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Chapter I

Review of Literature

The purpose of this study is to examine a mediational model of alcohol use which posits that the observed relationship between a specific externalizing personality dimension – narcissism – and alcohol use patterns can be explained using Gray’s (1982) approach/avoidance motivation model. First, the theoretical underpinnings for each construct will be summarized and the extant empirical support about how they may be related will be reviewed. Second, a particular mediational model will be identified and tested.

Alcohol Use

The prevalence of alcohol use varies throughout the world. Europe leads the world in per capita consumption but alcohol use is high in the United States as well (Fleming & Manwell, 2000). Recent reports estimate that 70% of the U.S. population uses alcohol in some manner (Goodwin, 2000). While light-to-moderate alcohol use has been associated with beneficial health effects, such as the reduction of cardiovascular diseases (Thakker, 1998), excessive use is linked to a variety of health concerns. Health problems associated with alcohol use include negative effects to the brain and cognitive functioning, negative impact on the liver --including death by cirrhosis -- the pancreas, and the immune system among others (Fleming & Manwell, 2000). Alcohol use not only
affects personal health, but also has behavioral effects that can lead to injury and death. For example, in the 1980’s alcohol use accounted for 60% of motor-vehicle fatalities (Walton, 1995). More recently, and because of more stringent polices, the rate has declined. Alcohol consumption accounted for 32% (11,773) of motor vehicle deaths in 2008 (National Highway Traffic Safety Administration, 2009). Alcohol use has also been linked to other behaviors such as homicides, domestic violence, and other criminal activities (Windle & Windle 2006).

Alcohol use is best viewed on a spectrum, with light or non-problematic use representing one end of a continuum. Increasingly more problematic alcohol use has been labeled alcohol abuse, which is described by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) as a maladaptive pattern of alcohol use that leads to significant impairment in multiple domains of an individual’s life over a 12-month period. Those who abuse alcohol persist in doing so despite legal and social problems. Other criteria for alcohol abuse include using alcohol in hazardous situations and failing to fulfill important life activities secondary to alcohol use. The most severe form of alcohol use is alcohol dependence. The DSM-IV-TR defines alcohol dependence as a maladaptive pattern of alcohol use that includes the development of tolerance for the substance, as well as displaying withdrawal symptoms. Other criteria include drinking more and over a longer period of time than intended, unsuccessful attempts to quit using the substance, spending a great deal of time finding alcohol, giving up important life activities, and continuing to use alcohol despite knowledge of its harmful physical or psychological effects.
Alcohol use in college students. A population that is at high risk for developing alcohol use disorders and alcohol related problems is U.S. college students (Ham & Hope, 2003). One factor contributing to college students being particularly prone to alcohol-related problems is binge drinking. Although definitions fluctuate, most researchers define binge drinking as 5 or more drinks in a row for men, and 4 or more drinks in a row for women (Wechsler et al., 2002). Wechsler et al. (2002), using data from the Harvard School of Public Health, examined trends in college students’ drinking behavior across four different times periods: 1993, 1997, 1999, and 2001. This study surveyed 119 4-year universities and found that binge drinkers were at high risk for suicidal thoughts, fighting, missed classes, car accidents, lower academic performance, loss of memory, broken friendships, and peer criticism. Further, across all 4 survey epochs, 2 out of 5 students were classified as binge drinkers. The number of students who were classified as binge drinkers (approximately 44% in all four surveys) remained largely steady over the 8 years. However, while the prevalence of binge drinking did not increase, the number of frequent binge drinkers (defined as students who have binged 3 or more times in the past 2 weeks) increased from 1993 to 2001. In 1993, 19.7% of respondents were classified as frequent binge drinkers, in 1997, the number rose 21.0%, in 1999, it rose to 22.6%, and it reached 22.8% in 2001. Wechsler et al. (2000) also reported that the number of students classified as abstinent has shown a similar increase, suggesting that student-drinking habits are becoming polarized.

Recent research has shown that a substantial number of college students meet, or have met, the criteria for alcohol abuse and/or dependence, and have engaged in binge
drinking (Grekin & Sher, 2006; Knight et al., 2002; Slutske et al., 2004; Wechsler et al., 2002). Knight et al. (2002), using the Harvard School of Public Health data set which surveyed 23,751 students at 119, 4-year universities, examined the prevalence of alcohol abuse and dependence disorders during the year preceding the administration of the survey. Researchers defined alcohol abuse and dependence using self-report measures of DSM-IV criteria for abuse and dependence. Abuse was defined as endorsement of at least 1 of the 4 abuse criteria and no endorsement of any dependence criteria. Alcohol dependence was defined as endorsement of at least 3 of the 7 dependence criteria. Results indicated that 31% of college students met the criteria for alcohol abuse and 6% met the criteria for dependence. Subsequent research has provided additional evidence of substantial drinking rates among college-aged men and women — although the prevalence of alcohol use disorders has been found to be lower. Slutske et al. (2004), using a multipronged research design which included cross-sectional, longitudinal, and twin (monozygotic and dizygotic twins discordant for college attendance) components, examined the association of alcohol use and alcohol use disorders with college attendance status. Data were collected during three waves. Waves 1 and 2 were cross-sectional by design and assessed different aspects of college drinking. Wave 1 consisted of 332 individual 19-21-year-old female twins who were currently attending a two or four year college and 276 who were not attending college. Wave 1 was intended to measure the difference between college attendees and non-attendees in rates of alcohol use disorders. Wave 2 was collected 1.3 years after Wave 1 and assessed for differences in the frequency and the quantity of alcohol use between college and non-college attendees. The Wave 2 sample included 795 individual female twins aged 19-21 years-old, 60% of
whom had also been in Wave 1. Among Wave 2 participants, 452 had attended either a four or a two-year college within the past 12 months. Wave 3, collected approximately 2 years after Wave 1, consisted of 298 19-21-year-old non-college attending female twins who were interviewed at Wave 1. Wave 3 was a longitudinal sample. Wave 1 cross sectional results indicated that the prevalence of alcohol dependence in college attending participants within the past year was 9% and the lifetime prevalence was 13%. Within the same sample, 6% of students met the criteria for alcohol abuse within the past year and 12% within their lifetime. Results from Wave 2 indicated that college enrollment was significantly, positively correlated with use frequency, binge drinking, and getting drunk within the past year (Slutske, 2005). Grekin and Sher (2006) reported the alcohol dependence rates of 3,720 (46% male; 54% female) college freshman. The researchers collected data at three different times: Waves 0, 1, 2. Wave 0 occurred as students entered college and captured their drinking behavior for the prior 12 months; Wave 1 occurred at the end of participant’s first fall semester and captured drinking behavior for the prior 3 months; Wave 2 occurred at the end of spring semester and captured drinking behavior for the prior 3 months. Alcohol dependence was assessed using self-report measures of DSM-IV alcohol dependence criteria. Students were classified as having alcohol dependence if they endorsed at least three DSM-IV criteria. Results indicated that at Wave 0 the alcohol dependence rate was 15.1%. Waves 1 and 2 revealed rates of 11.5% and 11.7%, respectively. Grekin and Sher did not speculate as to why dependence prevalence rates declined as students completed their first year of college, but noted that student’s dependence rates remained stable, and relativity high, throughout their freshman year.
Predictors of alcohol problems. Considerable research has been conducted identifying risk factors among the college population for the progression from alcohol use, to abuse and then to dependence. Jackson, Sher, and Park (2005) divided factors related to alcohol use into three categories: intra-campus, inter-campus, and individual factors. In terms of intra-campus factors, there is evidence that athletes, compared to non-athletes, report more problem drinking (Ford, 2007). Ford, using the 1999 data from the Harvard School of Public Health, indicated that individuals who were involved in athletics used alcohol at significantly higher rates than individuals who were not involved in athletics. Among non-athletes, 42.6% were classified as binge drinkers, while 52.4% of athletes were classified as binge drinkers. One inter-campus factor found to be related to alcohol use patterns is the ethnic and racial composition of the institution. For example, it has been found that overall alcohol consumption and binge drinking rates are lower at Black colleges than they are at colleges where the student body is predominantly White (Meilman, Presley, & Cashin, 1995). While intra-campus and inter-campus factors are important and deserving of additional investigation, the focus of this study is on individual differences that might prove useful in predicting alcohol problems in college students.

Externalizing and internalizing behaviors relating to alcohol use. Potentially useful individual or person- factors for understanding alcohol use in college students are externalizing and internalizing behaviors. There is a growing consensus for conceptualizing mental conditions in terms of broad, encompassing terms, like that of externalizing and internalizing (Slade, 2007).
Externalizing. One way of defining externalizing behavior is through the externalizing spectrum, a model articulated by Krueger et al. (2002). Krueger et al. posited an interrelationship between mental conditions such as substance dependence, disinhibited personality style, and antisocial behavior, and linked them using a biometric model formulated with 1,048 male and female twins. Krueger's et al. model adumbrates the relationship between these individual difference factors and alcohol use that is proposed by this study; specifically, that approach-avoidance motivation, which is closely related to disinhibited personality styles (Gray, 1982) and narcissism, which is viewed as a core component of antisocial personality, are associated with substance use disorders (Kernberg, 2001).

Krueger's et al. (2002) model may also be applied to alcohol use in college students. A disinhibited personality style -- often-labeled impulsivity -- has been shown to be one of the most important predictors of alcohol use in the non-clinical college population (Baer, 2002; Brennan, Walfish, & AuBuchon, 1986; Ham & Hope, 2003). Brennan et al. (1986) reviewed 20 studies, spanning from 1953 to 1984, and found that impulsivity was positively associated with alcohol use behavior among college students. The trait was positively associated with greater frequency and quantity of consumption for both men and women. In a 2002 review, Baer summarized Brennan's findings and extended them by examining additional studies. Included in Baer’s review were seven additional studies that supported the link between self-report measures of impulsivity and alcohol use problems. Baer also noted that there did not appear to be any single aspect or part of the general concept of impulsivity that was more salient than other aspects in predicting heavy drinking and alcohol problems. Research that is more recent continues
to support the strong, positive association between impulsivity and alcohol use in college students. For example, Grekin and Sher (2006) found that behavioral undercontrol, a composite measure representing impulsive and antisocial traits, was a strong predictor of alcohol dependence.

**Internalizing.** Internalizing has been defined as a broad factor that includes both the formal disorders and subclinical symptoms of anxiety and depression (Slade, 2007). Among non-college-student populations, neuroticism -- a term that comprises negative emotional states such as depression and anxiety -- has been positively associated with clinical alcoholism (Sher, Trull, Bartholow, & Vieth, 1999); however, within the college population the relationship appears more complicated (Baer, 2002). Through the years, inconsistent relations have been found between anxiety and alcohol use. Brennan, Walfish, and AuBuchon (1986) reviewed 13 studies conducted between 1965-1984 that examined neuroticism, anxiety, and/or depression and their relation with alcohol use in college students. They concluded that there was no predominant pattern. In terms of anxiety, for example, Schwarz (as cited in Brennan et al., 1986) and Rafliff and Burkhard (as cited in Brennan et al.) found that those classified as heavy drinkers were less anxious; however, Brook et al. (as cited in Brennan et al.) found that high scores on anxiety measures were related to high alcohol consumption. Such discrepancies led Brennan et al. to conclude that there may not be a linear relationship between anxiety and drinking behavior in college students.

Other more recent studies have found mixed results in terms of the relationship between anxiety and alcohol use with some research suggesting a negative relationship while others a positive. Ham, Bonin, and Hope (2007), in a sample of 239
undergraduates, found that self-reported social anxiety had a weak, negative relationship with typical weekly alcohol use and was unrelated to alcohol-related problems. Their results are consistent with other recent studies which have found social anxiety to have a small, negative relationship with alcohol use in college students (Eggleston, Woolaway-Bickel, & Schmidt, 2004; Ham & Hope, 2005). Ham et al. (2007) suggested that social anxiety may function as both a protective and risk factor with respect to alcohol use. On the other hand, others have found positive relationships between alcohol consumption and anxiety (Kushner, Sher, & Erickson, 1999; Pullen, 1994) and have concluded that alcohol may be used by some college students as a way to manage anxiety. Kushner et al. (1999), using a 7 year longitudinal design including 454 college students, found that individuals with anxiety disorders at year 1 and year 4 of data collection were more likely to have an alcohol disorder in year 7—although among those with moderate levels of anxiety, the results were mixed.

The relationship between symptoms of depression and alcohol use in college students also appears to be complicated; however, there is evidence for a trend toward a positive relationship between depressive symptoms and alcohol use. Brennan, Walfish, and AuBuchon (1986) summarized these discrepant findings. In their review, they found that in four studies, depressive symptoms were predictive of alcohol use, but in female college students only (Moos, Moos and Kulik, Noel and Lisman, Reiskin and Wechsler, and Wechsler and Rogman as cited in Brennan et al., 1986). In contrast, Ratliff and Burkart (as cited in Brennan et al.) found no association between self-reported depression and alcohol use in both men and women. Brennan et al. noted a trend toward depressive symptoms being predictive of alcohol use in female college students. However, they also
speculated that negative emotions may be predictive of alcohol use for men as well, even though research has not supported the notion. They concluded that men’s tendency to score high on impulsivity measures may statistically overshadow the predictive utility of depressive symptoms. Research that is more recent has identified a trend for depressive symptoms to predict alcohol use for both male and female college students (Baer, 2002; Harrell, Slane, & Klump, 2009; Pullen, 1994). Pullen, using a sample of 300 college students, found that self-reported depression was among the best predictors of alcohol use patterns, along with family member alcohol abuse, self-esteem, state anxiety, and GPA. Harrell et al. (2009) examined the predictive value of depressive symptoms, eating disorders, and family history of alcoholism for alcohol use in 295-same sex female twins (mean age = 20 years; 83% White). Results showed that depressive symptoms had a direct effect on alcohol use. Harrell et al. concluded that depressive symptoms in college women are important predictors of alcohol use. They added that the direction of the relationship remains unclear, but that college women may be using alcohol to self-medicate depressive symptoms.

The relationship between neuroticism and alcohol use in college may be linked to culture. Brar and Moneta (2009) examined the relationship between negative emotional states and alcohol abuse in a sample of 150 British Indian and 150 White college students. Using self-report measures of depression, anxiety, and alcohol abuse, they found a significant, positive, relationship between negative emotional states and alcohol abuse for White students, but no relationship for British Indian students. They conjectured that White students may use alcohol to cope with negative emotions in a culturally defined manner (Brar & Moneta, 2009).
Gray’s (1982) Theory

One alternative way of conceptualizing both externalizing and internalizing traits is through Gray’s (1982) Reinforcement Sensitivity Theory (RST). RST is one of many theories (e.g., structural model of psychoanalysis and Eysenck’s –psychoticism, extraversion, and neuroticism model) which state that behavior can be appetitively and aversively motivated. In a broader sense, Gray’s theory can be referred to as approach/avoidance motivation (Foster & Trimm, 2008). The theory is composed of a biological basis for understanding personality that uses two systems to explain externalizing and internalizing behaviors. Gray’s theory was an adaption of Eysenck’s (1967) arousal theory, in which Eysenck argued that personality can be conceptualized in terms of extraversion and neuroticism. Gray adapted Eysenck’s theory and posited that extraversion and neuroticism can be conceptualized as reward seeking and punishment sensitivity, respectively.

Gray (1982) is comprised of three systems in the central nervous system: the fight-flight system (FFS); the behavioral approach system (BAS), which can explain externalizing behaviors; and the behavioral inhibition system (BIS), which can explain internalizing behaviors. However, the FFS, a system that Gray proposed as being sensitive to unconditioned stimuli, was deemphasized by Gray and has not been researched thoroughly. Instead, Gray contended that the other two systems, the BAS (impulsivity) and BIS (anxiety) are primarily responsible for behavior and emotion. He furthered argued that the nature and development of the two systems predispose individuals to develop psychological disorders -- including disorders like alcohol abuse. Each system is associated with different brain structures, which regulate the sensitivity of
reinforcers and control of emotions. Each system has its own neurological basis. The BIS is comprised of a septo-hippocampal system, which responds to anxiety cues, while the BAS is thought to be related to catecholaminergic and dopaminergic pathways and responds to reward cues.

Gray contended that the BAS is sensitive to conditioned appetitive stimuli, which in turn form a positive feedback loop, comprised of the conditioned stimulus and the omission of an aversive stimulus. Individuals learn to be sensitive to rewards or non-punishments and respond to them with activating behavior. The BAS is associated with positive affect and with the trait of impulsivity and is thought to underlie the trait of extraversion. Gray (1993) stated that individuals high in BAS are more prone to alcohol use. Alcohol, in the short-term, has rewarding properties. The theory states that individuals with high BAS are more susceptible and likely to engage in approach behavior (e.g., alcohol use) in the face of potential reward cues. Gray stated that the short-term euphoria that is observed in alcohol users is similar to the dopamine release in the nucleus accumbens. The more rewarding the euphoria is to an individual, the more alcohol use is reinforced.

The BIS, according to Gray (1982), is sensitive to conditioned aversive stimuli. The system can be aware of both punishment and the omission of reward. In addition, the system is sensitive to novel stimuli and innate human fears (e.g., new situations and loud noises, respectively). It is important to note that in Gray’s standard theory, the BIS is associated with trait anxiety and some innate fears. Activation of the BIS is associated with the experience of anxiety and represents behavioral abatement. When the BIS is activated, it inhibits behavior and impedes movement towards goals. If a punishment is
perceived, the BIS is activated, resulting in inhibited behavior and the avoidance of the perceived punishment.

Gray has continued to develop his RST, expanding all three systems (Gray & McNaughton, 2000). While Gray has expanded all three systems, the BAS has received minor revisions. The fight-flight-freezing system (FFFS) has been expanded to be responsible for mediating reactions to both unconditioned and conditioned stimuli. The FFFS is now separate from the BIS and is comprised only of emotions related to fear but not anxiety. The system mediates escape in the form of the emotion of fear. In the new theory, BAS is responsible for mediating responses to both conditioned and unconditioned appetitive stimuli. Gray also argued that such reactions to appetitive stimuli create positive, hopeful, impulsive emotions. The updated BIS has marked functions. It is still associated with the emotion of anxiety; however, it is now responsible for meditating goal conflict. Clinically, this is related to rumination or worry. The FFFS and BAS can be in conflict with one another, as well as with themselves. For example, in terms of BAS-BAS conflict, one may struggle with which type of reward one wants -- the sports car or the vacation. His expanded theory has yet to be validated but there is considerable consensus that his older theory continues to be fruitful for understanding and studying personality (Corr, 2004).

**Gray’s model and alcohol use.** Gray’s model has been applied to the study of alcohol use. Although the literature is somewhat limited within a college population, research indicates that having a high BAS and low BIS -- that is, high approach motivation and low avoidance motivation -- is predictive of the frequency and quantity of alcohol consumption (Franken & Muris, 2006; Knyazev, Slobodskaya, Kharchenko, &
Wilson, 2004; Pardo, Aguilar, Molinuevo, & Torrubia, 2007). Franken and Muris using a sample of 276 college students in the Netherlands, found that the BAS -- as measured by the BAS/BIS scales (Carver & White, 1994) -- was positively associated with the quantity of alcohol use and the frequency of binge drinking. Further, the BAS- Fun Seeking subscale of the BIS/BAS scale showed the most substantial correlation with alcohol use patterns. Additionally the BIS had a weak, but significant, negative relationship to the quantity of alcohol use and binge drinking. Franken and Muris contended that punishment may play a minor role in college drinking and that the weak BIS/alcohol correlation is logical in that individuals with high BIS might avoid alcohol entirely to avoid the negative consequences (e.g., hangovers). Pardo et al. (2007) in a sample of 144 college students, found that high-BAS and low -BIS predicted the frequency and quantity of alcohol consumption. Further, they found that the higher the BAS activity, the earlier the age of onset for alcohol intake. Similarly, Knyazev et al. (2004), in a study surveying 4501 Russian youth ages 14-25, found that the BAS was a strong predictor of the frequency of substance use when using the Gray–Wilson Personality Questionnaire (GWPQ; Wilson, Barrett, & Gray, 1989). Additionally, these same researchers found that high BIS scores weakly predicted the avoidance of substances -- but only in girls. In sum, Gray’s theory has been shown to be useful in predicting alcohol use patterns. The BAS strongly predicts alcohol use, while BIS has a weak, negative correlation with alcohol use.

Narcissism

Similar to Gray’s conceptualization of human behavior as consisting primarily of two systems, narcissism can be conceptualized as comprised of two distinct but related
forms -- one that is associated with externalizing behavior and one with internalizing behavior. Various approaches to understanding the etiology and underlying mechanisms of these two forms of narcissism have been advanced, with the two most prominent emerging from the psychoanalytic literature (Kernberg, 1975; Kohut, 1971) while another theory stems from trait models of personality (Morf & Rhodewalt, 2001).

**Etiology of narcissism.** Sigmund Freud was the first person to formally write about narcissism in his 1914 publication of *On Narcissism*. He borrowed the term narcissism from Havelock Ellis, a sex researcher, who is associated with establishing a pathological meaning of narcissism (Cooper & Ronningstam, 1992). Ellis borrowed his term from the Greek myth of Narcissus, an attractive young man who eventually died because he was so fascinated with his own reflection in the water (Ellis, 1927). Following Freud, the construct of narcissism continued to be developed through the theories of Otto Kernberg (1975) and Heinz Kohut (1971).

**Freud.** Freud (1914) contended narcissistic disorders originate in very early childhood development. He distinguished between primary and secondary (pathological) narcissism. Primary narcissism manifests itself early in development when a healthy child becomes fascinated with him or herself. The child, invested in his or her body parts, has omnipotent and magical thinking, and has no awareness of other people's existence. Under normal development, a child's self-love eventually turns to outside others as the child becomes increasingly able to recognize others as separate "objects". However, under unfavorable circumstances, the child's energy will become invested back into him or herself resulting in secondary narcissism.
Kohut and Kernberg. After Freud and expanding on his work, both Heinz Kohut (1971; 1977) and Otto Kernberg (1975) developed theories of narcissism; however, these theories are discrete and separate. Although these two theories differ in many respects, both agree that adult narcissism is a result of childhood interpersonal problems. Both theories argue that in adult life narcissists attempt to fill a void that was created in childhood. The following are brief summaries of both Kernberg and Kohut. For a more detailed description, see Kernberg (1975) and Kohut (1977).

Kernberg. Kernberg’s (1975) ego psychology perspective has been used extensively in psychodynamic literature when referring to narcissism. He stated that the development of object-relations happens before the development of the ego and superego. Kernberg’s object-relations theory of narcissism is based on the premise that the primary motivational system of the infant is affect cathexes. Affect cathexes are instilled in the infant’s memory through libidinal (pleasure) and aggressive (pain) drives. More specifically, Kernberg stated that as the infant develops the capacity for object-relations, the child begins to experience both libidinal (pleasurable) and aggressive (painful) affects with the primary caregivers. Upon repeated experience of both libidinal and aggressive encounters with a caregiver, associations are reinforced and a relationship between the infant’s self and a mental image of the caregivers begin to develop. Normal development includes the child beginning to transition from a pre-oedipal stage to an oedipal stage. Kernberg contended that the quality of the development of object-relations affect the quality of the development of the tripartite agencies of the id, ego, and superego. His model states that children who are raised in an environment with episodes of rejection, devaluation, and inappropriate parental support may later develop narcissistic features.
Because of inconsistent parenting, which at times may be cold and rejecting, the child withdraws defensively and creates a grandiose, fantasized image of him or herself. In addition, the child imagines an ideal, warm, loving parent. It is likely that as the child progresses through development, he will continually withdraw from the parent and increasingly rely on his grandiose self-representation. In sum, to Kernberg, narcissism represented a stage in development that if successfully accomplished, enables the child to be empathic and enter into healthy relationships. However, failure through the stage represents the child having failed to internalize positive representations of significant caregivers in his or her environment.

Kernberg (1975) differentiated between healthy and pathological narcissism. The two are distinguished by the ability of an individual to integrate both affect cathexes that were established in the pre-oedipal stage and the self and self-objects. Kernberg refers to healthy narcissism as one's ability to regulate self-esteem. Healthy narcissism is the individual's ability to integrate both the pleasurable (libidinal) and painful (aggressive) cathexes.

Pathological narcissism has three levels according to Kernberg (1975): the regressive type, the projective type, and the grandiose type. The regressive and the projective types represent more situational types of narcissism -- meaning that the narcissism is displayed under certain circumstances (e.g., when threatened). The grandiose type represents the most severe and pathological type and is deeply manifested within the character structure of the person. The regressive type represents those individuals who under stress or trauma revert to an infantile level of functioning. Individuals are classified as the projective type when they identify others as being
extensions of themselves and have an inability to see others as individuals different from themselves. The distorted object-relations of the grandiose type, according to Kernberg, can be traced back to the maladaptive aggressive cathexes in the pre-oedipal stage in development. Failure in development results in the child’s object-relations being seriously disturbed and his or her self-regard inconsistent. The severely narcissistic individual will protect his grandiose self-image by inconsistently devaluing other object representations. Kernberg identified these individuals as people with weak egos and with “borderline personality organization”. Individuals with borderline personality organization are particularly prone to addiction through their inability to control impulses. Escape may be accomplished through drugs and alcohol (Kernberg, 1975).

Kohut. Kohut (1971; 1977) also developed a theory of narcissism that differed from that of Kernberg (1975). Kohut stated that narcissism developed from inconsistent reinforcement that was highly dependent on the mother’s ability to empathize. The mother’s failed attempt to create adequate empathy hindered the ability of the child to create a structured “bipolar self” - which includes two poles, “the grandiose self”, and the “idealized parental imago”. Since the self is the center of personality, a structured self was crucial for development. Normal development included the integration of the exhibitionism, assertiveness, and ambitions of the grandiose self, with the idealization, admiration, and goals of the idealized self. More specifically, with regard to the grandiose self, Kohut states that for normal development, the child needs to experience the omnipotence that is fostered by a caregiver’s ability to mirror the infant’s exhibitions of grandiosity. With regard to the idealized parental imago, if the child is able to idealize
the parent as a model, he or she then is able to internalize the parent's image and develop a sense of identity. This leads to the formation of goals and aspirations.

Pathological narcissism occurs if the self is not structuralized. More specifically, deficits in the grandiose self or the parent imago corrupt development. The child, when older, one-sidedly looks to others to attain his or her needs for self-esteem. In terms of the grandiose self, if the parents do not adequately mirror the child, and reinforce the child for his or her grandiose exhibitionism, the child is likely to manifest a passive and submissive character. Further, if the parents are unavailable to be idealized, or are deemed inadequate as idols, the likelihood that the child will be able to develop a sense of self is low. Deficits in the parent imago part of the bipolar-self results in the child having an underdeveloped ability to form goals or aspirations. Apathy, and mutism may be present in the child later in life as a result and he or she will seek out self-objects that he or she views as omnipotent in order to develop self-identity. A person with a self that is not structuralized has psychological resources that are too weak to combat even the slightest of criticisms, making the person fragile and vulnerable.

Persons with narcissistic character typologies relate to others by treating them as part of their self, not as independent others. Among the external self-objects used by persons with narcissistic character typologies are alcohol and drugs. Kohut (1977) stated that alcohol replaces the functions provided by important missing persons in the alcoholic's life. He also stated that the ingestion of alcohol helps with self-esteem and serves as a substitute for a self-object that has failed. Alcohol is a replacement for love felt by other self-objects, in the absence of the narcissist's ability to love him or herself.
In sum, the theories of Kohut and Kernberg posit differences in the manifestation of alcoholism in narcissists. Kernberg's narcissist is susceptible to alcoholism because of a borderline personality organization characterized by lack of impulse control. He states that narcissistic personality is a defense against primitive aggression. For Kohut's narcissist, alcohol acts as a replacement for lost self-objects. Kohut states that narcissism is a deficit in character rather than a defense mechanism.

**Self-regulatory processing model of narcissism.** Among current theories of narcissism is a fluid, self-regulatory processing model derived by Morf & Rhodewalt (2001). Central to the model is the notion that narcissists have a dispositional goal of presenting themselves in a grandiose fashion and are constantly trying to maintain self-esteem through external self-affirmation. Further, the model argues that narcissists use social, cognitive, and affective behaviors in an attempt to maintain their inaccurate self-view. Narcissists present themselves in a grandiose fashion outwardly, but, at the same time, internally their self-concept is fragile and labile. Although it may seem counterintuitive that the narcissist can have an extreme positive view of the self and a fragile self-concept, further consideration reveals that the narcissist's grandiosity is her or his downfall. Often the self is so grandiose and inflated, it cannot self-sustain. The fragility and inability to regulate a self-concept drives narcissists to seek external affirmation in the social arena. This presents a paradox for the narcissist because narcissists are often ill-equipped to achieve such validation due to their insensitivity, lack of empathy, and disregard for engaging in reciprocal social relationships. In the long-run, narcissists undermine the self they are trying to build. The self-regulatory processing model argues that narcissists attempt to maintain their grandiose self-concept through a
dynamic interaction of intrapersonal processes and interpersonal strategies. The intrapersonal processes are "cognitive, affective and self-evaluatory activities that underline or motivate the behavior" (Morf & Rhodewalt, 2001, p.181). This element includes biased interpretations of social feedback and performance outcomes or distorted recall of past events. The model contains two additional elements: 1) a self-knowledge component and 2) a social relational component. The self-knowledge component is created through the interplay of intra and interpersonal processes. It represents what can be thought of as a summary statement of the narcissist's current view of him or herself. This includes a mental representation, as well as a rating of his or her value or current self-esteem. The second component involves social relationships. This component represents the social arena in which the self-regulatory processes are expressed. Narcissists prefer to be around -- and will seek out -- individuals who will offer praise and attention as this allows the narcissist to bolster up a fragile sense of self. However, relationships are often superficial and short lived as the narcissist loses interest when s/he stops receiving praise. Support for this theory has been mixed, with some providing evidence of it's utility in terms of cognitive processes (Rhodewalt & Eddings, 2002), while others stating that the theory does not account for other traits of narcissism, including dispositional impulsivity (Vazire & Funder, 2006).

Subtypes of narcissism. Researchers and theorists have agreed that narcissism inhabits two types that parallel the forms described by Kohut and Kernberg (as cited in Wink, 1991). The first type of narcissism is an overt form that parallels Kernberg's narcissist and is described in behavioral terms in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000). The DSM
IV-TR defines narcissistic personality disorder as a pervasive pattern of grandiosity, self-importance, and perceived uniqueness, arrogance, and having fantasies of unlimited success and power. However, there appears to be a second, covert form of narcissism that parallels the narcissist described by Kohut. These individuals do not display their grandiosity or narcissistic qualities outwardly; but, rather, manifest them differently. Individuals with this second type of narcissism carry out their narcissistic activities primarily in fantasy and often appear to others as caring, empathic, and shy. The distinction between the two types of narcissism is seen in the Psychodynamic Diagnostic Manual (PDM; PDM, 2006) which calls the first type of narcissism the “arrogant, entitled” type and the second kind the “depressed/depleted” type.

The overt/covert distinction was first empirically supported by Wink (1991). Wink examined the question of why different scales measuring narcissism often did not correlate. Using factor analysis, Wink interpreted two principal components of narcissism resembling the types theorized by Kernberg (1975) and Kohut (1971; 1977) and labeled them overt and covert narcissism. These two components were distinct and not correlated. The overt type of narcissism stems from Kernberg’s theory of narcissism. Others have conceptualized this type as an individual as someone who rarely experience a sense of shame, is loud, arrogant, aggressive, seeks admiration, has numerous but shallow relationships, and is often strikingly articulate and knowledgeable (Cooper & Ronningstam, 1992). The second type of narcissism Wink called the covert type. Wink interpreted this second component as representing the Kohutian narcissist. More recent literature has conceptualized the covert narcissist as highly sensitive to the criticism of others, fragile, having a marked propensity towards shame, often shifting values to gain
favor, chronically envious of others’ talents, and in search of glory and power (Cooper & Ronningstam, 1992). Research on the two forms of narcissism has shown that while they have some shared traits, they are best understood as discrete entities. Overt and covert narcissism share traits such as conceit, self-indulgence, and disregard for others (Wink, 1991), proneness to boredom (Wink & Donahue, 1997), and exploitiveness / entitlement (Emmons, 1987). However, the two forms differ in many respects. Covert narcissism is associated with traits such as vulnerability, defensiveness, anxiety and introversion (Wink, 1991). Further, covert narcissists, when compared to overt narcissists, are more unhappy, experience lower satisfaction in life (Rose, 2002), have low self-esteem, and are more sensitive to perceived threats or punishments (Foster & Trimm, 2008). In contrast, overt narcissism is associated with traits such as aggression, exhibitionism, self-assurance, and extraversion (Wink, 1991). Sedikides, Rudich, Gregg, Kumashiro, and Rusbult (2004), over five separate studies using college students, found that overt narcissism was inversely related to dispositional anxiety, depression, loneliness, and positively related to subjective well-being.

**Overt and covert narcissism and Gray’s model.** A pertinent difference between overt and covert narcissism is how the constructs are related to approach and avoidance motivation, Gray’s (1982) BAS and BIS, respectively (Foster & Trimm, 2008). Foster and Trimm, in a sample of 209 college students, found that overt narcissism was related to high approach motivation and low avoidance motivation. Additionally they found that covert narcissism was related only to high avoidance motivation. Foster and Trimm tested two mediational models that showed that approach-avoidance would explain the relationships between overt narcissism and self-esteem and
between covert narcissism and self-esteem. For the first model, results showed that a significant, positive relationship between overt narcissism and self-esteem became non-significant once approach/avoidance motivation was added as a mediator. Additionally, overt narcissism was linked to high approach and low avoidance motivation. Similarly, Foster and Trimm tested an analogous mediational model assessing the relations of covert narcissism, approach-avoidance motivation and self-esteem. At the univariate level, covert narcissism showed a significant negative relationship with self-esteem. When avoidance motivation was entered as a mediator, the relationship remained significant but was attenuated. Covert narcissism negatively related to avoidance motivation. Foster and Trimm concluded that overt narcissists are sensitive to and strongly motivated by perceived rewards, while insensitive to potential punishments or pitfalls. In contrast, covert narcissists are somewhat sensitive to perceived threats or punishments.

**Overt and covert narcissism and alcohol abuse.** A behavior relevant to both overt and covert narcissism is alcohol use. A positive relationship between narcissism and addictions has been conjectured for decades (Goldman & Gelso, 1997; Van Schoor, 1992). Research has shown that overt narcissism is not only strongly related to impulsivity (Vazire & Funder, 2006) but to some types of addictions, such as laboratory based betting (Campbell, Goodie, & Foster, 2004; Lakey, Rose, Campbell, & Goodie, 2008) and compulsive buying (Rose, 2007).

Recently, overt narcissism has been directly linked to alcohol use in college students (Luhtanen & Crocker, 2005). Luhtanen and Crocker, as part of the Adjustment to College project at the University of Michigan, examined predictors of college drinking behavior. A total of 642 incoming freshman were surveyed at two separate time periods:
the end of the fall semester and the end of the spring semester. Results indicated that overt narcissism had a significant, positive correlation with both presence/absence of alcohol use and with the frequency of alcohol use. Using binary logistic regression, narcissism significantly predicted binge drinking status and marginally predicted drinking status. Narcissism also predicted number of drinks per week. In sum, Luhtanen and Crocker conducted the first known study to directly test the association between overt narcissism and alcohol use among college students — despite the fact that narcissism has long been theorized to be linked to addictions such as alcoholism (Kernberg, 1975; Kohut, 1971).

No studies to date are known to have examined the relationship between covert narcissism and alcohol use. However, past research suggests that covert narcissism will predict alcohol use. Covert narcissism has been linked to a variety of negative emotional states such as unhappiness and lower satisfaction in life (Rose, 2002), low self-esteem (Wink, 1991) and trait anxiety (Foster & Trimm, 2008). In turn, negative emotionality has been associated with alcohol use (Baer, 2002). Therefore, there is evidence for a plausible relationship between covert narcissism and alcohol abuse, possibly mediated through negative emotional variables.

Concluding Remarks

The relationship between forms of narcissism and alcohol abuse appears to be an understudied area. Overt narcissism and alcohol use in college students has been examined once (Luhtanen & Crocker, 2005), while the relationship between covert narcissism and alcohol use has remained unexamined. For both forms of narcissism, there is evidence that approach-avoidance motivation may explain the relationship.
between types of narcissism and alcohol use in college students. Additionally, a study examining the relationship between overt and covert narcissism and alcohol use may provide additional information to further clarify the shared traits of overt and covert narcissism.
Chapter II
Rationale and Hypotheses

The primary purpose of this study is to examine the relationship between two types of narcissism—covert and overt—and alcohol use in college students and to test the mediational effect of BAS/BIS motivational systems. Based on previous research, it is hypothesized that overt and covert narcissism can be explained by approach-avoidance motivation. As such, it is argued that the relationship between overt narcissism and alcohol use (Luhtanen & Crocker, 2005) can be explained by Gray's (1982) approach-avoidance motivation. Overt narcissism has been shown to be related in college students to high BAS (impulsivity) and low BIS (anxiety) (Foster & Trimm, 2008). In turn, high BAS and low BIS have been predictive of the frequency and quantity of alcohol consumption (Knyazev et al., 2004; Pardo et al., 2007).

(H1) Therefore, it is felt that approach-avoidance motivation will account for the relationship between overt narcissism and alcohol use. To date there has been no study directly examining the mediational properties of the BAS/BIS on the relationship between overt narcissism and alcohol consumption in college students. It is predicted that the relationship between overt narcissism and alcohol use will be mediated through high approach and low avoidance motivation.
The basis for arguing that approach-avoidance motivation may be useful in explaining a relationship between covert narcissism and alcohol use patterns in a college population is much less clear. In addition to there being no known study to date examining the relationship between covert narcissism and alcohol use, the paucity of data concerning covert narcissism adds to the difficulty. However, the following findings can be used to support a hypothesis: Covert narcissism has been shown to be positively related to avoidance motivation (Foster & Trimm, 2008), a construct associated with trait anxiety (Gray, 1982). Further, avoidance motivation has been shown to negatively predict alcohol use (Franken & Muris, 2006; Knyazev, Slobodskaya, Kharchenko, & Wilson, 2004; Pardo, Aguilar, Molinuevo, & Torrubia, 2007).

(H2) Therefore, it is hypothesized that any relationship between covert narcissism and alcohol abuse in college students can be accounted for by avoidance motivation.
Chapter III

Method

Participants

The participants used in this study will be 125 college students at a mid-major Midwestern university. To determine the amount of participants needed, Cohen (1992) has given guidelines for selecting sample size for multiple regression. Past literature has demonstrated a medium effect size for the relationship between overt/covert narcissism and the BAS/BIS scales (Foster & Trimm, 2008). No other effects sizes were reported in the literature. Using an alpha of .05 in order to obtain an estimated power of .80 and while using three predictors, 76 participants are needed to obtain a medium effect size. However, to maximize the statistical power of the multiple regressions and to allow for the inclusion of possible others predictors (e.g., gender) this study will include 125 participants. They will be recruited through a psychology department participant pool and will be compensated with psychology class research credit.

Measures

BAS/BIS scales. The BAS/BIS Scales (Carver & White, 1994) will be used to measure sensitivity to cues relevant to Gray’s approach and avoidance motivation (see Appendix A). The BAS/BIS Scales were developed to measure Gray’s model and consist of 20 items that require participants to rate each statement of a 4-point Likert-type scale.
There are four subscales: one capturing behavioral inhibition (BIS) and three assessing aspects of behavioral activation (BAS). The BIS scale items reflect sensitivity to punishment cues, with items assessing the expectancy of adverse outcomes. A sample item is "I worry about making mistakes". The three BAS scales are the BASRR, BASDR, and BASFS. The BASRR captures reward responsiveness; a sample item is "It would excite me to win a contest". The BASDR captures drive; a sample item is "I go out of my way to get things I want". The BASFS captures fun-seeking; a sample item is "I crave excitement and new sensations". The BASDR and BASRR scales have been shown to be sensitive indexes of Gray's BAS, while the BASFS has been shown to be more related to reward reactivity and impulsivity than Gray's model (Smillie, Jackson, & Dalgleish, 2006). The BIS subscale has demonstrated independence and is not significantly correlated with any of the BAS subscales (Carver & White, 1994). Carver and White (1994) reported acceptable internal consistency with coefficients of .74, .73, and .76 for the BIS, BASRR, and BASDR respectively. The coefficient α for the BASFS was .66. The subscales have all demonstrated adequate- to-good convergent and discriminant validity when correlated with the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988). Convergent validity coefficients ranged from .19 to .31 and discriminant validity coefficients ranged between .07 to .05. The BIS scale displayed a significant, positive relationship with negative affectivity and no relationship with positive affectivity, while all the BAS subscales had significant, positive relationships with positive affectivity, further supporting construct validity.

The Narcissistic Personality Inventory. The Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) will be used to measure overt narcissism (see Appendix B).
The instrument is a 40-item, forced choice questionnaire. Higher scores on the NPI indicate higher levels of overt narcissism. Each item has two statements and requires respondents to choose one. For example, paired statements include items such as "I will be a success" or "I am not too concerned about success"; "I am much like everyone else" or "I am an extraordinary person". One point is assigned for each overt narcissistic statement selected. The NPI is comprised of seven subscales: authority, entitlement, exhibitionism, exploitation, self-sufficiency, superiority, and vanity. The NPI has been shown to have good construct validity and internal consistency (Raskin & Terry, 1988). Past reported internal reliabilities for the total score ranged from .82 and .89 (Foster & Trimm, 2008; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). The NPI was designed to measure overt narcissism on a continuum and subsequent research in both social and clinical psychology domains has supported this property in the scale (Foster & Campbell, 2007).

**Hypersensitivity Narcissism Scale.** The Hypersensitivity Narcissism Scale (HSNS; Hendin & Cheek, 1997) will be used to measure covert narcissism (see Appendix C). The HSNS is comprised of 10 items that require participants to respond using a 5-point Likert-type scale (1 = very uncharacteristic/ untrue/ strongly disagree; 5 = very characteristic/ true/ strongly agree). This unidimensional instrument yields a total score comprised of summing the item scores. A higher score reflects higher levels of narcissism. Hendin and Cheek validated the 10-item measure on three samples of college students (Sample 1, N = 109; Sample 2, N = 151; Sample 3, N = 143). Across the three samples α levels were .72, .75, and .62. Means ranged from 28.7-29.3 and standard deviations ranged from 4.7 to 6.2. The HSNS has demonstrated good construct validity;
it is positively correlated with self-report measures of shame, consistent with Wink’s (1991) theory of covert narcissism. Additionally, it has shown no correlation with the NPI. An example item is “My feelings are easily hurt by ridicule or by the slighting remarks of others”.

**Demographic survey.** Demographic information will be obtained from the participants regarding age, sex, class, GPA, major, ethnicity, marital status, enrollment, residence type, and work (see Appendix D). Demographic information will be collected and incorporated into the data analysis for possible covariates. No identifying information of the participants will be collected.

**Alcohol use frequency form.** This is a self-report survey created to assess demographic information, drinking behavior and preferences (see Appendix E). Questions are modified from the Core Alcohol and Drug Survey (CORE: Presley, Meilman, & Lyerla, 1994), a survey developed to assess alcohol and drug use in college students. Alcohol use will be assessed using multiple prongs: (1) the number of drinks in a typical drinking occasion, (2) the number of drinking occasions in a typical week, (3) the largest number of drinks consumed at one time during the current academic year and (4) the number of alcohol binge episodes (operationally defined as having 5 or more drinks at one time for men and as having 4 drinks or more for women) within the past two weeks. Additionally, formal alcohol dependence and alcohol abuse will be assessed using modified DSM-IV criteria. This method was used in Slutske et al. (2005). These formulations of alcohol use were selected as they cover both distributed, aggregated use, diagnosable conditions, and are consistent with prior research (Wechsler et al., 2001; Slutske, 2005), which allows for cross study comparisons.
Procedure

Prior to any data collection, the study protocol will be approved by the University Institutional Review Board to ensure compliance with human subjects standards. Participants will be recruited from the undergraduate psychology research pool. Participants will be provided with written informed consent at the onset of data collection and provided with the opportunity to ask questions. Given the sensitive nature of the information being gathered, all data will be collected anonymously to ensure complete participant protection. All measures will carry code numbers and at no point will participants’ names be associated with their responses.

Each participant will receive an envelope that contains the following measures: A) the NPI, B) the HSNS, C) the BAS/BIS scales, D) Demographic Survey, and E) Outcome Survey. The order of the questionnaires will be systematically varied within the individually numbered packets to control for any possible order effects. It is expected that the surveys will take approximately 30-45 minutes to complete. However, participants will be allowed to take as long they wish to fill out the surveys. When complete, the packets will be collected and stored in a secure place until data analysis.
Chapter IV

Proposed Analyses

The primary purpose of this study is to examine the relationship between approach-avoidance motivation, covert and overt narcissism and alcohol use among college students. It is predicted that approach-avoidance motivation will mediate the relationships between narcissism and alcohol use patterns. The predicted patterns of relationship are illustrated in Figures 1.

To test the hypotheses, two separate mediational analyses based on Baron and Kenny's (1986) causal step strategy and Preacher and Hayes' (2008) indirect and bootstrapping method, will be conducted. In Baron and Kenny's causal steps strategy a variable is considered a mediator if the following criteria/steps are met: First, the predictor variable (e.g., narcissism) must significantly account for variability in the mediator (e.g., BAS). Secondly, the predictor (e.g., narcissism) must significantly account for variability in the criterion variable (e.g., alcohol use). Third, a variable is a mediator if it significantly accounts for variability in the criterion variable (e.g., alcohol use) when controlling for the predictor variable (e.g., narcissism). Lastly, the effects of the predictor variable on the criterion variable must significantly decrease when the mediator is entered simultaneously with the predictor variable (Baron & Kenny, 1986).
Preacher and Hayes' (2008) bootstrapping technique allows for testing the significance of total indirect effects (e.g., for the combined mediation from approach and avoidance in this study). In contrast to Baron & Kenny's widely used strategy, the bootstrapping technique allows for testing the indirect effects of multiple mediators simultaneously, (e.g., in this study the BASFS, BASD, BASRR and BIS subscales) and does not assume that the indirect effects are normally distributed. Additionally, the technique reduces likelihood of a Type 1 error by minimizing the number of inferential tests. Preacher and Hayes’ method yields point estimates and bias-corrected and accelerated (BCA) confidence intervals. Confidence intervals that do not include zero suggest significant mediation. This method will be implemented using the macros created and disseminated by Preacher and Hayes for use with Statistical Package for the Social Sciences (Preacher & Hayes, 2008).

**Data reduction.** Multiple assessments of alcohol use and drinking patterns will be collected. The alcohol use items will be collapsed into three primary outcome variables:

1) **Average typical consumption.** This will be calculated by multiplying the number of drinks consumed in a typical drinking occasion by the number of drinking occasions in a week, divided by 7.

2) **Binge frequency.** This will be the reported frequency of binge drinking occurrences in the past 14 days. For males, binge drinking will be defined as having five or more drinks during a drinking occasion, while for females, binge drinking is defined by 4 or more drinks.
3) Alcohol Use Patterns. This will be assessed questions about alcohol use patterns that were developed using the DSM-IV-TR as a guideline. A dichotomous summary variable will be calculated with a score of 1 = meets criteria of use and 0 = does not meet for high use. Light-moderate use will be defined as endorsement of at least 1 of the 4 moderate use questions and no endorsement of any high use questions. High use will be defined as endorsement of at least 3 of the 7 high use questions.

Specific Analyses. The following hypothesized mediation models will be tested for each outcome variable:

(H1) To test the hypothesis that approach-avoidance motivation will mediate the relationship between overt narcissism and alcohol use, a series of simple regressions will first be conducted to establish that overt narcissism predicts alcohol use, approach motivation, and avoidance motivation as specified by Baron and Kenny (1986). Additionally, two more simple regressions will be conducted to establish that approach and avoidance motivation predict alcohol use. It is expected that overt narcissism will be positively related to alcohol use and the BAS, and negatively related to the BIS. Further, the BAS will be positively related to alcohol use and the BIS negatively related. The second step will involve regressing alcohol use simultaneously onto overt narcissism, approach motivation, and avoidance motivation. It is expected that approach and avoidance motivation will remain significant predictors of alcohol use, with approach motivation showing a positive relationship and avoidance motivation having a negative relationship. It is also expected that the relationship between overt narcissism and alcohol use will cease to be significant once approach and avoidance motivation are
entered in the model. To test for the total indirect effects of approach and avoidance
motivation, Preacher and Hayes' (2008) technique for multiple mediators will be used
(see Figure 1).

(H2) A similar process will be used to test the hypothesis that avoidance
motivation will mediate the relationship between covert narcissism and alcohol use. First
a series of simple regressions will be conducted to establish that covert narcissism
predicts alcohol use and avoidance motivation, as specified by Baron and Kenny (1986).
Additionally, one more simple regression will be conducted to establish that avoidance
motivation predicts alcohol use. It is expected that the covert narcissism will be
positively related to the BIS. Further, BIS will be negatively related to alcohol use. The
second step will involve regressing alcohol use simultaneously onto covert narcissism
and avoidance motivation. It is expected that avoidance motivation will remain a
significant predictor of alcohol use. It is also expected that the relationship between
covert narcissism and alcohol use will cease to be significant. To test for the total
indirect effects of approach and avoidance motivation, Preacher and Hayes' (2008)
technique for multiple mediators will be used (see Figure 1).

Following the initial tests of the mediational models, additional, more rigorous,
tests will be conducted using the same strategy but controlling for known predictors of
alcohol use in the college population, such as sex and GPA.

If the primary hypotheses are not supported and results indicate that approach-
avoidance motivation does not mediate the relationship between narcissism and alcohol
use, an investigation of possible moderating effects will be undertaken. This will be
conducted using a series of regression analyses. In these analyses, narcissism type and
approach-avoidance motivation will be entered on the first step; on the second step, a narcissism by approach-avoidance interaction term will be entered.
References


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Figure 1. A: The top figure is a path diagram of approach-avoidance motivation mediation of the relationship between overt narcissism and alcohol use. B: The bottom figure is a path diagram of approach-avoidance motivation mediation of the relationship between covert narcissism and alcohol use. The + and − in the diagrams represent the expected significant positive and negative relationships between variables. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect. Ns = non-significant
Appendix A

BIS/BAS Scales
The BIS/BAS Scales is protected by copyright so it is not reproduced in this document. The instrument can be found at http://www.psy.miami.edu/faculty/ccarver/sclBISBAS.html.

Mediators
Appendix B

Narcissistic Personality Inventory
The Narcissistic Personality Inventory is protected by copyright so it is not reproduced in this document.
Appendix C

Hypersensitive Narcissism Scale
The Hypersensitive Narcissism Scale is protected by copyright so it is not reproduced in this document.
Appendix D

Demographic Survey

By filling out this questionnaire you agree that you have been given information about this research study and its risks and benefits. You also agree that you have had the opportunity to ask questions and that your questions have been answered to your satisfaction.

1. Age: __________

2. Sex (circle one): M F

3. Class: Freshman Sophomore Junior Senior

4. Cumulative GPA: ____________ (If Freshman, put Cumulative High School GPA)

5. Major: _________________

6. Ethnicity:
   - African American
   - Caucasian
   - American Indian/Alaskan/Hawaiian/Pacific Islander
   - Asian
   - Hispanic
   - Mixed Race
   - Other: ________________

7. Marital Status:
   - Single
   - Married
   - Divorced
   - Separated
   - Widowed

8. Enrollment:
   - Full-time
   - Part Time

9. Residence:
   - On-Campus
   - Off-Campus

10. Work:
    - Full-time
    - Part-time
    - Assistantship
    - Internship
    - Not Working
Appendix E

Outcome Survey

By filling out this questionnaire you agree that you have been given information about this research study and its risks and benefits. You also agree that you have had the opportunity to ask questions and that your questions have been answered to your satisfaction.

DIRECTIONS: The following are questions about your alcohol use. Many of these questions will ask about the quantity of drinks. To answer, use this definition of a drink:

A drink is defined by 12 oz of beer, 8 oz of wine, 12 oz of a wine cooler, and 1.5 oz of liquor.

1. In general, how many drinks do you have in a typical drinking occasion __________?

2. How many days a week do you typically drink? ________

3. What is your drink of choice? (Please circle)
   - Beer
   - Draft Beer
   - Wine
   - Wine Cooler
   - Mixed Drink
   - Other __________

4. What do you usually drink? (please circle)
   - Beer
   - Draft Beer
   - Wine
   - Wine Cooler
   - Mixed Drink
   - Other __________

5. What is the average quantity of liquor, beer, and wine that you consume during a week?

   NOTE: A drink is defined by 12 oz of beer, 8 oz of wine, 12 oz of a wine cooler, and 1.5 oz of liquor

   (please circle or write the amount)

   Liquor: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ___ (write in amount)

   Beer: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ___ (write in amount)

   Wine: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ___ (write in amount)

6. What is the most you have drank at one time (i.e., numbers of drinks) since classes started this year______?

   NOTE: A drink is defined by 12 oz of beer, 8 oz of wine, 12 oz of a wine cooler, and 1.5 oz of liquor

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7. MALES ONLY: Over the last two weeks, how many times have you had 5 or more drinks at one sitting? Circle one please.

NOTE: A drink is defined by 12 oz of beer, 8 oz of wine, 12 oz of a wine cooler, and 1.5 oz of liquor

1 2 3 4 5 6 7 8 9 10 11 12 13 14
Other ______ (write in amount)

8. FEMALES ONLY: Over the last two weeks, how many times have you had 4 or more drinks) at one sitting? Circle one please.

NOTE: A drink is defined by 12 oz of beer, 8 oz of wine, 12 oz of a wine cooler, and 1.5 oz of liquor

1 2 3 4 5 6 7 8 9 10 11 12 13 14
Other ______ (write in amount)

For question 8-20, please respond with a YES OR NO

8. In the past year, has using alcohol resulted in you not being able to fulfill major obligations at work, school, or home? (e.g., missing class, poor work performance)?

YES NO

9. In the past year, have you used alcohol in situations in which it is physically hazardous (e.g., driving an automobile while impaired by alcohol; using machinery while intoxicated)?

YES NO

10. In the past year, have you experienced alcohol-related legal problems (e.g., driving under the influence, underage drinking tickets, drunk and disorderly conduct)?

YES NO

11. In the past year, have you continued to use alcohol despite having problems in relationships that were caused or made worse by the effects of your alcohol use? (e.g., arguments with partner, physical fights, fights with your parents)?

YES NO

12. In the past year, have you found that you need to drink more and more to get the buzz or 'high' that you want?

YES NO
13. In the past year, have you found that drinking the same amount of alcohol has much less effect than it used to have?
   YES   NO

14. In the past year, have you had physical experiences like tremors or shakes after a night of binge drinking or when you stopped drinking?
   YES   NO

   If yes, have these physical experiences been upsetting and difficult to tolerate?
   YES   NO

15. In the past year have you ever continued to drink to avoid the physical experiences that occur when you stop drinking?
   YES   NO

16. During the past year have you drank alcohol in larger amounts or over a longer period than was intended?
   YES   NO

17. In the past year, have you wanted to cut back or control how much you drink and not been able to?
   YES   NO

18. In the past year, have you spent a lot of time getting, using, or getting over the effects of alcohol?
   YES   NO

19. In the past year, have you stopped doing social, work, school, or recreational activities because of your drinking?
   YES   NO

20. In the past year, have you continued to drink even though drinking has caused repeated physical or psychological problems that are likely due to or made worse by drinking? (e.g., continued drinking even though you know that it makes you feel depressed)?
   YES   NO
**APPENDIX F**

**XAVIER UNIVERSITY**  
DEPARTMENT OF PSYCHOLOGY  
CONSENT FORM

***YOU SHOULD NOT TAKE PART IN THIS STUDY IF YOU ARE UNDER 18 YEARS OF AGE***

**PRINCIPAL INVESTIGATOR:** MARK C. PRICE, DEPARTMENT OF PSYCHOLOGY, XAVIER UNIVERSITY, HOME  
PHONE: (414) 254-9346, EMAIL: PRICEM@XAVIER.EDU

**SUPERVISOR:** SUSAN L. KENFORD, PH.D., DEPARTMENT OF PSYCHOLOGY, OFFICE TELEPHONE: (513) 745-3451, EMAIL: KENFORD@XAVIER.EDU.

**Approach-Avoidance Mediating the Relationship between Narcissism and Alcohol Use in College Students**

You are being given the opportunity to volunteer to participate in a project conducted through Xavier University. The purpose of this research is to determine the relationship between aspects of personality, motivational style and patterns of alcohol use. In this study you will be asked to complete several questionnaires pertaining your personality, your motivational style and your alcohol use. Completing the questionnaires should take approximately 30 minutes.

We do not anticipate any risk associated with your participating. However, there is a small chance that answering some of the questions may lead some people to have negative emotions or to develop concerns about their alcohol use patterns. Should you have any concerns and wish to speak to someone about your alcohol use or learn more what resources are available free of charge at Xavier, you can call the Psychological Services Center (745-3531) or the Health and Wellness Center (745-3022). Additionally you may call the principal investigator, Mark Price at (414) 254-9346 or email at pricem@xavier.edu. Your participation is appreciated, and although there are no direct benefits for you, if you choose to participate you will provide information that will aid in a more complete understanding of undergraduate alcohol use on campus. You may be given “research credit”, as defined by your professor, in exchange for your participation. The information you provide will be anonymous and your privacy will be carefully protected. Your name will never be attached to any of your answers; no individual answers will be made public, only group data will be included in the analysis and reported results. A code number, rather than your name, will be used to record your responses to the questions. Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. You are free to withdraw from the study at any time without penalty.

If you have any questions at any time during the study, you may contact Mark Price, M.A. who can be reached in at (414) 254-9346, Susan Kenford Ph.D. at (513) 745-3451, or the Chair of Xavier University’s Institutional Review Board at (513) 745-2870.

Keeping this form is evidence of your consent to participate voluntarily.

I HAVE BEEN GIVEN INFORMATION ABOUT THIS RESEARCH STUDY AND ITS RISKS AND BENEFITS AND HAVE HAD THE OPPORTUNITY TO ASK QUESTIONS AND TO HAVE MY QUESTIONS ANSWERED TO MY SATISFACTION. I FREELY GIVE MY CONSENT TO PARTICIPATE IN THIS RESEARCH PROJECT.
Chapter V: Dissertation

Abstract

The primary focus of this study was to examine whether Gray's (1982) Behavioral Approach System (BAS) and Behavioral Inhibition System (BIS) mediated the relationship between overt and covert narcissism and alcohol use in a sample of 129 college students. Results revealed the BAS fun seeking scale mediated the relationship between overt narcissism and average typical consumption (point estimate = .01; Bias corrected and accelerated (BCA) confidence interval of .002 to .04), and the BAS drive scale mediated the relationship between overt narcissism and binge drinking frequency (point estimate = .02, BCA confidence interval .001 to .06). Covert narcissism was not related to alcohol use and mediation did not occur when the BAS and BIS were added as mediators. Results support delineation between overt and covert narcissism and add to an emerging body of literature linking overt narcissism to various forms of addictions through forms of impulsivity.

Keywords: behavioral approach system, behavioral inhibition system, narcissism, alcohol use, college students
A Test of Behavioral Approach and Inhibition Systems as Mediators of Narcissism and Alcohol Use

The purpose of this study is to examine mediational models which posit that the observed relationship between a specific externalizing personality dimension — narcissism — and alcohol use can be explained using Gray’s (1982) BAS/BIS model. First, the theoretical underpinnings for each construct will be summarized and the extant empirical support about how they may be related will be reviewed. Second, particular mediational models will be identified and tested.

Alcohol Use

Recent reports estimate that 70% of the U.S. population uses alcohol in some manner (Goodwin, 2000). While light-to-moderate alcohol use has been associated with beneficial health effects, such as the reduction of cardiovascular diseases, excessive use is linked to a variety of health concerns (Thakker, 1998). Alcohol use is best viewed on a spectrum, with light or non-problematic use representing one end of the continuum. Problematic alcohol use, including intermittent or aperiodic use that interferes with important life obligations, has been labeled alcohol abuse, while the most severe form of alcohol use is alcohol dependence. Both are diagnosable conditions, with criteria specified by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000)

Alcohol use in college students. A population that is at high risk for developing alcohol use disorders and alcohol related problems is U.S. college students (Ham & Hope, 2003). One factor contributing to college students being particularly prone to alcohol-related problems is binge drinking. Although definitions fluctuate, most
researchers define binge drinking as 5 or more drinks in a row for men, and 4 or more drinks in a row for women (Wechsler et al., 2002). Wechsler et al. (2002) examined trends in college students' drinking behavior across four different time periods: 1993, 1997, 1999, and 2001. They found the number of students who were classified as binge drinkers (approximately 44% in all four surveys) remained largely steady over the 8 years. However, while the prevalence of binge drinking did not increase, the number of frequent binge drinkers (defined as students who binged 3 or more times in the past 2 weeks) increased between 1993 to 2001 from 19.7% to 22.8%.

Recent research has shown that a substantial number of college students meet, or have met, the criteria for alcohol abuse and/or dependence, and have engaged in binge drinking (Grekin & Sher, 2006; Knight et al., 2002; Slutske et al., 2004; Wechsler et al., 2002). Knight et al. (2002), using the Harvard School of Public health data set, which surveyed 23,751 students at 119, 4-year universities, indicated that 31% of college students met the criteria for alcohol abuse and 6% met the criteria for dependence. Subsequent research has provided additional evidence of substantial drinking rates among college aged men and women – although the prevalence of formal alcohol use disorders has been found to be lower. Slutske et al. (2004), using a multipronged research design which included cross-sectional, longitudinal, and twin (monozygotic and dizygotic twins discordant for college attendance) components, found that the prevalence of alcohol dependence in college-attending participants within the past year was 9% and the lifetime prevalence for this group was 13%. Within the same sample, 6% of students met criteria for alcohol abuse within the past year and 12% within their lifetime. Grekin and
Sher (2006) assessed alcohol dependence rates in a sample of 3,720 students collected in two cohort waves. Waves 1 and 2 revealed rates of 11.5% and 11.7%, respectively.

**Predictors of alcohol problems.** A disinhibited personality style -- often labeled impulsivity -- has been shown to be one of the most important predictors of alcohol use in the non-clinical college population (Baer, 2002; Brennan, Walfish, & AuBuchon, 1986; Ham & Hope, 2003), while more neurotic traits (e.g., depression, anxiety) have shown mixed relationships (Ham & Hope, 2003). One useful framework to investigate the relationship between personality and alcohol use that incorporates both impulsive and neurotic traits is Gray’s (1982) Reinforcement Sensitivity Theory (RST). Gray’s RST is a neuropsychological, brain-based theory that provides a framework for understanding how mechanisms of behavior can relate to emotions and personality. The theory posits a biological basis for understanding personality that uses two systems to explain behavior: the behavioral approach system (BAS) and the behavioral inhibition system (BIS). The BAS and BIS are sometimes referred to as approach and avoidance motivation, respectively. Gray contended that the BAS is sensitive to conditioned appetitive stimuli, and forms a positive feedback loop comprised of acquisition of the positive conditioned stimuli and omission of aversive stimuli. This system is thought to underlie the personality trait of extraversion. The BAS is thought to be related to catecholaminergic and dopaminergic pathways and responds to reward cues (Gray & McNaughton, 2000). Recent research has identified the BAS as related to activity in the left prefrontal cortex (Amodio, Master, Yee, & Taylor, 2008).

The BIS, according to Gray (1982), is sensitive to conditioned aversive stimuli. This attentional system can be sensitive to both punishment and/or the omission of
reward. This system is thought to underlie the personality trait of neuroticism. The BIS is comprised of the septo-hippocampal system that responds to anxiety cues (Gray & McNaughton, 2000) and recently has been conceptualized as a conflict-monitoring mechanism with activity in the anterior cingulate cortex (Amodio, Master, Yee, & Taylor, 2008). In sum, the two systems are responsible for the initiation and inhibition of behavior.

Amodio, Master, Yee, and Taylor (2008) have highlighted that the conceptual meanings of the BIS are unclear in the literature. Further, researchers have used two separate definitions for the BIS. The first definition, which is in line with Gray's (1982), states that the BIS is a conflict monitoring system that ceases or interrupts ongoing behaviors, which in turn leads to processing of punishment cues or novelty for a response. This is in contrast to definitions used by personality researchers, who have conceptualized the BIS as a process of engaging in avoidance behaviors in response to a threatening environment. Thus, the former definition is associated with halting existing behaviors to facilitate a process of evaluating potential threats, while the latter definition is associated with an active process of behavioral avoidance. Amodio, Master, Yee, and Taylor directly addressed this issue, by experimentally testing groups high in BAS and BIS in a Go/No-Go task. Results indicated that the BIS was uniquely related to event-related potential on the No-Go trials, suggesting that the BIS is associated with conflict monitoring and sensitivity.

**Gray’s model and alcohol use in college students.** Gray has argued that the nature and development of the two systems predispose individuals to develop psychological disorders -- including disorders like alcohol abuse/dependence. Although

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the literature is somewhat limited for the college population, research indicates that having a high BAS and low BIS -- that is, high approach motivation and low avoidance motivation -- is predictive of the frequency and quantity of alcohol consumption (Franken & Muris, 2006; Knyazev, Slobodskaya, Kharchenko, & Wilson, 2004; Pardo, Aguilar, Molinuevo, & Torrubia, 2007). Franken and Muris found that the BAS was positively associated with the quantity of alcohol used and the frequency of binge drinking, noting that the BAS- Fun Seeking subscale had the most substantial correlations. Additionally, the BIS had a weak, but significant, negative relationship to the quantity of alcohol used and binge drinking. Pardo et al. found that high-BAS and low-BIS predicted the frequency and quantity of alcohol consumption. Similarly, Knyazev et al., found that the BAS was a strong predictor of the frequency of substance use. In sum, Gray’s theory has been shown to be useful in predicting alcohol use patterns. The BAS shows a strong positive relation with alcohol use, while BIS has a weak, negative correlation with alcohol use.

Narcissism

Narcissism has long been theorized as linked to alcohol use (Kernberg, 1975; Kohut, 1971) and recent research has confirmed a relationship (Luhtanen & Crocker, 2005). Additionally, narcissism has also been linked to Gray’s (1982) BAS/BIS system (Foster & Trimm, 2008; Miller et al. 2009).

Currently researchers have agreed that narcissism inhabits two types that parallel the forms described by Kohut and Kernberg (as cited in Wink, 1991) – an overt form and a covert form. Overt narcissism is the more widely identified variety, parallels Kernberg’s narcissist, and in its extreme form is described in behavioral terms as
Narcissistic Personality Disorder in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000). Overt narcissism has been studied on a trait level in college populations. For example, Sedikidies, Rudich, Gregg, Kumashiro, and Rusbult (2004), in a series of five separate studies, found that overt narcissism was inversely related to dispositional anxiety, depression, and loneliness and positively related to subjective well-being. The second form of narcissism, called covert narcissism, parallels the narcissist described by Kohut. These individuals do not display their grandiosity or narcissistic qualities outwardly; rather, they manifest them via an internal fantasy world. Individuals with this second type of narcissism carry out their narcissistic activities primarily in fantasy and often present as caring, empathic, and shy. Covert narcissism is associated with traits such as vulnerability, defensiveness, anxiety, and introversion (Wink, 1991).

**Overt and covert narcissism and Gray's model.** A pertinent difference between overt and covert narcissism is how the constructs are related to approach and avoidance motivation — Gray’s (1982) BAS and BIS respectively (Foster & Trimm, 2008). Foster and Trimm found that overt narcissism was related to high approach motivation and low avoidance motivation. Additionally they found that covert narcissism was related only to high avoidance motivation. Foster and Trimm concluded that overt narcissists are sensitive to, and strongly motivated by, perceived rewards, while insensitive to potential punishments or pitfalls. In contrast, covert narcissists are somewhat sensitive to perceived threats or punishments.

**Overt and covert narcissism and alcohol abuse.** Recently, overt narcissism has been directly linked to alcohol use in college students (Luhtanen & Crocker, 2005).
Results indicated that overt narcissism had a significant, positive correlation with both presence/absence of alcohol use and with the frequency of alcohol use. Using binary logistic regression, overt narcissism significantly predicted binge-drinking status and marginally predicted drinking status. Overt narcissism also predicted number of drinks per week. In sum, Luhtanen and Crocker conducted the first known study to report an association between overt narcissism and alcohol use among college students — despite the fact that narcissism has long been theorized to be linked to addictions such as alcoholism (Kernberg, 1975).

No studies to date are known to have examined the relationship between covert narcissism and alcohol use. Past research into covert narcissism does not lead to clear hypotheses about how it may relate to alcohol use. While covert narcissism has been linked to a variety of negative emotional states, such as unhappiness and lower satisfaction in life (Rose, 2002), low self-esteem (Wink, 1991) and trait anxiety (Foster & Trimm, 2008), negative emotional states have shown a mixed relationship with alcohol use patterns. Therefore, it is difficult to articulate the expected relationship between covert narcissism and alcohol abuse.

**Purpose and Hypotheses**

The relationship between forms of narcissism and alcohol use patterns is an understudied area. To the authors' knowledge, the relationship between overt narcissism and alcohol use in college students has been examined only once (Luhtanen & Crocker, 2005), while the relationship between covert narcissism and alcohol use has not been examined. The primary purpose of this study is to examine the relationship between the
two types of narcissism—covert and overt—and alcohol use in college students and to test the mediational effects Gray's BAS and BIS. This study has two main hypotheses:

(H1) It is hypothesized that overt narcissism will be positively correlated with alcohol use and that Gray's (1982) BAS/BIS will account for the observed relationship between overt narcissism and alcohol use. It is predicted that the relationship between overt narcissism and alcohol use will be mediated through high BAS and low BIS.

(H2) It is hypothesized that any relationship between covert narcissism and alcohol abuse in college students can be accounted for by the BIS. The relationship between covert narcissism and alcohol use is exploratory.

Method

Participants

The participants were 129 college students at a Midwestern university. They were recruited through a psychology department participant pool and were compensated with psychology class research credit. The mean age of the sample was 20.50 years ($SD = 5.34$), with 96.2% of the sample being between 18-22 years-old. Age ranged from 18-62 years old. Eighty-seven percent of the sample identified as Caucasian, 8% as African American, 3% as Asian, 1% as Hispanic, and 2% as other. Forty percent of the sample was male and 60% was female. With regard to class standing, 24% were freshman, 22% sophomores, 34% juniors, and 20% seniors. A plurality of the sample were students in the College of Social Studies, Health and Education (41.2%), followed by the College of Business (32.9%) and the College of Arts and Sciences (15.8%); 10.1% were undecided. The mean Grade Point Average (GPA) was 3.34 ($SD = .37$). With regard to place of
residence, 51.9% of the participants lived on campus. Of the sample, 98.4% were full
time students and 98.4% were single.

Measures

BAS/BIS scales. The BAS/BIS scales (Carver & White, 1994) were used to
measure sensitivity to cues relevant to Gray’s model. The BAS/BIS Scales were
developed to measure Gray’s model and consist of 20 items that require participants to
rate each statement on a 4-point Likert-type scale. The measure is composed of four
subscales: Behavioral Activation System-Drive subscale (BASDR), Behavioral
Activation System- Fun-Seeking subscale (BASFS), Behavioral Activation System
Reward Responsiveness (BASRR), and Behavioral Inhibition System (BIS). The
BASDR, BASFS, and the BASRR comprise the BAS. The BASDR captures drive; a
sample item is “I go out of my way to get things I want”. It consists of four questions
and scores can range from 4-16. In this sample the BASDR had an internal consistency
of α = .70. The BASFS captures fun-seeking; a sample item is “I crave excitement and
new sensations”. The scale consists of four questions and scores can range from 4-16.
The BASFS had an internal consistency of α = .77 in this sample. The BASRR captures
reward responsiveness; a sample item is “It would excite me to win a contest”. The scale
consists of five questions and scores can range from 5-20. It had an internal consistency
of α = .68 in this sample. The BASDR and BASRR scales have been shown to be
sensitive indexes of Gray’s BAS, both measuring reward reactivity, while the BASFS has
been shown to be more related to impulsivity (Smillie, Jackson, & Dalgleish, 2006). The
BIS scale (α = .81 in this sample) items reflect sensitivity to punishment cues, with items
assessing the expectancy of adverse outcomes. A sample item is “I worry about making mistakes”. The scale consists of seven questions and scores can range from 7-28.

**The Narcissistic Personality Inventory.** The Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) was used to measure overt narcissism. The instrument is a 40-item, forced choice questionnaire. Higher scores on the NPI indicate higher levels of overt narcissism. Each item has two statements and requires respondents to choose one. For example, paired statements include items such as “I will be a success” or “I am not too concerned about success”; “I am much like everyone else” or “I am an extraordinary person”. One point is awarded when the narcissistic choice is selected, thus scores can range from 0-40. The NPI showed good internal consistency in the current sample, $\alpha = .84$.

**Hypersensitivity Narcissism Scale.** The Hypersensitivity Narcissism Scale (HSNS; Hendin & Cheek, 1997) was used to measure covert narcissism. The HSNS is comprised of 10 items that require participants to respond using a 5-point Likert-type scale (1 = very uncharacteristic/ untrue/ strongly disagree; 5 = very characteristic/ true/ strongly agree). This one-dimensional instrument yields a total score comprised of summing the item scores and can range from 10-50. A higher score reflects higher levels of covert narcissism. An example item is “My feelings are easily hurt by ridicule or by the slighting remarks of others”. With regard to internal consistency, this sample produced an $\alpha$ coefficient of .67 that while somewhat modest, is consistent with past coefficients cited by Hendin and Cheek.

**Demographic survey and alcohol use form.** A self-report survey was created to assess demographic information, drinking behavior and alcohol use preferences.
Demographic and academic information including age, sex, class, GPA, major, ethnicity, marital status, enrollment, residence type, and work status were collected to allow for the examination of possible covariates. Alcohol quantity was assessed using standard drinks. A standard drink was defined as 12 oz. of beer, 8 oz. of wine, 12 oz. of a wine cooler, and 1.5 oz. of liquor. Many items were modified Core Alcohol and Drug Survey questions (CORE; Presley, Meilman, & Lyerla, 1994), a survey developed to assess alcohol and drug use in college students. Patterns of alcohol use were assessed using multiple prongs in a free response format. To fully capture drinking behavior, the following questions were used: (1) the number of drinks in a typical drinking occasion; (2) the number of drinking days in a week; (3) drink of choice (Beer, Draft Beer, Wine, Wine Cooler, Mixed Drink, Other); (4) what the participant usually drinks (Beer, Draft Beer, Wine, Wine Cooler, Mixed Drink, Other); (5) the average quantity of drinks in a typical week; (6) maximum quantity consumed since the start of classes; and (7) alcohol binge frequency (operationally defined as having 5 or more drinks at one time for men and as having 4 drinks or more for women) within the past two weeks. Items 1 and 2 were collapsed into a variable called Average Typical Consumption and was calculated by multiplying the number of drinks consumed in a typical drinking occasion by the number of drinking occasions in a week, divided by seven.

Additionally, information about possible abusive alcohol use patterns was collected using modified DSM-IV-TR criteria. Participants were categorized as showing possible alcohol abuse, possible alcohol dependence, and non-use. Possible alcohol abuse was defined as endorsement of at least 1 of the 4 moderate-use questions -- drawn from the DSM IV criteria for alcohol abuse - and not meeting criteria for possible alcohol
Participants were categorized for possible alcohol abuse only if they did not meet past year criteria for possible alcohol dependence. Possible alcohol dependence was defined as endorsement of at least 3 of the 7 high use questions – drawn from the DSM-IV criteria for alcohol dependence. Non-users were defined as participants who endorsed drinking 0 drinks on a typical night. The data were collapsed into the following categories for comparison purposes: possible alcohol abuse versus non-users; possible alcohol dependence versus all others, and possible alcohol dependence versus possible alcohol abuse. Lastly, a comparison was made between possible alcohol dependence and non-users.

Procedure

Prior to any data collection, the University Institutional Review Board approved the study protocol to ensure compliance with human subjects standards. Participants were recruited from the undergraduate psychology research pool. They were provided with written informed consent at the onset of data collection and given the opportunity to ask questions. Given the sensitive nature of the information gathered, all data were collected anonymously to ensure complete participant protection.

Each participant received an envelope that contained the following measures: A) the BAS/BIS scales, B) the NPI, C) the HSNS, D) Demographic Survey and Alcohol Use Form.

Analytic strategy The primary purpose of this study was to examine the relationship between the BAS/BIS scales, covert and overt narcissism, and alcohol use among college students. Specifically, it was hypothesized that the BAS/BIS scales would mediate any observed relationships between covert narcissism, overt narcissism, and
alcohol use. As articulated by Baron and Kenny (1986), there are four necessary steps to identify mediation and they are depicted in Figure 1. First, the predictor variable (e.g., narcissism) must significantly account for variability in the proposed mediator (e.g., BAS), represented in the figure by line $a$. Secondly, to be a mediator, a variable must account for significant variability in the criterion (e.g., alcohol use) when controlling for the predictor variable (e.g., narcissism), as represented by line $b$. Third, the predictor (e.g., narcissism) must significantly account for variability in the criterion variable (e.g., alcohol use); this is referred to as the total effect and is represented by line $c$ in Figure 1a. Lastly, the effects of the predictor variable on the criterion variable must significantly decrease or disappear when the mediator is entered simultaneously with the predictor variable, this is referred to as the direct effect and is represented by line $c'$ in Figure 1c. Thus, Baron and Kenny’s model is comprised of the following paths: $a$, $b$, $c$, and $c'$, as seen in Figures 1a and 1b. One path that receives little attention in Baron and Kenny’s model is the indirect path, which is the product of the $a$ and $b$ paths (i.e., $ab$) or the difference between the $c$ path and the $c'$ (as seen in Figure 1c) path (i.e., $c-c'$). Baron and Kenny recommend using the Sobel test for this path; however, researchers often neglect this test during mediational analyses. Many argue that testing the indirect effects is essential to mediational analyses (Preacher & Hayes, 2008). Further testing the indirect effects with the Sobel test may be problematic as the test assumes that the indirect effects are normally distributed - a rare occurrence in smaller sample sizes.

Preacher and Hayes’ (2008) method builds upon Baron and Kenny’s (1986) method and adjusts for confounds inherent to Baron and Kenny’s method. Baron and Kenny’s method is limited by low power, the use of many inferential tests (which
increase the likelihood of a Type I error), and assumes a normal sampling distribution for the indirect effects (i.e., \( ab \)). Preacher and Hayes' method resolves these issues and allows for tests of all paths in Baron and Kenny's method (i.e., \( a, b, c, c' \)) in a single step regression that yields point estimates (i.e., unstandardized regression coefficients) in addition to standard errors for each path. Further, they note that the total effect (i.e., \( c \) in Figure 1a) does not have to be significant for mediation to have occurred (for a review see, Preacher & Hayes, 2004). In other words, mediation is possible even when X and Y are unrelated. According to Preacher and Hayes, mediation has occurred when the indirect effects (\( c - c' \) or \( ab \)) are significant. Testing the indirect effects of a mediator is a more precise and parsimonious way to test mediation. Because the sampling distributions of indirect effects are not normally distributed, bootstrapping is required. Normal significance testing that yielded \( p \) values would not be appropriate.

Bootstrapping enables a researcher to create an empirical representation of the indirect effects. As such, the sample collected in this study was treated as a miniature representation of the population. When testing the indirect effects, Preacher and Hayes' method yields point estimates, and bias-corrected and accelerated (BCA) confidence intervals for each individual proposed indirect effect. BCA confidence intervals adjust for bias and skewness of the bootstrap distribution. Confidence intervals that do not include zero suggest significant mediation and indicate that the indirect effects are different from zero.

Testing for indirect effects has several advantages over Baron and Kenny's method. It has greater power, and produces one single test, which in turn reduces the likelihood of Type I error. The method also allows for the addition of covariates (e.g., in
this study age, sex, GPA) (Preacher & Hayes, 2004). Allowing for covariates enables the indirect effects to be interpreted completely independently of the covariates. The method also allows the simultaneous testing of multiple mediators and can identify the salient, specific, components of a set of possible mediators – in this case which aspect(s) of Gray’s (1982) model explain alcohol use. Thus, if mediation occurs with a specific aspect of Gray’s theory, it represents the variable’s ability to mediate the effect of X on Y while controlling for all other mediators (including covariates). It enables the testing of several theories at one time and allows for direct comparison of competing ideas. It has been argued that testing competing theories is good scientific practice (Preacher & Hayes, 2008). For these reasons, Preacher and Hayes’ method was used.

Age, GPA, and sex were chosen as covariates in this study because all have shown significant relationships to alcohol use in college students. For instance, drinking habits, especially in men, have been shown to dramatically increase after the legal consumption age (Chan, Neighbors, Gilson, Larimer, & Marlatt, 2007), while GPA has shown a negative relationship to alcohol use (Singleton, 2007). Further, a strong body of literature has shown that males use alcohol significantly more than females in quantity and frequency (O’Malley & Johnston, 2002; Baer, 2002).

Results

Prior to analyses, the distributional properties of all variables were assessed for normalcy. No non-normal distributions emerged. Outlier variables that were more than three standard deviations above the mean were recoded to three standard deviations from the mean. Only the composite alcohol use variables required recoding. Five participants required recoding across the following variables: average typical consumption (2
participants), binge drinking frequency (3 participants). Outliers were recoded to increase accuracy of the test data, and to reduce errors of interpretation (Osborne & Overbay, 2004).

**Alcohol use patterns.** The majority of the current sample were alcohol users, with 83.7% reporting that they had consumed at least one drink in the prior week and 86.8% reporting having at least 1 drink on a typical drinking occasion. Conversely, 13.2% met the criteria for non-use. When classified by use category, 31.8% met criteria for possible alcohol abuse, while 19.4% met criteria for possible alcohol dependence. Table 1 contains detailed information about the modified DSM – IV classifications across men and women.

With regard to binge drinking, 64.3% reported having had at least one binge drinking episode within the past 2 weeks. Further, 39.1 % of the sample were classified as frequent binge drinkers (defined as participants who had binged 3 or more times in the past 2 weeks). Independent-samples t tests were conducted to evaluate for sex differences in binge drinking and average typical consumption (Table 2). Significant sex differences were noted, with males reporting higher average typical consumption and greater binge drinking. With regard to drink of choice, 47.3% of the sample chose beer, 6.2% wine, .8% wine coolers, 31.8% mixed drinks, and 14.0% other. A total of 62.8% reported they usually drink beer, 3.9% wine, .8 wine cooler, 17.8% mixed drinks, and 14.7% other.

**Bivariate correlations among all variables.** With regard to self-report measures, means and standard deviations are shown in Table 3. Significant sex differences emerged for overt narcissism, BASRR and BIS. Males had higher scores in
overt narcissism while females were higher in BIS and BASRR. Table 4 contains bivariate correlations between the subscales of BAS/BIS, overt and covert narcissism, and the alcohol use variables. As shown, overt narcissism was significantly, positively related to the BASDR, the BASFS and negatively related to the BIS. Overt narcissism showed significant, positive relationships to each of the alcohol use variables. Covert narcissism showed a negative relationship with the BIS and no relationship to any other variable. The BASDR and BASFS both had significant, positive, relationships with each of the alcohol use variables. The BASRR did not exhibit any relationship with alcohol use patterns. Levels of multicollinearity between the mediators were assessed and as correlations were modest at best, multicollinearity did not emerge as a concern.

(H1) Does the BAS/BIS mediate the relationship between overt narcissism and alcohol use? Hypothesis 1 predicted that high BAS and low BIS would mediate any observed relationship between overt narcissism and each of the three alcohol use variables: average typical consumption, binge drinking frequency, and alcohol use patterns.

Using Preacher and Hayes’ (2008) technique for assessing multiple mediators, the specific BAS/BIS variables (i.e., BASDR, BASFS, BASRR, and the BIS) were tested for mediation of the relationship between overt narcissism and the alcohol use variables. The bootstrap estimates were based on a 5,000 bootstrap sample. Separate models were tested for each alcohol use variable: average typical consumption, binge drinking frequency, and alcohol use patterns (binary). After investigating the relationship of the predictor variables in isolation, a second series of mediational analyses using the same strategy were conducted controlling for age, GPA, and sex. This second set of analyses
tested the predictive power of the variables of interest above and beyond other established predictors of alcohol use.

**Average typical consumption.** The total effect (c path) of overt narcissism on average typical consumption was significant ($B = .05, p < .05$) and became non-significant when the mediators (i.e., BASDR, BASFS, BASRR and BIS) were included (i.e., direct effect, $c' \text{ path}$) ($B = .01, p = ns$). The total indirect effect of overt narcissism on average typical consumption through the BAS/BIS scales was significant, with a point estimate of .04 and a 95% BCA confidence interval of .01 to .07. An examination of the specific indirect effects (i.e., $ab$) revealed that among the BAS/BIS variables, the BASFS was responsible for the significant mediation of the relation between overt narcissism and average typical consumption, yielding a point estimate of .01 and a 95% BCA confidence interval of .002 to .04. The specific pathway values (e.g., $a$, $b$, $c$, and $c'$) are shown in Figure 2.

After controlling for age, sex, and GPA, the total effect (path $c$) of overt narcissism on average typical consumption was not significant ($B = .03, ns$), nor was the direct effect (path $c'$) significant ($B = -.002, ns$). However, the total indirect effect of overt narcissism through the BAS/BIS on average typical consumption remained significant after controlling for age, sex, and GPA, with a point estimate of .03 and a 95% BCA confidence interval of .006 to .06. Though the total effect (i.e., $c$) and the direct effect (i.e., $c'$) were not significant, the BASFS remained a significant mediator with a
point estimate of .01 and a 95% confidence interval of .003 to .04. The specific pathway values (e.g., $a$, $b$, $c$, and $c'$) are shown in Figure 2.

**Binge drinking frequency.** Next, whether the BAS/BIS scales mediated the relationship between overt narcissism and binge drinking frequency was tested. The total effect of overt narcissism on binge drinking frequency was significant ($B = .07, p < .05$), and the direct effect was non-significant ($B = .03, ns$). The total indirect effect of overt narcissism on binge drinking frequency through the BAS/BIS scales was significant with a point estimate of .04 and a 95% BCA confidence interval of .01 to .08. The BASDR emerged as a specific mediator, yielding a point estimate of .02 and a 95% BCA confidence interval of .001 to .06. The specific pathway values (e.g., $a$, $b$, $c$, and $c'$) are shown in Figure 3.

When controlling for age, sex, and GPA, the total effect of overt narcissism on binge drinking frequency was not significant ($B = .06, p = .056$), nor was the direct effect significant ($B = .02, ns$). However, the total indirect effect of overt narcissism on binge drinking frequency was significant even after controlling for age, sex, and GPA, producing a point estimate of .04 and a 95% BCA confidence interval of .005 to .08. No specific unique mediators emerged as significant. Specific pathways (e.g., $a$, $b$, $c$, and $c'$) are shown in Figure 3.

**Alcohol use patterns.** Next, the BAS/BIS scales were tested to see if they mediated the relationship between overt narcissism and alcohol use classification. The relationship of the BAS/BIS scales on the four binary classifications (possible alcohol abuse vs. non-users; alcohol dependence vs. non-users; possible alcohol dependence vs.

---

1 This finding highlights the importance of testing the indirect effects. Using Baron and Kenny’s (1986) method would have yielded non-significant findings because it requires that the total effect (i.e., $c$) be significant.
no possible alcohol dependence; possible alcohol abuse vs. possible alcohol dependence) were tested using logistic regression given the dichotomous nature of the outcome variable. No significant mediation patterns emerged. Pathway values are displayed in Appendix Figures 1A through 1D.

In light of the observed lack of mediation between overt narcissism and the alcohol use categories, moderation effects were tested using binary logistic regression. Results indicated no significant findings, as seen in Appendix Table M1.

(H2) Do the BAS/BIS mediate the relationship between covert narcissism and alcohol use? Hypothesis 2 was exploratory; however, it was reasoned that the BIS would mediate any relationship between covert narcissism and each of the three alcohol use variables: binge frequency; average typical quantity; and alcohol use pattern. Again, Preacher and Hayes’ (2008) technique for testing multiple mediators was used.

*Average typical consumption.* The total effect of covert narcissism on average typical consumption was not significant (B = -.02, ns); no direct effect emerged as the relationship between covert narcissism and average typical consumption remained non-significant when the mediators (BASDR BASFS BASRR & BIS) were included (B = -.001, ns). No significant indirect effects were evident. A similar pattern of results emerged when the model was retested controlling sex, age, and GPA. All relationships remained non-significant. Specific path values are shown in Figure 4.

*Binge drinking frequency.* The total effect of covert narcissism on binge drinking frequency was not significant (B = -.03, ns); no direct effect was observed as this relationship remained non-significant when the mediators (BASDR BASFS BASRR & BIS) were included (B = -.009, ns). No significant indirect effects were evident.
Relationships remained non-significant after controlling for age, sex, and GPA. Specific path values are shown in Figure 5.

Alcohol use patterns. Next, the BAS/BIS scales were tested to see if they mediated the relationship between covert narcissism and the four binary classifications: possible alcohol abuse vs. non-users use, covert narcissism and possible alcohol dependence vs. non users, covert narcissism and possible alcohol dependence vs. does not meet the criteria for possible alcohol dependence, and covert narcissism and possible alcohol abuse vs. possible alcohol dependence. Results indicated no indirect effects. Pathway values are displayed in Appendix Figure E1 through H2.

In light of the lack of observed mediating effect of the BIS on covert narcissism and alcohol use, the BIS was tested to determine whether it had a moderating effect. Results indicated that the BIS does not have a moderating effect on the relationship between covert narcissism and alcohol use (average typical consumption, binge drinking & binary alcohol use variables). See Appendix Table N for detailed results.

Discussion

The purpose of this study was to directly test the relationship between two kinds of narcissism and alcohol use and to determine whether Gray’s (1982) BAS/BIS would mediate any observed relationship. As hypothesized, overt narcissism was a significant predictor of some alcohol use patterns -- specifically average typical consumption and frequency of binge drinking episodes. However, covert narcissism showed no such relations. Among the BAS subscales, reward reactivity and fun-seeking were robust predictors of average consumption, while reward responsiveness was unrelated to any to the alcohol use variables. Interestingly, sensitivity to punishment showed no significant
relations to alcohol use. However, other neurotic traits, similar to that of the BIS have also demonstrated inconsistent and complex relations with alcohol use (Ham & Hope, 2003).

The sample reported considerable alcohol use. The prevalence of past-year possible alcohol abuse and possible alcohol dependence among the college students in this sample were 31.8% and 19.4%, respectively. The prevalence of possible abuse in this sample was remarkably consistent with the 32% prevalence found by the Harvard School of Public Health data set (Knight et al., 2002). However, the prevalence of possible alcohol abuse among women in this sample (30.8%) was considerably higher than found in past studies. For example, Slutske’s et al. (2004) found a rate of 6% in a sample 608 19-to-21 year-old women. This suggests that in this sample, women were not immune to negative consequences associated with drinking. The possible alcohol dependence prevalence in this sample (19.4%) was slightly higher than the 15.1% (n = 4,383) past-year prevalence rate reported by Grekin and Sher (2006), but markedly higher than the rate found by Knight et al., who reported 6% of their sample (n = 14,000) met criteria for alcohol dependence. However, it should be noted that this study assessed only for possible dependence and did not use formal diagnostic criteria. A substantial number of participants in this study reported binge drinking; further 64.3% reported at least one binge drinking episode within the past 2 weeks. The current results reflect greater binge frequency than past, large-scale studies have documented. For example, the 2006 Core Alcohol and Drug Survey (Core, 2008), found that 46.7% of students reported drinking five or more drinks on one occasion during the previous 2 weeks.
The primary focus of this study was to determine whether the BAS/BIS mediated the relationship between narcissism and alcohol use. Results indicated that the BAS mediated the relationship between overt narcissism and several of the alcohol use variables; however, the BIS did not mediate the relationship between narcissism and any of the alcohol use variables. In this sample, higher levels of overt narcissism were associated with higher levels of reward reactivity (as assessed by the BASDR), which in turn were associated with increased binge drinking episodes. However, mediation did not occur after controlling for age, sex, and GPA – although none of the covariates were significant predictors themselves. Interestingly, sex was not a significant covariate even though significant sex differences were found with regard to overt narcissism and binge drinking frequency on a univariate level. This suggests that once the effects of other variables are partialled out, sex is not a significant predictor. Impulsivity and fun-seeking (as assessed by the BASFS) mediated the relationship between overt narcissism and average typical consumption, indicating that higher levels of overt narcissism were associated with increased levels of fun seeking which in turn, was associated with greater average typical consumption. This relationship held even after controlling for the influence of age, sex, and GPA. In contrast to overt narcissism, covert narcissism was not related to alcohol use in any fashion. It served as neither a risk nor protective factor for use. These results are contrary to Kohut (1971), who theorized that covert narcissistic personality patterns should lead to alcohol use. Taken together, it appears that overt narcissism but not covert narcissism is related to alcohol use. This study suggests that approach motivation is an underlying mechanism in the relationship between overt
narcissism and alcohol use. Overt narcissists propensity for approach motivation increases their risk for high alcohol use.

This study adds to an emerging body of literature linking overt narcissism to various forms of addictions, such as laboratory based betting (Lakey, Rose, Campbell, & Goodie, 2008), and compulsive buying (Rose, 2007). Perhaps more relevant to the current results, these past studies found that the relationship between overt narcissism and addiction was mediated through impulsivity, suggesting that impulsivity is the means by which narcissism exerts its influence. The current results build upon Vazire and Funder’s (2005) theory which argues that overt narcissists are prone to self-defeating behaviors through a lack of impulse control, and to a related body of literature which has found that overt narcissism is linked to a particular type of impulsivity – approach motivation (Foster, & Trimm, 2008, Miller et al., 2009).

Through the years, an apparent relationship between overt narcissism and alcohol use has been noted. For example, Kernberg (1975) argued that narcissists use alcohol as a way to “refuel” a grandiose self, which in turn acts to maintain feelings of omnipotence and protection from a cold environment that does not readily bring forth desired rewards (e.g., admiration, self-enhancement). In Kernberg’s conceptualization, overt narcissists are sensitive to reward, which in turn leads to alcohol use. Though this study examined a subclinical form of overt narcissism, the results provide some support for Kernberg’s theory. In our sample, higher levels of overt narcissism were associated with increased fun seeking and reward reactivity, which led to increased alcohol use.

Contrary to hypothesis, being impervious to punishment did not play a significant role in mediating the relationship between overt narcissism and alcohol use. While in our
sample overt narcissism showed a modest, but significant, negative relation to sensitivity to punishment (e.g., r = -.21), this link did not mediate the relationship between overt narcissism and alcohol use. Additionally sensitivity to punishment showed no direct relationship to any alcohol use variable. This finding may have some clinical value when intervening with individuals who report high levels of alcohol use and are high in overt narcissism. For example, interventions that aim to punish or highlight potential negative consequences of alcohol use may have limited effectiveness, as sensitivity to punishment was not related to alcohol use in this population. Thus, highlighting that alcohol may lead to hangovers, or even possible legal trouble, may prove ineffective as individuals with higher levels of narcissism are not likely to consider any potential pitfalls. Rather, interventions that focus on the rewards, or benefits of limiting intake, or choosing sobriety, may prove more effective. However, possible rewards must be chosen carefully, with the central desires and needs of the individual in mind. To be effective, potential rewards will likely need to align with the overt narcissist's more grandiose self-image, need for admiration, or desire for power. For example, a member of a fraternity sensitive to the reward of admiration from his peers, may use alcohol in excess to maintain a certain self-image. To be effective, any intervention would need to take this pattern into account and identify an alternate reward that is as satisfying. Thus, results suggest that interventions should not focus on aspects of narcissism (e.g., grandiosity, over-confidence), but rather on aspects of impulsivity such as having approach motivation.

There is some evidence that these results may generalize to other types of drinking as additional analyses were conducted. For example, as seen in Figure 11, both
reward reactivity and fun-seeking mediated the relationship between overt narcissism and average weekly quantity as well. There is also some evidence that the BIS may play a role in more extreme drinking habits as seen Figure 1J. Reward reactivity and sensitivity to punishment were shown to be significant mediators of the relationship between overt narcissism and maximum quantity consumed (i.e., maximum quantity consumed within the past 3 months). These results suggest that BAS has an important role in explaining the relationship of overt narcissism and alcohol use in multiple forms and levels of quantity and frequency. They also suggest that the BIS may be involved in ceasing ongoing extreme drinking behavior.

**Implications for narcissism.** This study provided additional evidence that the constructs that have been labeled overt and covert narcissism are distinctly different in how they relate to Gray’s (1982) model and alcohol use. When viewed within the context of convergent and discriminant validity, the null finding for covert narcissism and alcohol use suggest that the appeal and reward value of alcohol may be another pertinent difference between overt and covert narcissism. Additionally, this study investigated how overt and covert narcissism are related to Gray’s (1982) model. Consistent with past research (Foster, & Trimm, 2008; Miller et al., 2009), in this sample, overt narcissists reported being motivated by reward and fun/sensation seeking, while at the same time insensitive to punishment or the omission of rewards. Theoretically, this pattern of behavior is in line with the conceptualizations of overt narcissism advanced by Kernberg (1975). The grandiose self-representation that developed as a child withdrew from the cold and rejecting parent may be one that is primarily focused on success and reward, rather than punishment or failure. In contrast, covert narcissism was linked to the BIS

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and unrelated to the BAS subscales. This is consistent with past findings and suggests that covert narcissists have a high degree of avoidance motivation (Foster & Trimm, 2008). In other words, it appears that while covert narcissists may be aware of potential rewards, they are more sensitive to potential punishments or perceived threats, which in turn leads to behavioral avoidance.

**Limitations.** This study has several limitations, including the use of self-report measures. Using self-report measures may explain the lack of relationship between overt narcissism and possible alcohol abuse and dependence. In this study, participants were asked to retrospectively endorse items related to alcohol abuse and dependence, which for the most part are reflective of negative consequences. Narcissistic individuals are more likely to recall past experiences that serve to bolster their self-esteem and provide self-enhancement (Rhodewalt & Eddings 2002); thus, reporting a negative experience with alcohol may be less likely for those with greater levels of trait overt narcissism. Future studies should consider using informant ratings of alcohol use patterns and alcohol consequences in addition to self-report measures.

The study is also limited by a cross-sectional design. The results are reflective of a small, young, mostly Caucasian sample and may not generalize to other populations. The study is also correlational in nature and casual relationships cannot be established. Additionally, it does not directly assess how manifest expressions of narcissism and Gray's (1982) factors develop. However, it is likely that Gray's biological systems and narcissism develop through an interactional relationship. Being born with a high behavioral approach system may make a child more susceptible to respond to certain aspects of the environment. For example, a boy high in BAS who was brought up by a
cold parent who lacks empathy is prone to engage in externalizing behaviors (e.g.,
substance use) to fulfill narcissistic voids instilled in childhood. Future research is
needed to more fully integrate the biological elements of Gray’s model and personality
theories, providing a comprehensive model of narcissism, the BAS/BIS, and associated
maladaptive behaviors, similar to what Krueger et al. (2002) have done for the
externalizing spectrum.
References


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<table>
<thead>
<tr>
<th>Variable</th>
<th>% Males</th>
<th>% Females</th>
<th>%Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Possible alcohol dependence symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerance</td>
<td>39.2</td>
<td>39.7</td>
<td>39.5</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>17.6</td>
<td>15.4</td>
<td>16.3</td>
</tr>
<tr>
<td>Loss of Control</td>
<td>62.7</td>
<td>55.1</td>
<td>58.6</td>
</tr>
<tr>
<td>Unable to cut down</td>
<td>9.8</td>
<td>11.5</td>
<td>10.9</td>
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<tr>
<td>Time spent</td>
<td>15.7</td>
<td>17.9</td>
<td>17.2</td>
</tr>
<tr>
<td>Activities given up</td>
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<td>3.8</td>
<td>3.9</td>
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<tr>
<td>Use despite problems</td>
<td>9.8</td>
<td>7.7</td>
<td>8.6</td>
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<tr>
<td>Met criteria for possible alcohol dependence</td>
<td>21.6</td>
<td>17.9</td>
<td>19.4</td>
</tr>
<tr>
<td><strong>Possible alcohol abuse use symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role interference</td>
<td>9.8</td>
<td>28.2</td>
<td>20.9</td>
</tr>
<tr>
<td>Use when hazardous</td>
<td>25.5</td>
<td>15.4</td>
<td>19.4</td>
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<tr>
<td>Legal problems</td>
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<td>Use despite problems</td>
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<tr>
<td>Met criteria for possible alcohol abuse</td>
<td>33.3</td>
<td>30.8</td>
<td>31.8</td>
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</table>

*Note.* Possible alcohol dependence and abuse were symptoms were derived using the DSM-IV-TR (APA, 2000). *a* Use despite relationship problems; *b* Use despite problems physical or psychological problems * = p < .05; ** = p < .004 (Bonferroni adjusted p level)
Table 2  

<table>
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<th>Maximum</th>
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<td>0.00</td>
<td>9.00</td>
<td>2.78 (2.54)</td>
</tr>
<tr>
<td>Female</td>
<td>0.00</td>
<td>9.00</td>
<td>1.82 (2.09)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0.00</td>
<td>9.00</td>
<td>2.20 (2.31) *</td>
</tr>
<tr>
<td><strong>Average typical consumption</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.00</td>
<td>7.00</td>
<td>2.16 (1.95)</td>
</tr>
<tr>
<td>Female</td>
<td>0.00</td>
<td>7.00</td>
<td>1.24 (1.25)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>0.00</td>
<td>7.00</td>
<td>1.61 (1.63) **</td>
</tr>
</tbody>
</table>

*Note.* Binge drinking defined as 5 or more drinks in a row for men, and 4 or more drinks in a row for women; Average typical consumption as measured by typical drink amount, in standard drink units, multiplied by typical amount of drinking days divided by seven; * = p < .05; ** = p < .01, *** p < .001; Units in Standard drink units (12 oz. of beer, 8 oz. of wine, 12 oz. of a wine cooler, and 1.5 oz. of liquor).
Table 3

<table>
<thead>
<tr>
<th>Variable</th>
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<th>Females</th>
<th>Total</th>
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<tr>
<td></td>
<td>M(SD)</td>
<td>M(SD)</td>
<td>M(SD)</td>
</tr>
<tr>
<td>Overt Narcissism</td>
<td>18.73 (6.94)</td>
<td>15.74 (6.65)</td>
<td>16.92 (6.90)</td>
</tr>
<tr>
<td>Covert Narcissism</td>
<td>27.70 (5.70)</td>
<td>28.19 (5.31)</td>
<td>28.00 (5.45)</td>
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<tr>
<td>BASDR</td>
<td>11.17 (2.21)</td>
<td>10.91 (1.96)</td>
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<td>BASFS</td>
<td>11.98 (2.51)</td>
<td>12.06 (2.68)</td>
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<tr>
<td>BASRR</td>
<td>17.16 (2.63)</td>
<td>18.26 (1.31)</td>
<td>17.82 (2.00)</td>
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<tr>
<td>BIS</td>
<td>19.55 (4.16)</td>
<td>22.15 (3.44)</td>
<td>21.12 (3.94)</td>
</tr>
</tbody>
</table>

Note. Overt narcissism as measured by the Narcissistic Personality Inventory, (NPI; Raskin & Terry, 1986); Covert narcissism as measured by the Hypersensitive Narcissism Scale, (HSNS; Hendin & Cheek, 1997); Behavioral Activation Scale- Drive (BASDR; Carver & White, 1994); Behavioral Activation Scale- Fun-Seeking (BASFS; Carver & White, 1994); Behavioral Activation Scale- Reward Responsiveness (BASRR; Carver & White, 1994); Behavioral Inhibition Scale- Drive (BIS; Carver & White, 1994). * = p < .05; ** = p < .008 (Bonferroni adjusted p level)
Table 4

*Bivariate Correlations of Variables of Interest*

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<td>2. Covert narcissism</td>
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<td>3. BASDR</td>
<td>.36**</td>
<td>-.04</td>
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*Note.* Overt narcissism as measured by the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1986); Covert narcissism as measured by the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997); Behavioral Activation Scale- Drive (BASDR; Carver & White, 1994); Behavioral Activation Scale- Fun-Seeking (BASFS; Carver & White, 1994); Behavioral Activation Scale- Reward Responsiveness (BASRR; Carver & White, 1994); Behavioral Inhibition Scale- Drive (BIS; Carver & White, 1994); Binge drinking defined as 5 or more drinks in a row for men, and 4 or more drinks in a row for women; Average typical consumption as measured by typical drink amount, in standard drink units, multiplied by typical amount of drinking days divided by seven; * = p < .05; ** = p < .01, *** p < .001; a. Cannot be computed because at least one of the variables is constant. Sex was coded 0 = male, 1 = female.
A) Total effect

B) Simple Mediated Pathway

C) Multiple Mediated Pathway

Figure 1: A: Direct pathway; $c$ = the effect of X on Y. B: $a$ = the effect of X on M; $b$ = the effect of M on Y controlling the effects of X; $c' = $ the effect on X on Y when controlling for mediator(s). C = Multiple mediator model; the specific indirect effect of M is quantified as $a_1b_1$. The specific indirect effect of W is quantified as $a_2b_2$. The total indirect effects of X on Y is the sum of the specific indirect effects.
Figure 2. A: Test of a mediational model; Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and average typical consumption mediated through the BAS/BIS scales (Carver & White, 1994)--behavioral approach system scale-drive (BASDR), behavioral approach system fun-seeking scale (BASFS), behavioral approach system scale-reward responsiveness (BASRR), and behavioral inhibition systems scale (BIS). B: Test of a mediational model; Overt Narcissism as measured by the NPI (Raskin & Terry) and average typical consumption mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$). * $p < .05$, ** $p < .01$, *** $p < .001$. 

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Figure 3. A: Test of a mediational model: Narcissism as measured by the NPI (Raskin & Terry, 1988) and binge drinking episodes mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and behavioral inhibition systems scale (BIS). B: Test of a mediational model: Narcissism as measured by the NPI and binge drinking episodes mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). *p < .05, **p < .01, ***p < .001.
Figure 4. A: Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and average typical consumption mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS). B: Test of a mediational model: Covert narcissism as measured by the HSNS and average typical consumption mediated through the BASDR, BASFS, BASRR, and the BIS after controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). * p < .05, ** p < .01, *** p < .001.

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Figure 5. A: Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and binge drinking episodes mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system scale-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS). B: Test of a mediational model: Covert narcissism as measured by the HSNS and binge drinking episodes mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$. * $p < .05$, ** $p < .01$, *** $p < .001$
Figure 1A. Test of a mediational model: Narcissism as measured by the NPI (Raskin & Terry, 1988) and binge drinking episodes mediated through the BAS/BIS scales (Carver & White, 1994)--behavioral approach system scale-drive (BASDR), behavioral approach system-scale fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and behavioral inhibition systems scale (BIS).

Figure 1B: Test of a mediational model: Narcissism as measured by the NPI and binge drinking episodes mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). *p < .05, **p < .01, ***p < .001.
MEDIATORS OF NARCISSISM AND ALCOHOL USE

Appendix B

Figure B1: Test of a mediational model: Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and alcohol dependence vs. non-users mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure B2: Test of a mediational model: Overt Narcissism as measured by the NPI (Raskin & Terry) and alcohol dependence vs. non-users mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). * p < .05, ** p < .01, *** p < .001.
Figure C1. Test of a mediational model: Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and alcohol dependence vs. no alcohol dependence mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure C2: Test of a mediational model: Overt Narcissism as measured by the NPI (Raskin & Terry) and alcohol dependence vs. no alcohol dependence mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). *p < .05, **p < .01, ***p < .001.
Figure D1. Test of a mediational model: Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and alcohol dependence vs. alcohol abuse mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure D2. Test of a mediational model: Overt Narcissism as measured by the NPI (Raskin & Terry) and alcohol dependence vs. alcohol abuse mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., \( c \)). Values after the slash represent the direct effect (i.e., \( c' \)). * \( p < .05 \), ** \( p < .01 \), *** \( p < .001 \).
Appendix E

Figure E1

Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and alcohol abuse vs. non-users mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system—fun seeking scale (BASFS), the behavioral approach system—reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure E2: Test of a mediational model: Covert narcissism as measured by the HSNS and alcohol abuse vs. no users mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). * p < .05, ** p < .01, *** p < .001.

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Figure F1. Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and alcohol dependence vs. non-users mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure F2. Test of a mediational model: Covert narcissism as measured by the HSNS and alcohol dependence vs. no users mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$. $^* p < .05$, $^{**} p < .01$, $^{***} p < .001$. 

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Figure G1. A: Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and alcohol dependence vs. no alcohol dependence mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system—fun seeking scale (BASFS), the behavioral approach system—reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure G2. Test of a mediational model: Covert narcissism as measured by the HSNS and alcohol dependence vs. no alcohol dependence mediated through the BASDR, BASFS, BASRR, and the BIS after controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$). * $p < .05$, ** $p < .01$, *** $p < .001$. 

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Appendix H

Figure H1

Figure H2

Figure H1. Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and alcohol dependence vs. alcohol abuse mediated through the BAS/BIS scales (Carver & White, 1994)--behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure H2. Test of a mediational model: Covert narcissism as measured by the HSNS and alcohol dependence vs. alcohol abuse mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). *p < .05, **p < .01, ***p < .001.
Figure II

Test of a mediational model: Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and average weekly quantity (standard drink) mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), the behavioral approach system fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure I2

Test of a mediational model: Overt Narcissism as measured by the NPI (Raskin & Terry) and average weekly quantity (standard drink) mediated through the BASDR, BASFS, BASRR, and the BIS controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). *p < .05, **p < .01, ***p < .001.
Figure J1. Test of a mediational model: Overt narcissism as measured by the NPI (Raskin & Terry, 1988) and maximum quantity consumed (since classes started) mediated through the BAS/BIS scales (Carver & White, 1994) -- behavioral approach system scale-drive (BASDR), the behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure J2. Test of a mediational model: Overt Narcissism as measured by the NPI (Raskin & Terry) and maximum quantity consumed mediated through the BASDR, BASFS, BASRR, and the BIS after controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$). * $p < .05$, ** $p < .01$, *** $p < .001$. 

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Figure K1. Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and average weekly quantity mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), behavioral approach system-fun seeking scale (BASFS), the behavioral approach system scale-reward responsiveness (BASRR), and behavioral inhibition systems scale (BIS).

Figure K2. Test of a mediational model: Covert narcissism as measured by the HSNS and average weekly quantity mediated through the BASDR, BASFS, BASRR, and the BIS after controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., c). Values after the slash represent the direct effect (i.e., c'). * p < .05, ** p < .01, *** p < .001.
Appendix L

Figure L1

Figure L2

Figure H1. Test of a mediational model: Covert narcissism as measured by the HSNS (Hendin & Cheek, 1997) and maximum quantity consumed (since classes started) mediated through the BAS/BIS scales (Carver & White, 1994)—behavioral approach system scale-drive (BASDR), behavioral approach system-fun seeking scale (BASFS), behavioral approach system scale-reward responsiveness (BASRR), and the behavioral inhibition systems scale (BIS).

Figure H2. Test of a mediational model: Covert narcissism as measured by the HSNS and maximum quantity consumed mediated through the BASDR, BASFS, BASRR, and the BIS after for controlling for age, sex, and gender. Path values represent unstandardized regression coefficients. Standard errors are in parentheses. Values before the slash represent the total effect (i.e., $c$). Values after the slash represent the direct effect (i.e., $c'$. $^* p < .05$, $^{**} p < .01$, $^{***} p < .001$. 

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### Table M1

Logistic regression analysis for moderation between overt narcissism and the BAS on alcohol use patterns.

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**Note.** Overt narcissism as measured by the Narcissistic Personality Inventory, (NPI; Raskin & Terry, 1986); Behavioral Activation Total Score (BAS Total; Carver & White, 1994); * = p < .05; ** = p < .01, *** p < .001

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### Table N1

**Linear and Logistic Regression Analysis for Moderation between Covert Narcissism and the BIS on Alcohol Use**

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*Note.* Covert narcissism as measured by the Hypersensitive Narcissism Scale, (HSNS; Hendin & Cheek, 1997) Behavioral Inhibition Scale (BIS; Carver & White, 1994). * = $p < .05$; ** = $p < .01$, *** $p < .001$
September 17, 2009

Mr. Mark Price, M.A.
3804 Elsmere Avenue, Apt. A
Cincinnati, OH 45212

Dear Mr. Price:

The IRB has completed the review of your protocol #0609, "Approach-Avoidance Motivation Mediating the Relationship between Narcissism and Alcohol Use". Your study as submitted has been determined to meet criteria for the Exempt from Review category under Federal Regulation 45CFR46. Therefore it is approved as exempt research and requires no further oversight by the IRB.

If you wish to modify your study, it will be necessary to obtain IRB approval prior to implementing the modification. If any adverse events occur, please notify the IRB immediately.

We wish you success on your project.

Sincerely,

Kathleen J. Hart, Ph.D., ABPP
Interim Chair, Institutional Review Board
Xavier University

cc: Susan Kenford, Ph.D.

KH/dm
Summary

Title: A Test of Behavioral Approach and Inhibition Systems as Mediators of Narcissism and Alcohol Use

Introduction: Theorists have linked narcissism to various forms of addiction (Kernberg, 1975, Kohut, 1971). Overt narcissists, who are described as arrogant, loud, and confident (e.g., DSM-IV-TR criteria), use alcohol as an attempt to refuel a grandiose self and to maintain omnipotence and protection against their surroundings (Kernberg, 1975). Covert narcissists, a form of narcissism related to neurotic traits, have been thought to use alcohol to increase self-esteem and to serve as a substitute for a self-object that has failed (Kohut, 1971). Despite such longstanding theories, the relationship between forms of narcissism and alcohol abuse remains an understudied area. Only one study has linked overt narcissism to alcohol use (Luhtanen & Crocker, 2005), while the relationship between covert narcissism and alcohol use has remained unexamined. For both forms of narcissism, there is evidence that Gray's (1982) biological brain-based personality model may explain any relationship with alcohol use. It was hypothesized that overt narcissism was positively correlated with alcohol use and that Gray's behavioral activation system (BAS) and the behavioral inhibition system (BIS) accounted for the observed relationship between overt narcissism and alcohol use. It also was hypothesized that the BIS would account for any relationship between covert narcissism and alcohol abuse.

Method: The participants in this study were 129 college students at a mid-major Midwestern university. The following measures were given the A) the BAS/BIS scales (Carver & White, 1994); B) the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988); C) the Hypersensitivity Narcissism Scale (HSNS; Hendin & Cheek, 1997); and D) Demographic Survey and Alcohol Use Form measuring average typical consumption, binge drinking frequency, and alcohol use disorder symptoms based on DSM-IV-TR guidelines. Preacher and Hayes’ multiple mediator method was used to determine if the BAS/BIS were mediators of the relationship of narcissism and alcohol use.

Findings: Of the sample, when classified by use category, 31.8% met criteria for possible alcohol abuse, while 19.4% met criteria for possible alcohol dependence. Alcohol use patterns showed a strong, positive correlation with overt narcissism and the BAS subscales of fun-seeking and drive; overt narcissism was significantly, positively related to the BAS subscales of fun-seeking and drive and negatively related to the BIS. Covert narcissism showed a negative relationship with the BIS and no relationship to any other variable, including all the alcohol use variables. As hypothesized, aspects of Grays’ model mediated the observed relationship between overt narcissism and alcohol use. Specifically, the fun-seeking subscale was responsible for significant mediation of the relation between overt narcissism and average typical consumption; this robust finding remained after controlling for age, sex and GPA, yielding a point estimate of .01 and a 95% BCA (Bias corrected and accelerated) confidence interval of .003 to .04. Similarly, the BAS drive subscale emerged as a specific mediator, yielding a point estimate of .02 and a 95% BCA confidence interval of .001 to .06; however, the relationship became non-significant after controlling for age, sex, and GPA. When the BAS/BIS scales were
tested to see if they mediated the relationship between overt narcissism and alcohol use classification (e.g. possible abuse or possible dependence), no significant mediators emerged. Contrary to prediction, the BAS/BIS scales did not mediate the relationship between covert narcissism and any of the alcohol use variables.

Implications: As hypothesized, overt narcissism was a significant predictor of habitual alcohol use patterns -- specifically average typical consumption and frequency of binge drinking episodes. However, covert narcissism showed no such relationships. Among the BAS subscales, drive and fun seeking were robust predictors of average consumption, while reward responsiveness was unrelated to any of the alcohol use variables. This study adds to an emerging body of literature linking overt narcissism to various forms of addictions and further delineates the constructs of overt and covert narcissism. These findings have clinical implications for individuals high in overt narcissism who are in treatment for alcohol-related issues and suggest that interventions would be wise to focus on aspects of impulsivity, such as having approach orientation and drive rather than aspects also associated with overt narcissism such as over-confidence. Further, the results suggest that interventions that aim to punish or highlight potential negative consequences of alcohol use may have limited effectiveness for those high in overt narcissism, as sensitivity to punishment was not related to alcohol use. Rather, interventions that focus on the rewards of limiting intake, or choosing sobriety, may prove more effective.