

THEORETICAL AND EMPIRICAL CONCERNS REGARDING THE DARK TRIAD AS A CONSTRUCT

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Psychopathy, Machiavellianism, and narcissism are three constructs that have been collectively referred to as the “Dark Triad.” Although researchers were initially interested in comparing similarities and differences between these constructs, in recent years researchers have combined items from the measures to create an overall measure of the Dark Triad as a single construct. The authors raise theoretical concerns regarding this approach, arguing that Machiavellianism and narcissism can be viewed as features or traits of psychopathy. They also provide empirical evidence from a large, correctional sample ($N = 972$) to demonstrate that a latent Dark Triad could not be estimated using confirmatory factor analysis because more than 100% of the variance was attributed to psychopathy. Moreover, the Dark Triad traits, by and large, did not confer incremental validity above and beyond psychopathy, and none of the interaction models indicated that additional information would be gained from considering the Dark Triad traits in constellation.

The term *Dark Triad* was first coined by Paulhus and Williams (2002) to refer to three of the socially aversive personalities that appear to share some commonalities—each describes a “socially malevolent character with behavior tendencies toward self-promotion, emotional coldness, duplicity, and aggressiveness” (p. 557). Machiavellianism describes a cold and manipulative interpersonal style. Narcissism describes traits such as grandiosity, entitlement, dominance, and superiority. Psychopathy describes individuals who are manipulative, callous, unempathic, impulsive, and risk-taking.

As previous researchers noted the overlap between these constructs, Paulhus and Williams (2002) aimed to test whether the three constructs, as measured by self-report in nonclinical samples, were equivalent. Results

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indicated that whereas the three constructs demonstrated some similar correlates, there were unique external correlates that were not consistent among the three. After publication of this article, the concept of the Dark Triad of personality gained popularity as a construct in and of itself (e.g., Hodson, Hogg, & MacInnis, 2009; Jakobwitz & Egan, 2006; Lee & Ashton, 2005), with numerous studies measuring these three constructs simultaneously. A recent review of this literature notes that work on the Dark Triad has been cited more than 350 times (Furnham, Richards, & Paulhus, 2013).

Recently, researchers have combined psychopathy, narcissism, and Machiavellian measures into one overall index of the Dark Triad. Jonason, Li, Webster, and Schmitt (2009) were the first to contend that the three constructs may best be viewed as one particular social orientation, emphasizing a social style aimed toward exploiting others in the short term. In addition to examining the three constructs separately, Jonason et al. (2009) used the scales to create a composite measure of the Dark Triad. They standardized (*z*-scored) overall scores on each of the three self-report measures and then averaged the three. This approach has since been used in several subsequent studies (Jonason & Kavanagh, 2010; Jonason, Li, & Buss, 2010; Jonason, Li, & Teicher, 2010; Jonason & Tost, 2010). More recently, Jonason and Webster (2010) have created a shortened version of the Dark Triad, "The Dirty Dozen," by reducing the total measure to twelve items, which has been implemented in several studies (Jonason & Schmitt, 2012; Jonason, Slomski, & Partyka, 2012; Jonason, Valentine, Li, & Harbeson, 2011). Another combined measure is the Short-D3 (Jones & Paulhus, 2010), which contains 27 similarly formatted items measuring the subscales of narcissism, Machiavellianism, and psychopathy. Some researchers using this scale have summed the three subscales to form a total Dark Triad score (Baughman, Dearing, Giammarco, & Vernon, 2012), although it can also be used to examine each construct separately (Arvan, 2013a, 2013b). Although research on the overarching Dark Triad construct has gained popularity, we believe there are a number of concerns regarding its conceptualization as a composite construct and measure. Here, we present these theoretical concerns and then conduct empirical tests of the usefulness of the Dark Triad construct using data from a large archival sample of male and female offenders.

THEORETICAL ISSUES: SHOULD NARCISSISM, MACHIAVELLIANISM, AND PSYCHOPATHY BE COMBINED INTO ONE MEASURE?

NARCISSISM AND MACHIAVELLIANISM CAN BE SUBSUMED WITHIN THE CONSTRUCT OF PSYCHOPATHY

Although each of these constructs is certainly worthy of empirical examination, combining the three measures into one construct may not accurately reflect the complex relationships among them. The primary concern with combining these measures as three equal contributors to the Dark Triad is that narcissism (from the perspective of the Dark Triad; see the following discussion) and Machiavellianism can be subsumed within the construct of psychopathy. Psychopathy is a much broader construct and is often described

as a “constellation” of interpersonal, affective, and behavioral traits. As we will discuss, the concepts of grandiose narcissism and Machiavellianism are included in most descriptions and operationalizations of psychopathy, primarily in descriptions of the interpersonal and affective features, raising questions about whether they should be viewed as parallel constructs.

Narcissism. Although the breadth and scope of conceptions of narcissism can vary across authors, narcissism is most often measured in the Dark Triad with the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). The NPI, which focuses on the concept of grandiose narcissism, is a 40-item scale made up of seven subscales: authority, self-sufficiency, superiority, exhibitionism, exploitativeness, vanity, and entitlement. These concepts are frequently used in descriptions of psychopathy. For example, “pathological egocentricity” is one of the criteria that Cleckley (1976) listed in his early descriptions of psychopathy. He wrote:

The psychopath is always distinguished by egocentricity. This is usually of a degree not seen in ordinary people and often is little short of astonishing. How obviously this quality will be expressed in vanity or self-esteem will vary with the shrewdness of the subject and with his other complexities. Deeper probing will always reveal a self-centeredness that is apparently unmodifiable and all but complete. (p. 346)

In Hare’s (2003) Psychopathy Checklist–Revised (PCL-R, the concept of narcissism is subsumed in the criterion “grandiose sense of self-worth.” This describes individuals who are self-assured and opinionated, and who frequently brag about themselves. Some self-report measures of psychopathy also include items assessing narcissism. One example of this is the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996), which assesses both narcissism and Machiavellianism in a subscale called Machiavellian Egocentricity. Items such as “Frankly, I believe I am more important than most people” directly assess the construct of narcissism. In addition, the subscale Social Potency captures some of the social aspects of narcissism with items such as “I’m hardly ever the ‘life of the party [R].’” As with narcissism, however, the conceptualization of psychopathy varies across authors. Interestingly, the Self-Report Psychopathy Scale (SRP-III; Paulhus, Neumann, & Hare, in press), which is based on the PCL-R and is most commonly used in assessments of the Dark Triad, lacks items that specifically assess grandiose narcissism. As discussed later, these differences in the content of different measures of psychopathy may affect statistical evaluations of the usefulness of the Dark Triad composite measure.

The NPI undoubtedly assesses narcissism more thoroughly than extant measures of psychopathy. However, this measure focuses exclusively on the grandiose aspects of narcissism (Cain, Pincus, & Ansell, 2008; Miller & Campbell, 2008) and does not assess the vulnerable components (Cain et al., 2008; Wink, 1991). Our argument is that this general concept of grandiose narcissism, which can be measured using the NPI, is included in most conceptualizations of psychopathy. We do not make any claims about the concept of vulnerable narcissism. In sum, it is questionable whether summary scores for grandiose narcissism as measured by the NPI (i.e., the relevant

variance is subsumed within psychopathy) and self-report psychopathy measures should be combined as they are in the Dark Triad.

Machiavellianism. Machiavellianism was adapted as a measure of personality variation from a selection of statements from Niccolò Machiavelli's original books (Christie & Geis, 1970). Machiavellianism is most often measured in the Dark Triad with the Machiavellianism Inventory-Version IV (MACH-IV; Christie & Geis, 1970). This 20-item measure contains four subscales: Deceit, Flattery, Immorality, and Cynicism. The concept of Machiavellianism, or a manipulative and exploitative style, has been described as a central feature of psychopathy, starting with very early accounts. Cleckley (1976) described the career of the psychopath as "full of exploits, any one of which would wither even the more callous representatives of the ordinary man" (p. 343). To our knowledge, all current measures of psychopathy include the concept of Machiavellianism. The PCL-R criteria Pathological Lying, Cunning/Manipulative, Callousness, and Parasitic Lifestyle describe aspects of Machiavellianism. The PPI subscale of Machiavellian Egocentricity contains items that are nearly identical to those found in the MACH-IV scale. For example, the PPI item "I often tell people only the part of the truth they want to hear" is nearly identical to "The best way to handle people is to tell them what they want to hear" on the MACH-IV scale. The PPI item "I sometimes try to get others to bend the rules for me if I can't change them any other way" is similar to the MACH-IV item "It's hard to get ahead without cutting corners here and there." Similarly, the SRP-III has a number of items that assess Machiavellianism, such as questions about taking advantage of others and telling people what they want to hear (Paulhus, Newman, & Hare, in press).

The construct of Machiavellianism so closely resembles the core features of psychopathy that it has been argued that Machiavellianism and psychopathy are essentially the same personality construct, but have been studied in different subdisciplines of psychology—personality and social psychology and clinical psychology (McHoskey, Worzel, & Szyarto, 1998). The MACH-IV scale has been found to correlate strongly with both primary and secondary psychopathy (Jakobwitz & Egan, 2006; McHoskey et al., 1998). Primary psychopathy and Machiavellianism have not been found to show any noteworthy differential relations with higher-order dimensions of personality (Lee & Ashton, 2005). We argue that Machiavellianism is an essential feature in descriptions of psychopathy, but that psychopathy is a broader construct, involving additional features such as impulsivity and risk-taking.

Additional evidence for the idea that both Machiavellianism and narcissism are components of psychopathy comes from a recent study examining how and why the "dark personalities" overlap (Jones & Figueredo, 2013). The authors conducted a series of latent variable procedures using the same self-report measures that are commonly used in studies of the Dark Triad (SRP-III, NPI, MACH-IV). They found that the dark personality emerges when callousness and manipulation come together (Jones & Figueredo, 2013). Both of these features are already assessed by psychopathy measures. Indeed, Jones and Figueredo note that "Hare's Factor 1 – manipulation –

callousness – emerged as common dark core that accounts for the overlap among antagonistic traits” (p. 521). Based on this finding and the information we have presented, it is unclear how adding measures of narcissism and Machiavellianism to a psychopathy measure will create something that is incrementally more informative.

SIMILARITIES BETWEEN MEASURES DO NOT IMPLY THEORETICAL RATIONALE FOR CREATING A COMPOSITE MEASURE

Researchers examining the Dark Triad composite have cited several reasons that it should be treated as a unitary construct (Jonason & Webster, 2010). The first is that the Dark Triad can be thought of as a short-term, exploitive social strategy. They note that each aspect of the Dark Triad shares some similar features—a degree of self-aggrandizement, aggression, and duplicity. Although the composite Dark Triad score has indeed been found to correlate with measures of short-term mating and other life-history variables (Jonason et al., 2009), it is not clear how this implies that these three scales in particular should be combined. If narcissism and Machiavellianism are features of psychopathy, these types of results would be expected. Furthermore, other personality constructs such as sensation-seeking, risk-taking, and impulsivity have also been found to correlate with short-term mating strategies, yet these personality constructs are not included in the Dark Triad. Finally, we would argue that psychopathy alone describes individuals with this short-term, exploitive strategy, and it is not clear how the incorporation of Machiavellianism and narcissism provides additional information.

A second reason that has been provided to support the use of a composite construct is that psychopathy, narcissism, and Machiavellianism have been found to load on a single latent factor (Hodson et al., 2009; Jonason & Webster, 2010). Because the three measures are often intercorrelated (although some studies using the same measures do not always observe a correlation between narcissism and Machiavellianism; e.g., Jonason & Kavanagh, 2010; Jonason, Lyons, Bethell, & Ross, 2013), researchers conducted exploratory factor analyses on all three measures and found that a one-factor solution explained 53% of the variance (Jonason et al., 2009). Confirmatory factor analyses revealed that all three measures correlated significantly with the single latent factor. Based on this evidence, they concluded that “the three measures of the Dark Triad can be treated as a composite” (Jonason et al., 2009, p. 10). Similarly, Jakobwitz and Egan (2006) conducted a principal components analysis of primary and secondary psychopathy, Machiavellianism, and narcissism, along with the NEO-FFI-R in order to determine whether the scales of the Dark Triad reflected the same underlying construct. They found that primary psychopathy, Machiavellianism, and narcissism loaded onto one factor, while secondary psychopathy was split between that factor and a second factor. Although the authors use this finding to suggest that the Dark Triad is “essentially unitary,” it may also reflect the idea that narcissism and Machiavellianism are *indicators* of a primary psychopathy construct. As such, it would be expected that the scales would load onto the same factor.

Finally, proponents of the Dark Triad composite note that the correlations between the composite score and external factors are sometimes stronger than correlations between the individual Dark Triad measures and external factors. Although this is possible due to the increased variability of what reflects the commonality among two or three of the measures (i.e., the extant factor is likely correlated highly with two or more of the individual measures), in most instances, individual measures typically outperform the composite for more specific external criterion variables.

If the Dark Triad composite is going to be used in further research, there should be theoretical justification for why these three constructs, to the exclusion of other constructs, should be considered together. For example, some authors have recently proposed that a measure of sadistic traits should also be included, making it the “Dark Tetrad” of personality traits (Buckels, Worzel, & Szyarto, 2013; Chabrol, Van Leeuwen, Rodgers, & Sejourne, 2009). In the study by Chabrol et al. (2009), sadistic traits were found to correlate with psychopathy, Machiavellianism, and narcissism, and thus the authors suggested that sadistic traits be included in the Dark Triad. In our view, the idea that measures load onto a latent factor or demonstrate strong correlations is not sufficient to justify combining measures into a composite; rather, there must be a solid theoretical basis for their inclusion. For example, personality traits such as (lack of) empathy are also correlated with total psychopathy scores (Glenn, Iyer, Graham, Koleva, & Haidt, 2009) and would presumably load onto the same factor as primary psychopathy. Yet it would make little sense to combine the total scores on measures of empathy and psychopathy, as it would essentially overweight the importance of empathy within the construct of psychopathy. The study by Buckels et al. (2013) posits that sadism should be included in the Dark Triad because it was found to be a unique predictor of a behavioral measure of sadism after controlling for the Dark Triad. In this case, the theoretical rationale for including sadism is similarly unclear; the idea that a measure of sadism predicts sadistic behavior better than measures that are not explicitly designed to measure sadistic behavior seems insufficient to justify grouping these constructs together. As stated previously, we believe that the concepts of psychopathy, Machiavellianism, and narcissism are each worthy of being examined separately, but we question whether there is significant justification for grouping them (alone or with other measures) into one construct.

EMPIRICAL TESTS: IS THE DARK TRIAD MORE INFORMATIVE?

In addition to the theoretical concerns raised here, a central question is whether examining the Dark Triad as a composite score is actually more informative than examining psychopathy, Machiavellianism, and narcissism as separate constructs. In the current study, we used the PPI Total Score to index the psychopathy construct. This is particularly useful for our empirical test, because the PPI is a comprehensive measure of psychopathy that incorporates a wide range of psychopathy personality theories (e.g., Cleckley, Hare, Lykken, McCord & McCord) and has substantial support with respect to

construct validity (see Marcus, Fulton, & Edens, 2013, and Miller & Lynam, 2012, for meta-analyses), which is necessary to test our main hypothesis that the remaining Dark Triad traits overlap with psychopathy. There are two methods to examine whether the traits comprising the Dark Triad should be considered in conjunction: examination of additive and nonadditive effects. More specifically, if the Dark Triad traits provide incremental validity above and beyond psychopathy (i.e., additive effect), it would indicate that something more is to be gained when considering these additional traits. Another important approach concerns nonadditive effects. To truly state that a set of traits should be considered in conjunction (i.e., elevation of all three traits means something more than any one trait elevated in isolation, which is hypothesized when combining the measures into a global composite), an interactive effect should be observed, which would confer additional meaning beyond their additive effects (i.e., considering these traits individually). The current study sought to examine these effects in a sample of incarcerated men and women using external criteria reflecting a range of personality and psychopathology characteristics relevant to psychopathy specifically and to the Dark Triad more broadly. Based on the conceptual arguments just proposed, we predicted that the Dark Triad would not confer incremental, meaningful information in psychopathy-relevant and other-relevant criteria.

METHOD

PARTICIPANTS

Two archival datasets that consisted of 703 male and 269 female prison inmates from the Michigan Department of Correction (MDOC) and Ohio Department of Rehabilitation and Correction (ODRC), respectively, were combined for the current study. Participants with invalid profiles per standard MMPI-2-RF criteria (Cannot Say ≥ 18 , VRIN-r or TRIN-r $\geq 80T$, F-r $\geq 120T$, Fp-r ≥ 100 , or L-r $\geq 80T$; Ben-Porath & Tellegen, 2008) were excluded (16.7% of sample), because invalid profiles will merely introduce error variance into the analyses since participants with such profiles are not providing an accurate standing on the constructs of interest. The final sample consisted of 616 men and 194 women. They ranged in age from 18 to 66, with a mean of 29.07 ($SD = 7.01$). In terms of ethnic background in the female sample, 59% of participants were Caucasian, whereas 28% percent were African American. The remaining 13% of participants were of other or mixed ethnicities. Although race/ethnicity data were not available for this specific male sample, other research from this setting has indicated that 45% are Caucasian, 34% are African American, and 21% are of other or mixed ethnicities.¹

1. Although most studies to date have used nonclinical samples, the Dark Triad would be appropriately examined in an offender sample for two reasons. The Dark Triad constructs, especially psychopathy, have implications for antisocial and violent behavior, which are more prevalent among offenders. Moreover, these dimensional personality constructs likely have greater range and more variability in offender samples. For instance, the NPI and the MACH-IV are associated with greater means ($M_s = 14.77$ vs. 12.08 [NPI] and 3.26 vs. 2.87 [MACH-IV]) and variability ($SD_s = 6.96$ vs. 6.48 [NPI] and 0.76 vs. 0.35 [MACH-IV]) in the current study compared to a large nonclinical sample that used the same measures (e.g., Jonason & Kavanagh, 2010).

MEASURES

Psychopathic Personality Inventory. The PPI (Lilienfeld & Andrews, 1996) is a 187-item self-report inventory of psychopathy that aggregates into a total score, two factor scores, and eight subscale scores (Machiavellian Egocentricity, Social Potency, Fearlessness, Coldheartedness, Impulsive Nonconformity, Carefree Nonplanfulness, Blame Externalization, and Stress Immunity). The PPI Total score is derived from a sum of all eight subscales. Following Bening, Patrick, Hicks, Blonigen, and Krueger (2003), scores on the two PPI factors (Fearless-Dominance and Impulsive-Antisociality) were calculated by standardizing and then averaging scores for the PPI subscales that loaded preferentially on each factor. Internal consistencies (Cronbach's alphas) in the present study were .95 (PPI Total), .91 (Fearless-Dominance), and .94 (Impulsive-Antisociality). PPI subscale score internal consistencies ranged from .76 (Impulsive Nonconformity) to .86 (Machiavellian Egocentricity).

Machiavellianism Inventory-Version IV. The MACH-IV (Christie & Geis, 1970) is a 20-item scale that measures attitudes and behaviors associated with the Machiavellian personality construct. Machiavellianism correlates moderately with self-report measures of psychopathy and narcissism (Paulhus & Williams, 2002). Internal consistency (Cronbach's alpha) for the MACH-IV was .77 in the present study.

Narcissistic Personality Inventory. The NPI (Raskin & Terry, 1988) consists of 40 items designed to measure the construct of *DSM-III* narcissistic personality disorder (American Psychiatric Association, 1980). This measure has been found to be highly associated with measures of interpersonal dominance and observer ratings of narcissism, self-confidence, and self-centeredness (Raskin & Terry, 1988). Internal consistency (Cronbach's alpha) for the NPI was .92 in the present study.

Emotional Empathy Scale. The EES (Mehrabian & Epstein, 1972) is a 33-item scale designed to measure a person's reaction to and ability to vicariously experience the emotional states of others. Internal consistency (Cronbach's alpha) for the EES was .74 in the present study.

Sensation-Seeking Scale. The SSS (Zuckerman, 1979) is a 40-item measure of a person's level of behavioral disinhibition and tendency to engage in thrilling, novel, or dangerous activities. The SSS yields a total score and four subscale scores: Disinhibition, Boredom Susceptibility, Thrill and Adventure Seeking, and Experience Seeking. Internal consistencies (Cronbach's alphas) in the present study were .91 (SSS Total), .81 (SSS Disinhibition), .71 (SSS Boredom Susceptibility), .85 (SSS Thrill and Adventure Seeking), and .69 (SSS Experience Seeking).

Big Five Inventory. The BFI (John, Donahue, & Kentle, 1991) is a 44-item measure that provides a brief and valid assessment of the domains of the Five Factor Model of personality (John & Srivastava, 1999). The domains

include Extraversion, Neuroticism, Openness to Experience, Agreeableness, and Conscientiousness. Confirmatory factor analysis with these domains has shown strong convergence with the five factors of the NEO-PI-R (John & Srivastava, 1999). Internal consistencies (Cronbach's alphas) in the present study were .81 (BFI Extraversion), .85 (BFI Agreeableness), .85 (BFI Conscientiousness), .82 (BFI Neuroticism), and .80 (BFI Openness to Experience).

Emotionality-Activity-Sociability-Impulsivity Inventory. The EASI is a 25-item inventory developed by Buss and Plomin (1975, 1984) to measure their model of temperament traits. Emotionality refers to an individual's sensitivity to negative emotions and the intensity of his or her emotional response; this scale is composed of three subscales: Fearfulness, Anger, and Distress. Activity refers to a person's energy level and his or her tendency to engage in multiple activities. Sociability refers to an individual's preference for the company and attention of others. Impulsivity refers to the tendency of an individual to think before acting and to inhibit behavioral responses. Internal consistencies (Cronbach's alphas) in the present study were .64 (EASI Sociability), .67 (EASI Activation), .63 (EASI Impulsivity), .62 (EASI Fear), .75 (EASI Distress), and .65 (EASI Anger). Although these coefficients are lower than typically preferred, these scales are quite short. Average interitem correlates (range = .25 [impulsivity] to .43 [distress]) were in the acceptable range.

Behavioral Activation and Inhibition Scales. The BIS/BAS scales (Carver & White, 1994) consist of 20 self-report items designed to measure the constructs of Gray (1987). The BIS construct is measured using one subscale (7 items) that assesses sensitivity to punishment. The BAS construct is measured using three subscales that assess sensitivity to reward, motivation to seek reward, and willingness to approach rewarding novel stimuli. These three subscales form a higher-order BAS factor (13 items; Jorm et al., 1999). Recent research using the BIS/BAS scales with an inmate population has shown the scales to have good internal consistency (e.g., Wallace, Malterer, & Newman, 2009).

MMPI-2-RF. The MMPI-2-RF was administered in the ODRC sample, whereas the MMPI-2 was administered in the MDOC sample. MMPI-2-RF scales were scored from MMPI-2 administration item data, as the entire MMPI-2-RF item pool can be derived from the original test and the same normative sample is used with a few modifications (see Ben-Porath & Tellegen, 2008). The MMPI-2-RF Technical Manual provides extensive reliability and validity data for this instrument (Tellegen & Ben-Porath, 2008). In addition, research has shown that MMPI-2-RF scale scores derived from administration of the 567-item MMPI-2 booklet (used in this study) are interchangeable with results obtained from administration of the 338-item MMPI-2-RF booklet (Tellegen & Ben-Porath, 2008; Van Der Heijden, Egger, & Derksen, 2010).

PROCEDURE

Data were collected at both sites in group format. In the MDOC sample, the male inmates were administered the MMPI-2 as part of standard intake procedure at a Reception and Guidance center for processing into the MDOC system, and then administered other study measures 2–3 days later. They were provided cookies and juice as a token of appreciation for their participation. In the ODRC sample, the female inmates completed all measures at the same time. In both data collections, measures were administered in randomized order.

RESULTS

ASSOCIATIONS BETWEEN DARK TRIAD CONSTRUCTS

We first examined associations between PPI, NPI, and MACH-IV scale scores. Although PPI scores were positively correlated with NPI ($r = .50, p < .001$) and MACH-IV ($r = .52, p < .001$) scores, NPI and MACH-IV scores only weakly associated with one another ($r = .15, p < .001$).

We next examined the degree to which PPI, NPI, and MACH-IV scores were equally predicted by a latent construct reflecting the Dark Triad. We therefore estimated a latent measurement model in which latent Dark Triad factors explain variance in PPI, NPI, and MACH-IV scores. Because this model is just identified, model fit was perfect. The model could not be appropriately estimated due to a nonpositive definite matrix, as a greater than 100% variance was explained in PPI scores ($\lambda_{\text{STD}} = 1.307, p < .001$), whereas the relative proportions of variance explained in NPI ($\lambda_{\text{STD}} = .387, p < .001$) and MACH-IV ($\lambda_{\text{STD}} = .392, p < .001$) were considerably less. Thus, PPI scores were clearly definitional of the latent Dark Triad construct to an extent that it could not be appropriately estimated.

RELATIVE ASSOCIATIONS FOR PPI AND DARK TRIAD

We next examined whether a Dark Triad score would provide any predictive utility above and beyond PPI scores. We calculated a Dark Triad score by first standardizing the PPI, NPI, and MACH-IV scores and averaging them into a total score, as in Jonason et al. (2009). We also calculated a residualized Dark Triad score from which psychopathy variance had been removed by regressing the Dark Triad total score onto PPI scores and saving the residual (henceforth, DT-R). In this way, the remainder of the DT could be compared more directly to psychopathy. We calculated Pearson zero-order correlations between a range of personality trait criteria and the three (PPI, DT, and DT-R) scores. These are reported in Table 1. Because of the large number of correlations, we used a Bonferroni-corrected alpha level of .001 (.05/54 number of criteria) to account for family-wise error.

As is evident in Table 1, PPI scores were moderately to largely associated with a range of conceptually relevant personality traits, including (low) empathy, sensation seeking, impulsivity, and anger. PPI scores were also broadly

TABLE 1. Correlations Between Psychopathy, Dark Triad, and Residualized Dark Triad Scores and External Criterion Measures

	PPI	Dark Triad	DT-R
Narrowband Personality Constructs			
Emotional Empathy Scale	-.45*	-.42*	-.04
Sensation Seeking Scale - Total	.67*	.57*	-.03
SSS Disinhibition	.65*	.62*	.10
SSS Boredom Susceptibility	.56*	.54*	.11
SSS Thrill and Adventure Seeking	.36*	.22*	-.20*
SSS Experience Seeking	.24*	.18*	-.06
Broadband Personality Constructs			
EASI Emotionality: Fear	-.15*	-.16*	.05
EASI Emotionality: Distress	.03	.01	-.04
EASI Emotionality: Anger	.38*	.40*	.14*
EASI Activity	.21*	.22*	.07
EASI Sociability	.07	.05	-.04
EASI Impulsivity	.42*	.34*	-.05
BFI Neuroticism	-.07	-.07	-.03
BFI Extroversion	.22*	.21*	.05
BFI Openness to Experience	.08	.13*	.13*
BFI Agreeableness	-.47*	-.48*	-.13*
BFI Conscientiousness	-.39*	-.29*	.10
Behavioral Inhibition System	-.42*	-.36*	.02
Behavioral Activation System	.20*	.24*	.13*

Note. PPI = Psychopathic Personality Inventory, DT-R = Residualized Dark Triad, SSS = Sensation Seeking Scale, EASI = Emotionality-Activity-Sociability-Impulsivity Temperament Survey, and BFI = Big Five Inventory. * $p < .001$.

associated with low agreeableness and conscientiousness from the FFM and low behavioral inhibition system. The PPI was also weakly correlated with extraversion, sociability, and the related tendency toward reward orientation. In terms of the MMPI-2-RF (see Table 2), the PPI scores were generally moderately to largely associated with a range of proclivities toward externalizing tendencies, and weakly associated with low internalizing, in particular fear. The DT scores generally followed the same pattern of correlations as the PPI, which is not surprising given that the PPI is part of the DT score. Where differences emerged, it was typically reflected in *worse* convergent validity for the DT, with the exception of measures reflecting interpersonal assertiveness and cynicism. Finally, in terms of the DT-R scores, which is essentially an indication of incremental validity above and beyond psychopathy, statistically significant correlations were observed for SSS Thrill and Adventure Seeking (in the opposite direction), anger, openness to experience, low agreeableness, and high behavioral activation system. With respect to the MMPI-2-RF, DT-R scores were significantly associated with scales indexing cynicism (RC3), interpersonal assertiveness, and self-assurance (RC9, IPP, and AGGR scales). DT-R scores were also significantly positively correlated with Multiple Specific Fears. All of these correlations were of weak magnitude.

TABLE 2. Correlations Between Psychopathy, Dark Triad, and Residualized Dark Triad Scores and MMPI-2-RF Scale Scores

	PPI	Dark Triad	DT-R
Higher-Order Scales			
Emotional-Internalizing Dysfunction	-.15*	-.14*	-.04
Thought Dysfunction	.01	.07	.11
Behavioral-Externalizing Dysfunction	.56*	.48*	-.02
Restructured Clinical Scales			
Demoralization	-.08	-.09	-.05
Somatic Complaints	-.13*	-.09	.07
Low Positive Emotions	-.11	-.14*	-.09
Cynicism	.18*	.26*	.22*
Antisocial Behavior	.40*	.30*	-.09
Ideas of Persecution	.05	.09	.09
Dysfunctional Negative Emotions	-.07	-.04	.05
Aberrant Experiences	.00	.04	.07
Hypomanic Activation	.39*	.41*	.15*
Interpersonal-Specific Problems Scales			
Suicide/Death Ideation	-.12	-.08	.06
Helplessness/Hopelessness	-.07	-.06	.00
Self-Doubt	-.15*	-.19*	-.12
Inefficacy	-.05	-.05	-.01
Stress/Worry	-.09	-.03	.08
Anxiety	-.06	-.04	.02
Anger Proneness	.15*	.18*	.11
Behavior-Restricting Fears	-.09	-.02	.11
Multiple Specific Fears	-.28*	-.17*	.15*
Externalizing-Specific Problems Scales			
Juvenile Conduct Problems	.44*	.36*	-.04
Substance Abuse	.25*	.17*	-.09
Aggression	.29*	.29*	.07
Activation	.08	.08	.03
Interpersonal-Specific Problems Scales			
Family Problems	.06	.03	-.04
Interpersonal Passivity	-.25*	-.32*	-.21*
Social Avoidance	-.27*	-.22*	.03
Shyness	-.17*	-.15*	.00
Disaffiliativeness	-.01	.03	.08
Personality Psychopathology Five Scales			
Aggressiveness	.36*	.42*	.22*
Psychoticism	.01	.06	.10
Disconstraint	.62*	.51*	-.06
Negative Emotionality/Neuroticism	-.09	-.05	.06
Introversi on/Low Positive Emotionality	-.28*	-.26*	-.03

Note. PPI = Psychopathic Personality Inventory, DT-R = Residualized Dark Triad. * $p < .001$.

INTERACTION EFFECTS

Finally, we examined whether psychopathy and the remainder of the Dark Triad would interact in predicting conceptually relevant criteria, which would serve as the ultimate test of whether these traits should be considered in conjunction.² We confined these analyses to the specific set of personality traits (i.e., non-MMPI-2-RF scales) to balance against the potential for Type II error. We conducted hierarchical linear regressions in which we entered PPI and DT-R scores in the first step and then tested the incremental contribution of a mean-centered PPI and DT-R product term in the second step prediction criterion variables. Because of the large number of regression equations calculated, we used a conservative alpha level of .002 (.05/19 analyses) to indicate statistical significance of the second step. These results are reported in Table 3. As is evident in this table, the interaction term failed to contribute incrementally to the prediction of a range of conceptually relevant personality traits.

DISCUSSION

In addition to questioning the theoretical rationale for integrating psychopathy, Machiavellianism, and narcissism into an overall Dark Triad construct, analyses from additive and nonadditive tests suggest that the value of the Dark Triad construct is limited. Confirmatory factor analysis revealed that the latent Dark Triad construct could not be estimated because more than 100% of the variance was already attributed to psychopathy. This indicates that psychopathy scores were overly definitional of the latent construct; in other words, the shared variance across the three indicators overpredicted psychopathy scores, whereas it only predicted variance in the other indicators to a minimal degree. Thus, the two remaining indicators overlapped with psychopathy to a degree where the latent construct was oversaturated by psychopathy-relevant variance.

Upon calculating the DT composite score, correlations between the Dark Triad and conceptually relevant personality traits were very similar to correlations between psychopathy and these traits. Additional analyses revealed that residualized DT scores resulted in mostly nonsignificant correlations with conceptually relevant personality traits. Weak correlations were observed between residualized DT scores and some personality traits (all $r < .22$). A few of the correlations are of note. Two correlations contradicted expectations; a negative correlation was observed with Thrill and Adventure Seeking and a positive correlation was observed with Multiple Specific Fears. This contradicts the view that the Dark Triad reflects a fast life history strat-

2. We elected to formally test for two-way rather than three-way interactions (i.e., PPI, NPI, and MACH-IV scores) because of concerns associated with statistical power. However, the latter analyses were also conducted and we did not find evidence for an incremental contribution of a three-way interaction in any of the analyses, which was consistent with the results presented in the current study. These results are available upon request.

TABLE 3. Hierarchical Linear Regression Analyses Examining the Interaction Effects of Psychopathy and Residualized Dark Triad Scores in Predicting External Criteria

	Full Model				ΔR^2
	PPI	DT-R	PPI \times DT-R	Model R^2	
Emotional Empathy Scale	-.46*	-.04	.00	.21	.000
Sensation Seeking Scale - Total	.67*	-.04	.00	.45	.000
SSS Disinhibition	.65*	.10*	.01	.44	.000
SSS Boredom Susceptibility	.56*	.11*	-.01	.33	.000
SSS Thrill and Adventure Seeking	.37*	-.20*	.00	.17	.000
SSS Experience Seeking	.24*	-.07	.02	.06	.000
EASI Emotionality: Fear	-.15*	-.04	-.08	.03	.006
EASI Emotionality: Distress	.04	-.04	-.07	.01	.005
EASI Emotionality: Anger	.38*	.15*	-.05	.16	.002
EASI Activity	.21*	.07	-.06	.05	.003
EASI Sociability	.07	-.04	-.04	.01	.001
EASI Impulsivity	.42*	-.05	.01	.18	.000
BFI Neuroticism	-.06	-.02	-.10	.01	.010
BFI Extroversion	.21*	.05	.02	.05	.000
BFI Openness to Experience	.08	.13	.00	.02	.000
BFI Agreeableness	-.47*	-.14	.02	.24	.000
BFI Conscientiousness	-.39*	.10*	.00	.16	.000
Behavioral Inhibition System	-.41*	.03	-.07	.18	.005
Behavioral Activation System	.20*	.14	-.01	.02	.000

Note. All ΔR^2 model tests were nonsignificant at alpha of .002. PPI = Psychopathic Personality Inventory, DT-R = Residualized Dark Triad, SSS = Sensation Seeking Scale, EASI = Emotionality-Activity-Sociability-Impulsivity Temperament Survey, and BFI = Big Five Inventory. * $p < .001$.

egy characterized by a risk-taking and fearless personality when psychopathy is no longer considered. A small correlation was observed between the DT residual and cynicism, which is included in the MACH-IV. Although we argue that the other subscales of Machiavellianism relate to psychopathy (Deceit, Flattery, Immorality), we are not aware of specific references to cynicism in the psychopathy literature. This may in fact be a feature that is captured by the Dark Triad but not by psychopathy. Moreover, the pattern of findings also indicated that the DT residual was weakly, but incrementally, associated with assertiveness/dominance, as reflected in associations with MMPI-2-RF PSY-5 Aggressiveness and Interpersonal Passivity, but not aggression per se (as evident from the nonsignificant correlation with the MMPI-2-RF Aggression scale). We found the PPI to significantly predict aggression ($r = .36$), indicating that psychopathy scales successfully and uniquely capture personality features of aggression. This is similar to the findings of Paulhus and Williams (2002), who reported that behavioral measures of antisocial behavior were significantly predicted by psychopathy but not by Machiavellianism or narcissism.

The examination of nonadditive effects revealed that the interaction between psychopathy and the residualized DT failed to predict a range of personality traits, which is the ultimate test of whether a set of traits should

be considered in conjunction. Our results indicate that the elevation of the constructs of psychopathy, Machiavellianism, and narcissism does not provide any additional meaning than considering the elevation of these traits in isolation.

The majority of studies examining the Dark Triad use the SRP-III as a measure of psychopathy, whereas we used the PPI in the present study. Although these are both self-report measures of psychopathy, and both are associated with promising construct validity (e.g., Lilienfeld & Fowler, 2006; Neal & Sellbom, 2012), the two measures differ in their emphasis on specific aspects of psychopathy. As mentioned earlier, the SRP-III does not contain items that directly assess grandiose narcissism, despite the fact that the concept is described in the criteria established by both Cleckley and Hare. As a result, the SRP-III-based composite DT may appear more informative than one based on the PPI. The PPI arguably places more emphasis on interpersonal and affective personality features of psychopathy, and therefore may provide more thorough coverage of Machiavellianism and narcissism traits specifically (e.g., Machiavellian Egocentricity, Social Potency, Coldheartedness) relative to other commonly used self-report psychopathy measures.

In terms of broader personality psychopathology implications, it is important to consider the ultimate utility of trying to operationalize these overlapping constructs in various predefined trait configurations. A better approach would seem to emphasize a multivariate structural model of pathological personality traits, such as the one appearing in *DSM-5* Section III (see also Anderson, Sellbom, Wygant, Salekin, & Krueger, 2014; Hopwood & Sellbom, 2013). The emphasis on and bootstrapping of personality traits onto particular syndromes (e.g., psychopathy, Dark Triad) about which scholars cannot find sufficient agreement is limiting with respect to characterizing individuals in terms of personality pathology. A multivariate structural trait model, however, is not constrained by any such conceptualization, and an emphasis on an individual's actual trait constellation (and the associated description) rather than selecting a particular configuration of traits to indicate a predefined disorder might prove more useful in both research and practice. For instance, the description derived from an individual high on callousness, hostility, manipulativeness, deceitfulness, grandiosity, impulsivity, and risk-taking might indicate what we traditionally conceptualize as "psychopathy" or the "Dark Triad." However, a different constellation (e.g., callousness, hostility, deceitfulness, and manipulativeness, but low levels of impulsivity and irresponsibility) might not directly conform to these traditional constructs, but nonetheless reflect a potential social predator with sufficient levels of intelligence and conscientiousness to navigate society through exploitation and manipulation without perhaps being identified by the criminal justice system. Thus, a shift toward embracing descriptions based on trait constellations rather than fitting these traits onto potential fallacious criteria (Dark Triad, psychopathy, etc.) might allow for improved construct validity for the new model (Cronbach & Meehl, 1955).

LIMITATIONS

We acknowledge that assessment of the usefulness of the Dark Triad relies partly on the properties of the measures used. Jonason and Webster (2010) point out several concerns with the MACH-IV and NPI, including problems with internal consistency, response biases, and the differences in measurement techniques. However, the crux of our argument lies in the theoretical issues associated with integrating the three measures into one, regardless of how precise the measurement of the constructs is. In the current study, there is very little support for treating the Dark Triad as a global construct when using a comprehensive measure of psychopathy.

CONCLUSIONS

In sum, although comparisons between psychopathy, Machiavellianism, and narcissism are worthy of examination, the combination of these constructs into a single measure is theoretically problematic and its usefulness appears limited. The creation of a composite measure of the Dark Triad essentially creates a measure of psychopathy that overemphasizes grandiose narcissism and Machiavellianism without a sufficient rationale for doing so. Research examining the Dark Triad has grown exponentially in the past several years, raising concerns that it further confuses, rather than clarifies, the construct of psychopathy. The issues raised here may reflect a broader issue in the field that rather than trying to operationalize these overlapping constructs in various predefined trait configurations, there is a need for a comprehensive multivariate structural model of pathological personality traits.

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