



# The Dark Triad and facets of personality

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## Abstract

This study investigates the Dark Triad in relation to the Big Five facets and the putative redundancy of Machiavellianism and psychopathy. A sample of 442 participants completed measures of narcissism, Machiavellianism, and psychopathy, as well as the Big Five. Bivariate correlations and multivariate regression analyses with age, sex, and facets of the Big Five as predictors of each dark trait were examined. We found that 13 of the correlations between the Big Five facets and Machiavellianism and psychopathy differed significantly ( $p < .01$ ;  $z$  values ranging from  $-3.61$  to  $-3.77$  and  $2.36$  to  $4.99$ ). Specifically, the relationships between Machiavellianism and anxiety, depression, self-consciousness, vulnerability, assertiveness, excitement-seeking, values, straightforwardness, compliance, modesty, dutifulness, and deliberation differed significantly from the relationships of psychopathy and these facets. Moreover, Machiavellianism and psychopathy differed in terms of their Big Five facet predictors. Of the Big Five facets, psychopathy was independently predicted by excitement-seeking, straightforwardness, altruism, and compliance, facets purported to underlie psychopathy (O’Boyle et al. *Journal of Personality*, 83, 644–664, 2015). Machiavellianism, on the other hand, was independently predicted by self-consciousness, fantasy, values, trust, and straightforwardness. Narcissism was independently predicted by assertiveness, fantasy, ideas, and modesty. Future research is needed to further clarify these differences, and future directions on how to further the Dark Triad redundancy debate are discussed.

**Keywords** Dark triad · Big five facets · Narcissism · Machiavellianism · Psychopathy

## Introduction

Personality research in the area of the dark side of personality has been exceptionally fruitful over the past two decades since Paulhus and Williams (2002) introduced the Dark Triad – a constellation of three malevolent personality dimensions, including subclinical narcissism, Machiavellianism, and subclinical psychopathy. Despite the prolific nature of the field, many important questions remain unanswered. For example, is Machiavellianism, as it is currently measured, distinct from psychopathy? The present study addresses this question by examining the relationships between the Dark Triad and facets of the Big Five and therefore goes beyond past studies which have typically examined broader personality factors.

The Dark Triad of personality comprises three related socially malicious personality dimensions that, to varying degrees, reflect tendencies towards self-promotion, manipulativeness, and callousness (Paulhus and Williams 2002). More specifically, narcissism represents a sense of grandiosity, superiority, and entitlement (Raskin and Hall 1979). Machiavellianism is characterized by manipulative tendencies, a cynical view of human nature, and lack of conventional morality (Christie and Geis 1970). Lastly, psychopathy is characterized by thrill-seeking, high impulsivity, and lack of empathy (Hare 1985).

Interestingly, discourse on the distinctiveness of Machiavellianism and psychopathy began prior to Paulhus and Williams’s (2002) seminal paper on the Dark Triad as a construct. For example, Smith (1978) stated that Machiavellianism does not seem to differ from psychopathy in any meaningful manner. Following this, Smith and Griffith (1978) found a weak significant positive correlation between Machiavellianism and psychopathy, contradicting Smith’s (1978) original assertion that the two constructs do not differ substantially. Using different measures, Skinner (1988) found evidence that the two constructs were, in fact, highly similar and suggested that the success of the thriving psychopath may be due to a Machiavellian’s ability to

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avoid consequences and manipulate others. The first most extensive version of the redundancy criticism was brought up by McHoskey et al. (1998), who posited that psychopathy and Machiavellianism were essentially redundant and were the product of the jangle fallacy, suggesting that social, personality, and clinical psychologists have been independently investigating the same construct under different labels. These concerns have been further echoed in later years (e.g., Douglas et al. 2012; Glenn and Sellbom 2015; Lee and Ashton 2005; Miller et al. 2017; O’Boyle et al. 2015; Rogoza and Cieciuch 2017; Rogoza and Cieciuch 2018; Vize et al. 2018).

The bulk of self-report evidence suggests that Machiavellianism and psychopathy are redundant, and includes studies indicating parallel relationships between these two personality constructs and dimensions that theoretically should differentiate Machiavellianism and psychopathy (e.g., self-control, erratic behaviour, and impulsiveness; Crysel et al. 2013; Muris et al. 2017; Petrides et al. 2011). Despite this notion, many of behavioural studies demonstrate clear differences between Machiavellianism and psychopathy. For example, Jones (2014) found that those high in psychopathy, but not Machiavellianism, persisted in gambling with other people’s money at risk of retribution, suggesting that individuals high in psychopathy are less flexible in their behaviour. Moreover, Jones and Paulhus (2017) demonstrated that although both Machiavellianism and psychopathy predicted cheating on a coin-flipping task, only high-psychopathy individuals and ego-depleted individuals high in Machiavellianism cheated under high-risk conditions. In the same vein, in a retrospective study, Jones and Weiser (2014) found that although both psychopathy and Machiavellianism predicted infidelity in relationships, only psychopathic infidelity led to relationship dissolution, supporting theoretical accounts of Machiavellianism predicting strategic manipulation. Moreover, Carre and Jones (2016) reported that high-psychopathy individuals made riskier decisions when exposed to stressful stimuli, while Machiavellian decision-making is not affected by stressful stimuli as a result of superior self-control. This evidence has been supplemented by additional studies that indicate differences in fluid intelligence (Kowalski et al. 2018), flexibility in negative mate retention (Jones and De Roos 2017), racially-motivated attitudes and affiliations with racist groups (Jones 2013), and amount of cognitive effort used in deception (Baughman et al. 2014).

One potential explanation of this discrepancy between self-report findings and behavioural findings could be that self-report and behavioural measures of impulsivity do not tap into the same components of impulsivity (Malesza and Ostaszewski 2016; Reynolds et al. 2006). Behavioural measures of impulsivity typically tap into narrower and more specific forms of impulsivity and underlying processes than do typical self-report impulsivity scales. The overlap between psychopathy and Machiavellianism perhaps outweighs the differences between the two constructs, but there are specific

defining features that are better assessed by narrow measures (such as behavioural measures or lower order trait measures) as opposed to global trait measures that are most commonly employed in personality research. For example, those high in both psychopathy and Machiavellianism may act on their impulses in a similar way, but when positive or negative consequences are salient, Machiavellian behaviour should differ substantially. Thus, we propose that the bandwidth of measured traits may be a major contributor to this issue. Previous research has suggested that using narrower measures may be necessary for predicting certain criteria (Ashton et al. 1995). Moreover, Paunonen et al. (1999) have suggested that, in general, criterion prediction is more accurate when using multiple narrow predictors, as opposed to their corresponding broad construct, and that finding interpretability is improved using these narrow measures. It may be the case that in order for psychopathy and Machiavellianism to be effectively teased apart by their relatively subtle, yet meaningful differences, it is necessary to use measures that are sufficiently narrow to assess these differences. For this reason, we assess the Dark Triad in relation to the facets of the Big Five.

The importance of studying the putative redundancy between Machiavellianism and psychopathy is primarily theoretical and psychometric in nature. If these constructs are indeed redundant, then one of these constructs is dispensable and the literature that had developed the understanding of the construct can be better understood as literature pertaining to psychopathy, as suggested by McHoskey et al. (1998). Alternatively in such a scenario, serious questions would have to be asked about the (lack of) validity of current measures of Machiavellianism; such questions are already being put forward by Collision, Vize et al. (2018). Furthermore, to the extent that Dark Triad research has influenced practitioners (e.g., guidance counsellors, HR departments, etc.) and lay audiences in how to guide, help, or otherwise act in contexts associated with individuals with dark personalities; these practitioners may have been led astray by findings based on faulty measurement.

Previous research has investigated the relationships between the Dark Triad and the Big Five from various levels of the personality hierarchy. Kowalski et al. (2016) found that the General Factor of Personality, theorized to be located at the pinnacle of the personality hierarchy (Musek 2007), was not significantly correlated with narcissism, but was negatively correlated with psychopathy and Machiavellianism. Rogoza et al. (2019), using the framework of the Circumplex of Personality Meta-Traits (Strus et al. 2014), demonstrated that psychopathy and Machiavellianism differed only somewhat in their meta-trait profiles. At the domain level, using meta-analytic methodology, Muris et al. (2017) reported that narcissism was positively correlated with extraversion, and openness, and negatively correlated with agreeableness. Furthermore, both Machiavellianism and psychopathy were

negatively correlated with agreeableness and conscientiousness. Vernon et al. (2008) found that both narcissism and psychopathy had moderate to large heritable components, while Machiavellianism was only somewhat heritable, and concluded that the relationships between the Big Five and the Dark Triad are largely attributable to the effect of the same genes. At the aspect level (an intermediate level between domains and facets; DeYoung et al. 2007), Jonason et al. (2013) demonstrated that narcissism was positively correlated with volatility and assertiveness, and negatively correlated with politeness and industriousness. Machiavellianism and psychopathy were both negatively correlated with compassion, politeness, industriousness, and orderliness, and positively correlated with volatility. Additionally, psychopathy was negatively correlated with enthusiasm, and Machiavellianism was positively correlated with assertiveness. With regard to the facet level of the Five-Factor Model, Miller et al. (2017) found that narcissism was positively correlated with gregariousness, assertiveness, and excitement-seeking facets of extraversion, and the fantasy facet of openness, but was negatively correlated with the straightforwardness, compliance, modesty, and tender-mindedness facets of agreeableness, and the dutifulness and deliberation facets of conscientiousness. Psychopathy, on the other hand, was positively correlated with the angry hostility, depression, and impulsiveness facets of neuroticism, the excitement-seeking facet of extraversion, and negatively correlated with all agreeableness and conscientiousness facets. As for Machiavellianism, Miller et al. (2017) found positive correlations with neuroticism's angry hostility, depression, and impulsiveness facets, and the extraversion excitement-seeking facet, and negative correlations with all facets of agreeableness, and the order, dutifulness, self-discipline, and deliberation facets of conscientiousness.

## The Present Study

The present study examined the Dark Triad in relation to the Big Five facets. The main reason for using the Big Five framework for this study is that it is the most widely used and central model in personality research and therefore a natural choice to make our case. It is entirely likely that other models of personality, especially models sensitive to differences in dimensions such as impulsivity or avoidance of punishment, with narrow bandwidth constructs would be better suited to distinguish psychopathy and Machiavellianism. We predicted that our results would be consistent with previous literature (for a meta-analysis, see O'Boyle et al. 2015) such that narcissism would negatively correlate with altruism, and positively correlate with angry hostility, assertiveness, excitement-seeking, and fantasy. Moreover, we expected that psychopathy would be negatively correlated with all facets of agreeableness and conscientiousness, positive emotions, warmth, and positively

correlated with excitement-seeking, angry hostility, depression, and impulsiveness. With regard to Machiavellianism, we predicted a negative correlation with warmth, positive emotions, trust, straightforwardness, altruism, compliance, tendermindedness, and all facets of conscientiousness, and positive correlations with anxiety, angry hostility, depression, and impulsiveness, as found by Miller et al. (2017).

Of particular importance to this paper is the ability to predict Machiavellianism using the Big Five facets. Specifically, the differential predictive utility of psychopathy and Machiavellianism by the Big Five facets is of interest to this study. Distinct multiple regression coefficients would provide some evidence of the distinctiveness of the two constructs. Moreover, O'Boyle et al. (2015) found that the Big Five facets accounted for 44% of the variance in narcissism and 88% of the variance in psychopathy, but declared a dearth of papers assessing the ability of the Big Five facets to predict Machiavellianism, as there were not enough of such studies for a meta-analytic investigation of said research. This study will help contribute to this area of study.

Despite personality trait and outcome bandwidth being the subject of numerous debates within personality and individual differences, and organizational psychology (see Ashton et al. 1995; Ones and Viswesvaran 1996; Paunonen and Ashton 2001; Paunonen et al. 2003; Paunonen et al. 1999), to our knowledge, this topic has never been seriously considered within the context of the redundancy debate regarding Machiavellianism and psychopathy. Especially given the inconsistent results between self-report studies and behavioral studies, we propose that exploring the redundancy at a lower bandwidth may help shed light on whether there are real and substantial differences between Machiavellianism and psychopathy and potentially why such considerable inconsistencies in prior research exist, especially considering the complexity of the psychopathic and especially the Machiavellian personalities.

## Method

### Participants

The sample comprised 442 participants (367 women and 75 men) from the USA and Canada, with age ranging from 16 to 92 years ( $M = 40.79$ ,  $Mdn = 37.50$ ,  $SD = 17.18$ ). Participants were contacted by phone or email and invited to participate in this study. A subset of the data reported in this study was used in a previous behavioural genetic study (Vernon et al. 2008) to investigate the relationship between the Big Five domains and the Dark Triad. In the present study, we only included participants who were singletons (twins whose co-twins did not complete the questionnaires) and a randomly selected

individual within a twin pair such that their co-twin was not included in the analyses.

## Materials

**NEO Personality Inventory Revised (NEO-PI-R)** The NEO-PI-R is a self-report measure of the Big Five personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness; Costa and McCrae 1992). Each of the five traits consists of six facets. The questionnaire consists of 240 items (example item: “I am not a worrier”), rated on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Each domain scale of the measure has demonstrated excellent internal consistency in past research: neuroticism = .92, extraversion = .89, openness to experience = .87, conscientiousness = .90, = agreeableness = .86). Moreover, it is one of the most widely used measures in personality psychology.

**Narcissistic Personality Inventory (NPI)** The NPI (Raskin and Hall 1979) is a self-report measure of subclinical narcissism that consists of 40 forced-choice items (example item: “I like to be the center of attention” versus “I prefer to blend in with the crowd”). Previous research has demonstrated that this measure has high internal consistency ( $\alpha = .84$ ; Paulhus and Williams 2002). The NPI is one of the most widely used measures of subclinical narcissism currently employed.

**Mach-IV** The Mach-IV (Christie and Geis 1970) is a self-report measure of Machiavellianism that consists of 20 items (example item: “Honesty is the best policy in all cases”), rated on a 5-point Likert-type scale ranging from 1 (*Disagree*) to 5 (*Agree*). The Mach-IV has been found to have strong criterion validity as it correlates with eight manipulation tactics (Rauthmann 2013), as well as good internal consistency ( $\alpha = .73 - .80$ ; Abell et al. 2016; Pilch and Turska 2015).

**Self-Report Psychopathy Scale (SRP-III-R12)** The Self-Report psychopathy scale (Paulhus et al. 2016) consists of 62 self-reflective items (example item: “I’m a rebellious person”). This measure is rated on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Previous research has shown that the SRP-III-R12 has excellent internal consistency ( $\alpha = .90$ ) and test-retest reliability in community samples (.92; Gordts et al. 2017).

## Procedure

Individuals who expressed interest in participating in the study were sent four questionnaires by mail to their home address. Participants were instructed to complete the questionnaires

when they felt comfortable completing the scales and that there were no time constraints. Once the participants completed the questionnaires, they were asked to return the questionnaires using the stamped and addressed envelopes provided. Participants were informed that mailing back the questionnaires implied consent. Participants were sent \$20 and were entered into a draw to win one of 10 \$100 prizes once questionnaires were received. Participants were also sent debriefing forms and were thanked for their participation.

## Results

**Sex Differences** Table 1 displays the descriptive statistics and coefficient alpha for all variables. Independent sample t-tests were used to assess sex differences for each trait (Table 2). Men scored significantly higher than women on Machiavellianism and psychopathy. Women, on the other hand, scored significantly higher on anxiety, vulnerability, warmth, gregariousness, positive emotions, aesthetics, feelings, actions, values, straightforwardness, altruism, and compliance.

**Narcissism** In Table 3, we report the correlation coefficients between the Dark Triad and the Big Five facets. Table 4 lists the multiple regression coefficients of the Big Five facets predicting each Dark Triad dimension. We found that narcissism was significantly positively correlated with angry hostility, impulsiveness, gregariousness, assertiveness, activity, excitement-seeking, positive emotions, fantasy, feelings, actions, ideas, values, and achievement striving. Narcissism negatively correlated with self-consciousness, vulnerability, straightforwardness, compliance, modesty, tender-mindedness, and dutifulness. This pattern of results mostly supported our hypotheses; although our predictions pertaining to the relationships between narcissism and angry hostility, assertiveness, and fantasy were supported, the prediction that narcissism would correlate negatively with altruism was unsupported.

A multiple linear regression was calculated with sex, age, and Big Five facets as the predictors and narcissism as the criterion variable [ $F(32, 327) = 5.90, p < .001$ ]. Only assertiveness, and fantasy independently and positively predicted narcissism, while only ideas, and modesty were negative independent predictors of narcissism. Interestingly, despite a positive correlation with narcissism, when age, sex, and other facets were accounted for, ideas became a negative predictor of narcissism. A stepwise regression (with age and sex in the first step and Big Five facets in the second step) indicated that the Big Five facets alone accounted for 32% of the variance in narcissism, while the Big Five facets and sex and age accounted for 37% of the variance [ $(F_{change}(30, 327) = 5.52, p < .001)$ ].



**Table 1** Descriptive statistics and coefficient alpha for all variables

	Mean	Standard deviation	Alpha
(N1) Anxiety	24.69	5.51	.80
(N2) Angry Hostility	21.12	5.00	.76
(N3) Depression	21.82	6.00	.84
(N4) Self-consciousness	23.72	4.73	.68
(N5) Impulsiveness	24.92	4.69	.71
(N6) Vulnerability	19.28	4.84	.80
(E1) Warmth	32.01	4.20	.78
(E2) Gregariousness	26.02	5.07	.71
(E3) Assertiveness	24.05	5.31	.80
(E4) Activity	26.29	4.25	.63
(E5) Excitement-seeking	25.55	5.09	.63
(E6) Positive emotions	30.09	4.58	.77
(O1) Fantasy	25.54	4.87	.76
(O2) Aesthetics	25.64	5.64	.78
(O3) Feelings	29.14	4.02	.68
(O4) Actions	23.55	3.76	.53
(O5) Ideas	25.65	5.72	.82
(O6) Values	28.44	4.32	.70
(A1) Trust	28.95	4.61	.82
(A2) Straightforwardness	29.56	4.68	.73
(A3) Altruism	33.07	3.54	.73
(A4) Compliance	26.99	4.66	.68
(A5) Modesty	27.37	4.75	.76
(A6) Tender-mindedness	29.53	3.23	.47
(C1) Competence	30.42	3.93	.69
(C2) Order	27.32	4.60	.71
(C3) Dutifulness	31.42	4.20	.66
(C4) Achievement striving	27.65	4.37	.71
(C5) Self-discipline	29.34	4.78	.78
(C6) Deliberation	25.65	4.43	.71

For Dark Triad descriptive statistics, please see Vemon et al. 2008

**Machiavellianism** Machiavellianism was significantly and positively correlated with anxiety, angry hostility, depression, self-consciousness, impulsiveness, vulnerability, excitement-seeking, and values, and significantly and negatively correlated with warmth, assertiveness, positive emotions, actions, trust, straightforwardness, altruism, compliance, modesty, tender-mindedness, competence, order, dutifulness, achievement striving, self-discipline, and deliberation. This pattern of results supported our hypotheses regarding the relationships between Machiavellianism and anxiety, angry hostility, depression, impulsiveness, warmth, positive emotions, trust, straightforwardness, altruism, compliance, tender-mindedness, and all conscientiousness facets.

A multiple linear regression was calculated with sex, age, and Big Five facets as the predictors and Machiavellianism as the criterion variable [ $F(32, 327) = 7.20, p < .001$ ]. Only self-

consciousness and values positively and independently predicted Machiavellianism, while only fantasy, trust, and straightforwardness negatively and independently predicted Machiavellianism. A stepwise regression (with age and sex in the first step and Big Five facets in the second step) indicated that the Big Five facets alone accounted for 36% of the variance in narcissism, while the Big Five facets and sex and age accounted for 41% of the variance [ $F_{change}(30, 327) = 6.67, p < .001$ ]. Cohen’s  $f^2$  indicated a large regression effect size.

**Psychopathy** Psychopathy was significantly and positively correlated with angry hostility, depression, impulsiveness, vulnerability, excitement-seeking, and fantasy, and significantly and negatively correlated with warmth, positive emotions, feelings, trust, straightforwardness, altruism, compliance, modesty, tender-mindedness, competence, order, dutifulness, achievement striving, self-discipline, and deliberation. This pattern of results supported our hypotheses that psychopathy would be positively correlated with angry hostility, depression, impulsiveness, and excitement-seeking, and negatively correlated with positive emotions, warmth, and all facets of openness. Our hypothesis, however, that psychopathy would be negatively correlated with anxiety was not supported. Tests of differences in dependent correlations using Lenhard and Lenhard’s (2014) web application determined that the correlations between the Big Five facets of anxiety, depression, self-consciousness, vulnerability (neuroticism), assertiveness, excitement-seeking (extraversion), values (openness to experience), straightforwardness, compliance, modesty (agreeableness), dutifulness, and deliberation (conscientiousness) and Machiavellianism, differed significantly from the correlations between these personality facets and psychopathy. Lenhard and Lenhard’s (2016) effect size calculator web application determined that 16 of the correlation differences had small effect sizes according to Cohen’s (1992) q categorization, while the remaining correlation differences were categorized as no effect.

A multiple linear regression was calculated with sex, age, and Big Five facets as the predictors and psychopathy as the criterion variable [ $F(32, 326) = 11.63, p < .001$ ]. Only excitement-seeking positively and independently predicted psychopathy. Being male and having low scores on straightforwardness, altruism, and compliance independently predicted psychopathy. A stepwise regression (with age and sex in the first step and Big Five facets in the second step) indicated that the Big Five facets alone accounted for 39% of the variance in narcissism, while the Big Five facets and sex and age accounted for 53% of the variance [ $F_{change}(30, 326) = 9.17, p < .001$ ]. Cohen’s  $f^2$  indicated a large regression effect size and differed substantially from the effect size associate with the regression analyses predicting Machiavellianism.

**Table 2** Sex differences

	Men Mean (SD)	Women Mean (SD)	F	t(df)	Hedges' G
Narcissism	0.38(0.17)	0.38(0.17)	0.34	-0.17(439)	0
Machiavellianism	2.60(0.42)	2.45(0.38)	1.40	3.01**(439)	.39
Psychopathy	2.28(0.40)	1.98(0.34)	2.33	6.60***(437)	.86
(N1) Anxiety	22.56(5.50)	25.13(5.41)	0.47	-3.73***(439)	-.47
(N2) Angry Hostility	21.28(5.08)	21.06(4.99)	0.37	0.34(433)	.04
(N3) Depression	20.78(5.65)	21.96(6.02)	1.02	-1.55(433)	-.20
(N4) Self-consciousness	22.95(5.13)	23.83(4.61)	0.95	-1.47(431)	-.19
(N5) Impulsiveness	24.05(4.57)	25.09(4.71)	0.49	-1.73(435)	-.22
(N6) Vulnerability	17.89(4.95)	19.52(4.74)	0.001	-2.66**(435)	-.34
(E1) Warmth	30.05(3.78)	32.41(4.18)	0.25	-4.48***(437)	-.57
(E2) Gregariousness	24.16(4.32)	26.39(5.15)	3.54	-3.46**(437)	-.44
(E3) Assertiveness	24.29(5.55)	24.00(5.29)	0.36	0.42(434)	.05
(E4) Activity	25.66(4.49)	26.44(4.20)	0.34	-1.44(433)	-.18
(E5) Excitement-seeking	25.80(5.24)	25.52(5.07)	0.32	0.43(432)	.06
(E6) Positive emotions	27.99(4.33)	30.50(4.54)	0.46	-4.32***(430)	-.56
(O1) Fantasy	24.71(4.93)	25.73(4.85)	0.11	-1.64(432)	-.21
(O2) Aesthetics	23.86(5.97)	26.02(5.52)	0.94	-3.02**(433)	-.39
(O3) Feelings	27.00(3.64)	29.55(3.95)	1.63	-5.11***(434)	-.65
(O4) Actions	21.96(3.76)	23.90(3.67)	0.02	-4.11***(433)	-.53
(O5) Ideas	25.86(6.20)	25.64(5.62)	2.00	0.31(431)	.04
(O6) Values	27.37(4.25)	28.64(4.33)	0.95	-2.30*(431)	-.29
(A1) Trust	28.19(4.30)	29.12(4.67)	0.20	-1.56(435)	-.20
(A2) Straightforwardness	27.43(5.70)	29.97(4.34)	10.32**	-3.62***(91.07)	-.55
(A3) Altruism	31.57(3.82)	33.37(3.41)	2.14	-4.06***(433)	-.52
(A4) Compliance	25.49(4.67)	27.25(4.62)	0.02	-2.92**(429)	-.38
(A5) Modesty	26.49(5.31)	27.52(4.63)	1.37	-1.70(431)	-.22
(A6) Tender-mindedness	28.96(3.25)	29.63(3.21)	0.20	-1.63(428)	-.21
(C1) Competence	30.61(3.60)	30.39(4.01)	0.46	0.43(431)	.06
(C2) Order	27.54(4.24)	27.29(4.69)	0.34	0.41(431)	.05
(C3) Dutifulness	30.99(4.46)	31.51(4.16)	0.19	-0.97(437)	-.12
(C4) Achievement striving	27.90(4.43)	27.61(4.37)	0.09	0.53(433)	.07
(C5) Self-discipline	29.27(4.52)	29.40(4.83)	0.70	-0.21(433)	-.03
(C6) Deliberation	25.54(4.84)	25.70(4.35)	2.70	-0.28(434)	-.03
Age	44.43(20.14)	39.99(16.43)	9.70**	1.79(95.37)	.17

According to Cohen's (1992) effect size interpretation guidelines,  $g = .20$  is a small effect size,  $g = .50$  is a medium effect size, and  $g = .80$  is a large effect size

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

## Discussion

The purpose of the present study was to investigate the differences between Machiavellianism and psychopathy by examining the relationships between the Dark Triad of personality and Big Five facets. Our predictions regarding narcissism were largely supported. The pattern of results found is comparable to the meta-analytic results found by O'Boyle et al. (2015) and Miller et al. (2017), although they found support for the relationship between narcissism and altruism, and no

significant relationship between narcissism and angry hostility, respectively. O'Boyle et al.'s (2015) meta-analytic estimates also differed somewhat in their relations of narcissism with altruism, achievement striving, positive emotions, angry-hostility, fantasy, and values. Although, it is difficult to identify the exact reason for these differences, this might be partly explained by the different FFM and Dark Triad measures that were used to measure the traits in meta-analyzed studies. These different measures may also explain the greater percentage of variance accounted for in dark traits by the facets in

**Table 3** Bivariate correlations between Dark Triad traits and Big Five facets, as well as z tests for comparing dependent correlations between facet score and Machiavellianism and psychopathy and effect sizes

	Narcissism	Machiavellianism	Psychopathy	z-test comparison	Cohen's q
(N1) Anxiety	-.08	.20***	-.02	4.7**	.22
(N2) Angry Hostility	.12*	.31***	.37***	-1.37	.07
(N3) Depression	-.08	.23***	.11*	2.59*	.12
(N4) Self-consciousness	-.17***	.26***	.06	4.32***	.21
(N5) Impulsiveness	.14**	.14**	.24***	-2.17	.10
(N6) Vulnerability	-.10*	.31***	.16**	3.30**	.16
(E1) Warmth	.08	-.31***	-.28***	-0.67	.03
(E2) Gregariousness	.19***	-.08	-.05	-0.64	.03
(E3) Assertiveness	.38***	-.12*	.05	-3.61**	.17
(E4) Activity	.27***	-.08	.03	-2.33	.11
(E5) Excitement-seeking	.29***	.17***	.34***	-3.77**	.18
(E6) Positive emotions	.20***	-.21***	-.17***	-0.87	.04
(O1) Fantasy	.26***	.08	.17***	-1.93	.09
(O2) Aesthetics	.04	-.09	-.09	0.00	.00
(O3) Feelings	.16**	-.05	-.13**	1.7	.07
(O4) Actions	.15**	-.15**	-.04	-2.34	.11
(O5) Ideas	.10*	-.05	.01	-1.27	.06
(O6) Values	.20***	.12*	-.05	3.61**	.17
(A1) Trust	-.10*	-.41***	-.36***	-1.17	.06
(A2) Straightforwardness	-.28***	-.42***	-.56***	3.56**	.19
(A3) Altruism	-.06	-.33***	-.43***	2.34	.12
(A4) Compliance	-.28***	-.29***	-.50***	4.99**	.25
(A5) Modesty	-.41***	-.23***	-.36***	2.92*	.14
(A6) Tender-mindedness	-.11*	-.20***	-.25***	1.09	.05
(C1) Competence	.09	-.31***	-.28***	-0.67	.03
(C2) Order	-.01	-.13**	-.15**	0.43	.02
(C3) Dutifulness	-.12*	-.34***	-.44***	2.36*	.12
(C4) Achievement striving	.19***	-.14**	-.15**	0.21	.01
(C5) Self-discipline	.05	-.28***	-.29***	0.22	.01
(C6) Deliberation	-.09	-.22***	-.35***	2.91*	.14

z-test comparison of dependent correlations according to Eid et al. 2011

Correlations: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; two-tailed

z tests: \*  $p < .01$ ; \*  $p < .001$

According to Cohen's (1992) effect size interpretation guidelines,  $q = .10$  is a small effect size,  $q = .30$  is a medium effect size, and  $q = .50$  is a large effect size

O'Boyle et al.'s (2015) meta-analysis and the results reported in this study. Previous research has suggested that the Dark Triad traits measured by short measures (i.e., the Dirty Dozen and the Short Dark Triad; Jonason and Webster 2010; Jones and Paulhus 2014) tend to show more overlap than when they are measured by long questionnaires (Persson et al. 2017). Our results differed substantially from those found by Furnham and Crump (2014), who found, using a large sample of 6957 participants, that narcissism correlated positively ( $r = .10$  or higher) with warmth, gregariousness, assertiveness, activity, excitement-seeking, positive emotions, feelings, ideas, competence, dutifulness, achievement striving, and

self-discipline, and substantially negatively correlated with anxiety, depression, self-consciousness, vulnerability, straightforwardness, and modesty. Furthermore, although we found that only assertiveness, fantasy, ideas, and modesty were significant predictors of narcissism, Furnham and Crump (2014) found that only modesty, competence, assertiveness, and achievement striving had betas over .08 or under -.08. This difference in results likely stems from the difference in narcissism measures (they used the Boldness scale from the Hogan Development Survey), and the fact that Furnham and Crump (2014) controlled for age, sex, and social desirability (while we only controlled for age and sex).

**Table 4** Standardized multiple regression coefficients for narcissism, Machiavellianism, and psychopathy regressed on sex, age, and the Big Five facets

	Narcissism	Machiavellianism	Psychopathy
Sex (1 = men, 2 = women)	.04	-.06	-.16***
Age	-.11	.09	-.02
(N1) Anxiety	-.10	-.06	-.13
(N2) Angry Hostility	.02	-.05	.03
(N3) Depression	.13	-.05	.02
(N4) Self-consciousness	-.11	.18*	-.04
(N5) Impulsiveness	.06	-.07	.04
(N6) Vulnerability	-.14	.14	-.05
(E1) Warmth	-.10	-.05	-.01
(E2) Gregariousness	.08	.02	-.01
(E3) Assertiveness	.23**	-.05	-.04
(E4) Activity	.10	-.04	.04
(E5) Excitement-seeking	.01	.04	.13*
(E6) Positive emotions	-.03	.08	-.02
(O1) Fantasy	.20**	-.14*	.01
(O2) Aesthetics	-.004	-.06	.03
(O3) Feelings	.04	.07	-.04
(O4) Actions	.01	-.04	.02
(O5) Ideas	-.20**	.00	.02
(O6) Values	.09	.19***	-.07
(A1) Trust	-.01	-.29***	-.09
(A2) Straightforwardness	.01	-.28***	-.20**
(A3) Altruism	-.01	-.02	-.12*
(A4) Compliance	-.12	-.05	-.17**
(A5) Modesty	-.21**	-.08	-.11
(A6) Tender-mindedness	.05	.02	.06
(C1) Competence	-.10	-.07	-.09
(C2) Order	-.02	-.03	-.004
(C3) Dutifulness	.01	-.02	-.08
(C4) Achievement striving	.09	.02	-.03
(C5) Self-discipline	-.01	.01	-.01
(C6) Deliberation	.08	-.07	-.10
$R^2$ (adjusted $R^2$ )	.37 (.30)	.41(.36)	.53(.49)
Cohen's $f^2$	0.59	0.69	1.13
$\Delta f^2$		.44	

According to Cohen's (1992) effect size interpretation guidelines,  $f^2 = .02$  is a small effect size,  $f^2 = .15$  is a medium effect size, and  $f^2 = .35$  is a large effect size

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Moreover, our hypotheses regarding psychopathy were supported. As expected, psychopathy was positively correlated with excitement-seeking, angry hostility, depression (although marginally), and impulsiveness, and negatively correlated with all agreeableness and conscientiousness facets, positive emotions (although weakly), and warmth. This pattern of results is comparable to O'Boyle et al.'s (2015) and Decuyper et al. (2009) meta-analytic results, as well as Lynam and Miller's (2015) and Miller et al.'s (2017) findings. However, Decuyper et al. (2009) found only an unsubstantial relationship

( $r = -.08$ ) between psychopathy and positive emotions, and Miller et al. (2017) did not find a significant correlation between psychopathy and warmth. Our results indicated that excitement-seeking, straightforwardness, altruism, and compliance were significant independent predictors of psychopathy. Interestingly, all of these traits, according to O'Boyle et al. (2015) are proposed to be underlying traits of psychopathy.

Our hypotheses regarding Machiavellianism were also supported. As predicted, Machiavellianism had significant positive correlations with anxiety, angry hostility, depression, and



impulsiveness, and were significantly negatively correlated with warmth, positive emotions, trust, straightforwardness, altruism, compliance, tender-mindedness, competence, order (although weakly), dutifulness, achievement striving (although weakly), self-discipline, and deliberation. Miller et al. (2017) found a similar pattern of results, as did DeShong et al. (2017), though DeShong et al. (2017) did not find a significant relationship between Machiavellianism and anxiety. Our multiple regression analyses indicated that only self-consciousness, fantasy, values, trust, and straightforwardness were significant independent predictors of Machiavellianism. Although the predicted direction of the relationship between Machiavellianism and achievement striving was supported, the relatively weak strength of the relationship was surprising. Both Miller et al. (2017) and DeShong et al. (2017) found stronger relationships with these two dimensions. In contrast, Skinner (1981) reported that Machiavellian business students tend to be higher in achievement motivation than non-Machiavellian business students, but this relationship was not significant in groups of non-business students. Future research is required to address conflicting results such as these.

Regarding sex differences, our findings are consistent with prior research. Specifically, similarly to the results found by DeShong et al. (2017), Muris et al. (2017), Paulhus and Williams (2002), males were significantly higher in both Machiavellianism and psychopathy. Unlike our findings, Muris et al. (2017) and Paulhus and Williams (2002) also found a significant sex difference in narcissism with men scoring higher than women, although Muris et al. (2017) note that the effect size was small.

One major strength of our study was that we compared Machiavellianism and psychopathy in terms of their correlations with Big Five facets to see if significant differences existed, as suggested by Miller et al. (2017). Most Dark Triad research only examines correlations without examining if the correlations differed significantly between Machiavellianism and psychopathy. Using this technique, we found significant differences between psychopathy and Machiavellianism in their correlations with 13 of the Big Five facet traits. It must be noted that statistical significance is highly dependent on the sample size and does not necessarily imply practical significance. Thus, the magnitude of the difference must be taken into account when discussing these differences. Out of the 13 significantly different dependent correlations, seven of them differed by .15 or higher ( $z = \pm 3.61$  or larger) and three of them differed by .20 or higher ( $z = \pm 4.32$  or larger). These results support the position that Machiavellianism and psychopathy are not redundant dimensions. Still, more research needs to be done for other related concerns regarding these dimensions. For instance, our findings do not provide evidence against or for the argument that Machiavellianism is only a lesser form of psychopathy, suggested by some researchers.

One of the purposes of the present study was to investigate the subtle differences between Machiavellianism and psychopathy. Although the relationships between the Big Five facets and the two personality constructs were remarkably similar, some differences did appear. Most importantly, Machiavellianism, but not psychopathy, had significant positive correlations with anxiety and self-consciousness. The lack of significant correlations with these facets is consistent with theoretical accounts of the psychopath (i.e., lack of anxiety and shame; Cleckley 1955; Hare 1985). Moreover, although both psychopathy and Machiavellianism correlated negatively with compliance, the correlation was much stronger for psychopathy. There were also differences in prediction strength for the dark dimensions. Although both dark personality constructs shared lack of straightforwardness as important predictors, they did not have any other significant independent predictors in common. While Machiavellianism was predicted by lack of trust, lack of values, self-consciousness, and lack of fantasy (from strongest to weakest significant predictors), psychopathy was predicted by being male, a lack of compliance, excitement-seeking, and altruism. Thus, based on the available evidence, we conclude that although Machiavellianism and psychopathy are similar, there are differences.

It should also be noted that the facet profile of Machiavellianism is somewhat at odds with theoretical and expert ratings of what the Machiavellian facet profile should look like. For instance, Miller et al. (2017) reported that expert ratings of the Machiavellian personality are associated with relatively low levels of self-consciousness, impulsiveness, and vulnerability, but our investigation indicated that these facets were positively correlated with Machiavellianism. Moreover, Miller et al. (2017) reported that expert ratings of the Machiavellian personality are associated with relatively high levels of assertiveness and order, but these facets were weakly negatively correlated with Machiavellianism in our study. With regard to impulsiveness, it may still be the case that behavioral measures, rather than Big Five facet score, may be required to capture the nuances of Machiavellian impulsivity. It may also be the case, that the Mach-IV has issues with construct validity, as other researchers have suggested (Collision et al. 2018). Such an explanation would explain the consistent incongruence between self-report findings regarding Machiavellianism and theoretical and expert accounts of Machiavellianism; though this explanation seems somewhat limited when weighing the behavioral evidence that is usually more consistent with theory.

The putative jangle fallacy regarding psychopathy and Machiavellianism is a topic of great theoretical importance. The ultimate conclusion of this line of inquiry will influence how dark personality trait research is conducted in the future. With the present study, we propose that a narrow bandwidth perspective may lead to further insight into the differences between these two dimensionally complex constructs. The

specificity of narrow bandwidth measures also may improve the interpretability of the findings and should aid lay-audiences and practitioners in understanding and using research findings in their own lives and work.

### Limitations and Future Directions

One limitation for this study was the greater number of women relative to men. Though this issue is very common in personality research, the imbalance does not reflect the sex ratio of the general population. Also, the extent to which participant fatigue or distraction influenced the results is unclear as participants completed the questionnaires in their own home on paper. Furthermore, though our sample was diverse in age, it is composed of individuals living in English-speaking North America. In light of this limitation, our results should be interpreted with caution when generalizing to populations that may be non-English-speaking and less individualistic. This study is also limited in that the results are based solely on self-report. Future research utilizing peer-reports would add to the understanding of the relationships between personality and the dark traits. Another limitation is that sadism was not included in the dark measures. Sadism represents the fourth dark dimension (i.e., Dark Tetrad; Buckels et al. 2013). Perhaps the greatest weakness of this study is that we did not investigate the Dark Tetrad's relationship with the HEXACO facets. Honesty-humility has been suggested by some as the core of the Dark Triad (Book et al. 2015; Lee and Ashton 2014), and its inclusion may shed more light on potential differences amongst the Dark Triad. Moreover, the lack of a second sample to replicate our findings is also a limitation of the present study and we recommend that future research should attempt direct replications in order to confirm the validity of our findings. Further, some of the facet scores were shown to be less than acceptable in terms of reliability; specifically, the facets of self-consciousness, activity, excitement-seeking, feelings, actions, compliance, tender-mindedness, competence, and dutifulness all had coefficient alphas less than .70. These low reliability scores must be taken into account when interpreting our results.

Our results have indicated that there may be some differences in how Dark Triad constructs manifest in men and women. Therefore, we echo the position of Czirbor et al. (2017); that is, future research should focus on differential patterns of relationships of the Dark Triad with respect to gender. Furthermore, future research investigating whether there are differences between psychopathy and Machiavellianism (and even sadism) in their relations with other traits or outcomes should use measures that assess narrower constructs. In the case of self-report measures, we advocate for the use of facet scales rather than solely relying on composite measures. For instance, Behavioural measures, especially ones that assess the effect of situational forces, are particularly important to

move this crucial debate forward, as situational forces have been found to be critically important to the behaviour of the Machiavellian individual. For instance, Bereczkei et al. (2010) found that in the presence of other people, Machiavellian individuals are likely to act altruistically, but when they are under the veil of anonymity, they are more likely to realize their own self-interests as there is no longer an opportunity to gain reputation. We liken our proposed strategy for future research to distinguishing between gold and pyrite (fool's gold). Despite there being some differences, sometimes it may be difficult to distinguish between gold and fool's gold without zooming in on specific physical properties. In the context of Machiavellianism and psychopathy, in order to investigate the possible redundancy between the two dimensions, we must use sufficiently specific measures to assess possible differences.

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### Compliance with Ethical Standards

**Declaration of Conflicting Interests** On behalf of all authors, the corresponding author states that there is no conflict of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee (University of Western Ontario Non-Medical Research Ethics Board) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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