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Examination of the Dark Triad and its Association with Antisocial Behavior and Cheating in

Undergraduates

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Table of Contents

ABSTRACT.....	3
LITERATURE REVIEW.....	4
CURRENT STUDY.....	11
METHOD.....	12
PARTICIPANTS.....	12
MEASURES.....	13
PROCEDURE.....	15
RESULTS.....	16
DISCUSSION.....	20
LIMITATIONS.....	27
FUTURE DIRECTIONS.....	28
REFERENCES.....	29
TABLES.....	37
APPENDIX A.....	39
APPENDIX B.....	40

Abstract

The aim of this study was to examine the contribution of the distinct factors of psychopathy, domains of narcissism, and Machiavellianism to antisocial behaviors in undergraduates. The Psychopathic Personality Inventory-Revised, Pathological Narcissism Inventory, and Mach-IV were administered to assess the dark triad traits. The Comprehensive Misconduct Inventory was administered to assess self-report scores of antisocial behavior, and an anagram-cheating task was administered as a behavioral measure of academic cheating. The results reflect data collected from an ethnically diverse sample of 100 participants aged 18-38 years old ($M = 20.95$, $SD = 3.79$). Significant correlations were observed between both factors of psychopathy and domains of narcissism and various dimensions of antisocial behavior. Further, when the overlap among the dark triad variables was considered, Factor 1 significantly predicted bullying/harassing and overall antisocial behavior, Factor 2 significantly predicted soft drug abuse, Machiavellianism significantly predicted hard drug abuse, and grandiose narcissism significantly predicted anti-authority misbehavior. However, based on inconsistent results of the analyses obtained in the current study, no firm conclusions can be made as to whether the dark triad variables significantly predicted cheating on the anagram-cheating task. Nonetheless, the findings suggest that the traits may be related to distinct dimensions of antisocial behavior and thus, have implications for behavioral intervention with individuals characterized by the dark triad traits. Future research in this area may provide beneficial information that can be used to guide treatment for individuals with psychopathic, narcissistic, and/or Machiavellian traits.

Keywords: Dark Triad, antisocial behavior, academic cheating

Literature Review

The cluster of traits known as the dark triad of personality (Paulhus & Williams, 2002) has gained increasing attention among researchers due to an interest in its behavioral implications. While the three constructs (psychopathy, narcissism, and Machiavellianism) often show differential correlates, they share a common core of callous-manipulation (Furnham, Richards, & Paulhus, 2013). Given the socially malevolent tendencies that characterize those with the dark triad traits, it is important to determine whether these dark variables are associated with equally dark actions (Azizli et al., 2016).

Psychopathy

Cleckley (1941) was the first to provide a thorough clinical description of psychopathy in his book, *The Mask of Sanity*. The term "mask of sanity" derived from Cleckley's belief that a psychopath can appear normal and even engaging, but that the "mask" conceals underlying pathology. He described the psychopath as an individual characterized by superficial charm and high intelligence, unreliability, untruthfulness and insincerity, lack of remorse and shame, egocentricity, and poverty in major affective reactions. Other researchers (Benning, Patrick, Hick, Blonigen, & Krueger, 2003; Hare, 2003) have conceptualized psychopathy as a construct consisting of two related dimensions, commonly referred to as factors. Factor 1 encompasses the affective-interpersonal features of psychopathy (e.g., shallow affect, superficial charm, grandiosity, dominance, manipulativeness, lack of empathy). Factor 2 reflects the impulsive antisocial deviance of psychopathy (e.g., criminal versatility, defiance of social norms, impulsiveness, irresponsibility, poor behavioral controls, need for stimulation). Research has shown that individuals with primary (Factor 1) traits of psychopathy exhibit lower levels of anxiety, social withdrawal (Skeem, Johansson, Andershed, Kerr, & Eno, 2007), and emotional

reactivity (Blair, 2005) than those with secondary (Factor 2) traits. In contrast, Factor 2 has been associated with emotional and behavioral dysfunction, including alcohol and substance use disorders and impulsivity (Patrick, Hicks, Krueger, & Lang, 2005; Sellbom & Verona, 2007; Smith & Newman, 1990).

Narcissism

In Greek mythology, Narcissus was an extremely handsome young man. Upon catching sight of his reflection in a pool of water, Narcissus became so enchanted that he subsequently spent all his days drinking in the beauty of his own face. In modern times, the term *narcissism* was adopted by Freud to describe a clinical category of aggressive, highly egocentric individuals (Stellwagen, 2011). Since then, narcissism has been defined as being characterized by feelings of grandiosity, a sense of entitlement, an excessive need for admiration, and a lack of empathy (Raskin & Hall, 1979), and Narcissistic Personality Disorder (NPD) has been established in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychological Association, 2013). Multiple studies have documented the existence of two forms of narcissism, which are often referred to as grandiose and vulnerable narcissism (Dickinson & Pincus, 2003; Fossati et al., 2005; Wink, 1991). Most experts agree that the *DSM* symptoms of NPD emphasize the grandiose dimension over the vulnerable dimension (Cain, Pincus, & Ansell, 2008), although the text includes descriptions of both grandiosity and vulnerability associated with NPD.

Grandiose narcissism primarily reflects traits related to grandiosity, aggression, and dominance, whereas vulnerable narcissism reflects a defensive and insecure grandiosity that obscures feelings of inadequacy, incompetence, and negative affect (Miller et al., 2011). Empirical evidence provides support for grandiose and vulnerable narcissism as separate

constructs (Lapsley & Aalsma, 2006). As such, the traits show desperate correlates with other variables. For example, a recent study found vulnerable narcissism was more strongly associated with internalizing and substance use disorders than grandiose narcissism. Furthermore, the two dimensions were associated with different externalizing symptoms, such that grandiose narcissism was associated with conduct disorder and adult antisocial behavior, while vulnerable narcissism was associated with alcohol and illicit drug dependence (Schoenleber, Sadeh, & Verona, 2011).

Machiavellianism

Niccolò Machiavelli was a diplomat and scholar best known for his advocacy of a pragmatic political philosophy that stressed the acquisition and consolidation of power through manipulative strategies and techniques. Because Machiavelli largely dismissed the importance of traditional morality as a guidepost for behavior, the term Machiavellianism has come to connote a cynical, ruthless, and deceptive approach to interpersonal behavior (Stellwagen, 2011). Richard Christie was the first to examine Machiavellianism as a psychological construct. The term is associated with emotional coldness, a disregard for the importance of morality, and the use of craft and dishonesty to pursue and maintain power (Christie & Geis, 1970).

The Dark Triad and Antisocial Behavior

The dark triad (Paulhus & Williams, 2002) is a constellation of these three conceptually distinct, yet empirically overlapping, personality constructs that are typically construed as interpersonally maladaptive. While all three constructs entail some degree of callousness, self-promotion, aggression, and dishonesty (Paulhus & Williams, 2002), they differ in significant aspects as well. For example, narcissism is not necessarily marked by the absence of guilt that characterizes psychopathy, and Machiavellianism is not necessarily associated with the risk-

taking typical of psychopathy (Smith & Lilienfeld, 2013). Thus, it is important to examine the differences in their behavioral expressions (Jones & Figueredo, 2013).

A few investigations have examined the constructs in relation to a range of antisocial acts in undergraduates, including soft and hard drug abuse, minor and serious criminality, driving misbehavior, bullying/harassing, and anti-authority misbehavior. However, these endeavors have yielded inconsistent findings. Williams, McAndrew, Learn, Harms, and Paulhus (2001) examined the relationship between the dark triad and antisocial behavior in an undergraduate sample consisting of 356 students attending a major Canadian university. Of the three personality types, total antisocial behavior correlated most strongly with psychopathy ($r = .47$), followed by narcissism ($r = .32$), and Machiavellianism ($r = .26$). Additionally, antisocial behavior correlated more highly with psychopathy Factor 2 than with Factor 1. Moreover, significant positive correlations between all of the types of antisocial behavior assessed and the dark triad traits of narcissism and psychopathy were reported, whereas in contrast, significant associations between Machiavellianism and only bullying/harassing and minor criminality were observed. Nathanson, Paulhus, and Williams (2006a) examined this relationship in 279 undergraduates at a large northwestern university. Again, of the three personality constructs, total antisocial behavior correlated most strongly with psychopathy ($r = .59$), followed by narcissism ($r = .26$), and Machiavellianism ($r = .21$). Furthermore, significant associations between psychopathy and all dimensions of antisocial behavior were found, a finding in line with Williams et al. (2001). However, narcissism exhibited significant associations with only driving misbehavior and substance abuse, while Machiavellianism correlated only with the bullying/harassing subscale. It is important to note that these studies were limited to correlational analyses and did not consider the overlap among the dark triad traits.

The most recent and largest study of the relationship between the dark triad traits and antisocial behavior includes 464 undergraduate students from North America (Azizli et al., 2016). These researchers noted a significant and positive association between the dark triad variables and nearly all types of antisocial behavior, suggesting that greater endorsement of each of the dark triad traits is related to greater frequency of misconduct. However, non-significant correlations revealed that both Machiavellianism and narcissism were unrelated to hard drug use, and that narcissism did not exhibit significant associations with the bullying/harassing subscale. Furthermore, multiple regression analyses indicated that only psychopathy significantly predicted overall misconduct. Neither Machiavellianism nor narcissism contributed significantly to the prediction of misconduct. However, these researchers used a brief dark triad measure with questionable reliability (Machiavellianism) that did not differentiate between the distinct factors of psychopathy or domains of narcissism. It is possible that its items tap into both types of each trait and therefore prevented a clear picture of resultant behaviors from emerging.

While these findings provide a foundation for future research to build upon, major limitations need to be addressed. For example, two of the studies outlined are limited to correlational analyses, yielding only results that describe the linear relationship between the dark triad traits and antisocial behavior. Additionally, Williams and colleagues (2001) were the only researchers to consider both factors of psychopathy. Similarly, previous research failed to account for both domains of narcissism. Given the desperate correlates of the factors with antisocial behavior, this homogeneous approach may have prevented a clear picture from emerging. For example, grandiose narcissism is often characterized by externalizing behaviors or aggression (Lobbestael, Baumeister, Fiebig, & Eckel, 2014), and vulnerable narcissism has been associated with self-destructive tendencies, such as substance abuse (Bobadilla, 2014).

Additionally, a recent study found that features belonging to Factor 2 of psychopathy, but not Factor 1, were significantly related to risky decision-making (Dean et al., 2013). Future research should use regression analyses to identify the extent to which the dark triad traits individually contribute to antisocial behavior. Further, the factors of psychopathy and domains of narcissism should be examined separately, to investigate the unique influence, if any, each construct adds to antisocial behavior.

The Dark Triad and Cheating

Academic cheating remains a troubling problem for educators, with as high as two thirds of students engaging in academic misconduct during college (Robinson, Amburgey, Swank, & Faulker, 2004; Stern & Havlicek, 1986). Surprisingly, reviews of research on cheating predictors have downplayed the value of personality predictors (Cizek, 1999; Whitley & Keith-Spiegel, 2002), leaving the dark triad traits largely overlooked. While one might expect a heightened tendency to cheat with each personality construct, little direct research is available. Flynn, Reichard, and Slane (1987) examined the association between Machiavellianism and cheating while also investigating the effects of task motivation (approach or avoidance) on this relationship. Undergraduate participants assigned to the avoidance group were told that if they scored below 20 on a vocabulary test, they would be required to sign up for another session, while participants in the attainment group were told that if they received a score of 20 or better, they would be allowed to skip the last part of the test and leave the experiment early. While no significant difference in the frequency of cheating for those scoring high vs. low in Machiavellianism was found, overall, subjects were more likely to cheat under conditions of avoidance motivation. In fact, participants scoring high in Machiavellianism cheated significantly more often to avoid than to attain.

Only two studies have investigated the association between all three dark triad traits and cheating in undergraduates (Nathanson, Paulhus, & Williams, 2006b; Williams, Nathanson, & Paulhus, 2010). After controlling for overlap among the traits, psychopathy was the only significant predictor of cheating. These results are surprising given the theoretical links of cheating with each personality construct. For example, narcissistic individuals are arrogant, self-centered, and self-enhancing (Morf & Rhodewalt, 2001). However, most relevant to cheating is their sense of entitlement (Emmons, 1987). Narcissists feel entitled to recognition for their intellectual superiority even when their academic accomplishments are mediocre. If this self-worth is questioned or threatened, cheating may be necessary to reaffirm their self-perceived superiority (Williams et al., 2010). Machiavellians may be likely to cheat due to their manipulative tendencies (Christie & Geis, 1970). A wealth of evidence confirms that Machiavellian individuals exploit a range of duplicitous tactics to achieve their goals (Fehr, Samson, & Paulhus, 1992; Jones & Paulhus, 2009). These tendencies increase the likelihood of indulging in cheating. Perhaps these studies did not find narcissism or Machiavellianism to predict cheating because they did not consider external motivation (e.g., monetary incentive) as an element in determining the likelihood of cheating. Given the grandiosity and self-serving tendencies among those characterized by the traits, it is possible that these individuals may be more likely to cheat when presented with justification or reason to do so. Future research should scrutinize this relationship experimentally by assigning participants to either an incentive or control group.

Indirect evidence suggests that higher rates of cheating would not be surprising, as all three of the dark triad traits have been linked to antisocial behavior. Although self-report measures of misbehavior have documented high scores on psychopathy (and, to a lesser extent,

narcissism and Machiavellianism) are associated with higher rates of bullying, crime, and drug use (Nathanson et al., 2006a), behavioral evidence is less abundant. Nonetheless, laboratory studies have demonstrated deceptive behaviors among Machiavellians (Fehr et al., 1992). Similarly, recent behavioral evidence indicated that when provided with the opportunity to defraud a lottery, those high in psychopathy were more likely to do so (Paulhus, Williams, and Nathanson, 2002). Finally, the tendency of narcissists to over-claim academic knowledge suggests that they might also cheat (Paulhus, Harms, Bruce, & Lysy, 2003).

Current Study

Further examination of the dark triad and its association with antisocial behavior in undergraduates is warranted. In response to limitations in the literature and a lack of significant findings with regard to narcissism and Machiavellianism, the current study aims to assess the contribution of both factors of psychopathy, domains of narcissism, and Machiavellianism to several dimensions of antisocial behavior in order to clarify their behavioral expressions. Furthermore, this study aims to examine the relationship between the dark triad and cheating behavior experimentally (incentive group vs. control group). It was hypothesized that both factors of psychopathy would significantly predict total antisocial behavior and minor/serious criminality. Additionally, the relationship between Factor 1 and bullying/harassing was explored. Further, it was hypothesized that Factor 2 would significantly predict soft/hard drug abuse. It was also hypothesized that grandiose and vulnerable narcissism would significantly predict total antisocial behavior. Moreover, it was expected that the former would significantly predict minor/serious criminality and anti-authority misbehavior, whereas the latter would significantly predict soft/hard drug abuse. Lastly, Machiavellianism was hypothesized to significantly predict total antisocial behavior and bullying/harassing. Regardless of group assignment, it was expected

that both factors of psychopathy, both domains of narcissism, and Machiavellianism would all individually predict cheating on the anagram-cheating task. Additionally, exploratory analyses were run to examine the relationship between the dark triad traits and cheating for both the incentive and control group separately.

Method

Participants

The current study implemented a cross-sectional design with undergraduates from a metropolitan college to examine the association between the dark triad traits and several dimensions of antisocial behavior assessed via self-report and cheating assessed behaviorally. Participants were recruited online from John Jay's Research Experience Program through Sona Systems. Data was collected from a total of 100 participants, 34 males (34.3%) and 65 females (65.7%). The majority of participants identified as single ($n = 91$, 91%). Half of the participants identified as Latino/Hispanic ($n = 49$, 49%), with the rest identifying as either Black/African American ($n = 17$, 17%), White ($n = 12$, 12%), Asian/Pacific Islander ($n = 11$, 11%), or Other ($n = 11$, 11%). The sample included 36 freshman (36.4%), 23 sophomores (23.2%), 25 juniors (25.3%), and 15 seniors (15.2%). Participant ages ranged from 18-38 with a mean of 20.95 ($SD = 3.79$). Participants were randomly assigned to either the experimental ($n = 49$, 49%) or control group ($n = 51$, 51%). There was a significant difference in current year (freshman, sophomore, junior, senior) between the groups. The control group ($M = 2.44$, $SD = 1.09$) contained a significantly greater amount of students further along in their education than the experimental group ($M = 1.94$, $SD = 1.05$), $t(97) = -2.33$, $p = .02$. No significant differences were found for the remaining demographic variables.

Measures

Psychopathic Personality Inventory-Revised (PPI-R); Lilienfeld & Widows, 2005.

The PPI-R is a self-report measure of personality traits aimed at a general assessment of psychopathy. One hundred and fifty-four items are answered on a 4-point Likert-type scale (1 = *false*, 4 = *true*). The measure consists of eight subscales, which correspond to two higher-order factors (Benning et al., 2003). Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, and Carefree Nonplanfulness load onto PPI-I (Fearless Dominance), while Stress Immunity, Social Potency, and Fearlessness load onto PPI-II (Impulsive Anti-sociality). The eighth subscale, Cold-heartedness, does not correspond to either of these high-order factors and is considered a separate third factor. Prior research has demonstrated high internal consistency coefficients for the PPI-R ($\alpha = .84 - .92$), and there is also research supporting the measure's construct validity (Lilienfeld & Widows, 2005; Uzieblo, Verschuere, Van den Bussche, & Crombez, 2010). The current sample demonstrated high reliability ($\alpha = .88$).

Pathological Narcissism Inventory (PNI); Pincus et al., 2009. The PNI is a 52-item self-report measure used to assess vulnerable and grandiose narcissism. Its items are answered on a 5-point Likert-type scale (0 = *moderately unlike me*, 5 = *very much like me*). The PNI is comprised of seven scales that load onto two correlated higher-order factors of vulnerability and grandiosity (Wright, Lukowitsky, Pincus, & Conroy, 2010). The scales that assess vulnerability include Contingent Self-esteem (CSE), Hiding the Self (HS), Devaluing (DEV), and Entitlement Rage (ER). The scales assessing grandiosity include Self-sacrificing Self-enhancement (SSSE), Grandiose Fantasies (GF), and Exploitativeness (E). Evidence supports the reliability of the PNI scores ($\alpha = .80 - .93$; Pincus et al., 2009), and the validity of their interpretations (Pincus, 2013). The current sample demonstrated excellent reliability ($\alpha = .94$).

Machiavellianism Inventory (Mach-IV); Christie & Geis, 1970. The Mach-IV is a self-report measure administered to assess Machiavellian traits. The measure contains 20 items phrased as recommendations, quasi-facts, or statements answered on a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). The Mach-IV is comprised of three subscales: Interpersonal Tactics, Cynical View of Human Nature, and Disregard for Conventional Morality (Christie, 1970). It can be deemed reliable and valid (Jones & Paulhus, 2009), with good predictive abilities (Fehr et al., 1992). The current sample had moderate reliability, yielding an alpha of .72.

Comprehensive Misconduct Inventory (CMI); Paulhus & Williams, 2002. The CMI is a self-report measure assessing antisocial actions. Each of its 58 items present participants with a given behavior and ask them to indicate the number of times they have engaged in that behavior. The CMI consists of seven subscales: Soft Drug Abuse, Hard Drug Abuse, Minor Criminality, Serious Criminality, Driving Misbehavior, Bullying/Harassing, and Anti-authority Misbehavior. The subscales reflecting soft/hard drug abuse can be summed to yield a substance abuse factor, and the two modes of criminality can be combined to produce a general criminality factor. The CMI subscales have been found fairly reliable with alphas ranging from .56 to .83 (Nathanson et al., 2006a). The overall index, termed *Total Misbehavior*, has been found to have good reliability ($\alpha = .89$; Paulhus & Williams, 2002). The current sample had good reliability, with all the items yielding an alpha of .83.

Anagram-Cheating Task; Adapted from Hoffmann, Diedenhofen, Verschuere, & Musch, 2015. An anagram-cheating task was adapted from Hoffmann et al. (2015). These researchers used pretests to construct three German anagrams, two of which are very easy to solve and one very difficult to solve. Pretests revealed the probability of solving all three

anagrams had been shown to be close to zero. These three anagrams were then tested on 664 participants whom were offered incentive for solving all three anagrams (the chance to partake in a lottery for a gift certificate). Findings indicated that 15.5% of participants claimed they had solved all three anagrams. The current study used English anagrams and an unsolvable anagram, as opposed to a very difficult one, in order to bypass pretests. Two very easy anagrams ("JPMU" and "OCLD," reflecting the words "JUMP" and "COLD"), followed by an unsolvable anagram ("YEUT") were displayed one at a time to participants. Participants were given a maximum of 10 seconds to identify the target word. If the participant identified the target word, they pressed a button labeled, "I found the target word and want to enter the solution." When the respective button was pressed or after the 10-second presentation time had elapsed, the anagram was masked and respondents were given another 10 seconds to enter the solution into the input box before the next anagram was displayed.

Procedure

The study was administered as an online questionnaire. The first page welcomed participants and had them electronically sign a document indicating informed consent prior to beginning the questionnaire. The informed consent explained that the purpose of the study was to identify personality traits that may lead to different types of behavior. Participants were informed that they could stop at any time and refuse to answer any of the questions in the questionnaire without consequences or loss of reward.

After obtaining informed consent, participants provided demographic information and read instructions for the anagram-cheating task. Before completing the anagram-cheating task, respondents completed an example anagram to familiarize themselves with the paradigm. After completing the anagram-cheating task, respondents were asked, "How many of the anagrams did

you solve in the available time?" and provided with the answer options: "I did not solve any of the three anagrams," "I solved one of the three anagrams," "I solved two of the three anagrams," and "I solved all three anagrams." Since the last anagram ("YEUT") was unsolvable, participants that reported solving all three anagrams were categorized as cheaters. Prior to starting the task, participants assigned to the manipulation group were informed of the chance to be entered into a lottery to win a \$100 gift card by solving all three anagrams. The participants in the control group did not receive lottery incentive before the task.

Subsequently, participants completed several test measures including the PPI-R (Lilienfeld & Widows, 2005), the PNI (Pincus et al., 2009), the Mach-IV (Christie & Geis, 1970), and the CMI (Paulhus & Williams, 2002). Upon completing the measures, participants were debriefed and information regarding the true nature and intention of the study was revealed. Participants were thanked for their cooperation and provided with contact information that they could use to follow-up if any concerns or questions arose after debriefing. Lastly, participants were rewarded class credit as compensation for completing the study. All information gathered was kept confidential; demographic information and questionnaires were coded by identification number to ensure anonymity.

Results

The ranges, means and standard deviations of the dark triad traits and antisocial behavior are reported in Table 1. Median scores were provided for antisocial behavior, as the mean scores did not provide an accurate picture of the sample due to outliers. In fact, the most frequent response among participants for each dimension of antisocial behavior was zero, and the sample mean for total antisocial behavior (variable representing combined subscales) was much lower than previous research using the same measure in a sample with a large number of undergraduate

participants (Azizli et al., 2016). The sample mean for Factor 2 (Fearless Dominance) scores are consistent with other community and college samples (Lilienfeld & Widows, 2005); however, the sample mean for Factor 1 (Self-Centered Impulsivity) scores are low compared to other community and student samples ($M = 110.52$ compared to 181.00; Lilienfeld & Widows, 2005). In contrast, the sample mean for grandiose narcissism was high compared to student normative samples ($M = 3.65$ compared to 2.89; Pincus et al., 2009); similarly, vulnerable narcissism was high compared to normative samples ($M = 3.19$ compared to 2.13; Pincus et al., 2009). Lastly, the sample mean for scores on the Mach-IV are similar to other undergraduate samples (Williams et al., 2001).

In order to assess the individual relationships between each factor of psychopathy, domain of narcissism, and Machiavellianism and antisocial behavior, Pearson correlations were conducted (Table 2). Both factors of psychopathy and domains of narcissism were significantly, positively correlated with anti-authority misbehavior and total antisocial behavior. Factor 2 of psychopathy and grandiose narcissism were significantly associated with soft drug abuse, while only the latter was significantly associated with hard drug abuse. Factor 1 of psychopathy and both domains of narcissism were significantly associated with bullying/harassing. Furthermore, Factor 1 and grandiose narcissism significantly correlated with minor criminality, whereas only the former significantly correlated with serious criminality. However, no significant correlations were observed between Mach-IV scores and antisocial behavior. With that being said, when the Machiavellian Egocentricity subscale of the PPI-R was used, significant correlations were observed between Machiavellianism and total antisocial behavior ($r = .28, p = .01$), soft drug abuse ($r = .34, p < .01$), bullying/harassing ($r = .24, p = .02$), and anti-authority misbehavior ($r =$

.29, $p < .01$). The correlation between Mach-IV and Machiavellian Egocentricity scores was statistically significant ($r = .54, p < .01$).

To control for overlap among the dark triad traits and examine the individual influence of each to antisocial behavior, multiple regression analyses were used. First, a multiple regression was conducted to evaluate how well both factors of psychopathy, domains of narcissism, and Machiavellianism predicted total antisocial behavior. The results of the regression indicated that the five predictors explained 17.4% of the variance ($R^2 = .17, F(5, 91) = 5.05, p < .001$). It was found that Factor 1 significantly predicted total antisocial behavior ($\beta = .31, p = .01$); however, Factor 2 ($\beta = .15, p = .23$), grandiose narcissism ($\beta = .09, p = .54$), vulnerable narcissism ($\beta = .18, p = .28$), and Machiavellianism ($\beta = -.06, p = .63$) did not.

Next, several other multiple regressions were conducted to examine how well both factors of psychopathy, domains of narcissism, and Machiavellianism predicted each dimension of antisocial behavior (e.g., soft/hard drug abuse, minor/serious criminality, bullying/harassing, and anti-authority misbehavior). Results revealed that the five predictors explained 8.2% of the variance in soft drug abuse ($R^2 = .082, F(5, 91) = 2.72, p = .02$). It was found that Factor 2 significantly predicted soft drug abuse ($\beta = .36, p = .01$); whereas, Factor 1 ($\beta = -.04, p = .73$), grandiose narcissism ($\beta = .25, p = .10$), vulnerable narcissism ($\beta = -.16, p = .36$), and Machiavellianism ($\beta = -.07, p = .58$) did not. The predictors also explained 8.3% of the variance in hard drug abuse ($R^2 = .08, F(5, 91) = 2.73, p = .02$). It was found that Machiavellianism significantly predicted hard drug abuse ($\beta = -.30, p = .03$); however, Factor 1 ($\beta = .11, p = .36$), Factor 2 ($\beta = .19, p = .15$), grandiose narcissism ($\beta = .15, p = .35$), and vulnerable narcissism did not ($\beta = .15, p = .40$). The results of the regression for minor criminality ($R^2 = .06, F(5, 91) = 2.16, p = .07$) and serious criminality ($R^2 = .03, F(5, 91) = 1.62, p = .16$) were not significant.

The five predictors explained 7.1% of the variance in bullying/harassing ($R^2 = .07$, $F(5, 91) = 2.47$, $p = .04$). It was found that Factor 1 significantly predicted bullying/harassing ($\beta = .23$, $p = .05$); whereas, Factor 2 ($\beta = .04$, $p = .79$), grandiose narcissism ($\beta = .09$, $p = .56$), vulnerable narcissism ($\beta = .13$, $p = .46$), and Machiavellianism ($\beta = .06$, $p = .68$) did not. Lastly, the factors of psychopathy, domains of narcissism, and Machiavellianism explained 13.8% of the variance in anti-authority misbehavior ($R^2 = .14$, $F(5, 91) = 4.07$, $p < .01$). It was found that grandiose narcissism significantly predicted anti-authority misbehavior ($\beta = .31$, $p = .04$); Factor 1 ($\beta = .18$, $p = .12$), Factor 2 ($\beta = .04$, $p = .78$), vulnerable narcissism ($\beta = -.02$, $p = .91$), and Machiavellianism ($\beta = .11$, $p = .39$) did not.

Eight out of 100 participants cheated on the anagram-cheating task. A logistic regression was performed to examine the effect of the factors of psychopathy, domains of narcissism, and Machiavellianism on the likelihood that participants cheated, regardless of group assignment. The overall test of the model, using a likelihood ratio chi-square test, was not statistically significant, $\chi^2(5) = 8.65$, $p = .12$. However, the test of the coefficients, which uses Wald chi-square tests, was statistically significant for both Factor 2 ($B = -.06$, $p = .02$) and Machiavellianism ($B = 2.65$, $p = .04$). While the two types of chi-square tests are asymptotically equivalent, in small samples they can differ due to a lack of power. In these instances, it is difficult to know what to conclude.

Out of the eight participants that cheated, six were in the manipulation group and two were assigned to the control group. A chi-square analysis indicated there was no significant relationship between group assignment and cheating $\chi^2(1) = .68$, $p = .41$. Two logistic regressions were run to explore the effect of the factors of psychopathy, domains of narcissism, and Machiavellianism on the likelihood that participants cheated while considering group

assignment. For the participants that did not receive incentive (control group), a test of the full model against a constant model was not statistically significant, indicating that the predictors did not contribute to whether a participant cheated, $\chi^2(5) = 5.02, p = .41$. For the participants that did receive incentive (manipulation group), the overall test of the model was not statistically significant, $\chi^2(5) = 7.46, p = .19$. However, the test of the coefficients found Factor 2 to significantly predict cheating ($B = -.08, p = .02$). As mentioned previously, in these situations firm conclusions cannot be made.

Discussion

The aim of the current study was to examine the contribution of the distinct factors of psychopathy, domains of narcissism, and Machiavellianism to antisocial behaviors in undergraduates. Results indicated partial support for the association hypotheses, such that the findings revealed significant and positive associations between both factors of psychopathy and domains of narcissism and various dimensions of antisocial behavior. Furthermore, when the overlap among the dark triad variables was considered, several significant findings emerged. Nonetheless, the findings should be interpreted with caution considering the results may have been impacted by a lack of power due to a small sample size ($N = 100$). In addition, there was a low incidence of cheating behavior ($n = 8$), and self-report scores of total antisocial behavior ($Mdn = 20$) and each dimension of antisocial behavior ($Mdn < 1$) were lower than previous research utilizing a large number of undergraduate students ($N = 464$; Azizli et al., 2016).

Total Antisocial Behavior

As expected, Factor 1 was found to significantly predict total antisocial behavior. However, no significant relationship was found between Factor 2 and overall antisocial behavior. Previous research examining the contribution of each psychopathy factor to antisocial behavior

has found Factor 2 to be more indicative of an individual who acts aggressive or violently than Factor 1 (Andrade, 2008; Brinkley, Schmitt, Smith, & Newman, 2001). These findings, in addition to the externalizing behavioral features belonging to Factor 2, suggest that the trait may be significantly related to antisocial behavior. Unexpectedly, the current study's findings did not support this notion. Lykken (1957) found that individuals high in Factor 1 traits showed significantly less anxiety and less avoidance of punished responses, while participants high in Factor 2 traits had significantly higher anxiety scores. Lack of anxiety and remorse or fear of punishment may play a key role in explaining the relationship between Factor 1, but not Factor 2, and antisocial behavior. Furthermore, it may be the case that the current study did not find evidence for a relationship between Factor 2 and total antisocial behavior due to moderating variables specific to this sample, such as intelligence. In a large sample of undergraduates, Watts and colleagues (2016) found that intelligence served as a protective factor against antisocial behavior among individuals with high levels of psychopathy.

Despite hypotheses, no significant relationship was found between either dimension of narcissism and total antisocial behavior. A recent study examining the Five Factor Model-related factors of narcissism found that antagonism was the most important factor in accounting for variance in measures of antisocial behavior, suggesting that engagement in antisocial activity may be contingent upon this particular feature of narcissism (Vize et al., 2017). The current study did not measure or account for the influence of antagonism. It is possible that the participants had low antagonism scores. In fact, research has found that agreeableness, the personality trait contrasted with antagonism, significantly correlates with academic performance at the tertiary level of education (Poropat, 2009).

Lastly, contrary to hypotheses, Mach-IV scores did not significantly predict total antisocial behavior. However, the Machiavellian Egocentricity subscale of the PPI-R significantly correlated with overall antisocial behavior, suggesting that the lack of findings may be due to differences in how the Mach-IV and PPI-R measure Machiavellianism. It is possible that the Mach-IV lacks construct validity. Hunter, Gerbing, and Boster (1982) argue that the Machiavellianism dimension of the Mach-IV is an arbitrary composite score formed by summing over Machiavellian beliefs that do have construct validity. These researchers found that component beliefs of the Machiavellianism score had much higher correlations with several important personality traits associated with the construct. A relationship between Machiavellianism and overall antisocial behavior may not have been found due to the fact that the current study used composite Machiavellianism scores as a predictor.

Drug Abuse

As predicted, a significant relationship was found between Factor 2, and not Factor 1, and soft drug abuse. This finding is in line with previous research revealing that Factor 2 was more strongly related to substance abuse than Factor 1 (Brinkely et al., 2001). Perhaps the relationship between Factor 2 and drug abuse may be explained by the trait's association with externalizing behavior, such that the trait is often associated with problematic behaviors including aggression, antisocial behavior, and substance use (Patrick et al., 2005). Nonetheless, the current study did not evidence a relationship between the trait and hard drug abuse. The sample mean for hard drug abuse was extremely low and may have prevented the relationship from being detected.

Contrary to expectations, no significant relationship was found between vulnerable narcissism and soft/hard drug abuse. Previous research has found this dimension of narcissism to be strongly associated with substance-use disorders in forensic samples (Schoenleber et al.,

2011). However, these findings may not generalize to normative samples (i.e., a student sample). It is possible that students high in vulnerable narcissism reveal a different behavioral expression of the trait than criminally involved individuals. Interestingly, Machiavellianism was found to inversely predict hard drug abuse, indicating that this dark triad trait may serve as a protective factor against drug abuse. Indeed, Machiavellians have been found to have better impulse control than those characterized by narcissistic and psychopathic traits (Jones & Paulhus, 2011a). It may be that impulsivity partially mediates this relationship.

Minor/serious criminality

Unexpectedly, the current study did not find either factor of psychopathy to significantly predict minor/serious criminality. Research has found intelligence, particularly verbal intelligence, moderates the relationship between psychopathy and criminality (Wall, Sellbom, & Goodwin, 2013). Perhaps the lack of findings may be attributed to the fact that the current study's participants were enrolled in a higher-education institution. Additionally, research has found both psychopathy factors to be related to deficits in dispositional self-control in a non-clinical sample (Prado, Treeby, & Crowe, 2015). It may be that deficits in self-control play a causal role in whether psychopathic individuals engage in criminality, such that those who exhibit lower self-control may engage in more criminal behavior. The current sample may have had high higher self-control preventing a significant relationship between psychopathy and criminality from appearing. In fact, research examining self-control in university students has found self-control to be positively associated with academic performance and negatively associated with academic misconduct (Zettler, 2011).

Furthermore, contrary to expectations, there was no evidence for a relationship between grandiose narcissism and minor/serious criminality. Research has shown that hostile tendencies

among narcissistic individuals are often tied to instances of ego threat (Stucke & Sporer, 2002). Perhaps these individuals only react aggressively in situations in which their sense of self is threatened. Consequently, grandiose narcissism alone may not reliably predict criminality. However, it may act as a catalyst for criminal activity given the appropriate situational factors.

Bullying/Harassing

Also, somewhat unexpectedly, Factor 1 was found to significantly predict bullying/harassing, whereas Machiavellianism did not significantly predict this type of antisocial behavior. This finding slightly differs from a recently published study that found both psychopathy and Machiavellianism to significantly predict traditional bullying among high-school students (van Geel, Goemans, Toprak, & Vedder, 2017). However, given that the Machiavellian Egocentricity subscale of the PPI-R significantly correlated with bullying/harassing, the lack of findings may also be explained by differences in how the PPI-R and Mach-IV measure the construct, considering the reliability and construct validity of the composite Machiavellianism score of the Mach-IV has been questioned (Hunter et al., 1982). Recent studies have indicated that bullying may be used as a strategic behavior aimed at gaining dominance (Salmivalli, 2010). In fact, social dominance, a trait typically associated with primary psychopathy (Lilienfeld & Widows, 2005), is likely responsible for the significant relationship between Factor 1 and bullying/harassing. Furthermore, the idea that bullying is used as a strategic behavior to gain dominance may be particularly important to consider for those characterized by Machiavellian traits as well. Considering these individuals often use manipulative tactics to pursue power (Christie & Geis, 1970), bullying may be contingent on their situational context. For instance, these individuals may only bully when they see it as an appropriate strategy to achieve dominance. However, it is possible that in order to maintain a

reputation of superficial charm, these individuals refrain from bullying/harassing and perhaps engage in more subtle forms of antagonism.

Anti-authority misbehavior

Lastly, as expected, grandiose narcissism was found to significantly predict anti-authority misbehavior. Due to grandiose fantasies, narcissistic individuals are often convinced that they deserve special treatment. The strong sense of entitlement belonging to narcissistic individuals (Raskin & Hall, 1979), coupled with a belief that the usual standards do not apply to them, likely increases the likelihood of acting out toward authority.

Cheating

The limited research considering the degree to which dark triad traits predict cheating suggests that psychopathy, measured as one construct, positively predicts behavioral measures of cheating (Nathanson et al., 2006b; Williams et al., 2010). Although the current study was interested in the distinct factors of psychopathy, the relationship between total psychopathy scores and cheating was explored, and no significant relationship was found. Furthermore, it has been found that participants scoring high in Machiavellianism cheated significantly more often when presented with the opportunity to cheat to avoid a consequence, as opposed to gain a reward (Flynn et al., 1987). However, based on the inconsistent results of the analyses obtained in the current study, no firm conclusions can be made as to whether the dark triad variables significantly predicted cheating on the anagram-cheating task. The contrasting findings may simply be due to a lack of power; only eight of the one hundred participants reported solving all three anagrams and were characterized as having cheated. This number is much lower than that what was expected considering the anagram-cheating task was adapted from a study finding 102 of its participants to cheat ($N = 664$; Hoffmann et al., 2015). However, the current study had a

considerably smaller sample size, and thus, a very small amount of "cheaters." The current study included undergraduates attending a criminal justice school, and as a consequence, these students may not have been as likely to actively misbehave as other undergraduate samples might have. With that being said, the current study did not use the same experimental conditions under which previous research found Machiavellianism to be significantly associated with cheating behavior ("cheat to avoid a consequence;" Flynn et al., 1987). The current study was interested in exploring the influence of the traits on cheating behavior when no incentive was offered for cheating; thus, a control group was used.

A recently published study by Jones and Paulhus (2017) explored the relationship between the dark triad traits and cheating using five behavioral studies of dishonesty. These researchers found that the frequency and nature of dishonesty was moderated by contextual factors such as level of risk, ego depletion, and target of deception. All three traits were related to dishonesty when there was no risk of being caught; only those high in psychopathy continued to cheat when punishment was a serious risk; when ego-depleted, individuals high in Machiavellianism engaged in reckless cheating; psychopathy and Machiavellianism were associated with blatant, intentional deception; lastly, individuals high in narcissism exhibited the greatest degree of private overclaiming. These findings suggest that under different conditions, each dark triad trait may interact differently with cheating. For instance, individuals with psychopathic traits have been found to have difficulty resisting immediate rewards, even when the risk of punishment is high (Crysel, Crosier, & Webster, 2013; Jones, 2014). In contrast, it is likely that individuals with Machiavellian traits use strategic manipulation as a means of exploiting scholastic situations. This requires cognitive resources, that when depleted of, may cause them to lose strategic advantage and behave more impulsively. Finally, those high in

narcissism have a grandiose belief in their superiority to others (Raskin & Hall, 1979). It may be that these individuals do not cheat to acquire resources, but rather cheat in order to confirm their intellectual superiority (Campbell & Foster, 2007; Jones & Paulhus, 2011b). In addition to the lack of power, the current study may not have found firm significant findings due to the fact that it did not account for particular situational factors that may uniquely interact with the dark triad traits to predict cheating behavior.

Limitations

The current study has a few limitations that future research should take into consideration. Most importantly, the current study had a small sample size ($N = 100$) and an exceptionally low incidence of cheating behavior ($n = 8$), resulting in a lack of power. Low statistical power negatively affects the likelihood that a statistically significant finding actually reflects a true effect. This explains the inconsistent results with respect to the influence of the dark triad traits on cheating behavior. Therefore, no firm conclusions can be drawn from these findings. Another limitation of the current study is that it did not control for social desirability. While the PPI-R has validity scales that assess over- and underreporting, the current study did not exclude any participants in order to avoid lowering the sample size. Sixteen participants would have been excluded for scoring 23 or more on the Deviant Responding scale ($n = 7$) or 38 or more on the Virtuous Responding scale ($n = 9$), as these scores on these scales have been found to represent dishonest responding (Anderson, Sellbom, Wygant, & Edens, 2013). Underreporting may have been partially responsible for lower PPI-R Factor 1 scores and/or antisocial behavior scores. This should be considered when interpreting the findings of the current study. Lastly, although statistically significant, the correlation between Mach-IV and PPI-R Machiavellian Egocentricity scores was lower than expected ($r = .54$), suggesting

differences in how the scales measure the construct. Mach-IV scores did not significantly correlate with hard drug abuse but were found to significantly predict the antisocial behavior in a regression controlling for the remaining dark triad predictors. Moreover, Mach-IV scores did not significantly correlate with antisocial behavior, whereas PPI-R Machiavellian Egocentricity scores were found to significantly correlate with several dimensions of antisocial behavior and total scores. Indeed, some researchers have questioned the validity of the Mach-IV (Hunter et al., 1982).

Future Directions

Future research should continue to examine the influence of the distinct factors of psychopathy, domains of narcissism, and Machiavellianism on antisocial behavior by implementing similar designs with larger and more diverse samples of college students. Although the results of the current study must be interpreted with caution, the significant findings suggest that the traits may be related to distinct dimensions of antisocial behavior (e.g., Factor 1 predicted bullying/harassing and total antisocial behavior; Factor 2 predicted soft drug abuse; Machiavellianism predicted hard drug abuse; grandiose narcissism predicted anti-authority misbehavior). These findings have implications for behavioral intervention with individuals characterized by the dark triad traits. Future research in this area may provide beneficial information that can be used to guide treatment for individuals with psychopathic, narcissistic, and/or Machiavellian traits. Additionally, subsequent research should assess cheating behavior while considering the distinct factors that may moderate this behavior in individuals with the dark triad traits (e.g., type of incentive offered, level of risk, ego depletion, target of deception). Future research exploring these complex relationships will lead to a deeper understanding of how the traits interact with cheating and possibly aid in preventing it.

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Table 1

Descriptive Statistics of Dark Triad Traits and Antisocial Behavior

	<i>R</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Dark Triad				
PPI Factor 1	87.00	110.52	17.22	
PPI Factor 2	128.00	148.36	24.29	
Grandiose Narcissism	4.39	3.65	.84	
Vulnerable Narcissism	4.33	3.19	.89	
Machiavellianism	2.60	2.82	.42	
Antisocial Behavior				
Total Antisocial Behavior	246.00	33.50	45.67	20
Soft Drug Abuse	38.75	2.01	5.46	.33
Hard Drug Abuse	1.67	.04	.19	.00
Minor Criminality	10.40	1.43	1.75	.85
Serious Criminality	2.70	.36	.52	.20
Driving Misbehavior	6.00	.54	1.04	.00
Bullying/Harassing	14.38	1.14	2.54	.19
Anti-authority Misbehavior	125.63	2.96	12.67	.83

Table 2

Correlations of Dark Triad Traits and Antisocial Behavior

	PPI Factor 1	PPI Factor 2	GN	VN	MACH
Total Antisocial Behavior	.34**	.28**	.33**	.25*	.12
Soft Drug Abuse	.09	.31**	.23*	.16	.13
Hard Drug Abuse	.19	.15	.24*	.16	-.07
Minor Criminality	.22*	.19	.22*	.19	.06
Serious Criminality	.25*	.14	.13	.08	.00
Driving Misbehavior	.14	-.01	.18	.12	.05
Bullying/Harassing	.23*	.19	.27**	.22*	.15
Anti-authority Misbehavior	.24*	.22*	.38**	.26*	.20

Note. *p<.05 **p<.01

Appendix A**THE CITY UNIVERSITY OF NEW YORK***John Jay College of Criminal Justice**Department of Psychology***ORAL OR INTERNET BASED INFORMED CONSENT SCRIPT****Title of Research Study:** The Influence of Personality Traits on Behavior**Principal Investigator:** Rebecca Cheiffetz, B.S.
Diana Falkenbach, Ph.D

You are being asked to participate in this research study because you are an undergraduate student at John Jay College of Criminal Justice. In order to participate in this study, you must be 18 years of age or older. The purpose of this research study is to test whether certain personality traits lead to unique forms of behavior. For scientific reasons, this consent form does not provide full details about the research, but you will receive more information after you've completed the study. If you agree to participate, we will ask you to fill out a series of questions pertaining to demographic information, complete an anagram word task, and then fill out a set of questionnaires. This should take approximately an hour. You can skip any questions that you do not wish to answer and will receive compensation in the form of 2 SONA credits regardless of whether or not you fully complete the study.

Your participation in this online survey involves risks similar to a person's everyday use of the Internet. That being said, participation in this study involves minimal risk, and we will do our best to protect your confidentiality. We will not request identifiers or information that could identify you, and your responses will not be linked to your name or associated with the awarding of SONA credits. Your participation in this research is voluntary. If you have any questions, you can contact the principal investigator, Rebecca Cheiffetz, at rebecca.cheiffetz@jjay.cuny.edu. If you have any questions about your rights as a research participant or if you would like to talk to someone other than the researchers, you can contact CUNY Research Compliance Administrator at 646-664-8918 or HRPP@cuny.edu.

Appendix B

Debriefing Statement

The purpose of this study was to test whether certain personality traits lead to unique forms of behavior. Additionally, the researchers were interested in understanding the impact of motivation on this relationship. At the beginning of the study you completed an anagram word task. You *may* or *may not* have been informed that if you solved all three anagrams correctly you would be entered into a lottery for the chance to win a \$100 gift card. However, there is no lottery. The third word assigned in the task was unsolvable, making it impossible to solve all three and therefore be entered into the lottery. This was done to study motivation. We could not tell you about this part of the study until now because we needed you to respond in a natural way. It is important that you understand it does not matter how many anagrams you solved or did not solve, and that this does not affect your SONA credits.

If you feel you have experienced a significant amount of stress, please note that you may make use of John Jay's Counseling Services Center by calling them at (212) 237-8111 and making an appointment or visiting them in Room L.68.00 at 524 West 59th Street New York, NY 10019. If you have any other questions about this research study or would like to receive a copy of this form, feel free to email the experimenter (Rebecca Cheiffetz) at rebecca.cheiffetz@jjay.cuny.edu.

Please keep in mind that because this study involves information that the participant does not know about before starting, it is very important that you do not discuss your experiences with anyone who could potentially be a participant in this study. If you do disclose information about the study to other people, this could jeopardize the integrity of our results. Thank you for participating!