Chapter 1: Introduction

A brief history of narcissism

The term 'narcissism' originated from the Roman poet Ovid's *Metamorphoses* (Book III) in the first century story of Narcissus and Echo, and much later evolved into a highly specialized psychoanalytic term. In Ovid's myth, Narcissus is a handsome young man who spurns the advances of many potential lovers, including the nymph Echo, named this way because she was cursed to only echo the sounds that others made. After Narcissus rejects Echo, the gods punish him by making him fall in love with his own reflection in a pool. Finding that the object of his love cannot love him back, he pines away and dies.

Narcissism has a rich and complex history in the literature of clinical psychoanalysis beginning with a strong focus on abnormal self-focused sexuality. The first psychologist who used the term "Narcissus-like" clinically was Havelock Ellis (1898), who linked Ovid's myth to the condition of "auto-eroticism" (i.e. self as own sexual object) in one of his patients. Freud (1905/1953) similarly first used the terms "ego-libido" (self-love) and "narcissistic libido" interchangeably in his *Three Essays on the Theory of Sexuality*. Ellis' and Freud's psychoanalytic narcissism both included an immature, exclusively self-gratifying sexuality that is not necessarily a part of its clinical definition today. A few years later the concept of narcissism began to include certain

characteristics more familiar to personality and social psychologists today. To my knowledge Ernest Jones (1913/1951) was the first to construe narcissism as a character trait which he called the "God-complex." He described people with the God-complex as aloof, inaccessible, self-admiring, self-important, overconfident, auto-erotic, and exhibitionistic, with fantasies of omnipotence and omniscience. He also observed that these people had a high need for uniqueness ("…nothing offends such a man as the suggestion that he resembles someone else…" p. 252) and praise from others. This description is remarkably close to the current conception of Narcissistic Personality Disorder, described in the next section.

At nearly the same time Freud (1914/1991) published his pivotal essay *On Narcissism: An Introduction*, writing from a more developmental perspective. To him narcissism was a normal maturational phase of healthy development in all children, a "complement to the egoism of the instinct for self-preservation" (p. 74). Freud theorized that before children are able to invest their "libidinal" energy in other people, they go through an adaptive period of *primary narcissism* in which they are egocentric and cannot take the perspective of others. Healthy development "consists in a departure from primary narcissism" (p. 100) when people invest their libidinal energy into another person rather than themselves. Freud believed in an economic model of love in which each of us has limited libidinal energy that can only be invested in one place at a time. Thus, when people progress from primary narcissism to object love, their own feelings of self-regard are lowered. A healthy relationship is reciprocal, with both people investing their libidinal energy into each other, and neither experiencing a loss as a result. However, when individuals' love objects are unable or unwilling to return the love, they

regress to an unhealthy state of narcissism, called *secondary narcissism*, in order to love and gratify themselves as a compensatory mechanism.

Wälder (1925) published the first case study of someone with a disordered narcissistic personality. His patient was a scientist with an attitude of superiority, an inability to empathize with others, a sense of being "different from mankind in general" (p. 264), an obsession with fostering self-respect, a lack of normal feelings of guilt, selfish sexuality, and a marked independence from others. Wälder's patient was also overly logical and analytical and valued abstract intellectual thought (thinking for thinking's sake) over the application of scientific knowledge to human civilization. Wälder's case study was influential in the way we define narcissism as a personality disorder today.

Freud followed suit in describing the narcissistic personality in his 1931 essay *Libidinal Types*. He described a narcissist as someone who was primarily focused on self-preservation, who was independent, not easily intimidated, aggressive, extraverted, high in activity, and unable to love or commit in relationships. He also noted that these people often attract a lot of admiration and attention, and readily take on leadership roles. Shortly thereafter psychoanalyst Wilhelm Reich (1933) described a "phallic-narcissistic character" in his book *Character Analysis*. According to him narcissists possess an attitude of superiority, are confident, arrogant, provocative, resenting of subordination, and are mildly sadistic in their relationships. Reich also was the first to note that if narcissists were ego-threatened they would become aggressive: "If their vanity is offended, they react with cold disdain, marked ill-humor, or downright aggression" (p. 218). Reich's view of narcissism is somewhat entwined with ideas of masculinity by

definition as he sees it as an "identification between the ego as a whole and the phallus" (p. 219) and he speculates that this disorder is more common in men than in women. Finally, he thought that the outcomes of narcissism were not necessarily bad, but depended on the social context: "Whether such a type will turn his energy to active endeavors or crime on a large scale depends, first and foremost, upon the possibilities which the social climate and situation provide for his character to employ his energies in a sublimated form" (p. 223).

Karen Horney (1939) further developed the idea of narcissism as a character trait, focusing mainly on more clearly defining the many "divergent" portraits of narcissism. She also theorized its causes and consequences. Horney defined narcissism as simply "self-inflation" meaning that the narcissist "loves and admires himself for values for which there is no adequate foundation" (p. 90). She did not think it was narcissistic to value qualities that one actually had, and in fact, to her this was the definition of true self-esteem (p. 99). Horney agreed with Freud's idea that secondary narcissism stems from a lack of love from caregivers, and she thought this was expressed in either overly authoritarian *or* permissive and indulgent parenting styles. She thought that if parents did not love children for their 'real selves', children would respond by creating imaginary inflated versions of themselves through which they would seek admiration and attention as a compensation. However, Horney disagreed with Freud's idea that narcissists are unable to love others because they love themselves too much. Instead she perceives the outward display of self-love to be illusory, and believes that narcissism stems from an inability to love one's true self or anyone else.

Horney saw dire consequences in both the careers and love lives of narcissists if children's "narcissistic trend" was not outgrown. In their careers narcissists have a superficial and unproductive working style combined with increasing entitlement or the "expectation that devotion or glory can be obtained without effort and initiative" (p. 95). Narcissists also tend to seek shallow relationships which add to their status and prestige, have high expectations of others, poor social skills (e.g. self-centeredness, vindictiveness, distrust, disinterest in others), and highly unrealistic views of themselves. This puts them in the very vulnerable position of needing people to admire and support them, but having difficulty finding people who will continue to do this. Thus Horney's narcissists are always in a state of alienation from the self and others.

Annie Reich (1960) described narcissists as "people whose libido is mainly concentrated on themselves at the expense of object love" and who have "exaggerated, unrealistic – i.e., infantile – inner yardsticks" (p. 217). Reich believed that narcissism is caused by repeated early childhood traumas that occur before the ego's defense mechanisms are developed and lead the child to retreat inward to a safer self-protective fantasy world: "It is not so. I am not helpless, bleeding, destroyed. On the contrary, I am bigger and better than anyone else. I am the greatest, the most grandiose" (p. 220).

Reich also hypothesized that narcissists suffer from an inability to regulate their self-esteem. According to her narcissists "suffer regularly from repetitive, violent oscillations of self-esteem" (p. 224), shifting dramatically from the heights of grandiosity to the depths of depression. In the first phase of the cycle, narcissists engage in relatively minor activities and attach an inflated importance to them that others do not share. In doing so, narcissists become elated and "self-infatuated" until they encounter some sort

of reality check (e.g. a failure, critical feedback). This causes them to react suddenly with extreme despair, which Reich thinks stems from their black and white intolerance of ambiguity. Either they see themselves as perfect *or* a total failure, with few gradations in between. When feeling despair they tend to seek out others with whom they can idealize and identify, in order to bask in these others' glow. Narcissists' opinions of others also dramatically shift in cycles because others are used as tools to build up their egos. In grandiose times, others are seen as downward comparison targets but in despairing times, others are seen as inspirational upward comparison targets.

Kohut (1966, 1968, 1971, 1972) wrote extensively on narcissism and like Freud he too believed that narcissism was a healthy and normal part of development and "neither pathological nor obnoxious" (1966, p. 243). However, unlike Freud, he believed that primary narcissism was a state of undifferentiated union with the mother rather than a state of total self-absorption: "the baby originally experiences the mother and her ministrations not as a you and its actions, but within a view of the world in which the I-you differentiation has not yet been established" (p. 245). From this state he posited two separate developmental trajectories of focus on self and other, which also contrasts with Freud's economic libidinal model in which as love increases for the other, it proportionally decreases for the self. Kohut instead thought that these separate trajectories could operate independently of each other throughout the lifespan and the various healthy developments or traumatic interruptions that could occur would lead to different adult personality constellations.

Kohut posited that the two trajectories of the *idealized parent* and the *grandiose self* are initially created to cope when "the balance of primary narcissism is disturbed by

maturational pressures and painful psychic tensions which occur because the mother's ministrations are of necessity imperfect and traumatic delays cannot be prevented" (p. 246). First, the idealized parent image reflects the idea that "you are perfect but I am a part of you" (Kohut, 1971, p. 27). Through it, "the baby attempts to maintain the original perfection and omnipotence by imbuing the rudimentary you, the adult, with absolute power and perfection" (1966, p. 246). A healthy developmental sequence of the idealized parent occurs with a gradual realization of the fallibility of one's caretakers. This realization leads to the internalization of a healthy superego and with it a sense of ideals that we can strive to reach throughout our lives. However, the process might be interrupted prematurely by a "traumatic disappointment in the admired adult" and if so, the idealized parent image "is retained in its unaltered form, is not transformed into tension-regulating psychic structure, but remains an archaic, transitional object that is required for the maintenance of narcissistic homeostasis" (Kohut, 1968, p. 87).

While the idealized parent figure is "gazed at in awe, admired, looked up to, and like which one wants to become" the grandiose self "wants to be looked at and admired" (1966, p. 250). The grandiose self in its most rudimentary form includes "everything pleasant, good, and perfect" and in this early stage everything that is "unpleasant, bad, and imperfect" is perceived as outside of the self (Kohut, 1966, p. 246). The healthy developmental sequence of the grandiose self includes the gradual exposure to and acceptance of one's fallibility through the loving support of the parents. In maturity the healthy grandiose self can be manifested in a healthy sense of humor, wisdom, creativity, ambitions, self-esteem, and a "healthy enjoyment of our own activities and successes and … an adaptively useful sense of disappointment tinged with anger and shame over our

failures and shortcomings" (Kohut, 1966, p. 254). Kohut was extremely critical of religion and other societal institutions that tried to suppress the adaptive expression of narcissism (i.e. self-esteem); he felt that a strong sense of self worth is essential to healthy psychological functioning.

However, Kohut did believe that there could be unhealthy expressions of the grandiose self that could develop when individuals failed to integrate grandiose ideas of themselves with realistic views of their failures and shortcomings. He felt that this was caused by a traumatic interruption of the healthy narcissistic development through parental "rejection and overindulgence" (Kohut, 1966, p. 253) and that if the grandiose self had not evolved into a realistic sense of self worth "then the adult ego will tend to vacillate between an irrational overestimation of the self and feelings of inferiority and will react with narcissistic mortification to the thwarting of its ambitions" (Kohut, 1966, p. 252). As a result, narcissists would expend much energy in seeking affirmation from people and being overly vulnerable to criticism and rejection. Kohut recommended that therapy for unhealthy narcissism should involve a process of mirroring where the therapist first affirms their sense of grandiosity then guides them gently and supportively toward an acceptance of their limitations and realistic self worth. It is notable that Kohut also laid the foundation for a theory of narcissistic aggression after ego threat that has received empirical support recently (e.g. Bushman & Baumeister, 1998) by suggesting that "narcissistic rage" would occur in response to perceive injuries to the ego (Kohut, 1972, p. 385).

Otto Kernberg also wrote extensively on narcissistic disorders, believing that they were a subtype of borderline personality disorders (Kernberg, 1975). In his definition of

narcissism he offered specific behaviors that can be used to classify someone as having a pathological narcissistic personality:

> These patients present an unusual degree of self-reference in their interactions with other people, a great need to be loved and admired by others, and a curious apparent contradiction between a very inflated concept of themselves and an inordinate need for tribute from others. Their emotional life is shallow. They experience little empathy for the feelings of others, they obtain very little enjoyment from life other than from the tributes they receive from others or from their own grandiose fantasies, and they feel restless and bored when external glitter wears off and no new sources feed their self-regard. They envy others, tend to idealize some people from whom they expect narcissistic supplies and to depreciate and treat with contempt those from whom they do not expect anything (often their former idols). In general, their relationships with other people are clearly exploitative and sometimes parasitic. It is as if they feel they have the right to control and possess others and to exploit them without guilt feelings—and, behind a surface which very often is charming and engaging, one senses coldness and ruthlessness. Very often such patients are considered to be dependent because they need so much tribute and adoration from others, but on a deeper level they are completely unable really to depend on anybody because of their deep distrust and depreciation of others…. (p. 227-28)

Many elements of this definition were later used to help create the diagnostic criteria for Narcissistic Personality Disorder in the DSM-III. Although his work would later be influential in research on narcissism as a continuous dimension that in the extreme is pathological, Kernberg himself rejected the continuous view of narcissism, instead seeing pathological narcissism as qualitatively different from normal adult narcissism (a term he used interchangeably with self-esteem) and normal infantile narcissism. He defined normal adult narcissism "as the libidinal investment of the self" (p. 315). Normal narcissism involves an integration of "good and bad self-images into a realistic self-concept" (p. 326) in contrast to the highly unrealistic perfect self-image of pathological narcissists. Kernberg also did not see pathological narcissism as simply a lack of development or regression back to infantile narcissism, because infantile narcissism involves a strong emotional and physical dependence on caregivers, is related

to actual fulfillable needs, and had a quality of warmth and engagement. In contrast, pathological narcissists refuse to depend on anybody, have needs that are impossible to fulfill, and are often cold and aloof toward others. Instead Kernberg (1975) saw narcissism as resulting from a pathological development of internalizations of the self and caregivers.

In pathological narcissists "the normal tension between actual self on the one hand, and ideal self and ideal object on the other, is eliminated by the building up of an inflated self concept within which the actual self and the ideal self and ideal object are confused" (p. 231). In other words, the pathological narcissist has fused self as it is with the self as it wants to be and the ideal other. To pathological narcissists anyone outside of this real self / ideal self / ideal object fusion is seen as "basically dishonest and unreliable" (p. 232). Their greatest fear is being dependent on other people, because that would potentially subject them to "the danger of being exploited, mistreated, and frustrated" (p. 235).

Kernberg was uncertain as to the causes of pathological narcissism but speculated that there could be genetic tendencies toward aggressiveness or a low tolerance for anxiety. He also thought that it was at least partly environmental, caused by "chronically cold parental figures with covert but intense aggression" (p. 234). Narcissists also "often occupy a pivotal point in their family structure, such as being the only child, or the only 'brilliant' child, or the one who is supposed to fulfill the family aspirations" (p. 235). Kernberg thought that the narcissists who had the best potential for recovery were ones who were able to tolerate feelings of depression and mourning, those who were able to feel guilt over the course of therapy, those who had an outlet for expressing their

narcissism in activities that genuinely engaged them (e.g. art, music), those who were in high positions of power that legitimized their narcissistic behavior and made it appear less deviant (e.g. CEOs, politicians), those with high impulse control and anxiety tolerance, and those who entered therapy with the genuine goal of becoming more empathetic and warm. In other words, patients with the best prognosis were those who were already at a higher level of functioning when they entered therapy (my interpretation).

At around the same time as Kernberg was actively writing on narcissism from a clinical perspective, historian and cultural critic Christopher Lasch (1979) published his book *Culture of Narcissism*, borrowing ideas from the clinical literature. In his book he tries to offer a historical analysis of what he saw as the increasing prevalence of narcissism in society. Common traits he saw in contemporary society included: "dependence on the vicarious warmth provided by others combined with a fear of dependence, a sense of inner emptiness, boundless repressed rage…pseudo self-insight, calculating seductiveness… intense fear of old age and death, altered sense of time, [and] fascination with celebrity" (p. 33). To account for these changes he looks to assorted economic, institutional, and cultural transformations like changes in the nature of work, permissive parenting, an increasing culture of consumption, and changes in education. In short, he gave a historical and very influential argument for what he considered to be the rise of the narcissistic personality in middle-class America.

Narcissism as a personality disorder

Research on narcissism began to accelerate in the 1980s, and has leveled off since then, as can be seen in Figure 1.1. This chart depicts the total number of articles in

PsycINFO that included any words starting with narcis- and egotis- in their titles. The spike in research in the 1980s occurred after narcissism was included as a personality disorder in the third edition of the Diagnostic and Statistical Manual (DSM-III) in 1980. As previously mentioned, the work of Kernberg was extremely influential in formulating the diagnostic criteria. In the DSM-IV-TR (APA, 2000), an individual must have the following symptoms in order to be diagnosed with Narcissistic Personality Disorder (NPD):

A pervasive pattern of grandiosity (in fantasy or behavior), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

1. has a grandiose sense of self-importance (e.g. exaggerates achievements and talents, expects to be recognized as superior without commensurate achievements)
2. is preoccupied with fantasies of unlimited success, power, brilliance, beauty, or ideal love
3. believes that he or she is "special" and unique and can only be understood by, or should associate with, other special or high-status people (or institutions)
4. requires excessive admiration
5. has a sense of entitlement, i.e., unreasonable expectations of especially favorable treatment or automatic compliance with his or her expectations
6. is interpersonally exploitative, i.e., takes advantage of others to achieve his or her own ends
7. lacks empathy: is unwilling to recognize or identify with the feelings and needs of others
8. is often envious of others or believes that others are envious of him or her
9. shows arrogant, haughty behaviors or attitudes

While these DSM criteria were developed with consideration of the clinical literature, it is interesting to note two significant exclusions. First, some of the clinical theorists discussed above mention the possibility that narcissists can be hostile or aggressive, and some also mention the oscillations from grandiosity to depression (i.e. fragile or unstable self-esteem). However, the diagnosis for NPD instead focuses on

narcissism as exclusively excessive, presumably stable, self-regard. Second, Freud, Kohut, and Kernberg all saw some expressions of narcissism as an important and adaptive part of healthy psychological development, but the DSM seems to pathologize all expressions of narcissism without consideration of normal aspects of it or developmental processes.

While estimates of the prevalence of Narcissistic Personality Disorder (NPD) can vary quite widely, what can be agreed on is that it is one of the least common personality disorders (Mattia & Zimmerman, 2001), affecting anywhere from 0-1% of the general population (Reich, Yates, & Nduaguba, 1989; Samuels, Eaton, Bienvenu, Brown, Costa, & Nestadt, 2002; Torgerson, Kringlen, & Cramer, 2001) although some researchers have found rates of 3.9-5.3% in non-clinical control samples (Bodlund, Ekselius, Lindström, 1993; Klein, Riso, Donaldson, Schwartz, Anderson, Ouimette et al., 1995). Studies also indicate that NPD is more frequently found among people with higher education or special professional groups, for example, in one study of first year medical students, 17% met criteria for NPD (Maffei, Fossati, Lingiardi, Madeddu, Borellini, & Petrachi, 1995). Also, NPD is understandably more prevalent in clinical settings (Gunderson, Ronningstam, & Smith, 1991). According to the DSM-IV (APA, 1994), the disorder is much more common in males, who receive up to 75% of diagnoses. Research has verified this gender difference (Golomb, Fava, Abraham, & Rosenbaum, 1995; Grilo et al., 1996)

Narcissism as a personality trait

Clinical theory and research has informed the empirical study of narcissism by personality and social psychologists. They see narcissism as a personality trait existing at the sub-clinical level in normal populations. The studies in this dissertation are focused

exclusively on the personality trait of narcissism as expressed in normal college student populations rather than its clinical presentation as Narcissistic Personality Disorder. Using college students as our primary population likely has the usual disadvantages of limiting our studies to participants of a certain social class and age, however, one advantage in this case is that using them limits the potential for co-morbidity of psychological diagnoses that often occur when studying clinical patients. Clinical narcissists do not often seek help for being narcissistic, for obvious reasons, and usually end up in therapy for some other reason. Thus it is difficult to be certain that narcissism itself is related to any psychological measures in research that is conducted on them if clinical populations are used.

Many measures of narcissism are available, for example, researchers have been able to distinguish clinical narcissists from patients with other personality disorders or control populations using projective measures like the Rorschach inkblots (e.g. Hilsenroth, Fowler, Padawer, & Handler, 1997) or the Thematic Apperception Test (e.g. Harder, 1979). There is also a narcissism subscale of the Minnesota Multiphasic Personality Inventory (MMPI; Morey, Waugh, & Blashfield, 1985) and the California Personality Inventory (CPI; Wink & Gough, 1990). Another one, the Narcissistic Personality Disorder Scale (Ashby, Lee, & Duke, 1979) was validated by contrasting the MMPI items that NPD and non-narcissistic psychiatric patients contrasted on. It is able to distinguish between the two groups with about 86% accuracy. The Millon Clinical Multiaxial Inventory-III (MCMI-III) also has a narcissism scale. This is highly correlated with another measure of narcissism (Auerbach, 1984), the Narcissistic Personality Inventory (NPI).

Raskin & Hall (1979) developed the Narcissistic Personality Inventory based on the DSM-III criteria for Narcissistic Personality Disorder, and later revised it to its current 40-item forced-choice version (see Appendix A for the full scale; Raskin & Terry, 1988). This is the most widely used scale in narcissism research, thus it is the scale that I used for all studies of my dissertation. The full NPI is positively correlated with clinical ratings of narcissism (Prifitera & Ryan, 1984), indicating that while we call these subjects 'sub-clinical' that may be because some of them have not sought treatment. The NPI measures narcissism as a continuous variable and there is no specific cut off score for which a person would be considered a clinical narcissist (Foster & Campbell, 2007). It has seven subscales (Raskin & Terry, 1988): *authority* (8 items; e.g., "People always seem to recognize my authority" vs. "Being in authority doesn't mean much to me"), *self-sufficiency* (6 items; e.g., "I rarely depend on anyone else to get things done" vs. "I sometimes depend on people to get things done"), *superiority* (5 items; e.g., "I am an extraordinary person" vs. "I am much like everybody else"), *exhibitionism* (7 items; e.g., "I like to be the center of attention" vs. "I prefer to blend in with the crowd"), *exploitativeness* (5 items; e.g., "I find it easy to manipulate people" vs. "I don't like it when I find myself manipulating people"), *vanity* (3 items; e.g., "I like to look at myself in the mirror" vs. "I am not particularly interested in looking at myself in the mirror"), and *entitlement* (6 items; e.g., "If I ruled the world it would be a better place" vs. "The thought of ruling the world frightens the hell out of me"). The internal reliability of the full scale is .83, with subscale reliabilities ranging from .50 to .73 (Raskin & Terry, 1988). The full scale also has high test-retest reliability (r=.81) after 13 weeks, but the

test-retest reliability on the subscales is lower (range: .57 to .80; Del Rosario & White, 2005).

Personality and relational profile

On the five-factor model of personality, narcissists are high in extraversion (Emmons, 1984; Raskin & Hall, 1981), low in agreeableness (Trull & McCrae, 2002; Corbitt, 2002) and low in neuroticism (Trull & McCrae, 2002; Costa & McCrae, 1990; Wiggins & Pincus, 1989). Narcisissm is also associated with higher creativity (Raskin, 1980). They also have higher self-esteem (Emmons, 1984; Watson, Taylor, & Morris, 1987; Raskin, Novacek, & Hogan, 1991a, Raskin, Novacek, & Hogan, 1991b), leading some researchers to even define narcissism as an addiction to self-esteem (Baumeister & Vohs, 2000). A very widely held opinion about narcissists is that they secretly hate themselves. However, this belief that narcissism is a defensive cover for low self-esteem has limited empirical support (Baumeister, Bushman, & Campbell, 2000). People with low self-esteem are uncertain, shy and low in confidence, risk-averse, and easily swayed. Each of these traits is more likely to make them less aggressive rather than more aggressive. Instead, research finds that personality traits (e.g. narcissism) and situations (e.g. being drunk, being in a manic state) associated with inflated self-esteem are associated with aggression (Baumeister, Bushman, & Campbell, 2000).

The disproven cultural assumption that aggressive people are low in self-esteem can be seen rearing its head in the question of whether narcissists secretly hate themselves (Baumeister, Bushman, & Campbell, 2000). If they don't outwardly admit to hating themselves, is it possible that they do deep down inside? It is difficult for psychologists to measure people's hidden feelings, however new methods like the

Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) can help address this question. Research using this method has found no simple correlation between implicit self-esteem and narcissism (Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003; Zeigler-Hill, 2006; Campbell, Bosson, Goheen, Lakey, & Kernis, 2007) when the IAT includes many communal words (e.g. love, friend). However, when the IAT includes many agentic words instead (e.g. dominant, active) then narcissism is correlated with implicit (agentic) self-esteem. In other words, narcissists both explicitly and implicitly view themselves positively on agentic traits and neutrally on communal traits.

Narcissists report being lower in anxiety (Raskin & Novacek, 1989; Watson, McKinney, Hawkins, & Morris, 1988) and depression (Watson, McKinney, Hawkins, & Morris, 1988; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004) and higher in happiness than others (Rose, 2002). However, narcissism is also associated with some more maladaptive traits. They can be impulsive (Emmons, 1984) and dominant (Emmons, 1984), and they score high on measures of psychoticism (Raskin & Hall, 1981) and mania (Raskin & Novacek, 1989). They are also high in entitlement (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004), and perhaps related, highly materialistic (Vohs & Campbell, 2006; Konrath & Bushman, 2007; Roberts & Robins, 2000). Narcissists are also self-enhancing (Raskin, Novacek, and Hogan, 1991), which has the potential tradeoff that they do not learn from mistakes and over the long-term their performance can suffer (e.g. Robins & Beer, 2001). Narcissists are high in sensation seeking (Emmons, 1981), and especially the subscales of disinhibition, experience seeking, and boredom susceptibility. If narcissists are religious, they are high in extrinsic

religiosity and low in intrinsic religiosity (Watson, Hood, Foster, & Morris, 1988). Whether these are associated with negative outcomes likely depends on the context. Finally, research has found either no relationship to social desirability (e.g. Auerbach, 1984) or a negative one (e.g. Watson, Grisham, Trotter, & Biderman, 1984).

Many of the behaviors above demonstrate their high self-focus, but narcissists are also low in other-focus (Ruiz, Smith, & Rhodewalt, 2001). This is reflected in their high need for power but low need for intimacy in their implicit motives as measured by the Thematic Apperception Test (Carroll, 1987). They also have a high need for achievement and autonomy (Mullins & Kopelman, 1988) use more first person singular pronouns and fewer first person plural pronouns (Raskin & Shaw, 1988) in writing samples. Interpersonally narcissists are socially disinterested (Joubert, 1986; Miller, Smith, Wilkinson, & Tobacyk, 1987) and low in empathy (Biscardi & Schill, 1985; Watson, Grisham, Trotter, & Biderman, 1984; Bushman, Bonacci, Van Dijk, & Baumeister, 2003). They also take more than others when given the chance and make competitive choices when playing commons dilemmas games (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004; Campbell, Bush, Brunell, & Shelton, 2006). Not surprisingly they do not excel at teamwork as they blame their failures on others (Campbell, Reeder, Sedikides, & Elliot, 2000) and only try hard when the "opportunity for glory" is high (Wallace & Baumeister, 2002).

In romantic relationships narcissists are attracted to partners who are high in status and full of admiration for them, and tend not to pursue relationships in order to fulfill needs for intimacy or closeness (Campbell, 1999). People are attracted to them at first and in short durations because of their extraversion and energy (Bradlee & Emmons,

1992; Paulhus, 1998; Oltmanns, Friedman, Fielder, & Turkheimer, 2004), however after a few interactions this attraction is likely to fade when people notice how self-centered they are. Narcissists' partners report that the relationships can initially be exciting but that they are lacking in intimacy (Foster, Shira, & Campbell, 2003). It follows then that they are likely to be game-players in romantic relationships and constantly on the lookout for someone better, even when involved in serious committed relationships (Buss & Shackelford, 1997; Campbell & Foster, 2002; Campbell, Foster, & Finkel, 2002). When someone does something that hurts or offends them, narcissists are quite unforgiving of offenses as compared to others (Exline, Baumeister, Bushman, Campbell, & Finkel, 2004). Perhaps more consequential than their casual approach to relationships are their high levels of self-reported anger, hostility, and aggression (Biscardi & Schill, 1985; Emmons, 1984; McCann & Biaggio, 1989; Raskin & Novacek, 1989; Raskin & Terry, 1988; Rhodewalt & Morf, 1995), and their tendency to behave aggressively when criticized (Baumeister, Bushman, & Campbell, 2000; Baumeister, Smart, & Boden, 1996; Bushman & Baumeister, 1998; Konrath, Bushman, & Campbell, 2006).

Overall the portrait of a (sub-clinical) narcissist is one in which there are many positive outcomes to the self, at least in the short-term, and many negative consequences, at least in the long-term, to those who are in relationships with them. Or, to quote a more compelling metaphor from Sedikides et al. (2004): "The mind of a narcissist is like a sports utility vehicle. It is great to be in the driving seat, but fellow motorists must watch out, lest a collision with this mobile fortress demolish their more humble hatchbacks" (p. 412).

A number of researchers have distinguished between healthy and unhealthy forms of narcissism. For example, Wink (1991) describes two kinds of narcissism supported by factor analyses: Vulnerability-Sensitivity (covert) and Grandiosity-Exhibitionism (overt). Both kinds share similar features such as conceit, disinterest in others, impulsiveness, risk-taking, and self-indulgence. However, covert narcissists are introverted, defensive, submissive, anxious, and vulnerable, while overt narcissists are extraverted, dominant, arrogant, self-assured, high in exhibitionism, and aggressive. Other research has found that overt narcissists are higher in self-esteem and life-satisfaction than covert narcissists (Rose, 2002).

This research suggests that various measures of narcissism may be measuring different kinds of narcissism and thus when evaluating research on narcissism it is important to consider which scale was used. The NPI is considered a measure of overt narcissism (Rose, 2002), but even it can be split into similar factors. For example, Emmons (1984) found that the NPI had a four factor structure of which the entitlement and exploitiveness (E/E) one seem to be associated with most maladjustment while the leadership and authority (L/A) one seems to be associated with the least maladjustment. Dickinson & Pincus (2003) split the NPI into grandiose and vulnerable narcissism using these factors. They categorized those who scored high on both the E/E (unhealthy) and the other factors (healthier) as grandiose and those who scored high on the E/E but low on the healthier factors were categorized as vulnerable. They found differences in tendencies toward different types of personality disorders, relationship problems, and attachment styles between the two groups, consistent with the idea of an inflated self-image in the grandiose narcissists and lower self-regard in the vulnerable ones. Finally,

other researchers have found that narcissists with high self-esteem are the most psychologically healthy, as long as we define psychological health exclusively on intrapersonal, and not on relational, dimensions (Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). Overall it seems clear that there are at the very least some parts of narcissism that appear more healthy (e.g. self-sufficiency, leadership) than others (e.g. entitlement, exploitativeness).

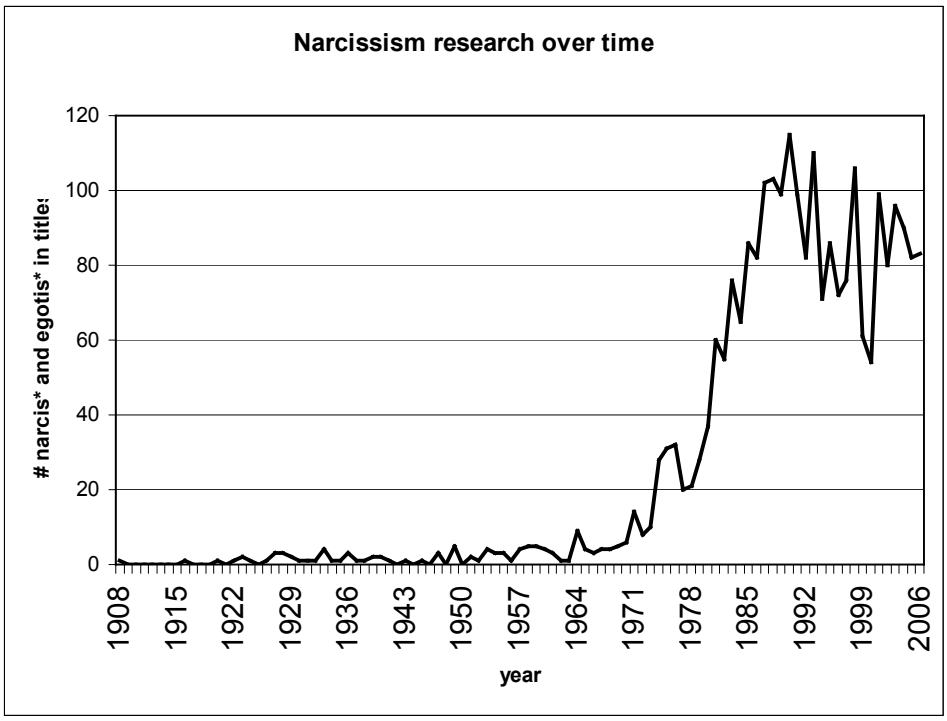
Overview of the Current Studies

In this dissertation my colleagues and I explore how narcissism has changed over time and the potential implications of these changes. In the first paper, *Egos inflating over time: A cross-temporal meta-analysis of the Narcissistic Personality Inventory,* we analyze scores on the Narcissistic Personality Inventory in American college students since the 1980s and find that it has been rising. We expect that these rising narcissism scores have implications for the personal traits and relationship skills related to narcissism that we summarized above, and this potentially paints a bleak portrait of American young people today. However, the next studies in my dissertation focus on a potential strength associated with narcissism. Wälder (1925) presented a case study of a narcissist with a highly analytic cognitive style and the next two papers examine whether this cognitive style is characteristic of narcissists. In the next paper, *Some people are islands: Individualists, narcissists, and autistics as atomized selves*, we review past research on cognitive style and the self and posit that an analytic cognitive style is associated with a high self and low other-focus combined. Given that there is very limited research that directly examines how both self and other focus relate to cognitive style, we recommend much future research. In *Seeing my world in a million little pieces:*

Narcissism is related to independent self-construal and analytic cognitive style we find that narcissism is positively related to independent self-construal and negatively related to interdependent self-construal. We also find that narcissism is positively associated with an analytic cognitive style and negatively associated with a holistic cognitive style using two different measures of cognitive style.

Across these two papers we find that narcissism is associated with a cognitive style that is quite disconnected, thus in the next paper we examine what happens when we create a sense of similarity between narcissists and a potentially threatening other. In *Attenuating the link between threatened egotism and aggression* we find that creating "unit relations" based on simple commonalities (e.g. same birthdays) leads to reduced aggression in narcissists who have been ego-threatened. Finally, I end this dissertation with a brief summary and integration of our findings and some concluding thoughts.

Figure 1.1: Narcissism research over time



Appendix A: Narcissistic Personality Inventory

In each of the following pairs of attitudes, choose the one that you MOST AGREE with. Mark your answer by writing EITHER A or B in the space provided. Only mark ONE ANSWER for each attitude pair, and please DO NOT skip any items.

1. A I have a natural talent for influencing people.
   B I am not good at influencing people.

2. A Modesty doesn't become me.
   B I am essentially a modest person.

3. A I would do almost anything on a dare.
   B I tend to be a fairly cautious person.

4. A When people compliment me I get embarrassed.
   B I know that I am a good person because everybody keeps telling me so.

5. A The thought of ruling the world frightens the hell out of me.
   B If I ruled the world it would be a better place.

6. A I can usually talk my way out of anything.
   B I try to accept the consequences of my behavior.

7. A I prefer to blend in with the crowd.
   B I like to be the center of attention.

8. A I will be a success.
   B I am not too concerned about success.

9. A I am no better or no worse than most people.
   B I think I am a special person.

10. A I am not sure if I would make a good leader.
    B I see myself as a good leader.

11. A I am assertive.
    B I wish I were more assertive.

12. A I like having authority over other people.
    B I don't mind following orders.

13. A I find it easy to manipulate people.
    B I don't like it when I find myself manipulating people.

14. A I insist upon getting the respect that is due me.
    B I usually get the respect I deserve.

15. A I don't particularly like to show off my body.
    B I like to show off my body.

16. A I can read people like a book.
    B People are sometimes hard to understand.

17. A If I feel competent I am willing to take responsibility for making decisions.
    B I like to take responsibility for making decisions.

18. A I just want to be reasonably happy.
    B I want to amount to something in the eyes of the world.

19. A My body is nothing special.
    B I like to look at my body.

20. A I try not to be a show off.
    B I will usually show off if I get the chance.

21. A I always know what I am doing.
    B Sometimes I am not sure what I am doing.

22. A I sometimes depend on people to get things done.
    B I rarely depend on anyone else to get things done.

23. A Sometimes I tell good stories.
    B Everybody likes to hear my stories.

24. A I expect a great deal from other people.
    B I like to do things for other people.

25. A I will never be satisfied until I get all that I deserve.
    B I will take my satisfactions as they come.

26. A Compliments embarrass me.
    B I like to be complimented.

27. A I have a strong will to power.
    B Power for its own sake doesn't interest me.

28. A I don't care about new fads and fashion.
    B I like to start new fads and fashion.

29. A I like to look at myself in the mirror.
    B I am not particularly interested in looking at myself in the mirror.

30. A I really like to be the center of attention.
    B It makes me uncomfortable to be the center of attention.

31. A I can live my life anyway I want to.
    B People can't always live their lives in terms of what they want.

32. A Being in authority doesn't mean much to me.
    B People always seem to recognize my authority.

33. A I would prefer to be a leader.
    B It makes little difference to me whether I am a leader or not.

34. A I am going to be a great person.
    B I hope I am going to be successful.

35. A People sometimes believe what I tell them.
    B I can make anyone believe anything I want them to.

36. A I am a born leader.
    B Leadership is a quality that takes a long time to develop.

37. A I wish someone would someday write my biography.
    B I don't like people to pry into my life for any reason.

38. A I get upset when people don't notice how I look when I go out in public.
    B I don't mind blending into the crowd when I go out in public.

39. A I am more capable than other people.
    B There is a lot I can learn from other people.

40. A I am much like everybody else.
    B I am an extraordinary person.

Scoring Key of 40-item NPI. 1a, 2a, 3a, 4b, 5b, 6a, 7b, 8a, 9b, 10b, 11a, 12a, 13a, 14a, 15b, 16a, 17b, 18b, 19b, 20b, 21a, 22b, 23b, 24a, 25a, 26a, 27a, 28b, 29a, 30a, 31a, 32b, 33a, 34a, 35b, 36a, 37a, 38a, 39a, 40b

The above responses are scored as narcissistic. Each narcissistic response is worth one point. The total NPI score is the sum of narcissistic responses.

NPI Subscales:
Authority: Items 1, 8, 10, 11, 12, 32, 33, and 36.
Self-Sufficiency: Items 17, 21, 22, 31, 34, and 39.
Superiority: Items 4, 9, 26, 37, and 40.
Exhibitionism: Items 2, 3, 7, 20, 28, 30, and 38.
Exploitiveness: Items 6, 13, 16, 23, and 35.
Vanity: Items 15, 19, and 29.
Entitlement: Items 5, 14, 18, 24, 25, and 27.

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Chapter 2: Narcissism is increasing over time

ARTICLE #1:

Egos inflating over time: A cross-temporal meta-analysis of the Narcissistic Personality Inventory

Abstract

A cross-temporal meta-analysis found that narcissism levels have risen over the generations in 85 samples of American college students who completed the 40-item forced-choice Narcissistic Personality Inventory (NPI) between 1979 and 2006 (total n = 16,475). Mean narcissism scores were significantly correlated with year of data collection when weighted by sample size ($\beta = .53$, $p < .001$). Since 1982, NPI scores have increased 0.33 standard deviations. Thus almost two-thirds of recent college students are above the mean 1979-1985 narcissism score, a 30% increase. The results complement previous studies finding increases in other individualistic traits such as assertiveness, agency, self-esteem, and extraversion.

It is common for older people to complain about "kids these days," describing the younger generation as self-centered, entitled, arrogant, and/or disrespectful. As a bromide set in a particular time, it is difficult to tell whether these perceptions are a function of age (maybe younger people are more self-centered than older people simply because they are young) or of generation (maybe the younger generation actually is more self-centered than the older generation was at the same age.) It is also possible that older people will complain about the younger generation even if young people are actually *less* self-centered than they were when they were young themselves.

The concept of generation can be difficult to study as social scientists for these very reasons. To study generational change scientifically, it is necessary to separate the effects of generation from age and to measure traits using psychometrically sound questionnaires. This is best accomplished through the time-lag method, which analyzes samples of people of the same age at different points in time. For example, college students from the 1980s can be compared with college students from the 1990s and 2000s. All samples are of the same age, but are from different generations (otherwise known as *birth cohorts*) and thus each sample should have their own "entelechy," or "inborn way of experiencing life and the world" (Mannheim, 1952). Birth cohort is a useful proxy for the sociocultural environment of different time periods (Stewart & Healy, 1987; Twenge, 2000). For example, children growing up in the 1970s were exposed to a fundamentally different culture than children growing up in the 1990s. Personality development takes place in the context of sociocultural history and any political events and societal trends that occur during childhood affect children differently at a deep-rooted fundamental level creating entirely different ways of perceiving the

world (Stewart & Healy, 1989; Mannheim, 1952). As a result, we would expect that there would be different norms and values associated with each generation.

In fact, the logic underlying the approach to generations in this paper is similar to that used to assess the self-conceptions and personality traits of individuals across different world regions (e.g., Choi, Nisbett, & Norenzayan, 1999; Heine & Lehman, 1997; Markus & Kitayama, 1991), except that individual differences between birth cohorts (instead of cultural groups) are assessed. In support of this idea, several previous studies have found strong birth cohort differences in characteristics such as anxiety, self-esteem, locus of control, and sexual behavior (Twenge, 2000; Twenge & Campbell, 2001; Twenge, Zhang, & Im, 2004; Wells & Twenge, 2005, respectively). These studies used meta-analysis to locate samples of college students and children who completed the same psychological questionnaires at different points in historical time. The correlation between mean scores and the year the data were collected were then analyzed, using a method known as cross-temporal meta-analysis (e.g., Twenge, 2000).

The present study uses cross-temporal meta-analysis to examine changes in scores on the Narcissistic Personality Inventory, or NPI (Raskin & Hall, 1979, 1981; Raskin & Terry, 1988). The NPI is the most widely used measure of narcissistic personality in the general population. The NPI is not designed as a clinical instrument for measuring narcissistic personality disorder (NPD), and there is no cut-off score for clinically high narcissism (Foster & Campbell, in press). Narcissism is characterized first and foremost by a positive and inflated view of the self, especially on agentic traits (e.g., power, importance, physical attractiveness: e.g., Campbell, Rudich & Sedikides, 2002; John & Robins, 1994). Second, narcissism is associated with social extraversion, although people

high in narcissism have relatively little interest in forming warm, emotionally intimate bonds with others (e.g., Campbell, 1999; Carroll, 1987). Third, narcissism involves a wide range of self-regulation efforts aimed at enhancing the self. These efforts can range from attention-seeking (Buss & Chiodo, 1991) and taking credit from others (e.g., Campbell, Reeder, Sedikides, & Elliot, 2000; Farwell & Wohlwend-Lloyd, 1998; Rhodewalt & Morf, 1995) to seeking high status romantic partners (Campbell, 1999) and opportunities to achieve public glory (Wallace & Baumeister, 2002). Those high in narcissism also lash out in aggression when they are rejected or insulted (Bushman & Baumeister, 1998; Twenge & Campbell, 2003). Many of these behaviors can potentially be explained by the link between narcissism and impulsivity (Vazire & Funder, 2006). In a sense, narcissism can be conceptualized as a self-regulating system, where self-esteem and enhancement are sought through a variety of social means, but with little regard for the consequences borne by others (for reviews, see Campbell, Brunell & Finkel, 2006; Morf & Rhodewalt, 2001).

The NPI is ideal for a cross-temporal meta-analysis assessing changes in narcissism. First, it is reliable, well validated, and widely used. Second, the NPI is somewhat protected from social desirability influences through its use of forced-choice dyads, and, perhaps as a result, is not correlated with measures of social desirability (Watson, Grisham, Trotter, & Biderman, 1984). For each of the 40 forced-choice dyads on the NPI, participants choose either the narcissistic response (e.g., "I can live my life anyway I want to") or the non-narcissistic response (e.g., "People can't always live their lives in terms of what they want.") The 40 items are summed together. Higher scores indicate higher levels of narcissism.

Previous literature

Most previous studies suggest that narcissistic traits should increase with the generations. Several authors have argued that American culture has increasingly emphasized individualism (e.g., Fukuyama, 1999; Seligman, 1990; Twenge, 2006). Perhaps as a result, previous cross-temporal meta-analyses demonstrate a clear rise in individualistic traits. Between the 1970s and the 1990s, both college men and women scored higher on the agentic traits measured by the Bem Sex Role Inventory M scale, such as "independent," "individualistic, particular to me," and "leadership ability" (Twenge, 1997). College women, and on some scales college men, scored higher on assertiveness measures between the 1970s and the 1990s (Twenge, 2001b), and both sexes increased in extraversion (Twenge, 2001a). College students scored higher on the Rosenberg Self-Esteem Scale between the 1960s and the 1990s, and children scored higher on the Coopersmith Self-Esteem Inventory between the 1980s and the 1990s (Twenge & Campbell, 2001). Agentic traits, assertiveness, extraversion, and self-esteem are all positively correlated with narcissism (e.g., Campbell et al., 2002). A study of changes in personality with age development shows that younger cohorts increase with age more than older cohorts in social dominance but also in agreeableness and conscientiousness over the young adulthood years between 18 and 40 (Roberts, Walton, & Viechtbauer, 2006). However, this meta-analysis examined personality changes with age instead of mean levels by cohort, so it is not clear how the generations differed in mean levels of these traits.

Even more directly related to narcissism, an analysis of teenagers' MMPI responses showed that in the 1950s, only 12% agreed with the statement "I am an

important person." By the late 1980s, 80% agreed (Newsom, Archer, Trumbetta, & Gottesman, 2003). From the 1960s to the 1990s, agreement with California Psychological Inventory items such as "I have often met people who were supposed to be experts who were no better than I;" "I would be willing to describe myself as a pretty 'strong' personality;" and "I have a natural talent for influencing people" (also an NPI item) increased (Gough, 1991; cited in Roberts & Helson, 1997).

In addition, a large (n = 3,445) cross-sectional study of NPI responses found that younger people were more narcissistic than older people, with a significant negative correlation between NPI scores and age (Foster, Campbell, & Twenge, 2003). This difference could reflect developmental changes in narcissism with age, generational shifts in narcissism, or both. Finally, research on social capital has found a dramatic decline in the time Americans spend with their friends and family and their participation in communities and organizations (Putnam, 2001). A time-lag study like the one we undertake here is necessary to determine if NPI scores have increased, decreased, or stayed the same across the generations.

Although most evidence points to increases in narcissism over the generations, an alternative model suggests a decrease in narcissism. Generational theorists Howe and Strauss (1993; 2000; Strauss & Howe, 1991) describe Baby Boomers (in college early 1960s to early 1980s) as inner fixated and self-absorbed; they specifically use the word "narcissistic" in their description (Strauss and Howe, 1991, p. 56-57, p. 79, p. 302). In contrast, they portray Generation X (in college mid-1980s to late-1990s), as "lacking ego strength" and having "low self-esteem" (Howe & Strauss, 1993; Strauss and Howe, 1991, p. 323). Finally, they describe the "Millennials" (in college early 2000s to late 2010s,

sometimes called "GenY") as outer-fixated, group-oriented, and civically responsible. "Are they self-absorbed? No. They're cooperative team players," say Strauss and Howe (2000; p. 8). They continue, "Individualism and the search for inner fulfillment are all the rage for many Boomer adults, but less so for their kids, [who are] not as eager to grow up putting self ahead of community the way their parents did" (p. 237). Although Strauss and Howe's portrayal of generations includes many traits that are not related to narcissism, the descriptions above suggest that Baby Boomers should be the highest in narcissism, GenX'ers the lowest, and "Millennials" either just as low or even lower (as Strauss and Howe specifically say that they are *not* self-absorbed). Thus, their characterization of generations suggests that narcissism should decrease among college students between the 1980s and the 2000s, or, at the very least, should stay steady after the Baby Boomers left college in the mid-1980s. A final alternative model would be that there has been no change in narcissism over time.

Overview

This paper presents a cross-temporal meta-analysis of American college students' responses to the 40-item forced-choice version of the NPI. This analysis will examine the correlation between NPI mean scores and the year the data were collected, showing how narcissism levels have changed over the generations.

The issue of changing college populations is an important concern for studies that examine college student samples across time. However, college populations have not changed as much as one might think. Socioeconomic status has not changed: The median income of college students' parents, when adjusted for inflation, did not vary by more than $3,000 between 1985 and 2004 (U.S. Bureau of the Census, 2006). The racial

composition of college student samples has differed only slightly over this time period. Black students earned 6% of bachelor's degrees in 1985 and now earn about 9%; Asians increased from 3% to 7%; and Hispanics increased from 3% to 7%. Although these represent significant improvements for these specific racial groups, these shifts do not dramatically change the racial makeup of college samples, which are still overwhelmingly white. In addition, the college enrollment of high school graduates changed only a few percentage points over this time, with 58% enrolling in college in 1985 and 64% in 2003 (U.S. Bureau of the Census, 2006). An increasing number of women entered college, though the change was slight during this time period: 53% of college students were female in 1985 compared to 57% in 2003. In short, demographic changes in college student samples have been minimal during the time period covered by this study. In addition, four previous meta-analyses found very similar patterns of birth cohort changes in college student and child samples (Twenge, 2000, 2001; Twenge & Im, 2007; Twenge, Zhang, & Im, 2004). Because child samples are not as selective as college samples and do not experience enrollment shifts with time, the similar results suggest that the small changes in the composition of college populations are not significant confounds in birth cohort analyses.

Method

Literature Search

Studies were primarily located using the Web of Knowledge citation index. The Web of Knowledge is an extensive database, including virtually all journals in the social sciences, biological and physical sciences, and medicine. We searched the citation index for articles that cited one of the original sources of the NPI (Raskin & Hall, 1979; Raskin

& Hall, 1981; Raskin & Terry, 1988). We also gathered unpublished means by posting a message to the Society for Personality and Social Psychology list serve (spsp-discuss@stolaf.edu) asking for NPI means that fit the criteria outlined below; we also included unpublished means from our labs.

Inclusion Rules

Possible data points for the analysis were included or excluded on the basis of specific inclusion rules. To be included in the analysis, a study had to meet the following criteria: a) participants were undergraduates at conventional four-year institutions (e.g., not two-year colleges, not military academies); b) participants were attending college in the United States; c) means were reported for unselected groups of students, not those chosen for scoring high or low on the NPI or another measure or singled out for being maladjusted, clients at a counseling center, etc.; d) samples were not more than 79% female or 79% male[1]; and e) the study used the 40-item forced-choice version of the NPI. The 40-item forced-choice version is by far the most common version of the NPI used by researchers, so it yielded the most data. Other versions of the NPI include different items and produce different means; one of the requirements of cross-temporal meta-analysis is that the means are from the same measure so they can be directly compared across time. In addition, the 40-item NPI is more internally reliable than other versions; when Raskin and Terry (1988) created the 40-item scale, they eliminated the 14 items from the original 54-item scale that did not correlate with the scale's primary factors.

When e-mail addresses could be located, we e-mailed the authors of published articles who provided means on the NPI but did not identify the year of data collection or provide single-sex means and asked for that information. When the exact year was not

available, year of data collection was coded as two years prior to publication, as in previous meta-analyses (e.g., Oliver & Hyde, 1993). In one case (Raskin & Terry, 1988), we averaged the year from the range of years given for data collection (1979 to 1985, which averaged to 1982). The final sample consisted of 85 independent samples including 16,475 college students (6,616 men and 9,859 women).

Data Analytic Strategy

We analyzed how NPI scores have changed over time, primarily by examining correlations between mean scores and year of data collection. As in previous cross-temporal meta-analyses, means were weighted by the sample size of each study to provide better estimates of the population mean. We performed our analyses using SPSS, and the βs reported are standardized to allow for easier interpretation.

To calculate the magnitude of change in NPI scores, we used the regression equations and the averaged standard deviation (SD) of the individual samples. To compute the mean scores for specific years (e.g., 1982 or 2006), we used the regression equation from the statistical output (used to draw the regression line). The regression equation follows the algebraic formula $y = Bx + C$, where B = the unstandardized regression coefficient, x = the year, C = the constant or intercept, and y = the predicted mean NPI score. This formula yielded the position of the regression line (the mean NPI score, on the Y axis) for particular years. We obtained the average standard deviation (SD) by averaging the within-sample SDs reported in the data sources; thus this reflects the average variance of the measure in a sample of individuals. It is important to note that this method avoids the ecological fallacy, also known as alerting correlations (Rosenthal, Rosnow, & Rubin, 2000). The ecological fallacy occurs when the magnitude of change is

calculated using the variation in mean scores rather than the variation within a population of individuals. This exaggerates the magnitude of the effect, because mean scores do not differ as much as individual scores. The method used here, in contrast, uses the standard deviation of the individual studies to capture the variance of the scale among a population of individuals.

Results

American college students score progressively higher on narcissism between the early 1980s and 2006 (see Figures 1 and 2). There is a significant and positive correlation between NPI scores and year of data collection when weighted by sample size ($\beta = .53$, $p < .001$, $k = 85$)[2, 3, 4, 5]. Thus, more recent generations report more narcissistic traits. The regression equation (NPI mean = 0.09293 X year – 169.128) yields a score of 15.06 for 1982 and 17.29 for 2006. The average standard deviation reported for the individual samples (from the articles we collected) is 6.86. Thus NPI scores increased 0.33 standard deviations from the early 1980s to 2006. This is a small to medium effect size (between .20 and .50) by Cohen's (1977) guidelines.

Converting the standard deviation change to percentile scores is also informative. If the average student in the early 1980s scored at the 50th percentile of the distribution, the average student in 2006 scored at the 65th percentile (assuming a normal curve). In other words, almost two-thirds of recent college students are above the mean 1979-1985 narcissism score, a 30% increase (65 out of 100 in 2006, compared to 50 out of 100 in 1979-1985).

If we assume that the NPI still has a normal distribution, this shift in the mean score means that there are now more college students at the top end of the original

distribution. For example, 24% of 2006 college students score one standard deviation above the 1979-1985 narcissism mean, compared to 15% during that original data collection. (One standard deviation above the 1979-1985 is a score of 22, representing someone who answers the clear majority of items – 22 out of 40 – in a narcissistic direction). It is also interesting to note how recent means compare to data collected on a sample of celebrities such as movie stars, reality TV winners, and famous musicians (Young & Pinsky, 2006). This celebrity sample had a mean NPI score of 17.84, not much higher than the 2006 regression equation mean of 17.29. Thus recent college students approach celebrities in their levels of narcissism.

As there were very few samples collected before 1990, we also ran the regression analysis for samples collected 1990-2006. This produced very similar results: $\beta = .49$, $p < .001$, $k = 82$. This regression equation produced a mean of 15.88 for 1990 and 17.78 for 2006 (almost identical to the mean of 17.84 for celebrities; the averaged mean for all of the 2006 samples was 17.62). The magnitude of change was .28 standard deviations, so 2006 students scored at the 63rd percentile on a 1990 distribution. Narcissism also increased linearly between 2000 and 2006, $\beta = .37$, $p < .02$, $k = 41$, $d = 0.18$; this d for 6 years is more than half of the d of 0.33 for the entire 24-year period. The correlation is also significant when the analysis is restricted to the years 1982 to 1999, ($\beta = .45$, $p < .001$, $k = 44$, $d = 0.21$).

The results were also very similar when the 2006 samples, all of which are from unpublished data, are excluded, $\beta = .50$, $p < .001$, $k = 79$, $d = 0.29$; this also helps address any concern that the correlation or its magnitude is driven by the high outliers from that year (see Figure 2.1). The results were also similar when the data from all 13 samples

from unpublished sources were excluded, β = .45, $p < .001$, $k = 72$, $d = 0.27$. Overall, the increase is linear rather than curvilinear; in a regression equation with year and year squared (the latter is the quadratic term; both variables were centered), for year, β = .67, $p < .001$, and for year squared, β = .20, *ns*.

We also analyzed single-sex means when they were reported. Because not all studies reported means broken down by gender, and some unpublished single-sex means were obtained directly from authors, these analyses represent a subsample of the data that may not be representative. Thus, these analyses should be interpreted with caution. College men's NPI scores are not significantly correlated with year (β = .16, *ns*; $k = 44$, $d = 0.12$), but college women's scores are (β = .46, $p < .002$, $k = 44$, $d = 0.28$). The sex difference in NPI scores has also declined, β = -.46, $p < .001$; $k = 43$ (we conducted this analysis by computing the effect size *d* for sex differences and weighting the regression by *w*, the standard weight for *d*). In 1992 (the first year for which sex difference data is available), men scored 0.45 standard deviations higher than women on the NPI, but by 2006, men scored just 0.15 SDs higher. Thus the sex difference in narcissism has declined from half a standard deviation (a medium effect size) to one-seventh of a standard deviation (a small effect size).

Discussion

A meta-analysis of 85 samples of American college students shows a systematic increase in scores on the Narcissistic Personality Inventory, providing no support for the alternative models of decreasing (e.g. Strauss & Howe, 1991) or stable narcissism over time. The shift in scores means that the average college student now endorses about two more narcissism items than his or her predecessors did in the early 1980s. Although the

effect size for the shift is statistically moderate rather than large (one-third of a standard deviation), it is larger than the effect of violent video games on aggression (Anderson & Bushman, 2001), most racial differences in self-esteem (Twenge & Crocker, 2002), and the sex difference in self-esteem during early adolescence (Kling, Hyde, Showers & Buswell, 1999). The generational shift over 25 years is also twice as large as the current sex difference in narcissism; thus generation is a better predictor of narcissism scores than gender.

These data are consistent with theories positing an increase in individualism in American society and with previous studies finding generational increases in other individualistic traits such as self-esteem and agency (e.g., Twenge, 1997; Twenge & Campbell, 2001). The most recent college students score about the same on the NPI as a sample of celebrities (Young & Pinsky, 2006). The change is linear and steady, with the correlation significant when the analysis is limited to only certain years. It also appears that women are driving the increase in narcissism, consistent with the finding that the generational increase in agentic traits and assertiveness was stronger for women (Twenge, 1997, 2001b).

We were unable to analyze changes in specific subscales of the NPI, as very few researchers reported NPI means broken down by subscale. Thus we do not know if only certain facets of narcissism are increasing among American college students, or if the change is evenly distributed across them. In addition, we do not know how the increase in narcissism is related to the previously documented rise in self-esteem (Twenge & Campbell, 2001). The rise in narcissism could be directly related to increases in self-

esteem, or there could have been an increase in narcissistic traits independent of self-esteem.

Correlates of narcissism

Is this rise in narcissism a bad thing? As measured by the NPI, narcissism is linked to a range of positive emotional outcomes, including self-esteem, positive affect, extraversion, and life satisfaction (e.g., Rose, 2002; Sedikides, Rudich, Gregg, Kumashiro & Rusbult, 2004). Narcissism is associated with other benefits to the self as well, such as short-term (but not long-term) likeability (Paulhus, 1998; Oltmanns, Friedman, Fiedler, & Turkheimer, 2004), enhanced performance on public evaluation tasks (Wallace & Baumeister, 2002) including being selected for reality television (Young & Pinsky, 2006), short-term victories in competitive tasks (e.g., Campbell, Bush, Brunell, & Shelton, 2005), and emergent (though not successful) leadership (Blair, Hoffman, & Helland, in press; Brunell, Gentry, Campbell, & Kuhnert, 2006). Narcissism also has many costs to the self, such as distorted judgments of one's abilities (e.g., Paulhus, Harms, Bruce & Lysy, 2004), risky decision-making (Campbell, Goodie & Foster, 2004), potential addictive disorders including alcohol abuse (Luhtanen & Crocker, 2005), compulsive shopping (Rose, in press), and pathological gambling (Lakey, Goodie & Campbell, 2006). Many of the costs of narcissism are borne by other people. These include troubled romantic relationships (Campbell, Foster, & Finkel, 2002; Foster, Shrira, & Campbell, 2006), aggression (e.g., Bushman & Baumeister, 1998), assault (Bushman, Bonacci, Van Dijk & Baumeister, 2003), white collar crime (Blickle, Schlegel, Fassbender & Klein, 2006), and rapidly depleting common resources (Campbell et al., 2005). In sum, narcissism is associated with benefits to the individual

that are primarily affective and most evident in the short-term, but the costs of narcissism are paid by others and, eventually, by the individual as well (for a more detailed discussion of the trade-offs of narcissism, see Campbell & Buffardi, in press). Thus the implications of the rise in narcissism may be positive in the short term for individuals, but negative for other people, for society, and for the individual in the long term.

Many of the correlates of narcissism are also on the upswing, although we cannot be certain if they are directly tied to the rise in narcissism. Several positive personality traits correlated with narcissism have increased over the same time period, including self-esteem (Twenge & Campbell, 2001), agentic traits (Twenge, 1997), extraversion (Twenge, 2001a) and assertiveness (Twenge, 2001b). Behaviors and attitudes have also shifted in a direction consistent with a rise in narcissism. There is a trend among college students toward "hooking up" rather than having sex within committed relationships (Glenn & Marquardt, 2001; Manning, Longmore, & Giordano, 2005). Materialism has increased: 74% of college freshmen in 2004 cited "being very well-off financially" as an important life goal, compared to only 45% in 1967 (Astin, Oseguera, Sax, & Korn, 2004). In a 2006 survey, 81% of 18- to 25-year-olds said that getting rich was among their generation's most important goals; 64% named it as the most important goal of all. In addition, 51% said that becoming famous was among their generation's important goals. In contrast, only 30% chose helping others who need help, and only 10% named becoming more spiritual (Pew Research Center, 2007).

Reflecting the overconfidence typical of narcissism (e.g., Campbell et al., 2006; Morf & Rhodewalt, 2001), students today have markedly higher and more unrealistic expectations of educational attainment and success. More than half of recent high school

students (51%) predicted that they would earn graduate or professional degrees, even though only 9% of 25- to 34-year-old high school graduates actually hold these degrees. In 1976, only half as many (27%) predicted this outcome (Reynolds, Stewart, Sischo, & MacDonald, 2006). During the same period, the percentage of high school students who predicted that they would be working in a professional job by age 30 also increased, from 41% to 63% (in reality, only 18% of high school graduates ages 25 to 34 in both eras worked at professional jobs: Reynolds et al., 2006). Although these shifts likely have multiple causes and the role of narcissism is uncertain, these trends nevertheless move in the direction one would expect if young people were higher in narcissism.

Other recent trends are more difficult to reconcile with a rise in narcissism. Crime rates are down over this time period, specifically youth crime (U.S. Bureau of the Census, 2006), yet narcissism is correlated with criminal behavior. In addition, over the last ten years significantly more high school students have reported they volunteered their time to help others sometime in the last year, although weekly and monthly volunteering rates show only small gains (Bachman, Johnston, & O'Malley, 2006). However, volunteer rates might be increasing because many high schools began requiring community service for graduation over this same time (Strauss & Howe, 2000; p. 216). Many colleges also favor volunteer work in admissions decisions, and college admissions have become more competitive. Thus the motive for increased youth volunteering is unclear, and this trend may not directly contradict the rise in narcissism. It is also possible that a more civic orientation could co-exist along with more narcissism; perhaps both have increased in more recent generations.

Future research: The uncertain causes of narcissism

The relationship between personality and culture is likely reciprocal, with societal changes driving increases in narcissism and vice versa. What societal trends may have led to the increased narcissism we found? We can speculate on several of these, although a great deal of future work needs to be done on the causes of narcissism. Schools and media activities may have promoted an increase in narcissism. Children in some preschools sing a song with the lyrics, "I am special/I am special/Look at me …", and many television shows for children emphasize positive self-feelings and specialness. Future research should examine whether school and media programs intended to raise self-esteem also raise narcissism. Grade inflation may also play a role: In 1980, only 27% of college freshmen reported earning an A average in high school, but by 2004 almost half (48%) reported a high school "A" average (U.S. Bureau of the Census, 2006). However, the amount of studying has actually declined (33% of American college freshmen in 2003 reported studying six or more hours a week during their last year of high school, compared to 47% in 1987: Astin et al., 2004), as has performance on tests like the SAT. Future research should determine whether grade inflation builds narcissism.

In his book Culture of Narcissism (1979) Christopher Lasch suggests that the "cult of consumption with its immediate gratification" may be a powerful factor in explaining increasing narcissism in society. Over the period of our study per capita personal disposable income (in chained 2000 dollars) in the United States was rising per year, $\beta = .98$, $p < .001$, while the average personal savings rate was declining, $\beta = -.98$, $p < .001$, indicating that people were spending more of their money (and had more to spend) at the same time that narcissism was rising. While these data may not bear

specifically on our college student samples themselves, it is possible that their "fundamental values and expectations" (Stewart & Healy, 1989) have been influenced by the over-consumption of their parents and role models. Of course these particular data cannot speak to causality but there is some recent research evidence that a focus on money can make people more self-focused, for example Vohs, Mead, & Goode (2006) found that reminders of money made people act in more selfish and less other-enhancing ways. Thus, future research should also examine the role that consumerism plays in increasing narcissism and vice versa.

Finally, on a related note, future research should examine if current "individualizing" technology is related to narcissistic traits, as Putnam (2001) has suggested in his parallel analysis of decreasing social capital *Bowling Alone*. Devices such as iPods and Tivo allow people to listen to music and watch television in their own individual ways, and websites such as MySpace and YouTube (whose slogan is "Broadcast yourself") permit self-promotion far beyond that allowed by traditional media. These trends motivated *Time* magazine to declare that the 2006 Person of the Year was "You," complete with a mirror on the cover. Most of the increase in narcissism occurred before the wide use of such technology, so these shifts -- even if they do play a role -- did not cause the initial upswing in narcissism scores. Instead, the rise in narcissism may have influenced the ways people use technology.

Limitations

The present study provides the most comprehensive examination to date of generational change in narcissistic personality traits. Even so, it is not without its limitations. Any analysis of self-report data is potentially limited by socially desirable

responding. However, the NPI is not significantly correlated with social desirability (Watson et al., 1984). In addition, there have not been concomitant changes in socially desirable responding, which did not change during this time period (Twenge & Im, 2007). This makes it very unlikely that changes in socially desirable responding account for the present results.

This study also limits its conclusions to American society and generations, partially because there is not much data available over time from other countries. Americans score higher on narcissism than people from other world regions (Foster et al., 2003). Future analyses might determine if narcissism is also increasing in other cultures or if this cultural trend is limited to the United States.

The data are also limited to college student populations; future research might examine shifts in narcissism among other populations – e.g., children or younger adolescents. However, the NPI is rarely given to non-college samples; thus these data on college students are, as far as we know, the best available to study change in narcissism over the generations among non-clinical samples.

This study also cannot determine whether the change in narcissism is a purely generational effect or a time period effect. As with any time-lag study including people of only one age group, we cannot know if those in other age groups also changed. It is possible that both younger and older Americans became more narcissistic from the 1980s to the 2000s. It is also possible that older Americans did not change at all or even became less narcissistic. Given the relative stability of social dominance after young adulthood (e.g., Roberts et al., 2006) as well as cross-sectional research showing lower narcissism

scores in older adults (Foster et al., 2003), it seems likely that much of the shift is a generational rather than a time period effect.

Endnotes

1. This excluded 6 samples that would have otherwise been included, all of which were between 80% and 90% female. Because our analysis focuses on both-sex samples, these nearly all-female samples did not seem comparable, and, due to the sex difference in NPI scores, were likely to increase error variance. These samples were also confounded with year, as all of them were collected after 2001. Nevertheless, we realize some readers may be curious how including these samples might have affected the results. Including these samples decreased the β only slightly: β = .48, $p < .001$, $k = 91$ when weighted by sample size. This regression equation produced a total change of 0.31 SDs. The β with these samples included increased slightly when controlled by the samples' percentage female (β for year = .51, $p < .001$; β for percentage female = -.16, $p = .09$).

2. After the completion of our primary analyses, the second author (under the direction of the fifth author) collected unpublished dissertations and master's theses that used the NPI as part of her Ph.D. dissertation at the University of Michigan. Eight dissertations met the inclusion rules and reported means. The effect is similar with these additional datapoints added, β = .48, $p < .001$, $k = 93$, $d = 0.29$, total $n = 18{,}924$.

3. We also analyzed the data after eliminating all samples from papers on which one or more of us was an author and unpublished data collected in one of our labs. The results for this subsample of the data were virtually identical to the main analysis, β = .52, $p < .001$, $k = 47$, $d = 0.29$.

4. We also weighted by the inverse of the variance (called *w*), a technique that includes the within-study standard deviation as well as sample size; *w* is the usual weight applied in meta-analyses. Shadish and Haddock (1994, p. 272-273) provide weights for aggregated data, and we modified this technique for means to compute the variance: the within-study standard deviation squared, times 1/n of the individual study. We then inverted the variance (1/*v*) to make the weighting variable (*w*) (See also Lipsey & Wilson, 2001). Thus weighting by *w* takes the standard deviation of the individual studies into account as well as the sample size. The results were very similar to weighting by sample size $\beta = .50$, $p < .001$, $k = 76$, $d = 0.29$. (This analysis includes fewer samples because not all sources reported sample standard deviations.)

5. We also examined the effect of the following societal indicators on average annual narcissism scores: political party of president (1=republican, 0=democrat), the presence of war (1=war, 0=no war; wars include Panama 1989, Gulf war 1990-91, Iraq war 2003-present), average annual change in Consumer Price Index (i.e. inflation), the average annual prime interest rate, and the average annual percentage of people who expressed satisfaction with how things were going in the country in a Gallup poll. Examining the effect of each of these indicators *individually* on narcissism (weighted by total n) we find that there is no effect of political party of president, $\beta=.101$, $t(84)=.93$, $p=.36$, or satisfaction with the country, $\beta =.163$, $t(84)=1.50$, $p=.14$. However, the presence of war is associated with increased narcissism, $\beta =.258$, $t(84)=2.44$, $p=.017$, as is lower inflation, $\beta =-.289$, $t(84)=-2.75$, $p=.007$, and a lower prime interest rate, $\beta =-.295$, $t(84)=-2.82$, $p=.006$. More importantly though, we examined what happens when all of these

variables, including year, are included in the same regression model as predictor variables. When doing so we find that all individual effects are washed out by year, ps > .08. The average effect of time on narcissism becomes even stronger when controlling for them, β =.689, $t(84)=3.12$, $p=.003$.

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Table 2.1: Data points included in the analysis

Source	Year	Published	n	Mean	SD
Adler (2000)	1999	No	78	15.47	4.85
Ames, Rose, & Anderson (2006) Study 1	1996	Yes	776	15.60	6.80
Ames, Rose, & Anderson (2006) Study 3	1997	Yes	176	16.00	6.80
Barry, Chaplin, & Grafeman (2006)	2001	Yes	120	18.28	7.46
Bartels (2005)	2004	No	73	19.20	6.80
Bradlee & Emmons (1992)	1989	Yes	147	14.99	6.03
Campbell, Finkel, Buffardi, Kumashiro & Rusbult (2007) Study 1	2005	No	69	17.16	6.87
Campbell, Bosson , Goheen, Lakey, & Kernis (2007) Study 1	2005	Yes	154	17.39	6.29
Campbell & Foster (2002) Study 1	1997	Yes	119	16.98	
Campbell & Foster (2002) Study 2A	1997	Yes	304	17.03	
Campbell & Foster (2002) Study 2B	2000	Yes	108	17.99	
Campbell (1999) Study 2	1996	Yes	109	17.36	6.88
Campbell (1999) Study 3	1996	Yes	156	16.39	6.47
Campbell (1999) Study 4	1996	Yes	51	16.72	6.42
Campbell (1999) Study 5	1996	Yes	68	16.85	6.80
Campbell, Bush, Brunell, & Shelton (2005) Study 1	2002	Yes	232	16.10	7.00
Campbell, Bush, Brunell, & Shelton (2005) Study 2	2002	Yes	166	15.50	6.90
Campbell, Foster, & Finkel (2002) Study 1a	1996	Yes	80	16.49	7.83
Campbell, Foster, & Finkel (2002) Study 1b	1998	Yes	58	16.28	6.78
Campbell, Goodie, & Foster (2004) Study 1	2002	Yes	104	16.58	7.04
Campbell, Goodie, & Foster (2004) Study 2	2002	Yes	97	17.23	6.65
Campbell, Goodie, & Foster (2004) Study 3	2002	Yes	607	17.46	6.95
Campbell, Reeder, Sedikides, & Elliot (2000) Study 1	1995	Yes	160	16.27	7.15
Campbell, Reeder, Sedikides, & Elliot (2000) Study 2	1996	Yes	64	17.08	7.03
Campbell, Rudich, & Sedikides (2002) Study 1a	1998	Yes	113	15.30	6.67

Campbell, Rudich, & Sedikides (2002) Study 1b	1998	Yes	85	16.72	6.59
Campbell, Rudich, & Sedikides (2002) Study 2	1999	Yes	100	17.55	7.73
Campbell, Rudich, & Sedikides (2002) Study 3	1999	Yes	109	16.05	6.31
Cramer (1995)	1993	Yes	118	14.20	
Cramer (1998)	1996	Yes	88	15.33	
DeWall (2004)	2004	No	103	19.02	7.15
Dickson & Pincus (2003)	2001	Yes	90	18.42	8.19
Exline & Geyer (2004)	2001	Yes	126	15.22	7.44
Exline, Baumeister, Bushman, Campbell, & Finkel (2004) Study 1	2001	Yes	270	17.20	6.60
Exline, Baumeister, Bushman, Campbell, & Finkel (2004) Study 3	2001	Yes	152	15.63	7.28
Exline, Baumeister, Bushman, Campbell, & Finkel (2004) Study 4	2003	Yes	241	14.56	6.49
Exline, Baumeister, Bushman, Campbell, & Finkel (2004) Study 5	1999	Yes	120	19.37	6.62
Exline, Baumeister, Bushman, Campbell, & Finkel (2004) Study 6	2003	Yes	69	16.90	5.74
Exline, Single, Lobel, & Geyer (2004) Study 2	2001	Yes	94	15.79	7.65
Eyring & Sobelman (1996)	1994	Yes	79	16.75	5.82
Farwell & Wohlwend-Lloyd (1998) Study 1	1996	Yes	152	16.80	
Farwell & Wohlwend-Lloyd (1998) Study 3	1996	Yes	67	16.21	
Foster (2006a)	2006	No	338	17.86	7.18
Foster (2006b)	2006	No	437	17.10	7.29
Foster, Shrira, & Campbell (2006) Study 1	2002	Yes	213	17.30	6.60
Foster, Shrira, & Campbell (2006) Study 2	2002	Yes	272	17.00	7.10
Gabriel, Critelli, & Ee (1994)	1992	Yes	146	16.44	6.39
Gaertner, Iuzzini, & O'Mara (2006)	2005	No	1182	17.25	6.79
Gurtman (1992)	1990	Yes	279	14.65	
Gustafson & Ritzer (1995) Study 1	1992	Yes	214	16.01	7.24
Gustafson & Ritzer (1995) Study 2	1992	Yes	367	15.93	7.15
Horton, Bleau, & Drwecki (2006)	2001	Yes	222	17.26	7.69

Study 1					
Jackson, Ervin, & Hodge (1992)	1990	Yes	301	15.93	6.99
Konrath & Bushman (2006)	2006	No	38	19.20	7.89
Konrath, Bushman, & Campbell (2006)	2004	Yes	260	18.32	6.81
Konrath, Bushman, & Campbell (2006)	2005	Yes	456	17.56	7.03
Krusemark (2005)	2005	No	95	17.66	7.47
Krusemark (2006)	2006	No	24	21.54	6.29
Ladd, Welsh, Vitulli, Labbe, & Law (1997)	1994	Yes	119	15.20	6.80
Le (2005)	2003	Yes	179	15.82	6.92
Liu (2005)	2005	No	199	16.50	6.66
Luhtanen & Crocker (2005)	1999	Yes	642	17.60	6.80
McHoskey (1995)	1993	Yes	423	15.13	6.60
McHoskey, Worzel, & Szyarto (1998)	1996	Yes	107	16.80	7.50
Mead (2006)	2006	No	63	20.11	7.23
Oleson, Poelhlmann, Yost, Lynch, & Arkin (2000)	1994	Yes	105	15.98	7.18
Raskin & Novacek (1989)	1987	Yes	230	15.65	6.84
Raskin & Terry (1988)	1982	Yes	1018	15.55	6.66
Rathvon & Holmstrom (1996)	1994	Yes	283	17.89	6.62
Rose (2006)	2006	No	236	17.04	6.84
Schreer (2002)	2001	Yes	89	15.53	5.81
Sedikides, Rudich, Gregg, Kumashiro, & Rusbult (2004) Study 1	1999	Yes	149	15.80	6.41
Sedikides, Rudich, Gregg, Kumashiro, & Rusbult (2004) Study 2	1999	Yes	81	16.06	6.17
Sedikides, Rudich, Gregg, Kumashiro, & Rusbult (2004) Study 4	1999	Yes	154	17.13	7.04
Stangor & Thompson (2002)	2000	Yes	182	17.87	
Sturman (2000)	1998	Yes	57	17.40	6.40
Sutin & Robins (2005)	2001	Yes	200	14.40	6.20
Twenge & Campbell (2003)	2000	Yes	208	16.04	6.91
Wallace & Baumeister (2002) Study 1	1999	Yes	49	16.02	7.73
Wallace & Baumeister (2002) Study 2	1999	Yes	71	13.61	6.73
Wallace & Baumeister (2002) Study 3	1999	Yes	54	15.74	8.33
Wallace & Baumeister (2002) Study 4	2000	Yes	74	14.11	6.61

Zhang & Baumeister (2006) Study 4	2004	Yes	40	18.30	9.40
Zuckerman & O'Laughlin (2006)	2003	Yes	191	16.80	7.10
Zuckerman & O'Laughlin (2006)	2004	Yes	176	17.21	6.90

Figure 2.1: College students' Narcissistic Personality Inventory scores by year

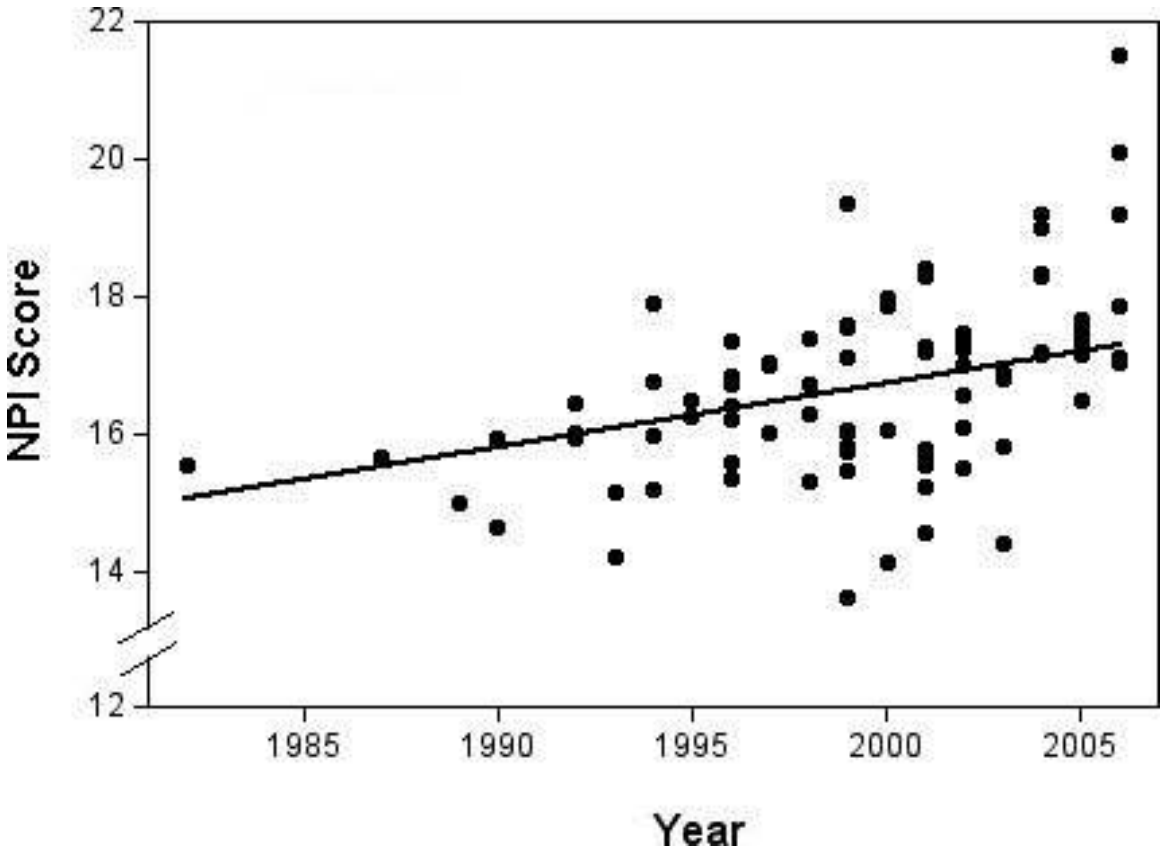
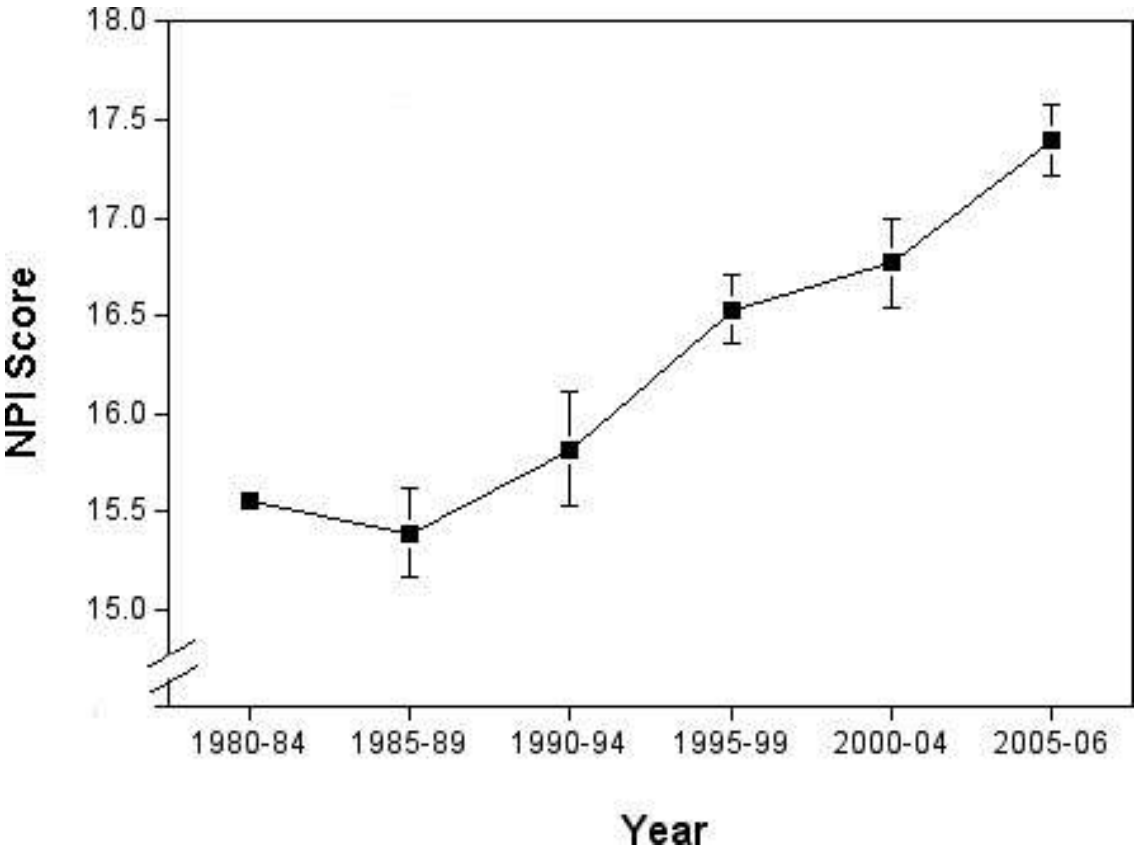


Figure 2.2: College students' Narcissistic Personality Inventory scores by time period. Capped vertical bars denote ± 1 *SE*.



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Chapter 3: Self and Difference

ARTICLE #2:
Some people are islands: Individualists, narcissists, and autistics as atomized selves

Abstract

In this paper we review evidence that social atomization, the combination of a high self-focus and a low other-focus, is related to analytic cognitive style. We consider three cases that we think represent social atomization to varying degrees: individualism or independent self-construal, narcissism, and autism. All of these share an association with cognitive style and low other focus, but more research is needed on self-focus in autism in order to understand if social atomization is related to cognitive style as we suggest.

In this paper we present a theory of *social atomization.*[1] Social atomization is defined as the combination of a high self-focus and a low other-focus. The theory posits that the combination of high self-focus and low other-focus is related to an analytic cognitive style. In other words, in cases where the self is seen as separate and autonomous with little consideration of relationships with others, objects in one's environment are also perceived as separate, autonomous, and unrelated. We consider three forms of social atomization: individualism, narcissism, and autism. Throughout our review we suggest future research that would strengthen the evidence as it is oftentimes incomplete. We then review evidence for direction of causality between social atomization and context-independent cognitive style, and conclude with theoretical and applied implications of our theory.

Self and Other

> *"If I am not for myself, who will be for me?*
>
> *If I am not for others, what am I?"*
>
> Rabbi Hillel - (30 BC - 9AD)

There is a long history of psychological research on two central dimensions of human personality: self-focus and separation versus other-focus and connection. The concepts of *agency* and *communion* were first introduced by Bakan (1966) in his book *The Duality of Human Existence: Isolation and communion in Western man*. People high in agency see themselves as separate individuals, whereas people high in communion see themselves as participating members in a larger social entity:

> Agency manifests itself in self-protection, self-assertion, and self-expansion; communion manifests itself in the sense of being at one with other organisms.

> Agency manifests itself in the formation of separations; communion in the lack of separations. Agency manifests itself in isolation, alienation, and aloneness; communion in contact, openness, and union. Agency manifests itself in the urge to master; communion in non-contractual cooperation. (Bakan, 1966, p. 14-15).

Wiggins (1991) reviewed twenty historical concepts of agency and communion, also seeing them as fundamental to human psychology. Included in his taxonomy of past similar concepts were Confucius' utilitarian versus moral spheres, Freud's discussion of the dual human needs to work and to love, Fromm's (1941) separate identity versus oneness with the world, Erikson's (1950) autonomy versus basic trust, and McAdams' (1985) power versus intimacy motivation. Other constructs that capture similar self versus other dimensions include instrumental versus expressive roles (Bem, 1974; Parsons & Bales, 1955), individualistic versus collectivist cultures (Triandis, 1995), and independent versus interdependent self-construal (Markus & Kitayama, 1991; Singelis, 1994). Given this large number of related terms, in our review we use the terms *self-focus* and *other-focus* for simplification.

Self-focus and other-focus can be seen as relatively stable personality traits that can be measured with self-report scales much like other personality traits (e.g. Buss, 1990; Costos, 1986; Levit, 1991; Lubinski, Tellegen, & Butcher, 1983). Rather than being represented on a unipolar continuum starting from self-focus and ending at other-focus, there is accumulating research evidence that these two traits are orthogonal, or two separate dimensions. This means that people can be high in one and low in the other, high in both, or low in both. For example, in Wiggins' (1991) model, agency is represented by the dimension of *assured/dominant* versus *unassured/submissive* whereas communion is represented by the dimension of *warm/friendly* versus *cold/hostile*. Another example of this orthogonality occurs in research on individualism versus collectivism and self-

construal. A recent meta-analysis found that individualism and collectivism were orthogonal when measured at the country level (Oyserman, Coon, & Kemmelmeier, 2002) in contrast to past researchers who hypothesized that they were best conceptualized as a single dimension at the cultural level (Leung, 1989; Triandis, 1989). People within each culture can vary in their degree of self and other-focus and self-construal is a measure of this at the individual level (Markus & Kitayama, 1991; Singelis, 1994). Several studies have found that independent and interdependent self-construal are orthogonal at the individual level (Bontempo, 1993; Gudykunst et al., 1996; Singelis, 1994; Singelis & Brown, 1995; Trafimow, Triandis, & Goto, 1991; Triandis, Leung, Villareal, & Clack, 1985).

In Figure 3.1 we present these two dimensions of self and other-focus orthogonal to each other. In this article we are most concerned with the top left quadrant in which people are high in self-focus but low in other-focus. Atomization occurs when people have a focus on the self as an independent module *without* the idea of the self as part of a larger whole. Socially atomized people have difficulty considering the larger web-like social context in which all humans are embedded, perhaps because they have limited experience in this context, are unable to consider it, or are unwilling to consider it. Bakan's (1966) term for a high self-focus that was not tempered by a focus on others was unmitigated agency. He was critical of this because he thought that when it was unchecked it led to a number of social ills such as war, other violence, and suicide. We present a less negative analysis of unmitigated agency, which we call social atomization. Through a number of examples we show that social atomization may be related to an

analytic (i.e. atomistic) thinking style which is not necessarily bad in itself, and at times might be good.

Although the focus of our review is mainly on the quadrant that combines a high self-focus with a low other-focus (atomization), we also briefly consider the other three quadrants. Bakan (1966) believed that the ideal state for humans was one in which focus on the self (agency) and on the other (communion) were in balance. This is shown in the quadrant to the top right, which we call *balanced*. Past research has shown that people can be high in self-focus but also high in other-focus (Markus & Kitayama, 1991; Singelis, 1994). We agree with Bakan that *balanced* is the healthiest option of all of the four quadrants, but we still argue that there may be strengths associated with each quadrant. The quadrant on the lower left is one in which there is a low self-focus combined with a low other-focus, which we call *detached*. Past research (e.g. Wiggins & Pincus, 1989) has found that in a sample of normal college students those with characteristics of schizoid and avoidant personality disorders were low in both self-focus (agency) and other-focus (communion). The bottom right quadrant is one in which people are low in self-focus and high in other-focus, which we call *dependent*. Past research has shown that students with characteristics of dependent personality disorder were low in self-focus and high in other-focus (Wiggins & Pincus, 1989; see Millon, 1986 for a similar taxonomy).

Cognitive Style

In this article we suggest that social atomization (i.e. high self and low other focus) is related to a particular cognitive style. *Cognitive style* is an individual differences variable that captures the way that people perceive their environment and organize

information within it (Messick, 1984). Socially atomized people have a cognitive style characterized by the ability to disembed information from its context. Although this type of cognitive style has been described using several different terms (Van Den Broeck, Vanderheyden, & Cools, 2003), we use the terms *holistic* and *analytic* cognitive style most frequently, although we also use the terms *field dependent* and *field independent* where appropriate. In line with past research, we define a holistic thinking style as one that is dependent on context, focused on the whole or the 'big picture,' and cognizant of how stimuli in the environment interrelate. In contrast, an analytical thinking style as one that is independent of context and focused on distinct parts or details in the environment. One style of thinking is not necessarily better than another style; what matters most is goodness of fit between the thinking style and the cognitive task (e.g. Witkin, Moore, Goodenough, & Cox, 1977).

Field dependence research began in the 1950s as a theory of "psychological differentiation" (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962; Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954). Witkin and his colleagues posited that "differences in degree of self non-self segregation lead to differences in the extent to which the self, or alternatively, the field outside is likely to be used as a referent for behavior. The tendencies to rely on self or field as primary referents are the field-independent and field-dependent cognitive styles" (Witkin & Goodenough, 1977, p. 661). In order to classify people as field-dependent (holistic) or field-independent (analytic), Witkin and his colleagues measured their performance on perceptual tasks like the Embedded Figures Test and the Rod and Frame task. In the Embedded Figures Task (see Figure 3.2-A), people are shown a complex picture and asked to find a simpler picture

embedded within the larger one (Witkin, Oltman, Raskin, & Karp, 1971). People with a field dependent style of thinking find this task challenging because the overall shape of the object distracts them from each individual component of it. Field independent people, in contrast, are able to ignore the overall shape and focus on the small shapes that comprise it.

In the rod-and-frame task, people are given a tilted rod in a tilted frame and are asked to make the rod stand upright (see Figure 3.2-B). People who use a contextual based style of processing which includes the external field, will likely align the rod with the tilted frame, and thus be classified as field-dependent (see left side Figure 3.2-B). People who discount the field as a referent and use the rod itself, will be classified as field-independent (see right side Figure 3.2-B).

The Stroop (1935) test can also be seen as a measure of analytic cognitive style. In the Stroop test, people are asked to name the ink color in which color words are written. In the first part of this task the ink color is congruent with the word (e.g. the word 'green' is colored green). This is very easy and most people are able to read the words quickly. In the second part, the ink color is incongruent with the word (e.g. the word 'green' is colored red). When subjects are asked to name the ink color they find this more difficult because the written word is interfering with the ink color. People who find it easy to disembed information from its context (i.e., those with analytic cognitive styles) find this task easier than those with more holistic cognitive styles (Oyserman, Sorensen, Cha, Schwarz , in press).

Another test that distinguishes between analytic and holistic thinkers is a subtest on the Wechsler intelligence scale, the Block Design task (see Figure 3.2-C). In this task

individuals are given a picture of a pattern (e.g. a diamond) and are asked to copy the pattern using blocks with various designs. In order to be successful at this task, people must be able to segment the original patterns in their minds and find the blocks that have those segments, so that they can arrange them appropriately. This is something at which analytic people excel. Holistic people, on the other hand, find it challenging to complete this task because they do not perceive the world in a piecemeal fashion.

Many visual illusions occur because people naturally integrate objects that are surrounding each other into a coherent whole. For example, the Hering illusion (Figure 3.2-D) is effective because the surrounding context (i.e. diagonal lines) make the typical viewer perceive the vertical lines as curved. When the lines are presented separate from their context, this illusion disappears, and two straight vertical lines are perceived. Highly analytic people should be less susceptible to such visual illusions because they can disembed visual information from its context. Because holistic people are more likely to process visual information embedded in its context, they should be especially susceptible to visual illusions.

The Navon (1977) letters task can be seen as another test of analytic-holistic cognitive style. In this task people see a number of images of large letters comprised of small letters (see Figure 3.2-E) and are asked to identify the letter as quickly as possible. People who identify the small letters more quickly have a more analytic cognitive style because they are focusing on details at the expense of the big picture, whereas those who identify the large letters more quickly have a more holistic cognitive style because they are predominantly focusing on the big picture. Similarly, the Global-local focus test (Kimchi & Palmer, 1982) presents subjects with a series of boxes containing three large

shapes made out of smaller shapes (see Figure 3.2-F). For example, there may be a large square made of small triangles, a large square made of small squares, and a large triangle made of small triangles. Subjects are asked to circle the two that go together and if they circle the two similar large shapes (e.g. squares), they have a more global (holistic) cognitive style, whereas if they circle the two smaller shapes (e.g. triangles), they have a more local (analytic) cognitive style.

Many self-report measures of cognitive style have also been developed (see Van Den Broeck, Vanderheyden, & Cools, 2003). In the Analysis-Holism scale (Choi, Koo, & Choi, 2007), for example, participants are asked to what extent they agree or disagree with 24 statements endorsing holistic values. The scale has four subscales: 1) Causality: Measures the belief that everything in the universe is causally related (e.g. "*Even a small change in any element of the universe can lead to significant alterations in other elements*"); 2) Methods of Dealing with Contradictions: Measures the belief that two opposing arguments should be resolved through compromise (e.g. "*It is more desirable to take the middle ground than go to extremes*"); 3) Perception of Change: Measures the belief that events will continue in the same direction in which they begin (e.g. "*Future events are predictable based on present situations*"); and 4) Locus of Attention: Measures whether the focus of attention is on the entire context or on small details (e.g. "*It is more important to pay attention to the whole than its parts*"). People who score high on this scale of holism have been found to pay more attention to the whole field than to individual objects, consider more information when explaining causality, categorize objects using relationships rather than categorical rules, and endorse cyclical views of change (Choi, Koo, & Choi, 2007).

As can be seen by our brief review of the literature, there are many different ways to measure analytic-holistic cognitive style. What the methods have is common is that they distinguish between people who are able to easily disembed information from its context and those who tend to perceive information as inextricably linked to its context.

Self, Other, and Cognitive Style

Although early research on field-dependence and independence focused on perceptual and intellectual tasks, Witkin & Goodenough (1977) also discussed the implications of this theory for the self and social behavior. They suggested that people who perceived objects in their environment as separate, autonomous, and distinct from others objects would also perceive themselves that way in relation to others (Witkin & Goodenough, 1977, p 662). They provide evidence that field-independent people are higher in self-focus and lower in other-focus than are field-dependent individuals. Field-independent people make less use of other people's opinions and information (are less likely to be socially influenced) under ambiguous conditions, are inattentive to social cues, show physical and emotional distance from others, and prefer solitary over interpersonal situations. Studies have found that field-independent people (in comparison to field dependent people) spend less time looking at peoples' faces and looking into their eyes (Ruble & Nakamura, 1972), sit further away from conversation partners (e.g. Justice, 1969, Holley, 1972), are more interested in jobs involving the use of analytic skills (e.g. math and science; see Witkin & Goodenough, 1977, p. 676-77 for a review), and are more likely to use first-person singular pronouns (e.g. I) and less likely to use first-person plural pronouns (e.g. we; Dreyer, Dreyer, & Davis, 1987). Thus, individuals who perform better on analytic tasks also appear to be less social and more self absorbed

than those who perform poorly on analytic tasks. More precision is needed in research on self and cognitive style however. Although these studies have informally made the connection that people have an analytic cognitive style may be high in self-focus or low in other-focus, none have provided this explicit quadrant framework that acknowledges the orthogonal nature of self and other-focus (see Figure 3.1). Our quadrant framework can help organize past research on cognitive style and can suggest specific hypotheses for future research.

Three Cases of Social Atomization

We now present three examples that demonstrate with varying degrees of evidence that social atomization is linked to an analytic cognitive style: (1) indivdualism, (2) narcissism, and (3) autism. Our theory provides a framework to organize future research on self and other-focus and cognitive style, and these examples are presented as an initial test of our theory. First we discuss country-level individualism-collectivism and individual-level self-construal and their relationship to cognitive style. Next we discuss narcissism as a strong case of social atomization. Finally we discuss the clinical disorder of autism, which is a less clear cut case of atomization.

Individualists

Country-level data. Individualism is associated with independence, autonomy, and self-reliance. In contrast, collectivism is associated with interdependence, cooperation, and social harmony (Triandis, 1995). Western countries (e.g. United States, Canada, Europe) tend to have a more individualistic and less collectivistic cultural orientation, whereas the reverse pattern tends to occur in Eastern countries (e.g. Middle

East, Asia; see Oyserman, Coon, & Kemmelmeier, 2002). People from individualistic cultures tend to have independent self-construals (or self-concepts) "detached from context" that focus on personal abilities, traits, and accomplishments. In contrast, people from collectivist cultures tend to have self-construals that are "interdependent with the surrounding context" and focus on the "self-in-relation-to-other," achieving harmony, and conformity to group norms (Markus & Kitayama, 1991, p. 225).

Individualism-collectivism at the country level is most accurately measured as two separate uncorrelated dimensions (Oyserman et al., 2002). Despite this, a recent meta-analysis found that about one-third of studies only measured either individualism *or* collectivism (Oyserman et al., 2002). That makes an evaluation of our theory of social atomization difficult, because we specifically posit that people from countries both high in individualism *and* low in collectivism would be the highest in analytic cognitive style. Instead, the studies we review below either exclusively compare two or more countries at a less fine-grained classification level (i.e. as a unipolar dimension of individualism versus collectivism) or do not mention individualism-collectivism at all in their comparison. Thus, the best we can do is review the studies that suggest a link between individualism-collectivism and cognitive style. A major problem with these studies is that there often is no direct measure of individualism-collectivism in the study and the researchers loosely classify cultures into individualistic and collectivistic. According to our quadrant classification, labeling a culture as individualist doesn't necessarily mean that it is socially atomized because we do not know about its level of collectivism. This label could mean that a country is high in self-focus and low in other-focus relative to other countries (i.e. socially atomized). But it also might mean that a country is high in

self-focus AND other-focus, which would lead to very different conclusions about individualism-collectivism and cognitive style.

There has been some research showing that the different social organizations in individualistic and collectivistic cultures covary with different cognitive styles. For example, one review found that cultures lower in "social conformity" were more likely to have a field independent cognitive style (Witkin & Berry, 1975). Markus & Kitayama (1991) also note the connection between interdependence and context dependence suggesting that "if one perceives oneself as embedded within a larger context of which one is an interdependent part, it is likely that other objects will be perceived in a similar way" (p. 246). Nisbett, Peng, Choi, & Norenzayan (2001) echo this sentiment in their review of cultures and systems of thought (see p. 294) and also suggest that if the self is viewed as independent of others, then objects will also be viewed as independent of one another (see p. 295).

However most researchers do not seem to treat individualism and collectivism as separate dimensions, which makes it impossible to know whether high individualism itself (regardless of collectivism), low collectivism itself (regardless of individualism), or their combination (i.e. social atomization) is likely to be related to a highly analytic cognitive style. We know of no data available that examine the levels of both individualism and collectivism in a culture *and* examine its cognitive style. As a result, we draw on a meta-analysis that compared the United States to other countries in the world on both individualism and collectivism (Oyserman et al., 2002). The authors calculated effect sizes and found that the US was one of the *most individualistic* and *least collectivistic* cultures of the 50 countries they studied. We use these scores in our review

of the literature below in order to attempt to classify cultures on both dimensions and examine their cognitive style. In this brief review we only examine studies that compare the United States with another country on a measure of field dependence. Although there are many studies that measure the field independence in various countries without any comparison countries, we restrict our review to comparisons to the U.S. so that we can use these meta-analytic data to categorize countries on both dimensions.

A number of studies provide evidence that cultures with a high self-focus have more analytic cognitive styles. For example, in one study comparing American to Japanese cultures (Masuda & Nisbett, 2001), participants were exposed to pictures of underwater scenes and were asked to write what they saw. Japanese participants were more likely to notice the background (e.g. "there was a lake"), whereas American participants were more likely to focus on individual objects in the scene (i.e. the fish). When the same fish were presented in a different background, Japanese participants had more trouble recognizing the fish than American participants, indicating that they fused the objects and environment together, a holistic cognitive approach. The US was found to be higher on individualism than Japan in a meta-analysis (Oyserman et al., 2002; d = 0.25), but the US was also slightly higher on collectivism than Japan (d = 0.06). Given that the US has one of the lowest rates of collectivism in the world, this means that Japan is low in individualism *and* low in collectivism (i.e. detached). Thus, both the US and Japan are low in other-focus, the main difference between them is in self-focus. The US is high in self-focus, whereas Japan is low in self-focus. This study provides evidence that high and low self-focus is associated with a more analytic and holistic cognitive style, respectively, even when other-focus is constant.

Another study that leads to similar conclusions also compares Americans to Japanese (Kitayama, Duffy, Kawamura, & Larsen, 2003). Participants completed the Framed Line Test, a task in which they were shown a line drawn in a square and were supposed to draw the line in a blank square either exactly the same length as the first line (absolute task) or in the same proportion as in the first example (relative task). The researchers found that Japanese participants performed better than Americans on the relative task and worse than Americans on the absolute task. Again, because this study also compares Japan, a low individualism, low collectivism culture to the United States, a high individualism, low collectivism culture, the main difference between the two is the level of self-focus, while the level of other-focus is constant. Thus, this study provides further evidence that high self-focus is associated with an analytic cognitive style and low self-focus is associated with a holistic cognitive style.

Finally, a recent study has found that Koreans score higher on holism than Americans as measured by the Analysis-Holism Scale (Choi, Koo, & Choi, 2007). Oyserman et al. (2002) found that Korea is almost the same as the US in collectivism (i.e. low; d = -0.06) and is lower than the US in individualism (d = 0.39). Thus, Korea is classified as *detached* (low self, low other-focus) in our quadrant analysis (see Figure 3.1), whereas the US is classified as atomized (high self, low other-focus). This study then also provides evidence that high self-focus is associated with a less holistic cognitive style.

Taken together, these studies suggest that a high self-focus at the cultural level is related to analytic cognitive style, when other-focus is held constant. However, all of these studies compared an atomized culture (high self, low other) to a detached culture

(low self, low other) which just provides evidence for part of our social atomization theory, that is, that high self-focus is related to analytic cognitive style. Social atomization theory predicts that high self-focus *in combination with* low other-focus will be related to analytic cognitive style. Because there are no studies that examine both individualism and collectivism as separate dimensions along with cognitive style, our strategy is to triangulate and separately look at high self-focus and low other-focus, holding the other dimension constant. Next we examine studies that hold self-focus constant and compare an atomized country (high self, low other) to balanced countries (high self, high other).

One study compared male Peruvian and American high school seniors on the Embedded Figures Test and found no differences on average between the two countries (Gruenfeld, Weissenberg, & Loh, 1973). Peru is higher in both individualism (d = -0.40) and collectivism (d = -1.83) than the United States. Peru is therefore a high individualism, high collectivism country (*balanced*). Because both countries are relatively high in individualism, the main difference between them is their levels of collectivism. The authors also categorized their participants by social class and within each culture found that people from higher social classes had higher scores on the EFT. However they did not ensure that there were an equal number of participants from each culture in the same social class groups. Over half of the Peruvian sample (53.8%) were from the highest three social classes while only one-third of the American sample (34.2%) were from the highest three classes. So this unequal weighting may have contributed to the null results at a cross-cultural level. Future studies should try to match

participants more carefully so that the only major difference between the groups is their culture.

Another study found that African-American children scored higher than black South African children on the Children's Embedded Figures Test (Engelbrecht & Natzel, 1997). South Africa is another country that is higher individualism (d = -0.43) and collectivism (d = -0.43) than the United States (Oyserman et al., 2002). So, the United States and South Africa are both high in individualism, but they differ on levels of collectivism with South Africa being more other-focused. In other words, we are comparing a high self, low other culture (i.e. atomized) with a high self, high other culture (i.e. balanced). Thus, this study provides evidence that a lower other-focus might be related to a more analytic cognitive style.

Although several studies have been conducted, they have various problems that limit their interpretability in the context of our theory. Some of them contrast high self, low other (i.e. atomized) cultures to low self, high other (i.e. dependent) cultures. Others are missing information, for example, they only have individualism or collectivism scores in the Oyserman et al. (2002) meta-analysis, or they lump "East Asians" of various levels of individualism-collectivism together, making interpretation impossible. One example of contrasting atomized to dependent cultures is taken from Chiu (1972). Taiwanese and American children were given pictures of three objects (e.g. cow, chicken, grass), two of which share relational-contextual properties (e.g. cow eats grass) and two of which share analytic-categorical properties (e.g. cow and chicken are animals). American children tended to group objects based on analytic-categorical properties and Chinese children were more likely to group them based on relational-contextual properties. In Oyserman et

al's (2002) meta-analysis, the US was found to be higher in individualism (d = .77) and lower in collectivism (d = -1.06) than Taiwan. Thus, while the US is high in individualism and low in collectivism (atomized), Taiwan appears to be its mirror image because it is low in individualism and high in collectivism (dependent). Given that they differ in both self and other focus, it is hard to determine if one or the other (or both in combination) are related to the differences found in categorization.

Kühnen, Hannover, Roeder, et al. (2001) compared the US to Malaysia and find that Malaysians scored lower on the Embedded Figures Test. However, the authors only used Hofstede's (1980) scores on individualism in order to classify Malaysia as less individualistic. Given the orthogonality of individualism-collectivism, having low individualism scores as Malaysia does not necessarily say anything about collectivism scores. They could be low, in which case Malaysia would be low individualism, low collectivism (i.e. detached) or they could be high, in which case they would be classified as low individualism, high collectivism (i.e. dependent). Comparing the US to Malaysia if it were a detached country would mean that the main comparison would be on the self-dimension, since both would be low in other-focus. If so that would provide more evidence for high self-focus being related to analytic cognitive style. However, while Oyserman et al's (2002) meta-analysis does not give specific data on Malaysia, there is some evidence that East Asian countries, in general, are higher in collectivism than the US. If we compare the US to Malaysia assuming it was a dependent country, interpretation of the relationship between cognitive style and self versus other-focus would be difficult because they would be mirror images of each other and vary on both dimensions.

Kühnen, Hannover, Roeder, et al. (2001) also compare the US to Russia, which they classify as a collectivist country based on scanty evidence, and find that Americans score higher on field independence than Russians. Oyserman et al. (2002) do find higher collectivism in Russia compared to the US, but they do not have information for the individualism levels of Russia. Thus Russia could be high in individualism and high in collectivism (i.e. balanced) or low in individualism and high in collectivism (i.e. dependent). If Russia is a balanced country (high self and high other), then the main difference between them and the US would be in levels of other-focus, with the US being lower. That would provide evidence that lower other-focus is associated with an analytic cognitive style. If however, they were a dependent country (low self and high other), then they would be different from the US on two dimensions and it would be impossible to determine which one (or whether the combination of both self and other-focus) was related to the different cognitive styles found in each culture. Incidentally Kühnen, Hannover, Roeder, et al. (2001) also compared American and German college students and found that they had similar scores on the Embedded Figures Test. Oyserman et al. (2002) report that Americans and Germans have virtually identical individualism scores and Germans score a little bit lower in collectivism, meaning that both countries are high self and low other-focused ones (i.e. atomized) so it is not surprising that they have similar field independence scores. Holtzman, Diaz-Guerrero, & Swartz (1975) found that Mexican children scored lower than American children on the Embedded Figures Test and the Block Design Test, indicating that they were more field dependent than American children. Mexico is lower in individualism (d = .52) and higher than collectivism (d = -.57) than the United States (Oyserman et al., 2002), so it is another culture that is a mirror

image to the United States (i.e. low in individualism, high in collectivism) which limits its interpretability in terms of social atomization and cognitive style.

One study that is often cited to demonstrate the effect of culture on cognitive style is by Ji, Peng, & Nisbett (2000). The authors compared European American to East Asian students on the Embedded Figures Test (EFT) and the Rod and Frame Task (FRT) and find that there were no cultural differences on the EFT but that the European American students made fewer mistakes on the RFT than the East Asians. Besides its omission of direct tests for individualism-collectivism, one major problem with this study was that it combined several different East Asian countries together (China, Korea, and Japan) and considered them as one group. According to Oyserman et al. (2002) China is higher in collectivism and lower in individualism than the United States. However, not all East Asian countries show this pattern. Japan may be lower in individualism than the United States, but it is actually also one of the few countries that is lower in collectivism. Korea is also lower in individualism, but there is no difference between the US and Korea on collectivism. So Korea is another low individualist, low collectivist culture. Neither Japan nor Korea (both detached) should be lumped together with countries like China which are high in collectivism, and given this lumping, it is impossible to determine what exactly is leading to the difference in field independence on the RFT and the null results on the EFT. Overall, our review suggests that there is some evidence that social atomization is related to analytic cognitive style, but without further research that considers both dimensions of individualism and collectivism, no strong conclusions can be made. The only clear pattern of associations is that cultures high in self-focus, low in other-focus, or perhaps both, are higher in analytic cognitive style. This doesn't really answer our

question of whether social atomization is associated with analytic cognitive style. It could be highly self-focused cultures (regardless of their other-focus), or low other-focused cultures (regardless of their self-focus), or more specifically atomized cultures (high in self-focus, low in other-focus) that are related to analytic cognitive styles. That is, it is fully possible that if all four quadrants were examined the atomized one (high self, low other) would be higher than all three others in analytic cognitive style, although right now we cannot say for certain. Although beyond the scope of this paper, a meta-analysis examining scores on various measures of field dependence cross-culturally would be useful in order to understand what predicts analytic and holistic cognitive style at the cultural level. Following the methods of Oyserman et al. (2002) to calculate the effect sizes in field dependence scores in the US compared to other cultures would be useful because then the researchers could also relate these cognitive style effect sizes to Oyserman et al's (2002) individualism and collectivism effect sizes to examine whether there is a main effect of one or the other, or an interaction as we predict.

Individual-level data. We were unable to find any published studies that linked field dependence with self-construal. However we have some data that might bear on this question (Konrath, Bushman, & Grove, 2007). We gave 111 college students a personality questionnaire that included the Singelis (1994) self-construal scale and the Embedded Figures Test (EFT; range of scores: 0-18). When regressing independent and interdependent self-construal (and their interaction) onto the EFT score, we find a strong positive relationship between *independence* and analytic style (as measured by the EFT), $b = 1.30$, $\beta = .189$, $t(110) = 1.98$, $p < .05$, but no relationship between interdependence and analytic cognitive style. In another study, 40 students completed the self-construal

scale (Singelis, 1994) and the Analysis-Holism scale (AHS; Choi et al., 2007), which measures self-reported holism. Again we regressed independence, interdependence, and their interaction on the measure of holism, and found a significant positive relationship between *interdependence* and holism, $b = 0.54$, $\beta = .55$, $t(39) = 3.77$, $p < .001$. There was no relationship between independence and holism. This is odd given that our first study found that independence was driving the relationship between self-construal and the EFT. Given that the AHS is a newly developed scale there are no studies as of yet that examine the correlation between it and more traditional measures of field dependence, so we cannot make any strong conclusions from this study.

One study that may less directly bear on the question of self-construal and field dependence examined the relationship between private and public self-consciousness and field dependence (Davies, 1984). In this study students complete the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), the Embedded Figures Test, and the Rod and Frame Task. The Self-Consciousness scale measures one's attention to inward parts of the self (private self-consciousness: e.g. "I'm always trying to figure myself out") and one's awareness of how others might see the self (public self-consciousness: e.g. "I'm concerned about what others think of me"). These two aspects of self-consciousness may parallel independent and interdependent self-construal, respectively. The higher participants were in private self-consciousness, the better they performed on the EFT and the fewer errors they made on the RFT. However, public self-consciousness was unrelated to performance on either task. Until there are further studies that continue to examine cognitive style and self-construal, we cannot say for certain whether independence, interdependence, or both are associated with cognitive style.

There are a number of studies that prime independence-interdependence, but like the cross-cultural studies, these tend to usually prime either one or the other, and not both, or there are additional complications that limit interpretability. In one study college students were randomly assigned to view themselves in a mirrored surface on the Rod and Frame apparatus or to view a random pattern on a non-reflecting surface on the apparatus while they completed the Rod and Frame Task (Davies, 1986). This was done in order to induce a state of private self-consciousness, or awareness of the "internal, covert aspects of the self" including their "thoughts, feelings, and other private attributes" (p. 262), although it may be applicable to self-focus given the mirror. Other students were randomly assigned to hear their own voice or a stranger's voice reading a book while they completed the Rod and Frame Task. This was done in order to induce a sense of public self-consciousness, or awareness of the "overt, publicly displayed aspects of the self" including "their public self-image and how other people see them" (p. 262). Private self-focus (i.e. looking into a mirror) led to more accurate RFT scores (i.e. fewer errors) as compared to controls, however public self-focus (hearing one's voice on tape) was not associated with changes in RFT performance. This experiment may map onto our quadrants of self and other-focus with the mirror condition fitting into the atomized quadrant (high self, low other), the mirror control in the detached quadrant (low self, low other), the own voice condition in the balanced quadrant (high self, high other), and the other voice in the dependent quadrant (low self, high other). If we map the conditions onto the quadrants like so we note that the best performance on the other RFT was in the atomized quadrants, with the other three groups' means closer to each other than to the mirror group mean. While this is not a strong case for our argument, it does provide an

intriguing suggestion that at the very least, a mirror self-focus would serve to act as a prime for high self-focus.

In another study Jacobson (1966) randomly assigned one group of students to experience one hour of sensory deprivation which included little movement, opaque goggles, gloves, cuffs, and headphones with white noise. The control group experience one hour of stillness that did not include sensory deprivation but did include wearing dark glasses. In both cases an experimenter was in the room in order to ensure that participants followed instructions. He administered the Rod and Frame Task immediately before and after the one-hour experimental period and found that the sensory deprived participants significantly improved their scores by 16.05 degrees (i.e. made less errors) while the control group showed a non-significant improvement (5.56 degrees). The researcher thought this happened because the state of sensory deprivation increased awareness of the subjects' bodies, and thus they were more accurate in the correct orientation of the rod in the frame. However, these data may also be applicable in our analysis. By inducing a state of sensory deprivation the experimenter was also inducing a state of social isolation, because even though there was a research assistant in the room, the participant could not see or hear her. Thus this condition could be interpreted as a high self, low other focus condition. The control condition can be interpreted as a high other condition, because there was a research assistant in the room whom the participant could see. It is less clear whether the self-focus would be high or low, though, because the participants in the control group were allowed to read or listen to the radio. Thus, this study has a limited interpretation in terms of social atomization theory.

In a series of studies, German students were primed with independent and interdependent self-construals and given tests of analytic and holistic cognitive style (Kühnen, Hannover, & Schubert, 2001). For example, in the first three studies Kühnen, Hannover, & Schubert (2001) instructed participants to think of similarities versus differences between themselves and family members (Trafimow et al., 1991) and found that participants who thought of differences performed better on two different Embedded Figures Tasks (Study 1: Witkin, Oltman, Raskin, & Karp, 1971; Study 2: Horn, 1962) than those who thought of similarities. In the third study participants who thought of differences performed worse on a picture completion test that measured their holistic cognitive style (Hamburg-Wechsler Intelligence Test; Tewes, 1994). Given that participants were asked to make comparisons with others, it is hard to classify them into our quadrants. Presumably those who thought of similarities could be seen as high in self and other focus (i.e. balanced) because they had to think of both groups as equal. However, it is unclear where we would classify those who were asked to think of differences. Perhaps they could be seen as atomized, in which case the study would provide evidence for low other focus being associated with an analytic cognitive style. Given this uncertainty though, we wouldn't recommend this method of priming in future studies attempting to resolve the research questions we introduce in this paper.

In a less ambiguous study (Kühnen, Hannover, & Schubert's, 2001), participants were randomly assigned to circle first person singular (e.g. I, me), first person plural (e.g. our, we), third person singular (e.g. he, his *or* she, hers), or third person plural pronouns (e.g. they, their) in a paragraph like the one below (which contains first person singular pronouns; Brewer & Gardner, 1996; Gardner, Gabriel, & Lee, 1999).

> I go to the city often. My anticipation fills me as I see the skyscrapers come into view. I allow myself to explore every corner, never letting an attraction escape me. My voice fills the air and street. I see all the sights, I window shop, and everywhere I go I see my reflection looking back at me in the glass of a hundred windows. At nightfall I linger, my time in the city almost over. When finally I must leave, I do so knowing that I will soon return. The city belongs to me.

In terms of our quadrant, priming "I" only primes the self and not the other, thus it could be seen as an atomization prime. Priming "we" primes the self *plus* the other, thus it could be seen as a balanced self and other prime, and may not be a pure other-focus prime as one might suppose. Finally, priming "they" or "he/she" primes the other without the self, and thus it could be seen as a dependent prime. If the researchers had primed "you," this would also fit in the dependent quadrant and might be more suitable with the "I" and "we" primes (I + you = we). Finally, the quadrant that is missing is a detached one with low self and other focus, for which we would suggest priming "it." Next, participants completed Horn's (1962) Embedded Figures Test. The results showed that people who circled the first person singular pronouns scored higher on the EFT ($M = 30.93$, $\sigma = 4.09$, $N = 15$) than those who circled the first person plural ones ($M = 26.40$, $\sigma = 5.15$, $N = 15$). There was however no difference in the scores of people who circled the third person singular ($M = 25.33$, $\sigma = 5.77$, $N = 15$) and plural pronouns ($M = 27.40$, $\sigma = 6.79$, $N = 15$). We combined these two groups in order to re-analyze the data using our quadrant theory ($M = 26.37$, $\sigma = 6.09$, $N = 30$). Next we calculated t-tests comparing the "me" group to the combined group, and comparing the "we" group to the combined group. We found that the "we" did not statistically differ from the combined group but the "me" group did, $t(43) = 2.61$, $p < .01$. This result is evidence that randomly assigned social atomization (high self, low other) can lead to increased analytic cognitive style compared to randomly assigned balanced (high self, high other) and dependent (low self,

high other) conditions. This is evidence for increased analytic cognitive style with a low other focus. This evidence would be stronger, however, if there was also a control group of low self, low other (e.g. it) because then we could examine the specific effect of high self-focus. If the detached, balanced, and dependent groups means were equal to each other and all significantly lower than the atomized group, this would be stronger evidence in support of our theory that the combination of a high self *and* low other focus is specifically where we would expect to see a highly analytic cognitive style.

In another study using the same priming manipulation, participants were randomly assigned to circle either first person singular ("I") pronouns or first person plural ("we") pronouns (Kühnen & Oyserman, 2002). Students then completed the Navon (1977) letters task. They were shown a large letter made of small letters and were instructed to either select the correct correspondent number for the small letter or the large letter (see Figure 3.2-E). An independent self-construal should help participants to identify the small letter because of the need to focus on each part while ignoring the whole. Identification of the large letter requires a holistic or global processing style, and thus should be facilitated by the interdependence prime. As expected, participants primed with first person singular pronouns were faster to identify the small letters, whereas and those primed with interdependence were faster to identify the large letters. This pronoun circling task compared the atomized quadrant (high self, low other) to the balanced quadrant (high self, high other), and therefore provides further evidence that low other focus is associated with an analytic cognitive style. In a second study, the authors wondered if self-construal pronoun priming effects would extend to a context dependent memory task. Participants were first primed with the pronouns and then saw an array of

28 objects to be memorized. They were asked to recall the objects and their locations. People primed with the first person singular pronouns did not bind the objects to the location and therefore performed worse on the contextual memory task than those primed with first person plural pronouns. Because the main difference between the two priming groups was other focus, the second study gives more evidence that a low other focus leads to a more analytic cognitive style, holding self-focus constant.

Finally, in another study American and Korean students were primed with the same pronoun circling task ("I" versus "we"), and then completed the color Stroop task (Oyserman, Sorensen, Cha, & Schwarz, in press). Recall that in the congruent part of the task, participants name words written in the same ink color (e.g. the word red written in red ink). In the incongruent task, participants name words written in a different ink color (e.g. the word red written in green ink). The results showed that both American and Korean students primed with first person singular pronouns responded faster to incongruent words and colors than did students primed with first person plural pronouns. As in Kühnen & Oyserman (2002), the main difference between the two conditions in Oyersman et al's (2007) study is a difference in other-focus, since both tasks are high in self-focus. This study then provides additional evidence that low other-focus is associated with a more analytic cognitive style.

Overall, as in the case of individualism-collectivism, the review of independent-interdependent self-construal and cognitive style also presents some evidence that social atomization is related to analytic cognitive style. However, additional research that relates both dimensions of self-construal to cognitive style is needed. Because we are the only ones who have done research on this at the individual-differences level, we cannot

make any strong conclusions without seeing more work from other labs. It would especially be interesting to see if independent self-construal is driving the relationship to analytic tasks (like the EFT) and interdependent self-construal is driving the relationship to holistic tasks (like the AHS). Manipulations of self-construal have the potential to be very powerful in better understanding the relationship between self and other focus and cognitive style. We recommend further research that includes all four quadrants of priming in order to determine if social atomization is the one that leads to the most analytic cognitive style, as we suggest.

Narcissism

Narcissism is a personality trait that in its extreme form can be pathological (APA, 1994). The term comes from the mythical Greek character Narcissus, who fell in love with his own image reflected in the water. It is characterized by grandiose beliefs about the self, entitlement, lack of empathy toward others, interpersonal exploitation, and a sense of excessive uniqueness. It is measured using the Narcissistic Personality Inventory (Raskin & Terry, 1988), which has 40-items in a forced choice response format. For each question people can choose either the narcissistic response (e.g., "If I ruled the world it would be a better place.") or the non-narcissistic response (e.g., "The thought of ruling the world frightens the hell out of me.").

Research has found that narcissism is highest in individualistic cultures (Foster, Campbell, & Twenge, 2003) and we have found that it is correlated positively with independent self-construal and negatively with interdependent self-construal (Konrath, Bushman, & Grove, 2007). Given this pattern of findings, narcissism perhaps presents a more clear-cut case of simultaneous high self-focus and low other-focus (i.e.

atomization). Other research verifies this classification of narcissists as atomized. For example, narcissists are located in what we call the atomized quadrant of Wiggins' (1991) interpersonal complex of agency and communion (i.e. the cold/hostile and assured/dominant quadrant; Ruiz, Smith, & Rhodewalt, 2001). Narcissists are also very likely to self-enhance on agentic traits like power and intelligence rather than communal traits like kindness (Paulhus & John, 1998; Campbell, Rudich & Sedikides, 2002; Ladd, Welsh, Vitulli, Labbe, & Law, 1997).

Although narcissists are extraverted (Raskin & Hall, 1981; Emmons, 1984) and enjoy the attention (and admiration) they can get from being around others, there is a sense of psychological isolation that is characteristic of narcissistic self-focus. As one prominent clinical theorist noted, they "are able internally to withdraw from social life as effectively as the most severe schizoid character" (Kernberg, 1975, p. 248). They seem to see the world from only their perspective and see others as objects of their exploitation; they literally 'objectify' people. They find it difficult to empathize with others (Bushman, Bonacci, Van Dijk, & Baumeister, 2003; Watson, Grisham, Trotter, & Biderman, 1984; Watson & Morris, 1991), which is included in the DSM-IV definition of the disorder (APA, 1994). They also use more first person singular pronouns and fewer first person plural pronouns than people scoring lower in narcissism (Raskin & Shaw, 1988). Further demonstrating their low other-focus, narcissism is positively related to more selfish behavior in a resource-dilemma harvesting game (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004; Campbell, Bush, Brunell, & Shelton, 2005), and is positively related to aggression under ego threat (Bushman & Baumeister, 1998; Campbell, Bonacci, Shelton, Exline, & Bushman, 2004; Kernis, Granneman, & Barclay, 1989; Stucke & Sporer,

2002). Given these findings on the high self focus and low other focus, one pair of researchers has even suggested that narcissism might be a form of "extended agency" (Campbell & Foster, in press) which in a nutshell means high agency with low communion.

To date, however, virtually all research on narcissism has focused on related personality characteristics and social behaviors, and there has been almost no research or speculation about what a narcissistic cognitive style might look like. A case study published by Wälder (1925) might give us a clue. He described a patient, A.T., who was a scientist with a narcissistic personality. Throughout his description, Wälder refers to the cognitive style of A.T. as being highly analytic and "under the sway of a logical compulsion" (p. 266). Wälder writes that A.T. was able to quickly "separate out the premises and from them conduct a subtle logical analysis" when presented with difficult problems (p. 266). In fact A.T. was "readily open to anything systematic" (p. 266). "He endeavors always to get down to elementary concepts which cannot be dissected further[2] and to build up his theory from a synthesis of such concepts" (p. 267). Although this mode of hyper-analytic thinking may be common to many scientists, Wälder seemed to make a connection between it and narcissism.

We conducted two correlational studies in which students completed both the Narcissistic Personality Inventory and measures of cognitive style (Study 1: Analysis-Holism Scale; Study 2: Embedded Figures Test). Narcissism was negatively related to self-reported holism and positively related to scores on the EFT and (Konrath, Bushman, & Grove, 2007). Thus, narcissists prefer to go to extremes rather than take the middle ground when faced with two opposing arguments and they tend focus their attention on

the details and not on the "big picture" or the holistic context. To our knowledge this is the first time that narcissists have been empirically demonstrated to exhibit an analytic cognitive style. Although it is well established that narcissists are high in self-focus and low in other-focus, more research needs to be done on narcissist cognitive style before we can confidently establish that they are indeed analytic.

Autism

Autism (literally, "self-ism") is a developmental disorder characterized by a triad of poor social skills, difficulty with language and the pragmatics of communication, and repetitive and restrictive activities and interests (APA, 1994). There is some evidence that autism rates are rising over time, but that may be partially a result of greater awareness and more inclusive diagnostic categories (e.g. Autism Spectrum Disorders include Autism, Asperger's Syndrome, and PDD-NOS; Prior, 2003). Given its literal definition as "self-ism" one might assume that much of the research in autism concerns the self. In fact, there is barely any research on the self-concepts of autistic individuals, and certainly not from a social cognitive perspective. One researcher has asserted that, "there is little doubt that classic autism involves a total focus on the self, and little if any apparent interest in the emotional states of others" (Baron-Cohen, 2005, p. 14). However, only evidence for the latter claim about other focus is presented in his review, perhaps because of the rarity for researchers to see self and other-focus as separate, uncorrelated dimensions.

We do know that autistic individuals score higher in introversion and lower in self-esteem than matched controls on the MMPI-2 (Ozonoff, Garcia, Clark, & Lainhart, 2005). Other research using different personality scales confirms that autistic personality

traits are associated with lower extraversion (Austin, 2005; Wakabayashi, Baron-Cohen, & Wheelwright, 2006) and perceptions of oneself as modest, shy, and low in competence (Wakabayashi et al., 2006). In their self-descriptions, autistic individuals report an equal number of psychological statements (emotions, thoughts, preferences) as age and verbal IQ-matched controls, however they make significantly fewer social statements (Lee & Hobson, 1998). One study compared autistic people to normal controls on the self-serving bias (i.e. the number of internal attributions for positive events minus the number for negative events) found no difference in this (Blackshaw, Kinderman, Hare, & Hatton, 2001). However, they did find that autistic individuals scored significantly higher in private self-consciousness than normal controls, although there was no difference in public self-consciousness. This is intriguing given the studies reported above by Davies (1984; 1986) that found an association between private self-consciousness and analytic cognitive style. Nevertheless the few studies that do study the selves of autistic individuals present a mixed portrait of their self-focus. On the one hand they are introverted and modest, which would suggest low self-focus, but on the other hand they are high in private self-consciousness and equally use the self-serving bias.

Clearly, more research needs to be done in order to understand the self in autistic individuals. While it may be difficult to administer personality questionnaires to lower functioning autistic people, the researchers above studied people in the higher functioning range. There is no need for autism to be exclusively the domain of clinical researchers, especially now that an autistic personality scale has been developed (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001). Some questions that would be interesting to explore would be include: Are autistic individuals high or low in self-

esteem using more traditional measures of it (e.g. Rosenberg, 1965, self-esteem scale)? Do autistics have a tendency to self-enhance like narcissists (e.g. Campbell, Rudich, & Sedikides, 2002) and individualists (e.g. Sedikides, Gaertner, & Toguchi, 2003)? Perhaps, given the findings on the equal likelihood of a self-serving bias despite their disabilities (Blackshaw et al., 2001), but one study is not enough to answer this question. In their written self-descriptions do autistic individuals use more personal pronouns than relational ones? Do they see themselves as high in independence and low in interdependence?

While research on autistic people's sense of selves is lacking, we do know a lot about the social behavior of autistic individuals, and this research supports the clinical definition of low other-focus. For example, autistic individuals score lower than normal controls in empathy (EQ; Baron-Cohen & Wheelwright, 2004) and have deficits in theory of mind compared to controls with other disabilities and normals (Baron-Cohen, Leslie, & Frith, 1985; Perner, Leslie, Leekam, & Frith, 1989; Baron-Cohen, 1995). Children with autism are also less likely to share than matched controls (Sigman, Ruskin, et al., 1999). Autistic people are less skilled at imitating behavior than controls (see Smith & Bryson, 1994, for a review), a deficit that begins in infancy (Charman, Swettenham, Baron-Cohen, Cox, Baird, & Drew, 1997). Children with autism are less likely than normally developing controls to be in close proximity (within 3 feet) of another child in classroom interactions (McGee, Feldman, & Morrier, 1997). And finally, children with autism are less able to detect violations of everyday conversational norms compared to matched controls (Surian, Baron-Cohen, & Van der Lely, 1996). What is interesting about these last three behaviors is that they are all parallel to behaviors that are associated

with manipulated or chronic independent self-construals. Individualists or people with independent self-construals are less likely than collectivists or people with interdependent self-construals to non-consciously imitate behavior (van Baaren, Madduz, Chartrand, de Bouter, & van Knippenberg, 2003). Manipulated or chronic independent self-construal is related to greater spatial distance between self and other in interaction (Holland, Roeder, van Baaren, Brandt, & Hannover, 2004) and people from individualist countries have greater interpersonal distances (Cline & Puhl, 1984; Noesjirwan, 1977; Sussman & Rosenfeld, 1982). Finally, people with manipulated and chronic independent self-construals are less sensitive to conversational context (Haberstroh, Oyserman, Schwarz, Kuhnen, & Ji, 2002).

Given that we know that autistic individuals are low in other-focus, they can only fit one of two places in our quadrant: either they are atomized (high self, low other) or detached (low self, low other). Whichever it turns out to be, the critical piece of missing information is their level of self-focus because there is a lot of evidence (reviewed below) that autistic individuals have a highly analytic cognitive style. Thus, autism as a case study may provide more evidence for the moment that analytic cognitive style is associated with a low other focus.

Many research programs have focused on deficits in autism, for example they are deficient in the ability to understand that other people have different thoughts and perspectives from themselves (i.e. theory of mind; see Baron-Cohen, 1995). However some researchers have reported intriguing findings of specific areas of ability in autistic individuals as compared to intelligence-matched controls. Specifically, autistic individuals are thought to possess a strongly analytical, detail-focused cognitive style,

which leads to strong performances on many cognitive tasks as compared to normally developing controls. In addition, research has found that relatives of autistic individuals are more likely to be represented in fields associated with analytic cognitive styles (e.g. engineering, physics, mathematics; Baron-Cohen, Wheelwright, Stott, Bolton, & Goodyer, 1997; Scahill, 1998), and people in more analytic careers (i.e. science and mathematics) score higher on the Autism Quotient (Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001).

Frith (1989) was one of the first to empirically evaluate the hypothesis that autistics are weak in "central coherence," which she defined as the ability of typically developing individuals to understand information in its context as part of a larger whole, rather than just focusing on each detail independently of context. She hypothesized that autistics were excellent at focusing on details but were weak at making connections between pieces of information in order to reach a higher-level of meaning (i.e. holistic thinking). Frith was not the first to notice this preference for local rather than global processing in autistic individuals, however. Kanner (1943), the clinician who first named autism, wrote that a key characteristic of autism was an "inability to experience wholes without full attention to the constituent parts" (p. 38). Since then several studies have empirically supported Kanner's observations. Below we review several different lines of research demonstrating that autism is characterized by a bias toward detail-oriented local (analytic), rather than global contextual (holistic), cognition. These studies demonstrate that this cognitive style impacts a wide range of domains in autistic individuals: visuospatial abilities, perceptual illusions, and linguistic tasks.

Perhaps the most prolific area of research focusing on autistic individuals' analytical processing style has been in the domain of visuospatial abilities. Autistic individuals perform better than controls on a number of different visual tasks. What characterizes all of them is that in order to be successful at them, one must focus on details at the expense of 'the big picture.' For example both low and high-functioning autistic individuals perform better on the Embedded Figures Test than normal controls because they are able to easily disembed the simple figures from their complex context (Shah & Frith, 1983; Jolliffe & Baron-Cohen, 1997). Autistic individuals also perform better than controls on the Block Design Test (see Figure 3.2-C; Happe, 1994; Shah & Frith, 1993). Researchers have found that unlike controls, autistic individuals do not improve in their performance when the blocks are pre-segmented for them, indicating that they are already segmenting the initial pattern in their minds in order to complete the task (Shah & Frith, 1993). Another example of autistic individuals' superior detail-oriented processing is from a study on face processing (Hobson, Ousten, & Lee, 1988). The researchers found that autistic individuals were better than controls at identifying upside-down faces. This fits in nicely with the above findings on increased analytic cognitive style because if autistic individuals process the details of faces analytically, it shouldn't matter whether the faces are upside-down or right side up in order to identify them. However, since controls identify faces more holistically, they need the faces to be in their typical right-side up context for identification. Finally, autistic individuals perform as well as reading-matched controls (Eskes, Bryson, & McCormick, 1990) and normal controls (Blackshaw et al., 2001) on the Stroop task, a finding that is surprising in the context of their other deficits.

Relevant to visuospatial abilities but examining autistic cognition at a more primitive level is research on how autistic individuals perceive visual illusions, for example, the Hering illusion (see Figure 3.2-D). Because autistic individuals have highly analytical cognition (weak 'central coherence'), they make fewer errors on optical illusions (Happe, 1996). This research showed that autistics are superior at 'disembedding' the lines from their context because when normally developing controls only performed as well as the autistic group when they were presented with 3-dimensional "artificially disembedded" stimuli (Happe, 1999a; 1999b). However, this disembedded condition provided no enhancement to autistic individuals' performance on this task.

A final domain of research that has been explored in relation to autistic individuals' highly analytical processing is the verbal-semantic domain. Although autistic individuals may perform well on the other domains relative to controls, they tend to perform poorly on verbal tasks, especially those that require the integration of information. For example, autistic children are comparable to normal controls when asked to read a list of several words. However, they are poor at sentence processing as compared to single-word processing (Prior & Hall, 1979; Tager-Flusberg, 1981), likely because in order to understand a sentence, one often has to consider how the words in the sentence connect and interrelate. In a series of studies comparing autistic children to normal and dyslexic controls, researchers found deficits in context-dependent processing (Frith & Snowling, 1983). Children read stories with embedded homographs aloud and recorded the number of pronunciation errors that they made. Homographs are words with two meanings and pronunciations, but the same spelling. An example is: "He had a pink

BOW" as compared to "He made a deep BOW" (Frith & Snowling, 1983). Sentences with homographs embedded in them are a good test of whether individuals are paying attention to the context of the sentence. If so, they should correctly pronounce the word and understand its meaning. The researchers found that children with autism made more errors on this task than control and dyslexic children. This effect was conceptually replicated in two other studies and in a separate study involving higher functioning children with autism (Happe, 1997). Thus, autistic children exhibit a failure to use semantic context to determine word meaning and pronunciation.

It is also well established that autistic individuals have an analytic cognitive style. They are also low in other-focus. Accordingly, autism could be a case of atomization (high self, low other), but it also could be a case of what we call detachment (low self, low other). If research begins to show that autistic individuals have high self-focus, for example that they are self-enhancing and use first person pronouns more than controls, even if their self-focus looks a little different than narcissistic and individualistic self-focus, then this would support our theory of social atomization. If however research begins to show evidence for low self-focus then it might actually be low other-focus that drives an analytic cognitive style, regardless of the level of high self-focus. Converging research evidence from individualism-collectivism, self-construal, and narcissism would also be important in establishing this link.

Causality

So far we have noted correlations between atomization and cognitive style, and as with any correlation direction of causality and third variable explanations deserve some attention. First, it is possible that high self-focus or low other-focus could lead to a more

analytic cognitive style. Research supports this, finding that experimentally induced high self-focus (Davies, 1986) or low other-focus (Kühnen, Hannover, & Schubert., 2001, Study 4; Kühnen & Oyserman, 2002; Oyserman et al., in press) leads to better performance on analytic tasks and worse performance on holistic tasks. Future research needs to contrast social atomization (high self-focus combined with low other-focus) to the other three quadrants. If our theory is correct, then randomly assigning people to the atomized quadrant will lead to the highest scores on tests of analytic cognition. Why should this be the case? We think it may be because high self-focus and low other-focus is associated with an increased time paying attention to objects and their properties. As Nisbett et al. (2001) suggest (p. 294-295), when people have few social relationships they can spend a lot of time attending to focal objects and develop rules associated with those objects.

For example, as applied to the case of autism, perhaps there is something genetically askew that makes autistic individuals more interested in objects in their environment than in people. They spend a lot of time playing repetitively and stereotypically with objects and as a result are physically isolated from others, not seeking out social stimulation. Without having experience interacting with people, autistics may learn primarily from object interactions and end up believing that people follow similar predictable rules as objects do. Objects do not have minds, so why would people? Toy cars always roll *down* ramps, and *not up*, and similarly people should be predictable and rule-governed. Kühnen, Hannover, and Schubert (2001) also explain that high self-focus should lead to analytic cognition because an independent self-construal is created when people collapse descriptive features about themselves across several

different situations. In other words, people acquire independent self-knowledge by using context-independent thinking styles, something that would be difficult for more relationship-oriented people who tend to bind identity to social contexts and process information more holistically.

Even if there is evidence that A causes B in a correlational relationship, it is still possible that causality is bi-directional, i.e. that B also causes A. Thus, it is also possible that a more analytic cognitive style can lead to a higher self-focus or a lower other-focus, or both. To date we are not aware of any research that examines whether an analytic cognitive style creates more self-focus or less other-focus. In a study we conducted (Konrath & Bushman, 2007), 28 participants were randomly assigned to a task that required visual disembedding or one of two control tasks. In the disembedding task, participants were shown two similar pictures and were asked to "spot 10 differences" between them. One control task showed participants the same pictures and asked them instead to "spot 10 similarities" between them, a task that may require less context independence. The second control task asked participants to list 10 animals. Next, participants were asked to what extent they agreed with three items from the Psychological Entitlement Scale ("I honestly feel I'm just more deserving than others," "I demand the best because I'm worth it," and "Great things should come to me;" Campbell, Bonacci, Shelton, Exline, & Bushman, 2004). We found that participants in the analytic group scored marginally higher in entitlement than those in either of the control groups. Of course given the small sample size and lack of replication so far, caution in warranted in interpreting these findings.

We recommend that future research explore the potential for analytic tasks to make people higher in self-focus and lower in other-focus, and holistic tasks to do the opposite. For example, participants could be asked to find some embedded figures or put some blocks together to make a larger shape in order to determine the effect of analytic tasks. For holistic priming, perhaps training in oriental medicine would be effective because researchers have found differences in the degree of holism in oriental medicine students as compared to western medicine students (Koo & Choi, 2005; Choi, Koo, & Choi, 2007). Any task that emphasizes key elements of holism such as attention to the whole rather than the parts and complex intertwined causal relationships should increase holism, and perhaps decrease self-focus and increase relational focus as a result.

Third variables might also help to explain the relationship between analytic cognitive style and social atomization. For example, gender is related to both of these. Males are higher in narcissism (Foster, Campbell, & Twenge, 2003; Bushman & Baumeister, 1998), independent self-construal (Cross & Madson, 1997), autism (Baron-Cohen, 2002; Baron-Cohen et al., 2001), and field independence (Voyer, Voyer, & Bryden, 1995). It is beyond the scope of this paper to determine the role of biological factors such as testosterone versus more socially constructed explanations for all of these sex differences, however, we just note that these sex differences might be an important consideration in an explanation of causality. For example, it could be that higher testosterone is related to both increased atomization and increased field independence. Or, more freedom to explore one's environment could have the same effect. Experimental studies could help to clarify these complex causal relationships. More important to our theory might be whether the relationship between atomization and analytic cognitive

style is the same for males and females, even if there is a main effect for males to be more atomized and analytic. There are likely multiple causes of atomization, ranging from genetic tendencies to cultural upbringing to specific everyday situations. Anything that creates a sense of high self-focus and low other-focus should result in an analytic cognitive style, and perhaps vice versa.

Discussion

In this paper we reviewed evidence that high self-focus and low other-focus, or both together, are related to an analytic cognitive style. In our review of culture and field dependence we found that high self-focus or low other-focus was associated with better performance on analytic tasks. However before we can safely conclude that social atomization is related to analytic cognition more research is needed that examines both individualism and collectivism levels in cultures and relates them to cognitive measures. Similar to the cross-cultural review, our review of self-construal studies finds some evidence that social atomization is related to an analytic cognitive style, but more research is needed that examines both independent and interdependent self-construal and relates them to measures of cognitive style. As well, self-construal priming studies should attempt to prime all four quadrants of self and other-focus in order to determine if social atomization (high self and low other-focus) is related to the most analytic cognitive styles.

Our review of research on narcissism revealed that although there is some evidence for increased analytic cognitive styles in narcissists, research on narcissistic cognitive style is very limited and more research is needed before we can conclude that narcissists, as socially atomized people, are more analytic. Finally, our review of research

on autism shows plenty of evidence for a highly analytic cognitive style in autistic individuals, but virtually no research on their self-concepts. Without this critical piece of information we cannot determine whether they are highly analytic because of low other-focus in general, or whether it is related to social atomization.

We have reviewed much research on the potentially similar self-concepts and social skills of individualists, those with independent self-construals, narcissists, and people with autistic spectrum disorders. However, there are certainly differences in the self and social domains between these three groups. For example, they are certainly different in levels of functionality, causes, and some personality variables (e.g. introversion versus extraversion). These differences do not change the theoretical point that we are trying to make, which is that anytime the focus on the self is high and the focus on others is low, there will also be an associated cognitive style that disembeds information from its context. This is the main feature we propose these three groups may share. Note that we are not positing that narcissism, autism, and individualism are necessarily causally related, nor are we positing any of them as extremes of any others. That is, we do not think, for example, that extreme individualism causes autism or narcissism. Also, we do not view individualism as in the middle of a continuum with narcissism and autism at the ends. They are probably separate (but possibly related) dimensions.

In this paper we do not explore other potential cases of social atomization because of limited relevant research. However, we propose that further exploration would be fruitful for future research. Any situation or individual differences variable that is related to high self-focus and low other-focus should also be associated with an analytic

cognitive style. For example, people with antisocial personality disorder are purportedly high in agency and low in communion (Wiggins & Pincus, 1989), and if this is true then we would expect them to have the corresponding context-independent way of thinking. There are also other more environmental reasons that people are physically isolated, as for example, the case of the Romanian orphans who did not get enough social attention from their caregivers (Hoksbergen, Laak, Rijk, Dijkum, Stoutjesdijk, 2005). These children spend a lot of time with objects in their environment and it is possible that some of their dysfunction arises from a generalization of object properties to social interactions. We would expect that if these children are high in self-focus and low in other focus, then they would have highly analytic cognitive styles. In fact, many of these children have what are called "quasi-autistic" social behaviors (Hoksbergen et al., 2005), but we are not aware of any research that takes this one step further and examines their identities and cognitive styles.

Implications

Social atomization theory has theoretical and applied implications. Theoretically it can help expose gaps in research, for example that the cognitive style of narcissists and the self-concepts of autistic individuals have been understudied. It also suggests that self-other is not necessarily a single bipolar dimension, but perhaps two orthogonal ones in which people can be high and low in either. There is very limited research on this topic even though self-construal researchers have found that independent self-construal and interdependent self-construal are orthogonal. Another theoretical implication is that it is possible that holistic and analytic cognitive styles are also orthogonal, that is, that people can be high in both abilities. Many cognitive tests only measure one of these aspects, for

example high scores on the Embedded Figures Test are seen as field independence and low scores are seen as field dependence. However, it is possible that people could score high on tests that measure field independence and also on tests that measure field dependence, a possibility that we leave for future researchers to explore. If it is the case that holistic and analytic thinking are independent dimensions, then we would predict that high analysis-low holism is specifically related to the atomization quadrant, but without further research we cannot know for sure.

There are also several applied implications to our theory. First, there is limited research comparing autism rates across cultures. However, we can speculate about developmental processes that may occur as countries become more individualistic. In individualistic cultural contexts, children are raised with a focus on the self and their own needs, which should be appropriately internalized to fit in with others in their culture. They are also taught to pay attention to focal objects and process them as independent from other objects. If an individual has a genetic predisposition to narcissistic or autistic traits, this kind of parenting could be especially harmful because it might accentuate the tendencies toward high self-focus, low other-focus, and hyper-analysis that are perhaps common to both. If however, an individual has a genetic predisposition to narcissistic or autistic traits and lives in a collectivist culture, he or she may receive inadvertent correction for tendencies towards atomistic behavior through parents and caregivers directing children's attention to focus on others and to notice interrelationships and the big picture in their environment. Thus, another implication is that teaching people holistic ways of thinking might have the added advantage of inadvertently spilling over into the

social domain and lead to increased connections to others, and perhaps treatment for narcissism and autism could involve intensive holism training.

Another implication of our theory involves the finding that narcissism scores have been increasing since the 1980s in American college students (Twenge, Konrath, Foster, Campbell, & Bushman, in press). With these increases in narcissism over time, it is possible that there will also be increased analytic cognitive styles and decreased holistic styles, which is again another possibility left open for future research.

Besides cross-cultural implications, another implication of our theory is that extremes of interdependence and holism (the dependence quadrant of Figure 3.1) may also be harmful. For example, there may be situations when focusing on the little details at the expense of the big picture could have survival consequences or be needed in order to achieve one's goals. In addition, it is possible that in the extreme, holistic thinking might be associated with a tendency toward paranoia if people see too many interconnections and interrelated causal paths in events that are actually discrete and unconnected. It is likely best to be balanced in one's focus on the self and other, with should lead to a flexible access to whichever cognitive style is most appropriate for each situation.

Conclusion

Whether social atomization is always associated with analytic cognitive style as we hypothesize clearly needs further investigation, and it may turn out to be a more complex story than our simplified presentation in this paper. However, we recommend this interdisciplinary conceptual paradigm in order to better understand the thinking and behavior of the example groups we presented and other relevant ones. Autism is usually

studied by clinicians and narcissism is studied by both clinical and personality psychologists. These researchers could benefit from borrowing social psychology's methods of studying independence of self and cognitive style. A deeper understanding of autistic and narcissistic cognition and perception, and self and identity could help in pinpointing effective treatments.

Unless more research is conducted, we cannot conclusively say whether we simply stumbled upon a few cases of traits that share several characteristics, and this remains a possibility. Even if this is a possibility, our argument is important because it could lead to focused experimental research that specifically addresses this question. We view spawning future research to be an important feature of a theoretical perspectives piece, and we believe this article will do just that. Our hypotheses, whether correct or not, can lead to a structuring of the information in such a way as to see which areas have been over-researched and which ones have been under-researched in each of the three areas.

Endnotes

[1] We borrow the term “atomization” from Michel Houellebecq, a modern dystopic fiction writer of the popular book “Atomized,” also called “The elementary particles.”

[2] Note that this is exactly the definition of an atom: an irreducible unit of an element.

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ARTICLE #3: Seeing my world in a million little pieces: Narcissism, independent self-construal, and analytic cognitive style

Abstract

In two studies we examine the association between narcissism, independent self-construal, and cognitive style. College students completed the Narcissistic Personality Inventory (Raskin & Terry, 1988), the Self-Construal Scale (Singelis, 1994) and the Analysis-Holism Scale (Study 1; Choi, Koo, & Choi, 2007) or the Embedded Figures Test (Study 2; Witkin et al., 1971). We found that narcissism was positively related to independent and negatively related to interdependent self-construal. In addition, narcissism was positively related to an analytic cognitive style and negatively related to a holistic cognitive style. We also included a hypothetical scenario measure of aggression in these studies and found that narcissism was related to an increased desired to aggress after an imaginary ego-threat.

Narcissism is a topic that has a long history in psychology starting with Freud in the early 1900s. Today it continues to receive considerable attention from clinical and personality psychologists, and is colloquially used by laypeople to describe self-focused arrogance. The term narcissism originates from the mythical Greek character Narcissus, who fell in love with his own image reflected in the water (Harris, 2005). Narcissism, in its extreme form, is classified as a personality disorder in the *Diagnostic and Statistical Manual of Mental Disorders* (APA, 1994). Narcissists are low in empathy, high in grandiosity and exploitativeness, have a strong sense of entitlement, idealize unlimited success, seek the attention and admiration of others, and find it difficult to accept personal criticism. Fantasies of power and influence, along with a constant overestimation of talent and importance, also characterize the disorder. The prevalence rate of narcissistic personality disorder is approximately 1 percent and is more typical in males than in females (Hilsenroth, Fowler, Padawer, & Handler, 1997).

However, narcissism is not limited to a personality disorder. Sub-clinical levels of narcissism occur in the general population, which is likely why it is such a popular topic of general attention. Sub-clinical narcissists have positive and inflated self-views related to uniqueness, superiority, entitlement, and authority (Foster, Campbell, & Twenge, 2003; Campbell, Goodie, & Foster, 2004). Typically, they also have difficulty agreeing with others, have strong extrinsic desires, have a tendency to boast about their achievements, and in general, have an arrogant attitude about their abilities.

Not surprisingly, the combination of these attributes leads to difficulty with interpersonal intimacy and closeness with others (Campbell, 1999; Campbell, Bush,

Brunell, & Shelton, 2005). First, narcissists demonstrate a lack of empathy, as evidenced by the negative relationship between narcissism and empathy scores (Bushman, Bonacci, van Dijk, & Baumeister, 2003; Davis, 1983; Ehrenberg, Hunter, & Elterman, 1996; Mullins & Kopelman 1988; Watson, Grisham, Trotter, & Biderman 1984). In particular narcissists score low on the Empathetic Concern subscale and the Perspective Taking subscale of the Interpersonal Reactivity Index (Davis, 1983), which measures empathy as emotional sensitivity to others and the cognitive ability to assume another person's point of view (Watson, Biderman, & Sawrie, 1994). Narcissists also report engaging in game-playing relational styles, meaning that while they are in committed relationships they are open to and desire additional relationships with others. Narcissists game-play in order to build their status, gain attention, and maintain their autonomy and inflated self-views. Game-playing is also possible because of narcissists' lack of empathy, allowing them to avoid intimate relationships (Campbell, Foster, & Finkel, 2002).

This lack of empathy also perhaps provides some explanation for why narcissists behave aggressively after they are criticized. Until recently, there has been the cultural assumption that people with low self-esteem are the most likely to be aggressive, however, contrary to this assumption, the findings of empirical research indicate that self-esteem is not an effective predictor of aggression (e.g. Baumeister, Smart, and Boden, 1996; Baumeister, Bushman, & Campbell, 2000). People with low self-esteem are typically low in confidence and submissive to the influence of others. Aggression often occurs when one's strongly held opinion is threatened, which requires self-esteem high enough to resist and reject the influence of others. Low self-esteem simply does not explain aggression. Instead, support for the link between narcissism and aggression is

growing (Baumeister, Smart, & Boden, 1996). Laboratory studies find that narcissists are aggressive when their ego is threatened by an insult (Bushman & Baumeister, 1998) and other researchers have found that narcissism correlates with self-reported aggression (Washburn, McMahon, King, Reinecke, and Silver, 2004; Chiaradonna, 2004). In addition, incarcerated violent males have been found to have higher narcissism scores than nonviolent men the same age. Violent prisoners do not, however, have lower self-esteem scores than nonviolent men (Baumeister & Bushman, 2002).

Although research has demonstrated a strong relationship between narcissism and aggression, one question that remains to be answered is whether there is something about theor cognitive style that might help explain their low empathy and high aggression. The current studies will attempt to address this question. As is apparent from the summary presented above, research on narcissism thus far has been focused on their personal characteristics and relational styles. As far as we know, no research has focused on the relationship between narcissism and cognitive style.

Self-Construal and Narcissism

Despite this considerable literature on narcissistic approaches to relationships, there has been limited work on how narcissists perceive their self-concepts in relation to others. Two dominant types of self-orientations exist at the cultural level: individualism and collectivism. Individualism is associated with independence, autonomy, and self-reliance, whereas collectivism is associated with interdependence, cooperation, and social harmony. Individual goals have priority over group allegiances in individualistic cultures (e.g. United States, Canada, and Western Europe), whereas group allegiances have

priority over individual goals in collectivistic cultures (e.g. the Middle East and Asia; Triandis, 1995; Diener & Diener, 1995; Oyserman, Coon, & Kemmelmeier, 2002).

These orientations can also exist at the individual level as people of any culture can vary in their levels of independence or interdependence (Markus & Kitayama, 1991), thus *self-construal* is measured at the level of the individual within the culture (Gudykunst, Matsumoto, Ting-Toomey, & Nishida, 1996; Kim, 1995; Kapor, Hughes, Baldwin, & Blue, 2003). People with independent self-construals think of themselves in terms of their separateness and uniqueness from others and act in accordance with their feelings and attributes, whereas people with interdependent self-construals think of themselves in terms of their connectedness and unity with others and act in accordance with their group roles, relationships, and status (Singelis, 1994; Singelis, Triandis, Bhawuk, & Gelfand, 1995).

It seems plausible that narcissism and independent self-construal should be related because they share similar core features of high self-focus and low interest in others. Those from individualistic cultures (or with independent self-construals), in comparison to those from collectivistic cultures (or with interdependent self-construals), lack modesty and typically project personal feelings onto others (Kurman & Sriram, 2002), think of well-being in terms of pride (Kitayama, Markus, & Kurokawa, 2000), think of past personal experiences from their own perspective rather than the perspective of others (Cohen & Gunz, 2002), are self-enhancing, especially on agentic traits like power and dominance (Kurman, 2001; Sedikides, Gaertner, & Toguchi, 2003), use more first person pronouns (Kashima & Kashima, 1998), attribute failure to situational factors and success

to personal factors (Anderson, 1999), and score higher in extraversion (McCrae, Costa, & Yik, 1996; Shiota, Krauss, & Clark, 1996).

This constellation of findings appears similar in narcissists and indeed by definition narcissism involves a lack of modesty, strong feelings of pride, and the inability to take another person's perspective (APA, 1994). Narcissists also have strong self-enhancement tendencies, especially on agentic rather than communal traits (Paulhus & John, 1998; Campbell, Rudich, & Sedikides, 2002; Ladd et al., 1997), use more first person singular pronouns and fewer first person plural pronouns than non-narcissists (Raskin & Shaw, 1988), take personal credit for success but blame failures on situational factors (Farwell & Wohlwend-Lloyd, 1998; Rhodewald & Morf, 1995; McAllister, Baker, Mannes, Stewart, & Sutherland, 2002), and score higher in extraversion (Raskin & Hall, 1981; Emmons, 1984).

Despite all these similarities, the link between individualism (or independence) and narcissism has not received much attention from researchers. One large-scale study showed that people from individualistic cultures were more narcissistic than those from collectivistic cultures (Foster, Campbell, & Twenge, 2003). However, these researchers did not directly measure participants' own self-construals, and instead grouped people into areas of the world that were high or low in individualism and compared their narcissism scores. Other researchers have also indirectly examined the relationship between individualism and narcissism, for example, in a longitudinal study of adult women (Roberts & Helson, 1997). From the late 1950s to the early 1980s a cultural trend of individualism affected not only these women, but also American society as a whole, and this individualistic trend in society was positively correlated with women's scores on

the narcissism scale of the California Psychological Inventory (Gough, 1987; Wink & Gough, 1990).

To date, there have not been any studies with a main focus on the relationship between self-construal and narcissism at the individual level. One recent study examined the relationship between *vertical* individualism (i.e. a focus on inequality, competition, and status among autonomous individuals) and a ludic (game-playing) love style, finding that the relationship between the two was moderated by narcissism (Le, 2005). Although not the main focus of that study, self-construal was also measured, there was a positive relationship between narcissism and independent self-construal, $r(179) = .42$, $p < .001$, and there was no relationship found between narcissism and interdependent self-construal, $r(179) = -.09$, $p > .05$. From this study we can be more confident that a link exists between independent self-construal and narcissism, even if the authors did not directly focus on it. In the current study we will try to replicate and extend these preliminary findings.

Given the hardly superficial similarities between narcissism and individualism, and given past research suggesting a link between narcissism and independence, we expect that there should be a strong positive relationship between them, and perhaps a negative relationship between narcissism and interdependence.

Cognitive Style

Besides extending and replicating past findings on narcissistic self-construal, the current study also explores the cognitive style of narcissists. Almost all research conducted on narcissism has focused on related personality characteristics and social behaviors. There has been almost no research or speculation about what a narcissistic

cognitive style might look like. Wälder (1925) suggested that narcissists would be highly analytic in their cognitive style. One of his narcissistic patients was able to quickly "separate out the premises and from them conduct a subtle logical analysis" when presented with difficult problems and was "readily open to anything systematic" (p. 266). It is possible that a patient like that would be called field independent by psychologists today. Field-dependence is a cognitive-perceptual style in which one experiences the environment as a unity of objects with an emphasis on the holistic intermingling of parts. Field *in*dependence is the opposite cognitive-perceptual style in which objects in one's environment are experienced as separate and distinct from their surroundings, thus they can easily be disembedded from their context (Witkin, Oltman, Raskin, & Karp, 1971). Although early research on field-dependence and field-independence focused on perceptual and intellectual tasks, the theory is also relevant to the self and social behavior (Witkin & Goodenough, 1977). They provide evidence that field-independent people are higher in self-focus and lower in other-focus than are field-dependent individuals. Field-independent people make less use of other people's opinions and information (are less likely to be socially influenced) under ambiguous conditions, are inattentive to social cues, show physical and emotional distance from others, and prefer solitary over interpersonal situations. Studies have found that field-independent people (in comparison to field dependent people) spend less time looking at peoples' faces and into their eyes (Ruble & Nakamura, 1972), sit further away from conversation partners (e.g. Justice, 1969, Holley, 1972), are more interested in jobs involving the use of analytic skills (see Witkin & Goodenough, 1977, p 676-77 for a review), and are more likely to use first-person singular pronouns (e.g. I) and are less likely to use first-person plural pronouns

(e.g. we; Dreyer, Dreyer, & Davis, 1987). Thus, individuals who perform better on analytic tasks also appear to be less social and more self-absorbed than those who perform poorly on analytic tasks.

More recently Nisbett, Peng, Choi, & Norenzayan (2001) have reviewed evidence that self-construal is related to cognitive-perceptual styles and suggest that it is easy to focus one's attention on objects (and their rules) and to perceive the world as "discrete and discontinuous" when one is high in independence and low in interdependence (p. 294-295). Research has confirmed that relative social disconnection and autonomy are related to field independence. People with independent self-construals (chronic or manipulated) or those from individualistic cultures perform better on cognitive tests of field independence (Ji, Peng, & Nisbett, 2000; Kühnen, Hannover, & Schubert, 2001; Kühnen, Hannover, Roeder, Shah, Schubert, Upmeyer, & Zakaria, 2001; Oyserman, Sorensen, Cha, & Schwarz, in press). Field independence can be measured with a number of different tests, one of which is the Embedded Figures Test (EFT), in which a simple form must be disembedded from a more complex form (Witkin et al., 1971; see Figure 3.3). Successful performance on all of these tests requires a cognitive style that can easily disembed information from its context (i.e. an analytic cognitive style).

In another study, East Asians, when compared to European Americans, performed significantly worse on the Rod-and-Frame Test task, which measures field-dependence-independence by having people judge the position of a rod inside of a frame. Those who are influenced by the frame's position are more likely to incorrectly judge the position of the rod, indicating field-dependence. East Asians tend to have a more holistic "field-dependent" cognitive style than European Americans, while European Americans have a

more analytic "field-independent" cognitive style than East Asians (Ji, Peng, & Nisbett, 2000).

Thus if there is a relationship between independent self-construal and narcissism, as we predict, this should also extend to field-independence. These two concepts (individualism / independence and narcissism) both involve an autonomous focus of the self that relates to the analytic aspect of field-independence. Priming concepts of self has been shown to lead to greater field independence (Kühnen, Hannover, & Schubert, 2001), so it is possible that the excessive self-focus of narcissists would extend from a self-perception of independence and uniqueness to a perception that objects in the environment are independent and disconnected from each other. However it is also possible that disconnected cognitive-perceptual styles cause changes in perceptions of the self in relation to others. Because the evidence we report in this study is correlational, we can only speculate on the causal direction of the relationship, and we do so in greater depth later in this article.

Overview

The purpose of these studies is to identify and measure a link between narcissism, self-construal, field dependence (cognitive style), and aggressive inclinations. To date, there has been limited research on how narcissism, at the individual level, is related to self-construal; in addition, there is no research that links narcissism with field independence. Narcissism and independence both involve autonomous selves in relation to other people and the environment. Examining the relationships between them could potentially lead to the development of techniques to reduce narcissistic aggression. New insight concerning narcissistic attitudes and cognition toward others could help to explain

why narcissists aggress against others. Ironically, we need to see the world through narcissists' eyes in order to understand what makes them aggressive and what can be done to reduce this aggression.

In two studies, participants completed the Narcissistic Personality Inventory (Raskin & Hall, 1979; Raskin & Terry, 1988), the Self-Esteem Scale (Rosenberg, 1965), the Self-Construal Scale (Singelis, 1994), and a measure of analytic cognitive style. In Study 1 we used the Analysis-Holism Scale (Choi, Koo, & Choi, 2007), which is a measure of holistic thinking. In Study 2 we used the Embedded Figures Test (Witkin et al., 1971), which is a measure of field independence or analytic cognitive style. We expected narcissism to correlate positively with independent self-construal and negatively with interdependent self-construal. Also, given the positive relationship between individualism and field independence, and the similar social styles that field independent and narcissistic people share, we expected the narcissism to be negatively related to holism (Study 1) and positively related to field independence (Study 2).

In both studies we also test a scenario measure of aggression and include it for the benefit of interested researchers who want to pretest hypotheses related to aggression without first conducting more complicated and labor intensive laboratory measures of behavioral aggression (e.g. Bushman & Baumeister, 1998). In line with past studies using behavioral aggression measures (e.g. Bushman & Baumeister, 1998), we expect narcissism to correlate positively with scenario measures of aggression, but only after an ego-threat.

STUDY 1: NARCISSISM AND HOLISM

In Study 1 we use a recently developed personality scale that measures holism to examine the cognitive style of narcissists. People who score high on this scale of holism have been found to pay more attention to the whole field rather than individual objects, consider more information when explaining causality, categorize objects using relationships rather than categorical rules, and endorse cyclical views of change (Choi, Koo, & Choi, 2007). We expect that narcissism will be negatively related to holistic thinking. Study 1 also includes our scenario measure of aggression and we expect to find that narcissism is associated with more hypothetical aggression after an ego threat.

Method

Participants

Participants were 40 college students (25 women, 15 men) who received course credit in exchange for their voluntary participation. Thirty participants were Caucasian, 6 were Asian, 3 were Hispanic-American, and 1 did not list his/her ethnicity. Their mean age was 18.83 years (*SD* = 0.98).

Personality Questionnaire

The personality questionnaire contained measures of narcissism, self-esteem, and self-construal. Narcissism was assessed using the Narcissistic Personality Inventory (Raskin & Terry, 1988). For each of the 40 forced-choice dyads on the scale, participants choose either the narcissistic response (e.g., "If I ruled the world it would be a better place.") or the non-narcissistic response (e.g., "The thought of ruling the world frightens the hell out of me."). The 40 items are summed together. Higher scores indicate higher levels of narcissism. Self-esteem was assessed using the Self Esteem Scale (Rosenberg, 1965). The scale consists of 10 items (e.g., "I take a positive attitude toward myself" and

"On the whole, I am satisfied with myself"), which were scored using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores indicate higher levels of self-esteem. Self-construal was assessed using the Self-Construal Scale (Singelis, 1994). It consists of 24 items, 12 that measure interdependent self-construal (e.g., "It is important to me to respect decisions made by the group"), and 12 that measure independent self-construal (e.g., "I enjoy being unique and different from others in many respects."). Items are rated using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Procedure

In addition to measuring personality traits, we also measured holistic cognitive style and hypothetical aggression. Holism was measured using the Analysis-Holism Scale (AHS; Choi, Koo, & Choi, 2007). Participants were asked to what extent they agreed or disagreed to 24 statements endorsing holistic values (1=strongly disagree, 7=strongly agree). The scale has four subscales: 1) Causality: Measures the belief that everything in the universe is causally related (e.g. "*Even a small change in any element of the universe can lead to significant alterations in other elements*"); 2) Methods of Dealing with Contradictions: Measures the belief that two opposing arguments should be resolved through compromise (e.g. "*It is more desirable to take the middle ground than go to extremes*"); 3) Perception of Change: Measures the belief that events will continue in the same direction in which they begin (e.g. "*Future events are predictable based on present situations*"); and 4) Locus of Attention: Measures whether the focus of attention is on the entire context or on small details (e.g. "*It is more important to pay attention to the whole than its parts*").

Hypothetical aggression was measured using a guided imagination task. Past research has shown that narcissists typically aggress when their egos are threatened (e.g., Baumeister, Bushman, & Campbell, 2000), and the current study aims to replicate those findings using a method that closely parallels past behavioral methods but in an easy-to-administer questionnaire format. In this task, participants imagined that they were taking a very important course in which they expected to receive an "A". They work extremely hard on the main paper for the course, and produce the best paper they have ever written. They are certain they will get an "A" on the paper. By the flip of a coin, participants were assigned to ego-threat or ego-boost conditions. In the ego threat condition, the instructor gave their paper a "C" and wrote some negative comments on it (e.g. "this is one of the worst papers I have ever read!"). In the ego boost condition, the instructor gave their paper an "A" and wrote some positive comments on it (e.g. "no suggestions, great paper!"). Participants were then shown a list of 22 possible responses to the instructor's grade and comments (See Appendix A for full list). Half the responses were negative and aggressive (e.g., "Give her bad teaching evaluations, which directly affects her pay," "Give her the finger behind her back," "Send her a nasty anonymous e-mail."). The other half were positive (e.g., "Give her good teaching evaluations, which directly affects her pay," "Nominate her for an Outstanding Teaching Award," "Say positive things about her to other people"). For each response, participants rated how likely it was that they would engage in behavior. Responses were rated using a 10-point scale ranging from 1 (*not at all likely*) to 10 (*extremely likely*). Finally, participants were debriefed.

Results

Narcissism and Self-construal. Correlations between the individual difference variables are given in Table 3.1. Unlike in past research where they were orthogonal (Singelis, 1994), independent and interdependent self-construal were marginally negatively correlated. However, given our predicted results we still examined their relationships with narcissism separately. As expected, narcissism was positively correlated with independence, albeit marginally, and was negatively correlated with interdependence (see Table 3.1).[1]

Holism. Confirming our hypotheses there was a nearly significant negative association between narcissism and holism on the overall Analysis-Holism Scale (see Table 3.1). A subscale analysis revealed that this was driven by two significant negative correlations. First, narcissism was negatively associated with the Contradiction subscale, indicating that narcissists prefer to go to extremes rather than take the middle ground when faced with two opposing arguments. Narcissism was also negatively associated with the Attention subscale, indicating that narcissists focus their attention on the details and not on the larger holistic context. There were no significant relationships between narcissism and the Causality and Change subscales.

Holism and independent self-construal were not related, however, holism was related to interdependent self-construal. On the overall scale, there was a strong positive relationship between interdependence and holism, which was present in three of the four subscales (See Table 3.1). Participants high in interdependence believe that everything in the universe is causally related (Causality), approve of taking the middle ground when facing two opposing arguments (Contradiction), and focus on the 'big picture' rather than the small details (Attention).[2]

Gender. Overall we found that males scored higher than females in independence whereas females scored higher in interdependence, a finding that is consistent with previous research (Cross & Madson, 1997). Although there was no overall gender difference on the AHS, we found that women scored marginally higher than men on two of its subscales: Causality and Contradiction, indicating that they believe everything in the universe is causally related and that they prefer to resolve quarrels through compromise. Males also reported higher self-esteem than women. We next examined the interaction between gender and interdependence, independence, and holism (and its subscales) by regressing each interaction separately onto narcissism, and found that all interactions were non-significant, p-values > .20. We also examined the interaction between gender and narcissism itself, regressing them onto interdependence, independence, and holism (and its subscales) separately. Again we found that all interactions were not significant, p-values > .13. Given the small sample size and the potential to not detect interactions with such low power we revisit the potential for gender interactions in Study 2.

Aggression scenario. To analyze responses to the hypothetical aggression scenarios, the 11 positive items were combined to form a scale (Cronbach's $\alpha = .94$), and the 11 negative items were combined to form a scale[3] (Cronbach's $\alpha = .92$). Narcissism and self-esteem scores were mean centered to increase interpretability (Aiken & West, 1991). These responses were analyzed using step-wise regressions. In Step 1 we examined the main effects of Condition (0 = boost, 1 = threat) and Narcissism (centered continuous), and in Step 2 we examined the Condition x Narcissism interaction.

Overall, imagining an ego-threat led to more negative (b = 3.39, β = .77, $t(39)$ = 8.46, p < .001) and less positive (b = -3.73, β = -.77, $t(39)$ = -7.30, p < .001) hypothetical behavior toward their instructor. There was no relationship between narcissism and either positive (b = .01, β = .02, $t(39)$ = 0.13 p = .90) or negative behaviors (b = .03, β = .09, $t(39)$ = 0.75 p = .46). However we did find the predicted Condition x Narcissism interaction for negative behaviors, b = .11, β = .26, $t(39)$ = 2.05, p < .05. The higher participants scored in narcissism, the more negative behaviors they reported in retaliation for the imagined low grade, $r(19)$ = .62, p = .002 (See Figure 3.4). The interaction was not significant for positive behaviors, b = -.06, β = -.13, $t(39)$ = 0.93, p = .36. Results were consistent when controlling for self-esteem, and self-esteem was not related to hypothetical aggression either by itself or interacting with condition. In addition, self-construal, whether independent or interdependent, and holism and its subscales were not related to hypothetical aggression, either by themselves or interacting with valence.

Discussion

In this study we find some evidence that narcissism is associated with a more independent and a less interdependent self-construal. We also find that narcissism is negatively related to two aspects of holism. This finding provides more evidence that narcissists have an analytic cognitive style, especially in the areas of argumentation style, where they prefer to take extreme positions, and perceptual attention, where they self-report paying more attention to details rather than the big picture.

Although there was no significant relationship between holism and independent self-construal in this small sample, there was a strong positive relationship between holism and interdependent self-construal, both overall and on the Causal, Contradiction,

and Attention subscales. People with interdependent self-construals look like the opposite of narcissists in their approach to context: they see complexly related causal connections in the world, prefer to take the middle ground rather than extreme positions when faced with conflicting sides of an argument, and pay attention to the whole rather than the parts. Of course, because this study is correlational, no causal inferences can be made, but it provides converging evidence that social disconnection and autonomy are related to an analytic cognitive style.

Finally, we also find that we replicate the typical narcissism-aggression pattern in a hypothetical scenario measure of aggression. Narcissism is associated with more imagined aggressiveness after an ego threat.

STUDY 2: NARCISSISM AND ANALYTIC COGNITIVE STYLE

Study 1 can be seen as an initial test of our hypotheses but could be improved with a larger sample size and the use of a standardized, more perceptual measure of cognitive style, rather than a self-report measure that is subject to the associated biases of such measures. Thus, in Study 2 we use the Embedded Figures Test, an established standardized test that measures analytic cognitive style to assess whether narcissists have increased tendencies in this direction. Study 2 also includes our scenario measure of aggression and we expect to replicate the results in Study 1 that narcissism is associated with more hypothetical aggression after an ego threat.

Method

Participants

Participants were 111 college students (92 women, 19 men) who received course credit in exchange for their voluntary participation. Eighty participants were Caucasian,

17 were Asian, 5 were African-American, and 9 did not list their ethnicity. Their mean age was 18.67 years (*SD* = 0.76).

Procedure

Participants were told that the researchers were studying personality traits. After informed consent was obtained, participants completed the same personality questionnaire as in Study 1. Next, participants completed the Embedded Figures Test (Witkin et al., 1971), which measures field independence or analytic cognitive style. The Embedded Figures Test contains 18 complex figures, each containing one simple embedded figure. For example, in Figure 3.3, participants must locate the triangle on the left that is embedded in the baby buggy on the right. After a 2 minute trial block, the test is done in two separate 5-minute blocks of 9 shapes each. In each of the 5-minute blocks, participants try to locate as many of the embedded simple figures as they can. Total scores can range from 0 to 18, with higher scores indicating higher levels of field independence.

Results

Narcissism and Self-construal. Correlations between the individual difference variables are given in Table 3.2. Consistent with past research (Singelis, 1994), independent and interdependent self-construal were uncorrelated. Thus, we examined their relationships with narcissism separately. As expected, narcissism was positively correlated with independence and negatively correlated with interdependence (see Table 3.2). Next, we performed median splits on both independent and interdependent self-construal. A planned contrast was used to compare narcissism scores of participants scoring high in independence and low in interdependence with the other three groups.[4] As

expected, individuals with an independent self-construal had the highest narcissism scores, $t(107) = 3.67$, $p < .0001$, $d = 0.71$ (see Figure 3.5).

Cognitive style. Confirming past research (Ji, Nisbett, & Peng, 2000), those with more independent self-construals performed better on the Embedded Figures Task, indicating that they were more field independent (see Table 3.2). There was no association between interdependent self-construal and performance on the EFT. More relevant to the purpose of this paper, as predicted narcissism was also positively correlated with performance on the EFT (see Table 3.2). This conceptually replicates the results reported in Study 1.

Gender. Overall we found that females scored higher than males in interdependence, and that males performed marginally better than females on the Embedded Figures Test. Again we found no interactions with gender, either when narcissism was the dependent measure (with independence, interdependence, and the EFT as predictors) or when narcissism was a predictor (and the other variables were dependent measures), all p-values > .27. This suggest that the relationships between narcissism, self-construal, and cognitive style are similar for men and women, even if there are some main effects of gender.

Aggression scenario. To analyze responses to the hypothetical aggression scenarios, the 11 positive and 11 negative items were combined to form a scale of positive and negative behaviors (Cronbach's $\alpha = .95$ and $\alpha = .93$, respectively). Narcissism and self-esteem scores were mean centered to increase interpretability (Aiken & West, 1991). These responses were then analyzed using step-wise regressions. In Step

1 we examined the main effects of Condition (0 = boost, 1 = threat) and Narcissism (centered continuous), and in Step 2 we examined the Condition x Narcissism interaction.

Overall, imagining an ego-threat led to more negative ($b = 3.81$, $\beta = .83$, $t(110) = 15.75$, $p < .001$) and less positive ($b = -4.12$, $\beta = -.81$, $t(110) = -13.83$, $p < .001$) hypothetical behavior toward their instructor. As, well, narcissists reported more positive behaviors toward their Graduate Student Instructor overall, $b = .08$, $\beta = .19$, $t(110) = 2.26$, $p < .03$. In itself narcissism was unrelated to reported negative hypothetical behavior, $p = .67$, however we did find the predicted Condition x Narcissism interaction for negative behaviors, $b = .09$, $\beta = .18$, $t(110) = 2.35$, $p = .02$. The higher participants scored in narcissism, the more negative behaviors they reported in retaliation for the imagined low grade, $r(53) = .28$, $p = .04$ (See Figure 3.6). The interaction was only marginally significant for positive behaviors, $p = .10$, indicating that narcissism was marginally related to increased positive behaviors after an ego boost, $r(53) = .25$, $p = .07$, and marginally related to decreased positive behaviors after an ego threat, $r(53) = -.26$, $p = .06$. Results were consistent when controlling for self-esteem, and self-esteem was not related to hypothetical aggression either by itself or interacting with condition. In addition, independent self-construal and the EFT were not related to hypothetical aggression, either by themselves or by interacting with valence.

However, there were effects of interdependent self-construal. First, there was an unsurprising main effect such that interdependence was associated with more positive behaviors overall, $b = .62$, $\beta = .18$, $t(110) = 2.00$, $p = .05$. Although we did not predict the interaction between interdependence and valence for the negative behaviors, $b = -.86$, $\beta = -.20$, $t(110) = -2.60$, $p = .01$, it is not surprising. In the ego boost condition, there was no

relationship between interdependence and negative behaviors, $p = .18$, however, after an ego threat people low in interdependence were more willing to endorse negative behaviors, $r(53) = -.33$, $p = .02$.

Discussion

In a separate sample of participants we replicate the pattern in Study 1 on the scenario measure of aggression. Narcissism is associated with more imagined aggressiveness after receiving a low grade. Unlike in Study 1, we also find that people low in interdependence endorse more imagined aggressiveness after an ego threat. It is possible that we found these effects in Study 2 because of a larger sample size, but more research is needed to better understand the relationship between interdependence and aggression. We recommend that aggression researchers use this scenario measure in order to more easily pretest their materials. However, without further research correlating hypothetical aggression with actual aggression, we do not recommend that this measure be used for aggression research that is intended to have real-world implications. Future research should test whether hypothetical regression is related to behavioral aggression in laboratory studies.

As in Study 1, we also found that narcissism is positively related to independent self-construal and negatively related to interdependent self-construal. In addition, as predicted narcissism is associated with higher scores on the Embedded Figures Test, a test of field independence (i.e. analytic cognitive style). Thus, narcissists view the objects in their environment as distinct, unique, and easily separable from their context much in the same way as they view themselves. This finding conceptually replicates the association between narcissism and lower holism found in Study 1.

The correlations between narcissism and field-independence appear to be small, but the effect in this study appears to be of a similar magnitude as the more established relationship between independent self-construal and field-independence. Additional research using other tests of cognitive style (e.g. Stroop Task, Block Design Test, Rod & Frame Test) should be done in order to confirm this relationship.

Causal Modeling of the Relationships

Because our data are correlational, in this section we test two mediational models examining the connection between self-construal, narcissism, and cognitive style. In order to conduct these mediational analyses we first combined the key variables of both studies into one main file. We calculated the Z-score of holism in Study 1 and then multiplied it by –1 so that higher Z-scores mean more analytic cognitive style. We then calculated the Z-score of the EFT in Study 2 and combined the data into one file for analysis. Overall, narcissism is negatively related to interdependence and positively related to independence and analytic cognitive style. Interdependence is negative related to independence and analytic cognitive style. Finally, independence is positively related to analytic cognitive style. Independent and interdependent self-construal were not correlated overall (see Table 3.3 for all correlations).

In the first model we test the hypothesis that increasing independence of self-construal leads to increased narcissism, which leads to an analytic cognitive style. There has already been empirical support for the idea that an experimentally manipulated self-focus could lead to an analytic cognitive style (Kuhnen, Hannover, & Schubert, 2001; Oyserman, Sorensen, Cha, & Schwarz, 2007), so we think this might be a plausible model. We used Baron and Kenny's (1986) four steps for calculating mediation effects.

First, we found that our initial variable, independent self-construal, was correlated with the outcome variable, analytic cognitive style, $r(151) = .152$, $p = .031$, and also with the mediator, narcissism, $r(151) = .282$, $p < .001$. (Note that all correlations are one-tailed.) Next we found that the mediator, narcissism, is still correlated with analytic cognitive style when controlling for independent self-construal, $r(151) = .149$, $p = .035$. Finally, we tested for the mediational effect by correlating our initial variable (independent self-construal) with our outcome variable (analytic cognitive style) while controlling for our mediator variable (narcissism) and got a reduced correlation, $r(151) = .109$, $p = .097$. Although there is some evidence for mediation, we next conducted a Sobel (1982) test to further confirm that the effect of independent self-construal on analytic cognitive style was mediated by narcissism, $z = 1.75$, $p = .08$. Given the marginal Sobel z-score and the fact that the correlation between independence and cognitive style was still marginally significant when controlling for narcissism, we can only conclude that narcissism partially mediates the relationship between these two variables.

It is also possible however that analytic cognitive style could lead to an individualistic self-focus, which could lead to increased narcissism, a hypothesis which we test in the second model. Note that in both models we hypothesize independent self-construal as leading to narcissism. We do this because narcissism seems more extreme in its self-focus and other-neglect as compared to independent self-construal and it seems more logical that rising individualism could lead to sub-clinical or clinical narcissistic tendencies rather than the opposite. First, we found that analytic cognitive style was correlated with narcissism, $r(151) = .184$, $p = .012$, and also with the mediator, independent self-construal, $r(151) = .152$, $p = .031$. Next, independent self-construal is

still correlated with narcissism when controlling for analytic cognitive style, $r(151) = .262$, $p = .001$. Finally, we tested for the mediational effect by controlling for independent self-construal when correlating cognitive style and narcissism, and found that the correlation between them remained significant, $r(151) = .149$, $p = .035$. Thus, independent self-construal is unlikely to be a mediating variable in the relationship between cognitive style and narcissism. A Sobel (1982) test confirmed that the correlation between them was not significantly reduced when controlling for independence, $z = .04$, $p = .97$.

Examining these two models together it appears that the first one may provide stronger evidence for causality than the second one. Thus there is some evidence that the relationship between independent self-construal and analytic cognitive style is partially mediated by narcissism. We did not find evidence that the relationship between analytic cognitive style and narcissism was mediated by independent self-construal however, and more research is needed in order to truly understand the relationships between these three variables.

General Discussion

In these studies we found that narcissism is negatively related to a more holistic style of thinking (Study 1) and positively related to an analytic "field-independent" cognitive style (Study 2). We also find that narcissists' self-construals are characterized by high independence and low interdependence. Finally we find that the relationship between independent self-construal and analytic cognitive style may be partially mediated by narcissism.

The pattern of relationships was less clear for the relationship between *self-construal* and cognitive style. In the first study we found that interdependence, but not independence, was associated with a holistic cognitive style whereas in the second study we found that independence, but not interdependence, was associated with an analytic cognitive style. Taken together our results suggest that the relationship between narcissism and analysis-holism is more predictable than the relationship between self-construal and analysis-holism. Perhaps this latter relationship is more likely to exist if the type of self-construal is a 'match' with the dependent measure of cognitive style, that is, when independence is related to analysis, and interdependence is related to holism, and this hypothesis warrants future research. A more simple explanation is that the AHS scale requires further validation as we are not aware of any research that examines the correlation between this and more standard measures of cognitive style such as the EFT. Thus perhaps more weight could be given to the association between independence and analytic cognitive style found in Study 2.

In any correlational study, there are always the problems of direction of causality and the potential for third variables to explain the relationship. For example, a positive relationship between analytic cognitive style and narcissism could mean that perceiving the world analytically leads one to be narcissistic, or the opposite. Or perhaps a third variable, for example, self-aggrandizing parenting or educational styles, can lead to high levels of both. We cannot fully exclude any of these explanations. However, simply documenting the correlational results is a necessary step in understanding narcissistic social and non-social cognition.

Future studies could test the causal links between variables in this article using experimental methods. For example, it would be interesting to examine the effects of training people to see the world more holistically, for example, through Oriental medicine training (see Koo, & Choi, 2005). Would this holism training lead to reduced narcissism or independent self-construal? There is some evidence for the opposite direction of causality, that increased self-focus leads to increases in analytic cognitive style (e.g. Kuhnen, Hannover, & Schubert, 2001), however more research is needed.

Other future research could explore the potential that cultures vary in their expression of narcissism. Just as researchers have found that collectivists self-enhance on communal traits and individualists self-enhance on agentic traits (Sedikides et al., 2003), it is possible that individualist expressions of narcissism would vary from collectivist expressions of it. Basically, if individual narcissism could be seen as an extreme of individualism then perhaps group narcissism could be seen as an extreme of collectivism. Research on group narcissism is beginning and there is some evidence that group narcissists feel as though their groups are better than others and entitled to special rules. They are disinterested in other groups (Montoya, Pittinsky, & Rosenthal, 2007). While we know of cultural differences in individual narcissism, it would be interesting to see whether people from more collectivistic cultures score higher in group narcissism.

This research has implications for understanding the lack of empathy and aggression that are characteristic to narcissists. It suggests that there is a perceived 'gap' between the self and other in narcissists and that this gap needs to be bridged in order for narcissists to be more empathetic and less aggressive. For example, a manipulation of self-construal could allow narcissists to form a shared sense of connection with others

that would otherwise be inhibited by their own feelings of separation and distinction from others. This sense of shared connection with another could possibly reduce narcissists' aggressive behavior toward another, even if this person has threatened the narcissist's ego. Often shared connections increase compliance and cooperation, and decrease competition between others (Burger, Messian, Patel del Prado, & Anderson, 2004; Miller, Downs, & Prentice, 1998), which could reduce narcissists' aggressive behavior toward an ego-threatening individual. In fact, a recent paper of ours finds such an effect (Konrath, Bushman, & Campbell, 2006), although more studies need to be done for confirmation of this process. Research like this which explores the role of cognitive style and self-construal in narcissism, could perhaps lead narcissists to one day see *our* world as a million little bridges to each other, rather than a million little pieces.

Endnotes

[1] We wondered if the correlation found between narcissism and self-construal in both studies suggests that the two measures are getting at the same underlying trait. In order to examine this we conducted a factor analysis with the 40 NPI items and the 24 self-construal items. In both studies there were 20 or more factors with Eigenvalues greater than 1, suggesting that these scales are not measuring one underlying trait.

[2] In addition to the main effect of interaction we also found an interaction between it and narcissism on holism, β=.414, t(39)=3.14, p=.003. To interpret it we split the file into low and high interdependent people. For low interdependent people, higher narcissism was associated with lower holism scores, β=-.702, t(18)=-4.07, p=.001. However, higher narcissism was associated with *higher* holism scores for people high in interdependence, β=.488, t(20)=2.44, p=.025. The interaction between independent self-construal and narcissism was not significant, p = .364. This may have implications for cross-cultural expressions of narcissism in that high narcissism may be related to an analytic cognitive style in Western cultures but a more holistic cognitive style in Eastern cultures. However, we leave this as a footnote rather than a main point of discussion in the paper because this pattern was not replicated in Study 2 with the EFT (both interactions were non-significant) and so without further research it is hard to know how to interpret it.

[3] While positive and negative behaviors are negatively correlated in both studies, we analyze them separately because we think they may function differently in regards to narcissism. Positive behaviors are more normative than negative ones and thus might be

less informative when trying to understand aggression in narcissists. Everyone may respond to an ego threat will decreased positive behaviors, but narcissists may be unique in responding with increased negative behaviors. The latter response is obviously more consequential than the former one. In addition, aggression researchers never construe aggression as the absence of positive behaviors. Instead, aggression is measured as the presence of intended harmful actions (Geen, 1990), which is qualitatively different from the absence of positive ones. In these studies we specifically predict an interaction between narcissism and valence for negative behaviors, but have no specific predictions for interactions with positive behaviors. A factor analysis confirms that positive and negative behaviors load as two separate factors, even when positive behaviors are recoded to be in the negative direction. Considering a two-factor model adds approximately 12% of explained variance to the one-factor model in each study and scree plots confirm that a two-factor model is most appropriate.

[4] Given the small sample size in Study 1 and the correlation between independence and interdependence, it does not make sense to perform a median split on self-construal as we do in Study 2, since individual cells are likely to be too small to correctly interpret.

Acknowledgements

Brad Bushman and Tyler Grove are additional authors on this paper.

Table 3.1. Relationship Between Narcissism and Other Individual Difference Measures in Study 1.

Measure	1	2	3	4	5	6	7	8	9	10
1. Narcissism	18.93 (7.87) α=.89	-.30*	.24~	-.23~	-.19	-.27*	.19	-.26*	.33*	.11
2. Interdependence		5.01 (0.62) α=.65	-.26~	.53**	.52**	.45**	-.11	.39**	-.20~	-.30*
3. Independence			4.75 (0.69) α=.74	-.06	.02	-.12	.04	-.12	.21~	.29*
4. Holism scale overall				4.17 (.61) α=.79	.74**	.61**	.37**	.72**	-.18	-.14
5. Causality					4.77 (1.23) α=.89	.27*	.02	.35**	-.15	-.24*
6. Contradiction						4.80 (.87) α=.60	-.08	.39**	-.18	-.21*
7. Change							2.77 (.88) α=.67	.07	-.03	.19
8. Attention								4.33 (.95) α=.76	-.09	-.04
9. Self-Esteem									5.74 (.73) α=.76	.36*
10. Gender										15 M, 25 F

Note. Scale means, standard deviations (in parentheses), and Cronbach's α coefficients are on the diagonal. All results are one-tailed because we had a priori predictions about them. **p<.01 *p < .05 ~p<.10. For gender male was coded as 1 and female was coded as 0.

Table 3.2. Relationship Between Narcissism and Other Individual Difference Measures in Study 2.

Measure	1	2	3	4	5	6
1. Narcissism	18.84 (6.66) α=.83	-.46**	.31**	.17*	.23**	-.09
2. Interdependence		5.02 (0.71) α=.70	.04	-.04	-.13˜	.18*
3. Independence			5.02 (0.69) α=.67	.19*	.24**	-.01
4. Embedded Figures Test				10.75 (4.74) α=.82	.18*	.14~
5. Self-Esteem					5.83 (0.86) α=.85	-.01
6. Gender						19 M, 92 F

Note. Scale means, standard deviations (in parentheses), and Cronbach's α coefficients are on the diagonal. All results are one-tailed because we had a priori predictions about them. **p<.01 *p < .05 ˜p<.10. For gender male was coded as 1 and female was coded as 0.

Table 3.3. Relationship Between Narcissism and Other Individual Difference Measures in Combined Studies.

Measure	1	2	3	4	5	6
1. Narcissism	18.86 (6.98)	-.41**	.28**	.18*	.25**	.02
2. Interdependence		5.02 (0.69)	-.03	-.16*	-.15*	.04
3. Independence			4.95 (0.71)	.15*	.24**	.05
4. Analytic Cognitive Style				0.00 (1.00)	.18*	.13*
5. Self-Esteem					5.81 (0.83)	.08
6. Gender						34 M, 117 F

Note. Scale means and standard deviations (in parentheses) are on the diagonal. All results are one-tailed. For gender male was coded as 1 and female was coded as 0.

**p<.01 *p < .05 ˜p<.10.

Figure 3.1. Quadrants of self-other focus

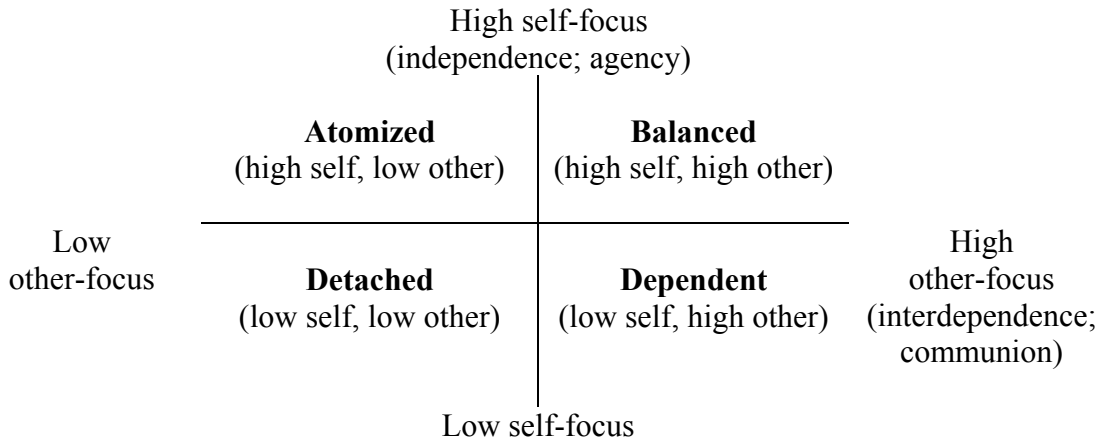
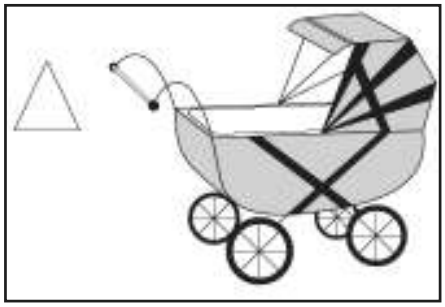
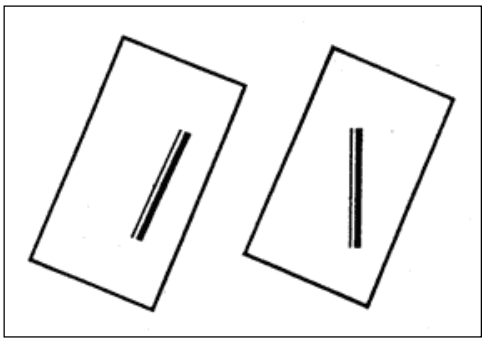


Figure 3.2: Examples of tests used to measure analytic and holistic cognitive styles

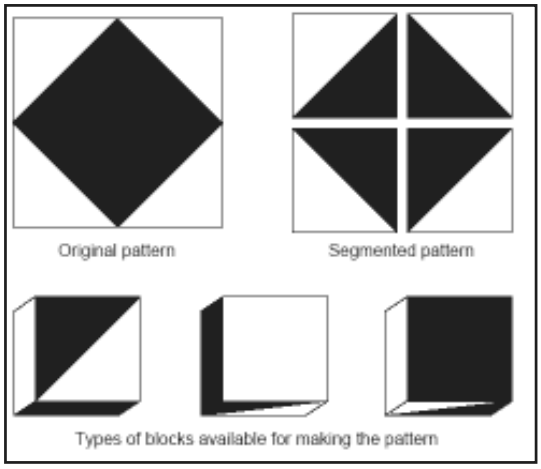
A) Embedded Figures Test



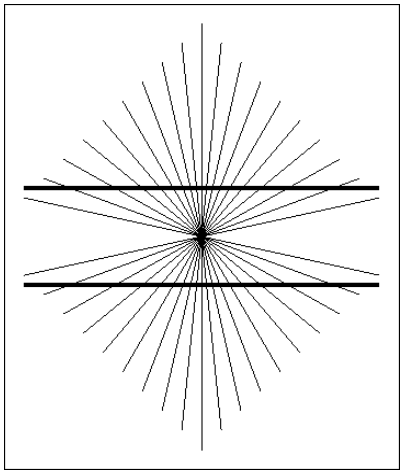
B) Rod and Frame Task



C) Block Design Test



D) Hering illusion



E) Navon letters task

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AAAAAAA                EEEE
AAAAAAA              EE  EE
AA                   EE    EE
AAAAAAA              EEEEEEEE
AAAAAAA              EEEEEEEE
AA                   EE    EE
AAAAAAA              EE    EE
AAAAAAA              EE    EE
```

F) Global-local focus test

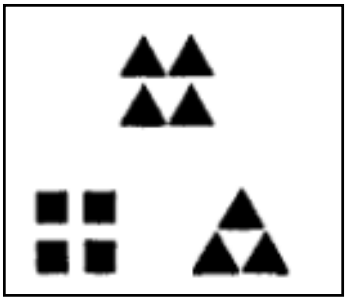


Figure 3.3. Sample item from the Embedded Figures Test (Witkin et al., 1971). The simple figure on the left (triangle) is embedded in the complex figure on the right (baby carriage).

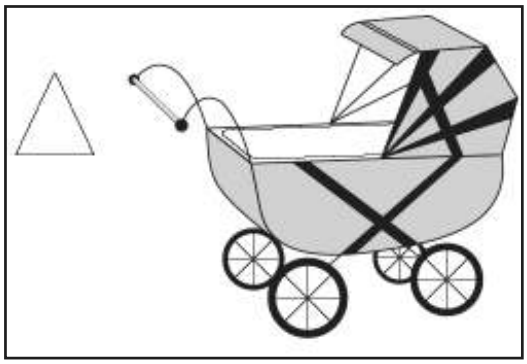


Figure 3.4. The effect of narcissism and hypothetical ego boosting or ego threatening feedback on self-reported desired aggression in Study 1. (Narcissism depicted at +/- 1 standard deviation.)

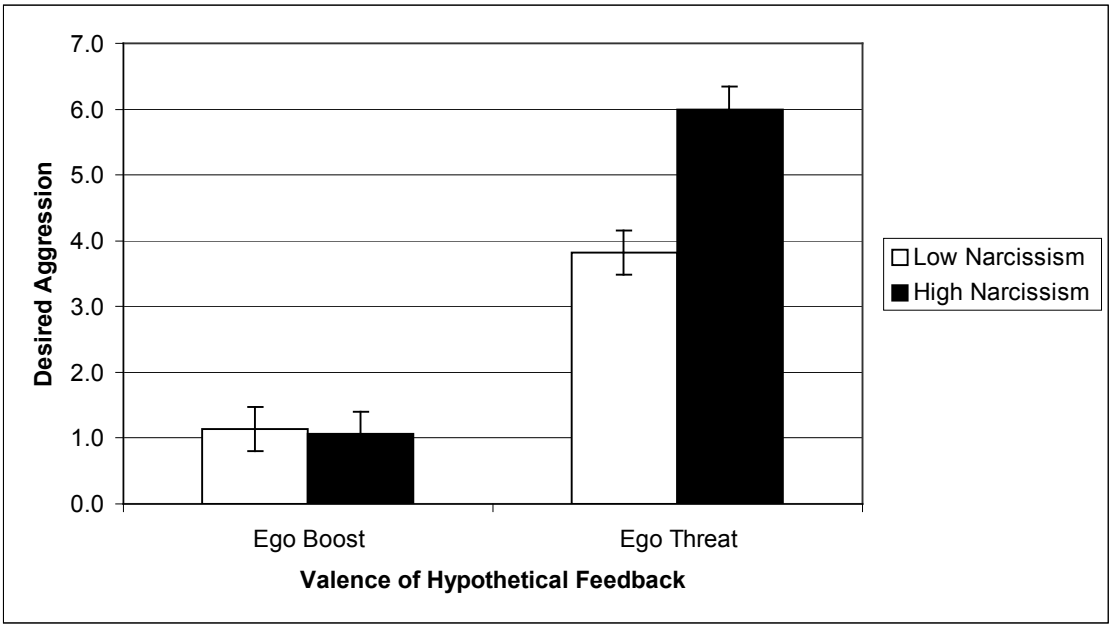


Figure 3.5. Narcissism levels for people high in interdependence but low in independence, high in both interdependence and independence, low in both interdependence and independence, and low in interdependence but high in independence.

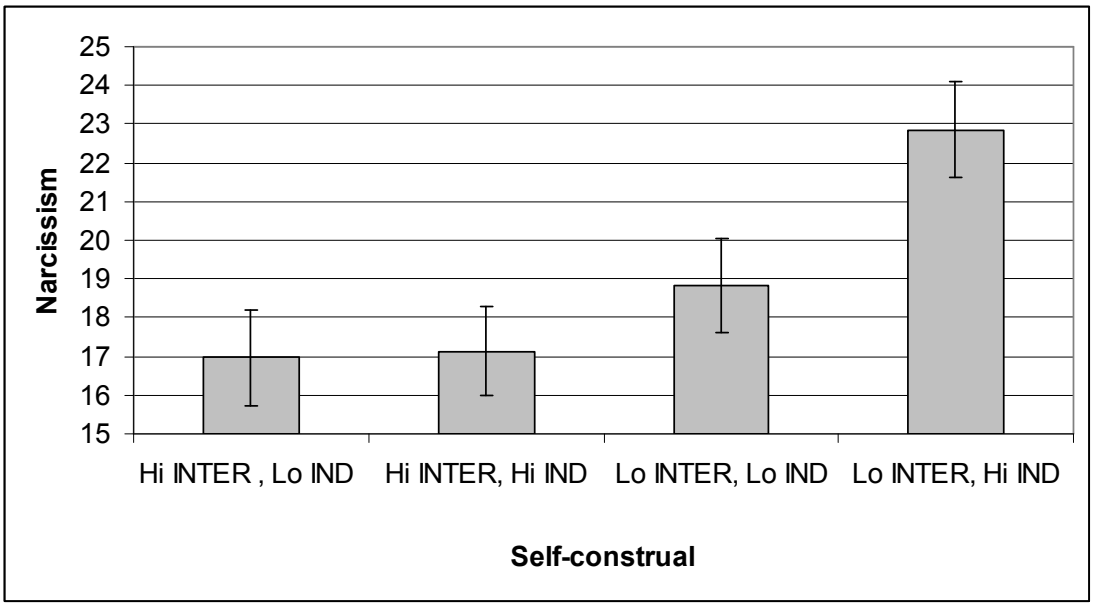
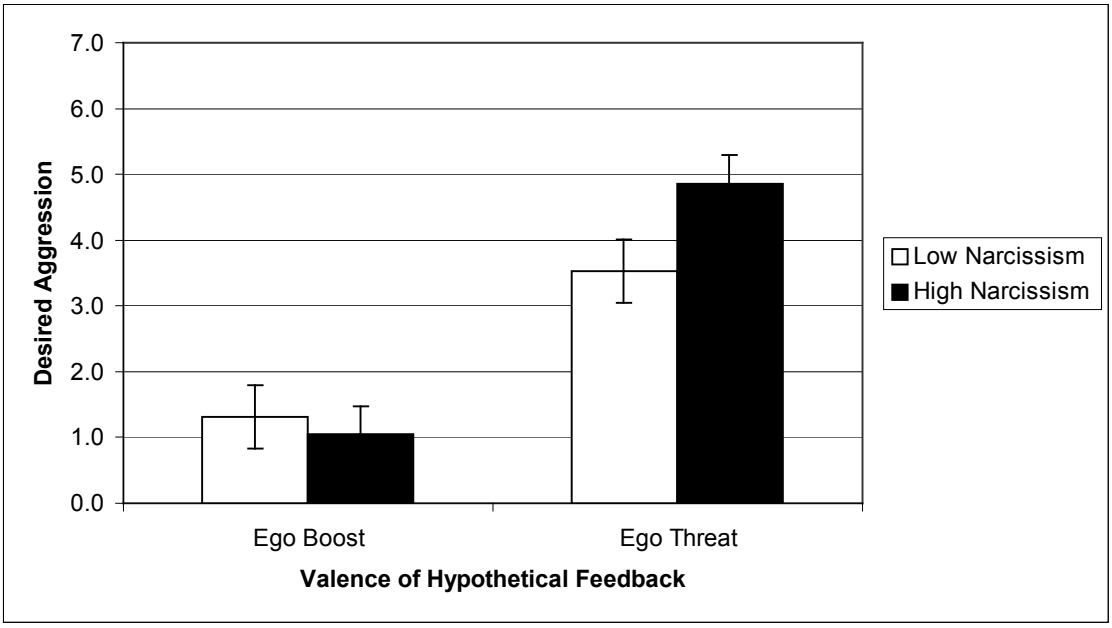


Figure 3.6. The effect of narcissism and hypothetical ego boosting or ego threatening feedback on self-reported desired aggression in Study 2. (Narcissism depicted at +/- 1 standard deviation.)



Appendix A: Guided Imagination Task

Please take a few minutes to imagine the following scenario. Try your best to think about the situation as if it were really happening to you:
Imagine that you are taking a class which is very important to you and in which you expect to get an A. Imagine that one of the assignments in the class is to write a 10-15 page paper, and that assignment is worth 35% of your grade. Imagine that you work extremely hard on the paper and believe that it is one of the best you have ever written.

*Now imagine that you get an **A (C)** on your paper, with the following comments from your GSI:*

Organization: **10 (-10)**	Clarity of expression: **9 (-9)**
Originality: **10 (-10)**	Persuasiveness of arguments: **10 (-10)**
Writing style: **10 (-10)**	Overall quality: **10 (-10)**

Written comments: ***"No suggestions, great paper!" ("This is one of the worst papers I have ever read!")***

Guided Imagination Questions
How much would you **want** to act the following ways toward your GSI if this really happened to you? Please use this scale to record your answers: **1=not at all, 10=extremely**

____ give her the finger behind her back
____ send her a nasty (anonymous) email
____ smile at her when you see her on campus
____ say positive things directly to her
____ come to her office hours just to chat
____ complain about her to the department chair
____ say negative things about her to other people
____ say positive things about her to other people
____ say negative things directly to her
____ hide her chalk in the classroom
____ nominate her for an Outstanding GSI Award
____ compliment her to your professor
____ send her a nice email
____ sit as far away from her as possible in class
____ complain about her to your professor
____ smile at her in class
____ offer to help her setup audiovisual equipment
____ sit close to her in class
____ give her dirty looks in class
____ come to her office hours to complain
____ give her bad teaching evaluations (which directly affects her pay)
____ give her good teaching evaluations (which directly affects her pay)

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Chapter 4: Self and Similarity

ARTICLE #4: Attenuating the link between threatened egotism and aggression

Abstract

Research has found that narcissists behave aggressively when they receive a blow to their ego. The current studies examined whether narcissistic aggression could be reduced by inducing a unit relation between the target of aggression and the aggressor. Experimental participants were told that they shared either a birthday (Study 1) or a fingerprint type (Study 2) with a partner. Control participants were not given any information indicating similarity to their partner. Before aggression was measured, the partners criticized essays written by the participants. Aggression was measured by allowing participants to give their partner loud blasts of noise through a pair of headphones. In the control groups, narcissists were especially aggressive toward their partner. However, narcissistic aggression was completely attenuated, even under ego threat, when participants believed they shared a key similarity with their partner.

When they discover the center of the universe, a lot of people will be disappointed to discover they are not it. —Bernard Bailey (The Quotations Page, 1994–2005)

Individuals with inflated egos think they are the center of the universe. Unfortunately, such individuals also become aggressive when they are criticized or rejected by others (e.g., Bushman & Baumeister, 1998, 2002; Campbell, Bonacci, Shelton, Exline, & Bushman, 2004; Stucke & Sporer, 2002). Support for the threatened-egotism model of aggression has led to a fundamental reconceptualization of the roots of violence in many areas (Baumeister, Smart, & Boden, 1996). For example, the FBI report on school violence now lists threatened egotism as a risk factor (O'Toole, 1999).

What is missing from this line of research is a technique or strategy for attenuating the link between threatened egotism and aggression. Uncovering such a technique would have both theoretical benefits in understanding why egotism and violence are linked and applied benefits in reducing aggression. Our goal in the present study was to test one potential moderator of the egotism-aggression link: an induced unit relation between the ego-threatened individual and the ego threatener. A unit relation refers to two or more entities ''belonging together'' on the basis of a specific attribute (Heider, 1958).

Egotism, Threat, and Aggression

Baumeister and his colleagues (1996) specified a model in which egotism, in response to ego threat, leads to aggression. There are thus three key variables in this model: egotism, threat, and aggression. Egotism is an inflated, perhaps untenable or unstable, view of self. Egotism is typically operationalized as narcissism (Bushman &

Baumeister, 1998, 2002) or as one of its more destructive variants, including narcissistic entitlement (Campbell et al., 2004), narcissism in conjunction with low self-concept clarity (Stucke & Sporer, 2002), or narcissism with self-esteem partialed out (Paulhus, Robins, Trzesniewski, & Tracy, 2004). It is important to note that self-esteem does not appear to be related to aggression (e.g., Baumeister et al., 1996; Bushman & Baumeister, 1998, 2002). What makes narcissism relevant to aggression when self-esteem by itself is not? Both narcissism and self-esteem are associated with a highly positive view of the self, so simple positivity of self-views is not the key. Unlike self-esteem, however, narcissism is associated with a very positive view of the self in agentic domains (e.g., intelligence, status) and a more modest (but still inflated) self-view in communal domains (e.g., caring, empathy; Campbell, Rudich, & Sedikides, 2002). These less positive communal self-views correspond with a relative lack of close connections with other individuals (e.g., Carroll, 1987; Watson, Grisham, Trotter, & Biderman, 1984). In short, then, it is plausible that a key factor in narcissistic aggression is the lack of a close connection with the other person.

Ego threat occurs ‘‘when favorable views about oneself are questioned, contradicted, impugned, mocked, challenged or otherwise put in jeopardy’’ (Baumeister et al., 1996, p. 8). Several types of threats increase aggression. The most commonly used ego threat in aggression research is negative feedback or criticism (e.g., Bushman & Baumeister, 1998); but there is also evidence that social rejection (e.g., dislike and disrespect; Twenge & Campbell, 2003) and a restriction of freedom or autonomy (Bushman, Bonacci, Van Dijk, & Baumeister, 2003) similarly provoke aggression. Each of these threats challenges an individual’s view of self in an agentic domain.

Aggression is any behavior intended to harm another person. Following threat, narcissists typically aggress only against the source of the perceived threat (e.g., Bushman & Baumeister, 1998). There is also some evidence that the aggression can be directed against an individual with the same identity as the threatener (e.g., the individual and the threatener are on the same athletic team; e.g., Gaertner & Iuzzini, in press). However, there is no evidence for the unguided narcissistic rage described in the psychodynamic literature. This is not to say that such rage will not occur in certain circumstances, but in a typical lab study involving participants from nonclinical samples, there is usually a good deal of control over aggression. That is, aggression is primarily used for direct reprisals against the individual who delivered the ego threat (e.g., Bushman & Baumeister, 1998).

Attenuating Narcissistic Aggression

What manipulation would mitigate narcissistic aggression? One possibility would be minimizing the positivity of the self in an agentic domain. If a narcissistic man, for example, could be led to think that he was not very smart, negative feedback about his performance on an exam might not lead to an aggressive response. Unfortunately, such a manipulation itself is likely to set off narcissistic aggression.

A more promising direction would be to increase the psychological connection (i.e., unit relation) between the narcissist and the threatener (Heider, 1958). If done correctly, this would mitigate the lack of interpersonal connection that makes the aggression possible. This manipulation would also capitalize on narcissists' weakness—self-love. Narcissists love themselves, and if someone else is like them, how can they hurt that other person? The ideal manipulation would create a positive unit relation that is

not so specialized that it challenges the narcissist's high need for uniqueness (Emmons, 1984). For example, convincing the narcissist that he or she shares the same birthday or fingerprint type with the threatener may create a unit relation without threatening him or her unduly.

There are several lines of research that demonstrate the general social benefits of such invoked unit relations. These benefits include greater compliance to the requests of other people (Burger, Messian, Patel, del Prado, & Anderson, 2004), greater cooperation in prisoners' dilemma games (Miller, Downs, & Prentice, 1998), and even more positive judgments of Rasputin (the notorious Russian monk) if people think they share his birthday (Finch & Cialdini, 1989). More interesting, perhaps, there is also reason to expect that manipulating unit relations might have an effect that is specific to egotism. Evidence for this possibility is found in the literature on the self-serving bias. In general, self-serving behavior is constrained by close relationships with other people. For example, if two individuals work together on a task, receive failure feedback, and are asked who should be blamed for the poor performance, an individual will blame his or her partner less to the extent that there is a close relationship between the two (Sedikides, Campbell, Reeder, & Elliot, 1998). This effect, however, is significantly moderated by narcissism. When the self can be enhanced only at the expense of the other (e.g., taking credit for success means giving less credit to the partner), there is a clear crossover interaction: Narcissists will self-enhance and non-narcissists will other-enhance (Campbell, Reeder, Sedikides, & Elliot, 2000). Given that (a) self-serving attribution processes are significantly related to aggression in narcissists (Stucke, 2003) and (b) self-serving attributional processes are on average displayed in relational contexts only by

narcissists, it is arguable that a successful manipulation that forms a unit relation between two individuals will have an effect only on narcissists.

Overview of the present research

In the present research, we experimentally manipulated the perceived unit relation between two individuals. This was done by creating contexts in which individuals believed that they shared a birthday (Study 1) or shared a fingerprint type (Study 2). In both studies, we first measured participants' levels of self-esteem and narcissistic entitlement. In Study 1, we then exposed participants to a negative evaluation from either a purported student partner or the experimenter (this experimenter-given threat served as an important control condition). Participants were led to believe that their partner either had the same birthday they did or a different birthday. In Study 2, we exposed participants to either a positive or a negative evaluation from a purported student partner (the positive evaluation acted as another important control condition). Participants either were told that they shared a fingerprint type with their partner or were given no information about their partner's fingerprint type. Finally, in both studies, participants were given an opportunity to aggress against their partner. We predicted that sharing a feature with the partner would attenuate the link between narcissism and direct aggression typically found after ego threat.

STUDY 1

Method

Trait Measures

Participants first completed an on-line survey that included personal information (e.g., their birthday) and the trait measures of self-esteem and narcissistic entitlement.

Self-esteem was measured using the Rosenberg (1965) Self-Esteem Scale. Narcissistic entitlement was measured using the Entitlement subscale of the Narcissistic Personality Inventory (Raskin & Terry, 1988). This subscale consists of six forced-choice items (e.g., ''If I ruled the world it would be a much better place'' vs. ''The thought of ruling the world frightens the hell out of me''). The six items are summed, with higher scores indicating higher levels of narcissistic entitlement. In the present sample, the alpha coefficients for self-esteem and narcissistic entitlement were .86 and .44, respectively.

Although the value for narcissistic entitlement was low, it is similar to the .45 alpha coefficient reported by Raskin and Terry (1988). The correlation between the two scales was .05. Men (M = 3.25, SD = 0.43) scored marginally higher in self-esteem than did women (M = 3.13, SD = 0.46), t(257) 51.89, $p < .06$, $p_{rep} > .86$. Men (M = 2.59, SD = 1.54) scored significantly higher in narcissistic entitlement than did women (M = 2.00, SD = 1.42), t(257) = 2.86, $p < .01$, $p_{rep} > .95$.

Participants

Participants were 274 undergraduate students (75 men, 199 women) who received course credit in exchange for their voluntary participation. We excluded 14 who failed to follow instructions. Thus, the final sample consisted of 260 participants (67 men, 193 women).

Procedure

Participants were tested individually, but they were told they would be interacting with a partner of the same sex during the study. The ''partner'' was actually a confederate pretending to be another participant. Participants were told that the study was on ''first impressions,'' and that they would be completing a number of tasks with a

partner in order to form an impression of him or her, but that they would not have face-to-face contact with their partner.

After signing the consent form, each participant completed a short form that requested his or her name, gender, ethnic background, and birth date. The experimenter gave this form to the partner, and gave the participant the form that was supposedly filled out by the partner. By the flip of a coin, the partner had either the same birthday as the participant or a different birthday. The experimenter did not make any remarks about the birthdays and responded neutrally if the participant mentioned that the birthdays were the same.

Next, the participant was given 5 minutes to write an essay on abortion, endorsing whichever position he or she preferred. After completing the essay, the participant was randomly assigned to be evaluated by the partner or the experimenter. In the direct-aggression condition, the participant's essay was given to the partner for evaluation; thus, any aggression against the partner would be direct. In the displaced-aggression condition, the participant was told that the experimenter would rate the essay because the partner was running behind; thus, any aggression against the partner would be displaced. Meanwhile, the participant was given the partner's essay for evaluation. A few minutes later, the participant was given his or her own essay back, with negative ratings and comments ostensibly made by either the partner or the experimenter. The evaluations consisted of negative ratings on organization, originality, writing style, clarity of expression, persuasiveness of arguments, and overall quality. There was also a handwritten comment stating, ''This is one of the worst essays I have read!'' We have

used this ego-threat procedure successfully in our previous research (e.g., Bushman & Baumeister, 1998).

The next part of the procedure was presented as a competitive reaction time task (based on Taylor's, 1967, paradigm, which has been established as a valid and reliable measure of aggression—e.g., Anderson & Bushman, 1997; Giancola & Zeichner, 1995). Participants were told that they and their partner would have to press a button as fast as possible on each of 25 trials and that whoever was slower would receive a blast of noise. In advance of each trial, participants set the level of noise their partner would receive. Choices ranged from 60 dB (Level 1) to 105 dB (Level 10). A non-aggressive no-noise level was also provided. The partners set random noise levels throughout the task. Basically, within the ethical limits of the laboratory, participants controlled a weapon that could be used to blast their partners if the participants won the reaction time competition. Finally, participants were questioned about their suspicions, debriefed, and dismissed. The experimenter rated how suspicious participants were using an 11-point scale ranging from 0 (not at all suspicious) to 10 (extremely suspicious).

Results

In order to create a reliable measure of aggression, we standardized the noise-intensity data and averaged the resulting values across all 25 trials. The data were analyzed using a hierarchical regression analysis. Continuous predictor variables were centered when testing the interaction effects to avoid multicollinearity (e.g., Aiken & West, 1991; Jaccard, Turrsi, & Wan, 1990). In the first step, we entered covariates (i.e., experimenter's sex and participant's suspicion level). In the second step, we entered birthday status (1 = same birthday, 0 = different birthday), aggression type (1 = direct, 0

= displaced), and narcissistic entitlement (continuous). In the third step, we added the two-way interactions of these three predictor variables. In the fourth step, we added the three-way interaction.

The covariates explained 2.2% of the variance in aggression. The second step explained 3.4% of the variance. There was a main effect of aggression type; direct aggression was higher than displaced aggression, $t(259) = 2.44$, $p < .02$, $p_{rep} > .93$, $b = 0.78$, $\beta = .19$. In the third step, the interaction between aggression type and narcissistic entitlement was significant, $t(259) = 2.06$, $p < .05$, $p_{rep} > .89$, $b = 2.52$, $\beta = .23$. Adding the two-way interactions increased the explained variance from 3.4% to 3.5%. In the fourth step, the predicted three-way interaction of birthday status, aggression type, and narcissistic entitlement was significant, $t(259) = -1.97$, $p < .05$, $p_{rep} > .88$, $b = -4.04$, $\beta = -.22$. Adding the three-way interaction increased the explained variance from 3.5% to 3.7%.

To interpret the three-way interaction, we examined the two-way interaction between birthday status and narcissistic entitlement separately for direct and displaced aggression. This is a conservative test of our hypothesis because in splitting the data, we lost the degrees of freedom associated with the other type of aggression.

As expected, the two-way interaction was significant for direct aggression, $t(153) = -2.22$, $p < .03$, $p_{rep} > .91$, $b = -3.20$, $\beta = -.21$ (see Figure 4.1a). When the partner had a different birthday, the higher the participant's level of narcissistic entitlement, the higher his or her level of aggression, $t(88) = 3.32$, $p < .002$, $p_{rep} > .99$, $b = 2.89$, $\beta = .33$. When the partner had the same birthday, however, narcissistic entitlement was not related to aggression, $t(64) < 0.06$, $p < .95$, $p_{rep} < .13$, $b = 0.011$, $\beta = .007$. The interaction between

narcissistic entitlement and birthday status was not significant for displaced aggression, $t(153) = 0.61$, $p < .55$, $p_{rep} < .47$, $b = 0.859$, $\beta = .075$ (see Figure 4.1b.) Self-esteem did not predict aggression, either alone or interacting with other variables.

Discussion

In Study 1, we used a simple birthday manipulation to induce a unit relation between participants and their purported partners. We found the usual positive relationship between narcissistic entitlement and aggression when participants believed that their birthdays were different from their partners' birthdays. However, when participants believed that their partners shared a birthday with them, narcissistic entitlement was unrelated to aggression. Even at the highest levels of narcissistic entitlement, participants in this condition did not respond aggressively toward their partners despite receiving ego-threatening feedback.

Thus, although past research has consistently and robustly found links between threatened egotism and aggression, in a single lab session we were able to eliminate this relationship by introducing a simple unit-relation manipulation.

STUDY 2

In Study 2, we tried a different manipulation (i.e., fingerprint type) to induce a unit relation to conceptually replicate Study 1. In addition, we added a positive-feedback control group to further verify that aggression increases only after ego-threatening feedback. We again expected that our unit-relation manipulation would eliminate narcissistic aggression.

Method

Trait Measures

Before coming to the lab, participants completed the same online survey as in Study 1. The alpha coefficients for self-esteem and narcissistic entitlement were .88 and .45, respectively. The correlation between the two scales was .10. Unlike in Study 1, men (M = 3.16, SD = 0.50) did not differ in self-esteem from women (M = 3.13, SD = 0.46), and men (M = 2.06, SD = 1.50) did not differ in narcissistic entitlement from women (M = 1.86, SD = 1.44).

Participants

Participants were 466 undergraduate students (123 men, 343 women) who received course credit or were paid $10 in exchange for their voluntary participation. We excluded 10 participants: 1 who failed to follow the experimental instructions, 1 who had a disability that prevented him from being fingerprinted, and 8 for whom the computer malfunctioned or failed to record the data. Thus, the final sample consisted of 456 participants (117 men, 339 women).

Procedure

The procedure of Study 2 was the same as the procedure of Study 1, with the following exceptions. First, we manipulated similarity and told participants either that they had the same fingerprint type as their partner or that they had a different fingerprint type (Burger et al., 2004). Thus, we changed the cover story to reflect the new manipulation: Participants were told that the researchers were studying biology, personality, and intelligence, and that the tasks they would be completing would assess how biological markers (e.g., fingerprints) and personality characteristics are related to everyday intelligence.

Participants were fingerprinted at the beginning of the study. After they had finished writing their essay on abortion and evaluating their partner's essay, the experimenter came into the room and gave them their fingerprints back, after purportedly analyzing them by computer. One third of participants were told that they shared a rare fingerprint type with their partner (''You both have Type E fingerprints. That's very rare! Only about 2% of the population has Type E fingerprints.''). Another third were told that they shared a common fingerprint type with their partner (''You both have Type E fingerprints. Of course, that's not too surprising. About 80% of the population has Type E fingerprints.''). The remaining third, the control group, received their fingerprints back without any comment from the experimenter.

Unlike in Study 1, half of the participants in Study 2 were randomly assigned to receive positive feedback. We sought to replicate the previous research finding that entitled narcissists aggress only when they receive a blow to their ego. The positive feedback consisted of positive ratings on the same scales as in Study 1; in this case, the handwritten comment stated, ''No suggestions, great essay!'' This positive-feedback manipulation has been used successfully in previous research (e.g., Bushman & Baumeister, 1998). The negative feedback was the same as in Study 1. We eliminated the experimenter-feedback condition in Study 2 because we found no evidence of displaced aggression in Study 1.

After completing the essay task and receiving their fingerprints, participants completed the same competitive reaction time measure of aggression as in Study 1. Finally, participants were questioned about their suspicions (as in Study 1, suspicion was

rated on an 11-point scale ranging from 0, not at all suspicious, to 10, extremely suspicious), debriefed, and dismissed.

Results

We again standardized the noise-intensity data and averaged them across all 25 trials and used hierarchical regression analysis. In the first step, we entered covariates (i.e., experimenter's sex, participant's suspicion level, and recruitment pool: credit or paid). In the second step, we entered two dummy-coded variables for fingerprint type: rare type (1 = shared rare fingerprint, 0 = otherwise) and common type (1 = shared common fingerprint, 0 = otherwise). We also entered valence of the feedback (1 = negative, 0 = positive) and narcissistic entitlement (continuous). In the third step, we added all two-way interactions. Finally, in the fourth step, we added the two three-way interactions (Narcissistic Entitlement x Valence x Rare Fingerprint Type and Narcissistic Entitlement x Valence x Common Fingerprint Type). In the first step, the covariates explained 1.3% of the variance in aggression. In the second step, narcissistic entitlement, $t(455) = 2.08$, $p < .04$, $p_{rep} > .89$, $b = 0.75$, $\beta = .095$, and valence, $t(455) = 5.20$, $p < .00001$, $p_{rep} > .99$, $b = 0.91$, $\beta = .18$, both independently predicted aggression. The second step explained 2.9% of the variance in aggression. In the third step, the two-way interaction between rare fingerprint type and narcissistic entitlement was marginally significant, $t(455) = -1.80$, $p < .08$, $p_{rep} > .85$, $b = -1.60$, $\beta = -.10$, and there was a significant interaction between common fingerprint type and narcissistic entitlement, $t(455) = -2.07$, $p < .04$, $p_{rep} > .89$, $b = -1.80$, $\beta = -.11$. The interaction between valence and narcissistic entitlement was not significant. Adding the two-way interactions increased the explained variance from 2.9% to 3.2%. The most important test, however,

came at the fourth step, when we entered the three-way interactions into the model. The three-way interaction among common fingerprint type, valence, and narcissistic entitlement was not significant, but as expected, the three-way interaction among rare fingerprint type, valence, and narcissistic entitlement was significant, $t(455) = -1.99$, $p < .05$, $p_{rep} > .88$, $b < -3.54$, $\beta < -.11$. Adding the three-way interactions increased the explained variance from 3.2%to 3.3%. To interpret the significant three-way interaction, we examined the two-way interactions between common fingerprint type and narcissistic entitlement and between rare fingerprint type and narcissistic entitlement, separately for the positive- and negative-feedback conditions. The model that included the two-way interactions between the fingerprint types and narcissistic entitlement was marginally significant in the negative-feedback condition, $F(1, 218) = 1.79$, $p < .05$, $p_{rep} > .84$ (see Figure 4.2a). Both interactions between fingerprint type and narcissistic entitlement were significant, $t(227)= -1.99$, $p < .05$, $p_{rep} >.88$, $b = -2.70$, $\beta = -.15$, for common fingerprint type and $t(227) = -2.40$, $p < .02$, $p_{rep} > .92$, $b = -3.30$, $\beta = -.18$, for rare fingerprint type. Breaking the results down by fingerprint type, not correcting for degrees of freedom for a more conservative test, we found that in the no-fingerprint control condition, the higher participants' level of narcissistic entitlement, the more aggressive they were, $t(74) = 3.11$, $p < .003$, $p_{rep} > .97$, $b = 2.83$, $\beta = .34$. When partners shared either a rare or a common fingerprint type with participants, narcissistic entitlement was not related to aggression, $t(72) = 0.19$, $p < .85$, $p_{rep} < .24$, $b = 0.21$, $\beta = .02$, and $t(79) = -0.67$, $p < .55$, $p_{rep} < .47$, $b = -0.73$, $\beta = -.052$, respectively. In the positive-feedback condition, the overall model that included the two-way interactions between the fingerprint types and narcissistic entitlement was not significant, $F(1, 216) = 1.61$, $p_{rep} < .79$, and neither of the two-way

interactions between fingerprint type (rare or common) and narcissistic entitlement was significant (see Figure 4.2b). Self-esteem did not predict aggression, either alone or interacting with other variables.

Discussion

In Study 2, we induced a unit relation between participants and their partners with a similarity manipulation. We found the usual positive relationship between narcissism and aggression when participants received ego-threatening feedback from partners who did not share their fingerprint type. If, however, participants believed that they shared a fingerprint type with their partners, especially if the type was a rare one, narcissism was unrelated to levels of aggression. Indeed, following ego threat, narcissists were descriptively less aggressive than nonnarcissists in the rare-fingerprint- type condition. Thus, we were again able to attenuate the narcissism-aggression relationship in a single lab session.

GENERAL DISCUSSION

In two experiments, we tested a potential moderator of the narcissism-aggression link: an induced unit relation between the ego-threatened individual and the ego threatener. In Study 1, this unit relation was created through a shared-birthday manipulation; in Study 2, it was created through a shared fingerprint-type manipulation. Across studies, the results support the conclusion that the narcissism-aggression relationship can be attenuated if participants can be made to believe that they share a characteristic with the ego threatener. The effect of the unit-relation induction was limited to participants high in narcissism. Given that the manipulation creates a connection between two individuals, this result suggests that a lack of connection with

other individuals is a key contributor to narcissistic aggression. Future research may be well served by focusing on those aspects of egotism that are associated with the inability or unwillingness to form connections with other individuals. Interestingly, in Study 2, we found evidence that the unit-relation manipulation actually led to a small but noticeable increase in aggression for participants low in narcissism. Why might this be the case? In past research on the self-serving bias, it has been found that some (presumably low-narcissistic) individuals will behave in a more self-serving way when they feel maligned or mistreated by a close other than when they are so treated by a stranger (Sedikides, Campbell, Reeder, & Elliot, 2002). Mistreatment by a close other can be seen as a violation of relationship norms. We speculate that reaction to such a violation might be reflected in our data; that is, participants low in narcissism may have become particularly reactive when they felt betrayed by a close other. This research has important practical implications. Specifically, it suggests a strategy (i.e., inducing a shared unit relation) that might result in lower levels of narcissistic aggression. The manipulations used in the present research might not be ideal for this task. Efforts to create unit relations between individuals using more plausible techniques (e.g., shared school identity) might be effective. This is an important topic for future research. In conclusion, it appears that narcissistic aggression following ego threat thrives when the connection between individuals is weak. Thus, establishing commonalities between individuals may be a powerful strategy for keeping ego-driven aggression in check.

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Figure 4.1a: Direct aggression toward partner after partner's threatening feedback as a function of birthday condition and level of narcissistic entitlement. Capped vertical bars denote 1 standard error.

Figure 4.1b: Displaced aggression toward partner after partner's threatening feedback as a function of birthday condition and level of narcissistic entitlement. Capped vertical bars denote 1 standard error.

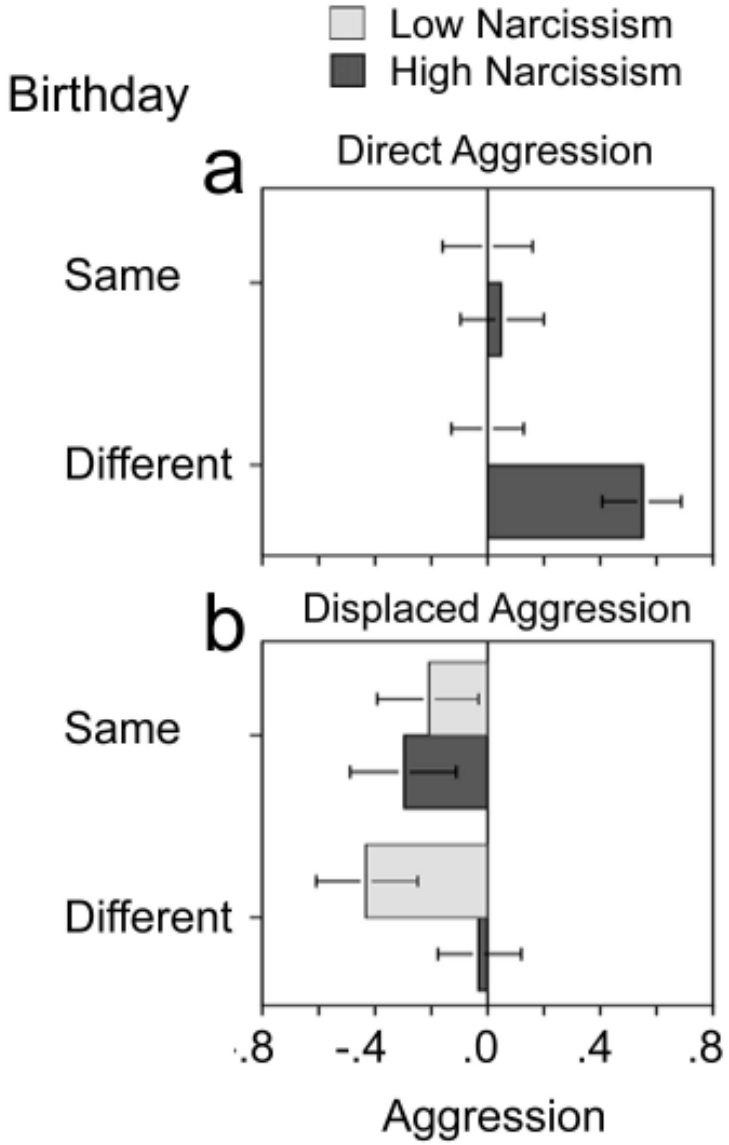
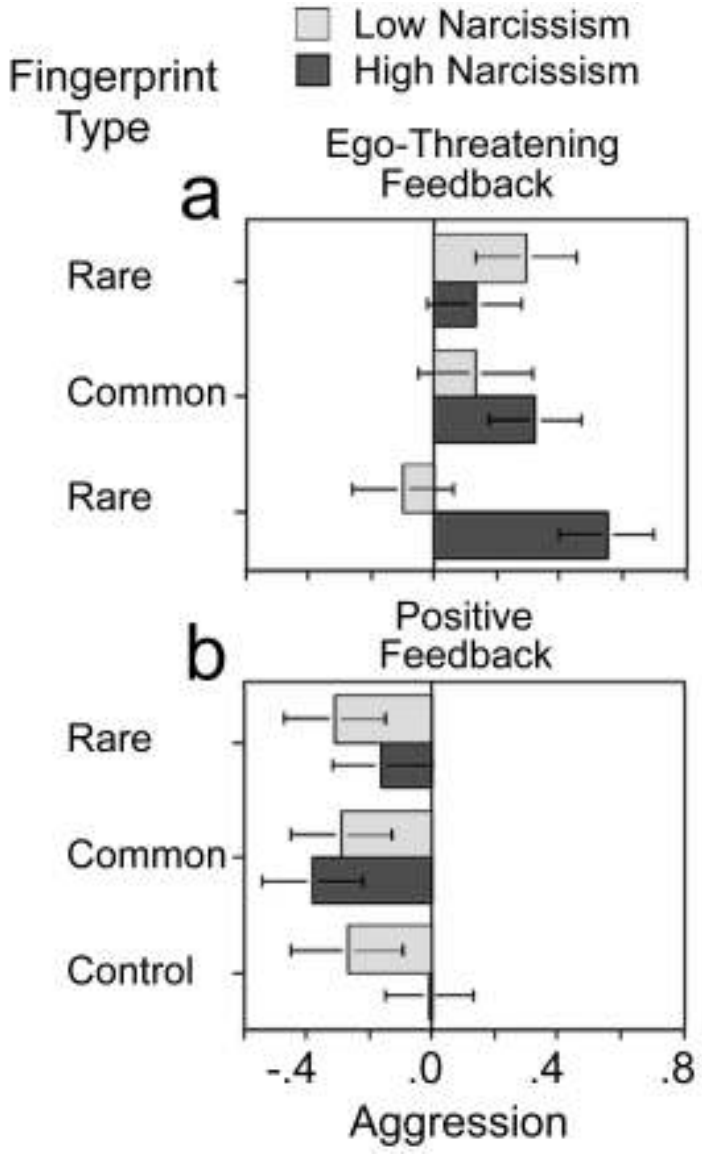


Figure 4.2a: Aggression toward partner after partner's ego threatening feedback as a function of fingerprint condition and level of narcissistic entitlement. Capped vertical bars denote 1 standard error.

Figure 4.2b: Aggression toward partner after partner's positive feedback as a function of fingerprint condition and level of narcissistic entitlement. Capped vertical bars denote 1 standard error.



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Chapter 5: Summary and conclusion

The focus of this dissertation was on the increase of narcissism over time and the potential implications of this. In the first paper my colleagues and I found that narcissism has been increasing since the 1980s in American college students. Because there is a large research literature on personal and interpersonal correlates of narcissism, we already have a sense of some of the implications, including some positive intrapersonal outcomes (e.g. higher self-esteem).

One question that we are left with that we could not answer with our data is why narcissism is rising. We speculate that increased narcissism could be caused by ego-inflating messages children receive from their parents, teachers, and the media. It is also possible that changes in society brought about by economic conditions and isolating technologies can create self-absorbed and entitled people. Whether narcissism is increasing in people from other countries or even in non-college student populations in the United States is a question that would be interesting to address in the future and it would help us to better understand the causes of narcissism. For example, if narcissism is only rising in high individualism, low collectivism cultures like the United States, but is staying the same or becoming lower in more collectivistic cultures there may be something about cultural values that is leading to the increase of narcissism here.

Out next papers are relevant to the implications of rising narcissism in that they explore the relationship between narcissism, self-construal, and cognitive style. We find that narcissists are high in independent and low in interdependent self-construal, which has the implication that if narcissism is rising in American society then perhaps individualism is also increasing and collectivism is also declining over time. We also find that narcissists have a cognitive style that is highly analytic and low in holism. This means that if narcissism is rising in the United States then perhaps analytic cognitive styles are also become more prevalent over time. Maybe it's not a coincidence that the rise of narcissism that we find in our study overlaps with the computer industry from the 1980s until today.

Of course, that these two occurred at about the same time says nothing of their causal relationship, which is a problem that needs to be addressed in future research. Does perceiving oneself to be unique and autonomous from others create a sense of disconnection so extreme that it leads to cognitive-perceptual changes? There is some research evidence to support this hypothesis, finding that experimentally induced high self-focus (Davies, 1986) or low other-focus (Kühnen, Hannover, & Schubert., 2001, Study 4; Kühnen & Oyserman, 2002; Oyserman et al., in press) leads to better performance on analytic tasks and worse performance on holistic tasks. Thus, it is possible that high self and low other-focus leads to a narrowing of attentional style to only include focal objects. Future research needs to be more precise by examining the effect of experimental induction of all four self and other quadrants in order to test our theory of social atomization and cognitive style. If the highest scores on tests of analytic cognition occur in the atomized quadrant, then this would provide support for it.

However, the direction of causality between social atomization and analytic cognitive style could go both ways. That is, having an analytic cognitive style could lead one to retreat from the social world and into the world of the self and objects. Biological and socio-cultural influences could interact to create a certain attentional style, and this attentional style could lead to a self-view that is highly self-focused and disinterested in others. To date there is no evidence that we are aware of for this hypothesis except for a small pretest we conducted that found "spotting differences" between two pictures (as compared to similarities) increased people's entitlement. Without further replication though, we cannot say for sure whether analytic cognitive style could lead to increased self-focus and decreased other focus. Future studies might train people to think more holistically, for example, by having them learn Oriental medicine versus Western medicine (see Koo & Choi, 2005), and then measuring people's self-construals, narcissism, self-esteem, physical proximity to others, and other self-related and relationship-oriented variables. Other such manipulations could include learning pure math (analytic) versus topics in physics that emphasize causal interrelationships (e.g. chaos theory), or any other kind of task that makes people focus on holistic versus analytic properties. Besides seeing whether these manipulations influence cognitive style and self and other-focus, it would also be interesting to see if they influence the relationship between narcissism and aggression. From my fourth dissertation article we know that making narcissists see similarities they share with other people leads to lowered aggression after an ego threat, but would a purely cognitive manipulation of holism do the same thing? It would be interesting to find out.

One idea that was only briefly touch on in the second and third articles was the idea of biological and socio-cultural influences that may help to explain the relationship between social atomization and cognitive style (See Figure 5.1 for a summary). This discussion is purely (and wildly) speculative at this point, but I can think of at least three biological influences that may affect both of these. First, I wonder whether differences in brain structures influence both self and other focus, and cognitive style. The corpus callosum, for example, is the structure that divides the two hemispheres of the brain. Its main function is the interhemispheric communication and integration of information and I wonder if it plays a part in people's perceptions of self in relation to others and objects in relation to each other. Autistic individuals have been shown to have smaller corpus callosums than non-autistic controls (Egaas, Courchesne, & Saitoh, 1995; Piven, Bailey, Ranson, & Arndt, 1997; Hardan, Minshew, Mallikarjuhn, & Keshevan, 2001). Although I am not aware of any study that compares autistic and control groups on both the corpus callosum size and cognitive style performance, there is some evidence that a smaller corpus callosum is associated with faster response times to the smaller letters on a Navon (1977) letters task (Müller-Oehring, Schulte, Raassi, Pfefferbaum, & Sullivan, 2007). I am not aware of any research linking self-construal or narcissism with corpus callosum size.

More promising may be the role of hormones in both self and other-focus and cognitive style. For example, men with higher testosterone perform better on tests of field independence (e.g. Christensen & Knussman, 1987). Testosterone is a hormone that has been linked to autism (Manning, Baron-Cohen, Wheelwright, & Sanders, 2001; Knickmeyer, Baron-Cohen, Fane, Wheelwright, Mathews, Conway, et al., 2006), but I'm

not aware of any research that examines testosterone levels in narcissism or independent self-construal even though males are higher in both of these traits (Foster, Campbell, & Twenge, 2003; Bushman & Baumeister, 1998; Cross & Madson, 1997). There is some research that suggests that high testosterone is associated with poor relationship skills, although I know of no research on testosterone's relationship to self-focus. Men in committed relationships have lower testosterone than single men (Burnham, Chapman, Gray, McIntyre, Lipson, & Ellison, 2003; Gray, Kahlenberg, Barrett, Lipson, & Ellison, 2002; Mazur & Michalek, 1998). Of those who are married, men who spend more time and are more involved with their wives have lower testosterone than less involved married men (Gray et al., 2002). Of course this could mean that testosterone declines in men when they are involved in committed relationships or that men with low testosterone are more likely to engage in committed relationships, but either way it suggests a link between low testosterone and high other-focus. Similarly, testosterone is related to aggressive behaviors (Book, Starzyk, & Quinsey, 2001) and dominance (Mazur & Booth, 1998).

Genetics may also influence both social atomization and cognitive style and perhaps explain the relationship between them. For example, autism is a highly genetic disorder such that if one identical twin has autism there is a 92% chance that the other twin is on the autistic spectrum of disorders (Bailey, Le Couteur, & Gottesman, 1995), although environmental stressors may make autism more likely if genetic susceptibility exists (Lawler, Croen, Grether, Van de Water, 2004). Narcissism also has a genetic component as narcissism scores are more highly correlated in monozygotic versus dizygotic twins (children: Coolidge, Thede, & Jang, 2001; adults: Livesley, Jang,

Jackson, & Vernon, 1993). Although self-construal and individualism-collectivism are more likely to be influenced by socio-cultural norms than genes, there may be genetic components to self-esteem (Kendler, Gardner, & Prescott, 1998) and empathy (Davis, Luce, & Kraus, 1994). Finally there also appears to be some evidence that the ability to disembed information from its context has a partial genetic component (Egorova, 1987; Johnson, Bouchard, Segal, Keyes, & Samuels, 2003; Matheny, 1971; Del Miglio, Paluzzi, Falanga, & Talli, 1996).

Socio-cultural influences are also potentially important third variables in the relationship between social atomization and cognitive style. For example, parenting styles and cultural norms are both likely to influence narcissism and self-construal. People from individualistic cultures have been shown to be more narcissistic than those from less individualistic cultures (Foster, Campbell, & Twenge, 2003) and indulgent and permissive parenting styles are associated with higher narcissism (Ramsey, Watson, Biderman, & Reeves, 1996; Horton, Bleau, & Drwecki, 2006). Self-construal is also obviously very much influenced by culture (Singelis, 1994; Markus & Kitayama, 1991) and parenting styles (e.g. Keller, 2003). It is possible that culture and parenting may also perhaps affect the detection and recovery process in autism. People from more interdependent cultures may be more likely to notice when children are not meeting developmental milestones related to social interest, and being embedded in a highly interconnected web of social relations might help autistic children improve their social skills and become more holistic.

As reviewed in our paper on social atomization, culture also plays a role in cognitive style and I think it's possible that parenting could do the same. For example,

parents in one culture may have a tendency to point to focal objects whereas parents in another culture might tend to point out background details or note how the objects relate to each other (see Fernald & Morikawa, 1993). Finally, the physical environment in different cultures has been shown to differ such that in more interdependent cultures objects appear to be more complex and embedded into scenes as compared to more independent cultures (Miyamoto, Nisbett, & Masuda, 2006). Thus, it is plausible that the culturally-specific messages that we receive from others influence both our tendencies to focus on ourselves and others and our tendencies to focus on details versus the big picture.

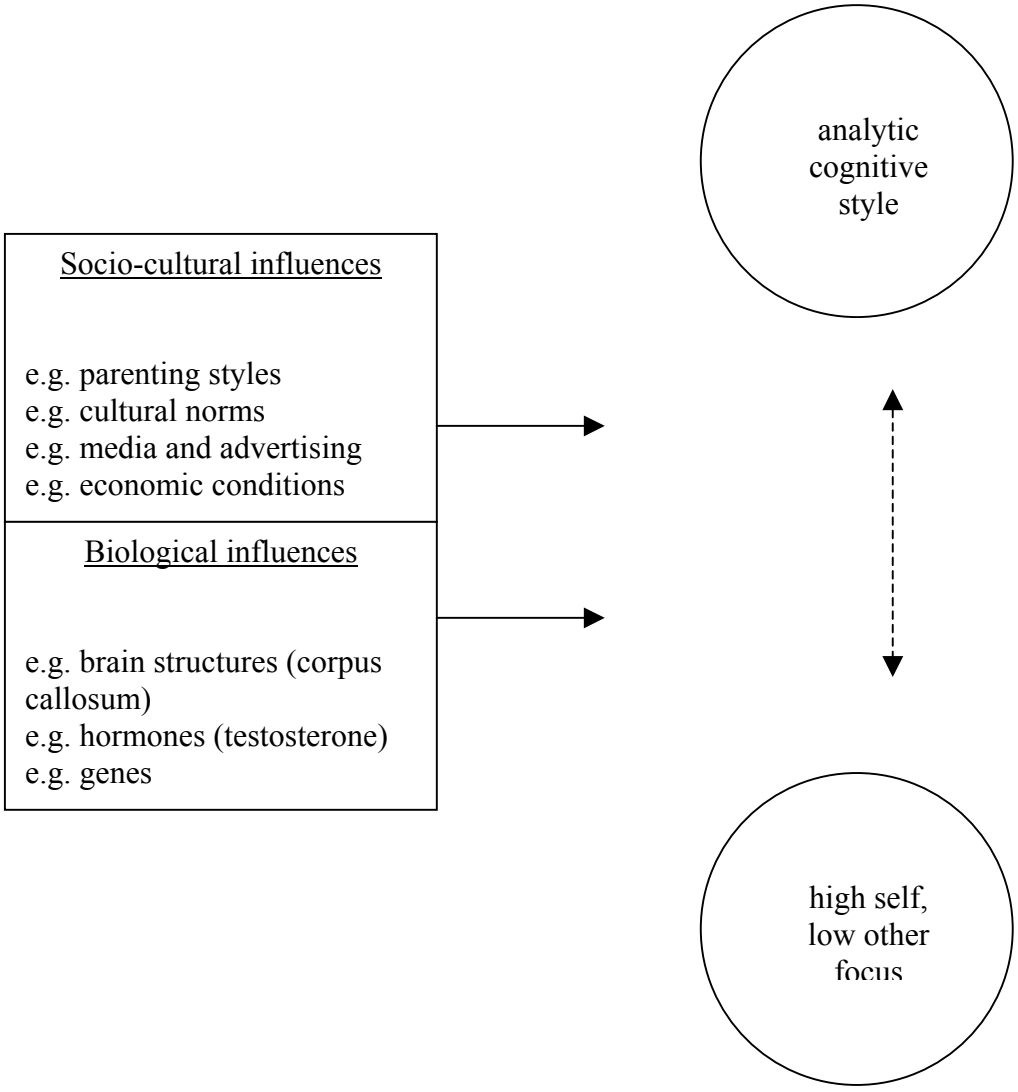
Although a relatively unexplored area of research so far, media and advertising might also give people messages about how to express their unique selves, about being a unique demographic, and of course, by making people focus on focal objects being advertised. Most ads have products featured prominently standing out from a background that might influence what we pay attention to. However this placement of objects may vary by culture in advertising in the same way as advertisements vary in their messages about independence and interdependence across cultures (Han & Shavit, 1994), a possibility that could be explored. The rise of reality television and social networking sites may be related to self-focus, however it's hard to think of why they might affect people's cognitive styles. In addition, much research needs to be done on the role of individualizing technology (e.g. ipod, laptops, etc) on self and other-focus and cognitive style.

The role of economic conditions on social atomization and cognitive style is also understudied, but I speculate here on some potential links. One way that economic

conditions might influence autism rates is through the genetic process of assortative mating. In the case of autism it is possible that men and women with highly analytic cognitive styles may be attracted to certain locations because jobs are abundant there (e.g. Silicon Valley). If two such people have children they may pass on their analytic genes to their children and possibly have an increased likelihood of having a child with autism (Baron-Cohen, 2005). More direct links between economic variables and social atomization can be made however. For example, recent research has found that exposing people to money as a prime can make people more independent and isolated, and less helpful toward others (Vohs, Mead, & Goode, 2006). Future studies could directly explore the effect of money on cognitive style using similar methods.

I outlined some explanations for the relationship between social atomization and cognitive style and it is very apparent that there are more unanswered questions than answers at this point. There could also be many reasons for the rise of narcissism in our culture, and perhaps some of the biological and cultural causes that I touched on have some bearing on this issue. Whether narcissism will continue to rise in the future or instead plateau or fall with changing social or economic conditions is a question that we can re-examine in another decade or two. For now, this dissertation can at least give a sense of the potential implications for self-construal, cognitive style, and behavior of any change in narcissism.

Figure 5.1. Biological and socio-cultural influences that may cause social atomization and/or analytic cognitive style



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