason (2014)	N/A	Grandiose	Article	US	.50			Dirty Dozen	64	-.06
Webster & Jonason (2013) Sample 1	N/A	Grandiose	Article	US	.66			Dirty Dozen	470	.09
Webster & Jonason (2013) Sample 2	N/A	Grandiose	Article	US	.69			Dirty Dozen	544	.42
Webster et al. (2007) Study 3	2005	Grandiose	Article	US	.50	Yes		Dirty Dozen	64	-.06
Westerman, Bergman, Bergman, & Daly (2012)	2010	Grandiose	Article	US	.42	Yes		NPI-40	532	.29
Wheeler & Abell (2010)	N/A	Grandiose Vulnerable	Unpublished	US	.70			NPI HSNS	162 162	.25 .21
White (2009)	2009	Grandiose	Dissertation	US	.73	Yes		NPI-40	349	.15
Widman & McNulty (2013) Study 1	N/A	Grandiose	Article	US	.50			NPI-40	74	.28
Widman & McNulty (2013) Study 2	N/A	Grandiose	Article	US	.50			NPI-40	166	.30
Wilson & Durbin (2012)	N/A	Grandiose	Article	US	.5			IPDE	232	.33
Wink & Dillon (2008)	N/A	Grandiose	Article	US	.53			CPI	122	.98
Wink & Gough (1990) Sample 1	N/A	Grandiose	Article	US	.5			CPI	2000	.38
Wink & Gough (1990) Sample 2	N/A	Grandiose	Article	US	.51			Observer Rating, MWB, NPI, Wink & Gough, & CPI	57	.24
		Vulnerable	Article	US	.50			SHNS, NPDS, & Pepper	350	-.23



Study	Year collected	Types of narcissism	Type of publication	Country	% female	Cohort analysis	Pathological sample	Inventory	<i>N</i>	<i>d</i>
Witt & Donnellan (2008) Study 1	N/A	Grandiose	Article	US	.79			NPI-16	416	.32
Witt & Donnellan (2008) Study 2	2006	Grandiose	Article	US	.63	Yes		NPI-40	498	.35
Wright, Lukowitsky, Pincus, Conroy (2010) Sample 2	N/A	Vulnerable	Article	US	.51			PNI	963	-.05
Wright, O'Leary, & Balkin (1989)	N/A	Grandiose	Article	US	.62			NPI-40	100	.49
Wright et al. (2013)	N/A	Grandiose	Article	US	.66			NPI-16, PNI-Grandiosity, PDQ-4	1604	.33
		Vulnerable						PNI-Vulnerability	1604	-.07
Xu & Huang (2012) Study 1	N/A	Grandiose	Unpublished	China	.85			NPI-16	218	.54
Xu & Huang (2012) Study 2	N/A	Grandiose	Unpublished	China	.82			NPI-40	119	.38
You, Leung, Lai, & Fu (2013)	N/A	Grandiose	Article	China	.68			PNI-Grandiosity	831	.28
		Grandiose						PNI-Vulnerability	831	.12
Zeigler-Hill, Myers, & Clark (2010)	N/A	Grandiose	Article	US	.72			NPI-37	161	.30
Zhou, Li, Zhang, & Zeng (2012) Sample JH1	N/A	Grandiose	Article	China	.60			NPI-Chinese	81	.48
Zhou, Li, Zhang, & Zeng (2012) Sample JH2	N/A	Grandiose	Article	China	.69			NPI-Chinese	61	.22
Zhou, Li, Zhang, & Zeng (2012) Sample JH3	N/A	Grandiose	Article	China	.60			NPI-Chinese	83	-.06
Zhou, Li, Zhang, & Zeng (2012) Sample H1	N/A	Grandiose	Article	China	.57			NPI-Chinese	79	.07
Zhou, Li, Zhang, & Zeng (2012) Sample H2	N/A	Grandiose	Article	China	.65			NPI-Chinese	84	.22
Zhou, Li, Zhang, & Zeng (2012) Sample H3	N/A	Grandiose	Article	China	.49			NPI-Chinese	94	.54
Zondag (2013)	N/A	Grandiose	Article	Netherlands	.85			NPI-40	209	.09
		Vulnerable						DNS (Covert)	209	-.28
Zuckerman & O'Laughlin (2009)	2007	Grandiose	Article	US	.72	Yes		NPI-40	191	.10

*N* = total sample size in the meta-analysis; *d* = observed effect size estimate; AHNS = Add Health Narcissism Study; APSD = Antisocial Process Screening Device; CAQ = California Adult Q-set (Block & Block, 1980); CCQ = California Child Q-Set (Block & Block, 1980); CPI = California Personality Inventory; DIPD-IV = The Diagnostic Interview for DSM-IV personality disorders; DNS = Dutch Narcissism Scale; HDS-Bold = Hogan Development Survey; HSNS = Hypersensitive Narcissism Scale; IPDE = International Personality Disorders Examination; MACI = Millon Adolescent Clinical Inventory; MAPP = Multi-Source Assessment of Personality Pathology; Margolis & Thomas = Margolis & Thomas (1980); MCMI = Millon Clinical Multiaxial Inventory; MWB = Morey, Waugh, & Blashfield (1985); NARQ = Narcissistic Admiration and Rivalry Questionnaire; NEO-PI-R = NEO Personality Inventory-Revised; NESARC = National Epidemiological Survey on Alcohol and Related Conditions; NGS = Narcissistic Grandiosity Scale; NPDS = Narcissistic Personality Disorder Scale; NPI = Narcissistic Personality Inventory; NPI-C = Narcissistic Personality Inventory-Child; NPI-JO = Narcissistic Personality Inventory—Juvenile Offender; NPQC-R = Narcissistic Personality Questionnaire for Children—Revised; OMNI = O'Brien Multiphasic Narcissism Inventory; ONQ = Overt Narcissism Questionnaire (Zheng & Huang, 2005); PDQ-4 = Personality Diagnostic Questionnaire-4; Pepper = Pepper & Strong's (1958) ego-sensitivity scales; PNI = Pathological Narcissism Inventory; RNNS = Raskin & Novacek's (1989) narcissism scale; SCID = Structured Clinical Interview for DSM-IV Personality Disorders; SD3 = Short Dark Triad; SHNS = Serkownek's (1975) narcissism-hypersensitivity scale; SIDP-IV = Structured Interview for DSM-IV Personality; SNAP-2 = Schedule for Nonadaptive and Adaptive Personality; SQ = The Schema Questionnaire; Wink & Gough = Wink & Gough (1990).

**Appendix B: Main Codes and Input Values for the Narcissism Facets Gender Difference Meta-Analysis**

Study	Type of publication	% female	Facet name	Ackerman facet	N	d
Allen et al. (2009)	Article	.66	Raskin & Terry Entitlement	E/E	118	-.04
Brown, Budzek, & Tamborski (2009) Study 1	Article	.62	Emmons E/E	E/E	740	.18
			Emmons L/A	L/A	740	.03
			Emmons S/S	G/E	740	.20
Carpenter (2012)	Article	.68	Ackerman et al. E/E	E/E	294	.21
			Ackerman et al. G/E	G/E	294	.13
Carroll (1989)	Article	.49	Emmons E/E	E/E	232	.37
			Emmons L/A	L/A	232	.22
			Emmons S/S	G/E	232	.43
Corry, Merritt, Mrug, & Pamp (2008)	Article	.51	Corry et al. L/A	L/A	1,448	.36
DeYoung (2009)	Dissertation	.53	Corry et al. L/A	L/A	471	.05
Donnellan, Trzesniewski, & Robins (2009) Year 1996	Unpublished (Received from Authors)	.58	Raskin & Terry Entitlement	E/E	571	.28
			Raskin & Terry Authority	L/A	571	.01
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	571	-.124
Donnellan, Trzesniewski, & Robins (2009) Year 2002	Unpublished (Received from Authors)	.69	Raskin & Terry Entitlement	E/E	3,096	.28
			Raskin & Terry Authority	L/A	3,096	.14
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	3,096	-.08
Donnellan, Trzesniewski, & Robins (2009) Year 2003	Unpublished (Received from Authors)	.67	Raskin & Terry Entitlement	E/E	4,804	.32
			Raskin & Terry Authority	L/A	4,804	.20
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	4,804	.01
Donnellan, Trzesniewski, & Robins (2009) Year 2004	Unpublished (Received from Authors)	.66	Raskin & Terry Entitlement	E/E	4,747	.38
			Raskin & Terry Authority	L/A	4,747	.21
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	4,747	-.01
Donnellan, Trzesniewski, & Robins (2009) Year 2005	Unpublished (Received from Authors)	.66	Raskin & Terry Entitlement	E/E	4,404	.29
			Raskin & Terry Authority	L/A	4,404	.10
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	4,404	.01
Donnellan, Trzesniewski, & Robins (2009) Year 2006	Unpublished (Received from Authors)	.67	Raskin & Terry Entitlement	E/E	4,958	.28
			Raskin & Terry Authority	L/A	4,958	.10
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	4,958	-.02
Donnellan, Trzesniewski, & Robins (2009) Year 2007	Unpublished (Received from Authors)	.65	Raskin & Terry Entitlement	E/E	5,077	.27
			Raskin & Terry Authority	L/A	5,077	.05
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	5,077	-.04
Donnellan, Trzesniewski, & Robins (2009) Year 2008	Unpublished (Received from Authors)	.68	Raskin & Terry Entitlement	E/E	2,403	.31
			Raskin & Terry Authority	L/A	2,403	.09
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	2,403	-.004
Eksi (2012)	Article	.34	Raskin & Terry Entitlement	E/E	422	.23
		.30	Raskin & Terry Authority	L/A	394	.0004
		.33	Raskin & Terry Exhibitionism Only (Vanity wasn't reported)	G/E	401	.02
Exline, Baumeister, Bushman, Campbell, & Finkel (2004)	Article	.46	Raskin & Terry Entitlement	E/E	155	.28
Faulkner (2012)	Dissertation	.51	Raskin & Terry Entitlement	E/E	195	.11
			Raskin & Terry Authority	L/A	195	-.37
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	195	-.02

Study	Type of publication	% female	Facet name	Ackerman facet	N	d
Feintuch (1998)	Dissertation	.64	Raskin & Terry Entitlement	E/E	538	.36
			Raskin & Terry Authority	L/A	538	.23
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	538	-.05
Fossati, Borroni, Eisenberge, & Maffei (2010)	Article	.51	Raskin & Terry Entitlement	E/E	674	.08
			Raskin & Terry Authority	L/A	674	.42
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	674	-.14
Harms (2011) Online Study Prequel	Unpublished	.48	Ackerman et al. E/E	E/E	1,559	.36
			Ackerman et al. L/A	L/A	1,560	.32
			Ackerman et al. G/E	G/E	1,559	.14
Harms (2012) Online Study Sequel	Unpublished	.50	Ackerman et al. E/E	E/E	1,489	.31
			Ackerman et al. L/A	L/A	1,489	.29
			Ackerman et al. G/E	G/E	1,489	.08
Hill (1999)	Dissertation	.66	Ackerman et al. E/E	E/E	170	.57
			Ackerman et al. L/A	L/A	170	.13
			Ackerman et al. G/E	G/E	170	.11
Holtzman, Vazire, & Mehl (2010)	Article	.53	Emmons E/E	E/E	79	.52
			Emmons L/A	L/A	79	.13
			Emmons G/E	G/E	79	.00
Hooper (2000)	Dissertation	.55	Emmons E/E	E/E	395	.46
			Emmons L/A	L/A	395	.25
			Emmons G/E	G/E	395	-.15
Hyman (2009)	Dissertation	.49	Emmons E/E	E/E	167	-.10
			Emmons L/A	L/A	167	.04
			Emmons S/S	G/E	167	-.18
Jackson, Ervin, & Hodge (1992)	Article	.66	Emmons E/E	E/E	301	.02
			Emmons L/A	L/A	301	-.01
			Emmons S/S	G/E	301	-.10
Jonason, Lyons, Bethell, & Ross (2013)	Article	.83	Ackerman et al. L/A	L/A	352	.44
			Ackerman et al. G/E	G/E	352	.61
Leung (2013)	Article	.51	Raskin & Terry Authority	L/A	419	.14
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	420	-.25
Maxwell, Donnellan, Hopwood, & Ackerman (2011)	Article	.50	Ackerman et al. E/E	E/E	586	.23
			Ackerman et al. L/A	L/A	586	.11
			Ackerman et al. G/E	G/E	586	.06
McDonald, Donnellan, & Navarrete (2012)	Article	.49	Ackerman et al. E/E	E/E	296	.33
			Ackerman et al. L/A	L/A	296	.28
			Ackerman et al. G/E	G/E	296	.25
Paulhus (1993) OCQ Study 1	Unpublished	.70	Ackerman et al. E/E	E/E	260	.32
			Ackerman et al. L/A	L/A	260	.63
			Ackerman et al. G/E	G/E	260	.30
Paulhus (1996) OCQ Study 2	Unpublished	.68	Ackerman et al. E/E	E/E	299	.34
			Ackerman et al. L/A	L/A	299	.35
			Ackerman et al. G/E	G/E	299	.12
Paulhus (2001) Entertainment Study	Unpublished	.62	Ackerman et al. E/E	E/E	349	.39
			Ackerman et al. L/A	L/A	349	.38
			Ackerman et al. G/E	G/E	349	-.003
Paulhus (2000) Interview Study	Unpublished	.74	Ackerman et al. E/E	E/E	73	.06
			Ackerman et al. L/A	L/A	73	.06
			Ackerman et al. G/E	G/E	73	.12



Study	Type of publication	% female	Facet name	Ackerman facet	N	d
Paulhus (2003) Moral Development Study	Unpublished	.76	Ackerman et al. E/E	E/E	306	.38
			Ackerman et al. L/A	L/A	306	.60
			Ackerman et al. G/E	G/E	306	.08
Paulhus (2000) Dark Triad Study 1	Unpublished	.66	Ackerman et al. E/E	E/E	114	.33
			Ackerman et al. L/A	L/A	114	.23
			Ackerman et al. G/E	G/E	114	-.13
Paulhus (2001) Dark Triad Study 2	Unpublished	.71	Ackerman et al. E/E	E/E	129	.16
			Ackerman et al. L/A	L/A	129	.43
			Ackerman et al. G/E	G/E	129	-.12
Paulhus (2003) Classroom Study	Unpublished	.75	Ackerman et al. E/E	E/E	225	.16
			Ackerman et al. L/A	L/A	225	.38
			Ackerman et al. G/E	G/E	225	.13
Paulhus (2000) OCQ Study 3	Unpublished	.65	Ackerman et al. E/E	E/E	236	.47
			Ackerman et al. L/A	L/A	236	.60
			Ackerman et al. G/E	G/E	236	.31
Roseborough (2010)	Dissertation	.60	Raskin & Terry Entitlement	E/E	157	.61
			Raskin & Terry Authority	L/A	157	.27
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	157	.09
Ryan, Weikel, & Sprechini (2008)	Article	.50	Emmons E/E	E/E	126	.34
Schreer (2002)	Article	.69	Ackerman et al. E/E	E/E	91	.83
Southard (2010)	Dissertation	.61	Emmons E/E	E/E	120	.19
Tamkins (2007)	Dissertation	.73	Emmons E/E	E/E	217	.02
Tschanz, Morf, & Turner (1998)	Article	.49	Emmons E/E	E/E	2,089	.17
			Emmons L/A	L/A	2,089	.13
			Emmons G/E	G/E	2,089	.17
Watson, Hood, Morris & Hall (1987)	Article	.56	Emmons E/E	E/E	145	.43
			Emmons L/A	L/A	145	.35
			Emmons G/E	G/E	145	.24
Watson, Taylor & Morris (1987)	Article	.59	Emmons E/E	E/E	203	.31
			Emmons L/A	L/A	203	.23
			Emmons G/E	G/E	203	.18
Witt & Donnellan (2008) Study 2	Article	.63	Raskin & Terry Entitlement	E/E	499	.41
			Raskin & Terry Authority	L/A	499	.27
			Raskin & Terry Composite of Vanity & Exhibitionism	G/E	499	-.02

N = total sample size in the meta-analysis; d = the inverse variance weighted mean observed effect size estimate (Hedge's g); E/E = Exploitative/Entitlement; L/A = Leadership/Authority; G/E = Grandiose/Exhibitionism; S/S = Self-absorption/Self-admiration.