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RESEARCH ARTICLE

If the Ends Justify Cognition? Explaining the Predictive Relationship of Manipulativeness, Grit and Need for Cognition within Machiavellianism and Psychopathy

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This study aims to explain a statistically significant amount of variance between the constructs manipulativeness, impulsiveness, grit, and need for cognition (NfC) within Machiavellianism and psychopathy in order to provide insights into the cognitive processes involved in distinguishing between these Dark Triad personality traits. Applying a cross-sectional design, test subjects (N = 96) self-reported using the MACH-IV, SRP-III, NFC-S, and Grit Scale for Perseverance and Passion for Long-Term Goals. Hierarchical regression analyses were conducted, and only manipulativeness was found to have predictive qualities in terms of Machiavellianism. For psychopathy, only manipulativeness and impulsiveness were found to have predictive qualities. These results concur with the findings of previous studies and serve to preliminarily eliminate predictive variables NfC and grit within Machiavellianism and psychopathy.

Keywords: Machiavellianism, Psychopathy, Manipulation, Impulsiveness, Need for Cognition, Grit, Dark Triad

Paulhus and Williams's (2002) Dark Triad Theory refers to three related personality variables: narcissism, psychopathy, and Machiavellianism. The latter two are very similar and at times, redundant (Miller et al., 2017), however, they are theoretically discernible in terms of their respective short and long-term characteristics. Along with shallow affect and emotional deficits, one of the key elements of psychopathy is impulsivity (Morgan et al., 2011), where individuals with high psychopathy characteristics tend to partake in an erratic lifestyle conducive to short-term gain (Wolf et al., 2015). Contrarily, individuals with a high level of Machiavelli characteristics are focused on long-term strategic planning with covert manipulations forming the core of their personalities (Rauthmann & Will, 2011). Hence the name Machiavellianism, as inspired by the 16th century diplomat, philosopher, and writer Niccolò Machiavelli, who famously penned the concept "if the ends justify the means". The issue in distinguishing between Machiavellianism, the manipulative personality (Paulhus & Williams, 2002), and psychopathy, the impulsive and thrill-seeking personality (Paulhus & Williams, 2002), presents an obstacle in measuring the prevalence of Machiavellianism in the general population. This is due to past findings measuring Dark Triad domains through the same constructs (i.e., manipulation and impulsivity; Miller et al., 2017), as well as elementary research being conducted primarily amongst men in clinical and forensic populations (Paulhus & Williams, 2002). Therefore, the extension of known constructs and the addition of further predictive variables of each Dark Triad domain are imperative to expanding our knowledge of the distinguishable classification of Machiavellianism and psychopathy in sub-clinical populations.

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Characteristics of individuals who work strenuously and are motivated towards a goal or challenge over a span of years is not limited to long-term strategic planning and covert manipulation (Rauthmann & Will, 2011). Grit, a personality trait pertaining to an individual's strength of character and characterized by perseverance and passion for achieving long-term goals (American Psychological Association, 2020), has also been related to strong stamina, consistency, self-discipline, and self-control despite stagnation or setbacks (Breyer & Danner, 2015). Another personality trait, Need for Cognition (NfC), reflects the extent to which individuals are inclined towards effortful cognitive activities, which include, but are not limited to, consciously acting on impulse, social manipulation, or planning for the future (Beißert et al., 2015; Cacioppo & Petty, 1982). As both NfC and grit require self-control and future planning directive (Rauthmann & Will, 2011; Cacioppo & Petty, 1982), it is hypothesized that they will be more prominent in Machiavellianism than psychopathy. This study aims to explain a statistically significant amount of variance between the variables manipulativeness, impulsiveness, grit, and NfC within Machiavellianism and psychopathy. This could provide insights into the comorbid personality traits and cognitive processes involved in these Dark Triad personality traits, as well as contribute to research in distinguishing the domains of Machiavellianism and psychopathy from one another through establishing predictive constructs. This is of particular interest, as previous findings reported difficulty in differentiating between these two Dark Triad domains as they are currently measured using overlapping constructs such as manipulation and impulsivity (Vize et al., 2016; Wehner et al., 2021). Therefore, broadening the understanding of Machiavellianism and psychopathy in terms of their individual predictive variables is required to further differentiate them as individual traits.

Dark Triad

The Dark Triad consists of narcissism, psychopathy, and Machiavellianism (Paulhus & Williams, 2002). Machiavellianism and psychopathy are the most closely linked of the three personality types and are often redundant due to being measured by the same constructs of manipulation and impulsivity (Miller et al., 2017). However, Machiavellianism focuses primarily on deception and manipulation for personal gain compared to psychopathy, which is a neuropsychiatric disorder and focuses on impulsivity and shallow emotional responses (Cleckley, 1964; Covert, 2019). Although both can be ruthless in their actions, Machiavellians tend to aim towards the long-term pursuit of their goals, and psychopaths tend to be motivated by short-term satisfaction (Rauthmann & Will, 2011; Wolf et al., 2015) due to their poor behavioural controls, often resulting in antisocial deviance and criminal behaviour (Anderson & Kiehl, 2014).

These differences between Machiavellianism and psychopathy can be further examined with Hare's (2003) 2-factor and 4-factor models of psychopathy. In his 2-factor model of psychopathy, Hare (2003) separates psychopathy into two dominant factors: Interpersonal/Affective and Social Deviance. In his 4-factor model, he further differentiates the factor of Interpersonal/Affective by creating two domains of Interpersonal and Affective and separates the Social Deviance factor into the domains of Lifestyle and Antisocial (Hare, 2003). Despite marginally higher values across fit indices of these factors, previous studies have not been able to determine a significantly better fit between the two and four-factor models (Jones et al., 2006). In reviewing Hare's (2003) 2-factor and 4-factor models of psychopathy, we can hypothesize that individuals higher in Interpersonal/Affective traits may also be higher in Machiavellian traits, whereas individuals higher in Social Deviance traits may not score as high in Machiavellian traits.

Manipulativeness

Manipulativeness is a personality trait which is expressed in the field of psychology as behaviour aimed to exploit, control, or influence others to one's own advantage (American Psychological Association, 2020). To successfully manipulate another person, individuals will employ certain tactics to intentionally alter, shape, exploit, or change their social environments (Buss, 1987). Tactics in psychological manipulation include charm, silent treatment, coercion, reason, regression, and debasement (Buss et al., 1987). Although manipulation is not always pathological or immoral, research shows that interpersonal manipulation forms the malevolent core of the Dark Triad (Jones & Figueredo, 2013; Paulhus & Williams, 2002) and usually includes an element of moral disapprobation (Noggle, 2018).

Impulsiveness

Contrasting the foresightful cognitive tactics involved in manipulation, impulsiveness refers to behaviour with little or no forethought, reflection, or consideration of the consequences of an action (American Psychological Association, 2020). This often involves an erratic lifestyle of risk-taking where an impulsive character is described as a personality pattern of hasty and unreflective actions (American

Psychological Association, 2020). Furthermore, impulsivity has been associated with the inability to resist temptation, frustrations, or urges with impulsive individuals often characterized as rash, unpredictable, erratic, and reckless (Cleckley, 1964). Psychopathy has been linked to a lack of future planning and considers impulsivity a key component of the disorder (Morgan et al., 2011; Poythress & Hall, 2011; Snowden & Gray, 2011). However, manipulation (i.e., social deviance) is widely recognized as a factor of psychopathy, implying that in addition to impulsivity, victim vulnerability (Book et al., 2021) and impaired neurological functioning (Finger et al., 2012) also play a role in psychopathic behaviours and decision making.

Grit

Grit is a personality trait that describes an individual's passion, commitment, and perseverance regarding long-term goals despite setbacks, failures, and plateaus in progress (Duckworth et al., 2007; American Psychological Association, 2020). This lack of discouragement in the face of adversity is associated with strong stamina, self-discipline, consistency, self-control, long-term-intensity, awareness, and need for achievement (Breyer & Danner, 2015). Although grit is not considered a prerequisite for acquiring competencies, it is an aspect of personality important to developing cognitive ability, as gritty people are motivated to work hard towards a goal over the span of years (Breyer & Danner, 2015). Therefore, studies suggest that grit is more relevant than intelligence for high achievement, as it is associated with long-term perspective instead of giving into impulse and the temptation to give up on complex and difficult tasks (American Psychological Association, 2020). Given the long-term goal-setting qualities associated with Machiavellianism (Rauthmann & Will, 2011), it can be hypothesized that grit may serve as a predictive factor of this Dark Triad trait.

Need for Cognition

Need for Cognition (NfC) is a personality trait of people who enjoy and are motivated to participate in effortful cognitive activity (Cacioppo et al., 1984). Individuals who are high in NfC can be calculating in the way they form their attitudes and actions, as they feel the need to structure situations in meaningful and understandable ways by thoroughly evaluating the information presented to them (Cohen et al., 1955; American Psychological Association, 2020). However, the motivation to engage in cognitive activity does not require the ability to effectively do so (American Psychological Association, 2020). The calculating nature of NfC focuses on relevant arguments by way of the central route to persuasion, and findings show that high levels of NfC expend more cognitive effort and recalled more message arguments regardless of argument quality (Cacioppo et al., 1983), implying a strategic (i.e., potentially Machiavellian) characteristic.

Past Research Findings

A connection between grit and NfC within Machiavellianism and psychopathy has previously been hypothesized and explored in past studies. Nogueira et al. (2019) explored how grit and Dark Triad personality traits can influence behavioural addictions such as exercise addiction amongst 241 Spanish amateur athletes. They found that Dark Triad personality traits, especially Machiavellianism, were associated with high levels of grit and presented a risk factor for exercise addiction (Nogueira et al., 2019). Behaviour linked to dark personality traits was further explored by Szabó and Jones (2019), who found that Machiavellianism may have different behavioural patterns depending on gender, with Machiavellianism in men positively correlating and in women negatively correlating with planning.

Network analyses have also become a popular method for examining the relationship between Dark Triad personality traits. Marcus et al. (2018) were able to determine interpersonal manipulation and callousness as the central core elements of dark personality traits through the centrality and clustering measures of their adaptive LASSO network. Their model's betweenness values showed the importance of interpersonal manipulation and callousness in linking other dark personality traits (i.e., spitefulness) together and that removing them would lead to other nodes being substantially less connected (Marcus et al., 2018). Interpersonal manipulativeness was also associated with a stronger edge weight than erratic lifestyle (i.e., impulsiveness) in Machiavellianism compared to erratic lifestyle having a stronger connection than interpersonal manipulation in psychopathy in terms of centrality and clustering measures (Marcus et al., 2018). These findings were concurred by Wehner et al. (2021) network analysis study, which also found interpersonal manipulation and callousness to make up the malevolent core of the Dark Triad. In addition, their findings suggest that interpersonal manipulation is the most central psychopathy facet in the Dark Triad network, compared to erratic lifestyle (i.e., impulsiveness) and callous effect in the Dark Triad and Five Factor Model combined network (Wehner et al., 2021). The relatively clear separation of psychopathy and Machiavellianism facets in the Dark Triad and Five Factor Model combined network compared to in the solely Dark Triad network, where they were more

intertwined, demonstrates the difficulty in distinguishing between Machiavellianism and psychopathy, but also suggests that differentiation is possible depending on the observed construct environment (Wehner et al., 2021). Therefore, this paper aims to introduce more potentially predictive variables (i.e., grit and NfC) into the already established construct environment (i.e., manipulation and impulsivity), in hopes of contributing to further distinguishable properties of Machiavellianism and psychopathy.

Grit was chosen as it is a construct often required to continue to pursue long-term goals despite setbacks (Duckworth et al., 2007). This can be hypothesized as a trait conducive to the resiliency required of Machiavellians, whereas it is unlikely that short-term, impulsive psychopaths would demonstrate grit to the same extent as their Machiavellian counterparts. Similarly, NfC encompasses a high level of cognitive planning and self-control (Gärtner et al., 2021); a trait associated with manipulation to a much higher extent than impulsivity, which does not typically include much reflection prior to action (Morgan et al., 2011). Given these arguments, Machiavellianism and psychopathy are hypothesized to demonstrate different levels of NfC and grit, which in turn would provide more insights into the cognitive processes involved in these Dark Triad traits and would help to further differentiate them from one another from a diagnostic point of view.

Hypotheses

Given the relevant theoretical background and research states of the reviewed constructs, this study makes the following hypotheses:

H01: Manipulativeness, grit, need for cognition, and/or impulsiveness is useful in explaining/predicting Machiavellianism, expressed as: At least one βi is $\neq 0$.

Ha1: Machiavellianism is independent of (i.e., there is no relation to) manipulativeness, grit, need for cognition, and impulsiveness, expressed as: $\beta 1=\beta 2=\beta 3=\beta 4=\beta p-1=0$.

H02: Manipulativeness, grit, need for cognition, and/or impulsiveness is useful in explaining/predicting psychopathy, expressed as: At least one βi is $\neq 0$.

Ha2: Psychopathy is independent of (i.e., there is no relation to) manipulativeness, grit, need for cognition, and impulsiveness, expressed as: $\beta 1=\beta 2=\beta 3=\beta 4=\beta p-1=0$.

Methods

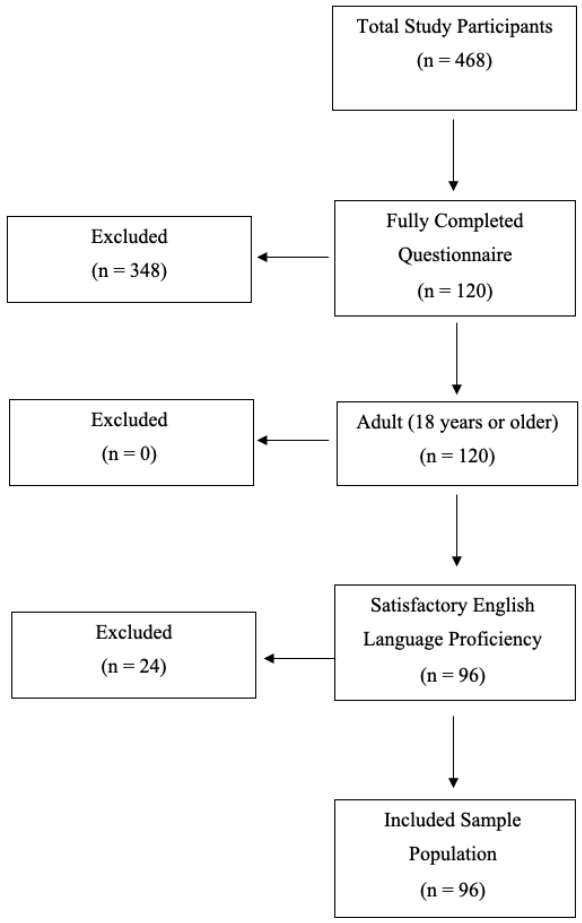
Procedure

This study was conceptualized with a cross-sectional design and adhered to the German Federal Data Protection Act guidelines. Pseudonymisation and informed consent procedures were implemented, as well as disclosure of data being stored in Germany, and further ethical review by the Ethics Committee of the Medical School Hamburg's Faculty of Human Sciences was deemed unnecessary. Individuals with differing levels of Machiavellian and psychopathic tendencies were compared in regard to the psychological constructs of manipulativeness, impulsiveness, grit, and NfC within a self-report questionnaire that took approximately 30 minutes to complete. IBM®'s SPSS® Statistics software was used to perform hierarchical regression analyses and to prepare demographic insights into the sample population. The hierarchical regression analyses analysed the predictive variables manipulativeness, impulsiveness, NfC, and grit within Machiavellianism and psychopathy (i.e., the criterion variables), with the results being applied towards the research question and hypotheses. A convenience sampling procedure was adopted for this study, recruiting individuals who were most accessible as participants through social media and university platforms. In order to minimize the potential sampling bias from this study's non-probability sampling method, individuals from a variety of educational backgrounds, nationalities, sexes, and ages were recruited. The selection of participants included in the sample population was made considering the inclusion and exclusion criteria listed in Table 1. These criteria facilitated the sample population selection procedure, as shown in Figure 1. Satisfaction of the English language proficiency requirement was defined to participants through the following criterion: native speaker, German Abitur graduate, or B2 and above language certification as per the Common European Framework (CEFR). As this study was inclusive of all nationalities, it was deemed necessary to control for adequate language skills, as the self-report questionnaire was only available in English.

Table 1
Sample Population Eligibility Criteria.

Inclusion Criteria	Exclusion Criteria
Fully Completed Questionnaire	Incomplete Questionnaire
Adult (18 years or older)	Minor (Under 18 years old)
Satisfactory English Language Proficiency	Unsatisfactory English Language Proficiency

Figure 1
Sample Population Selection Flow Chart.



Participants

The self-report questionnaire was initially accessed by 468 study participants. After filtering for eligibly criteria, as seen in Table 1 and Figure 1, the sample size was reduced to *N* = 96. Of the included 96 study participants, 49% (*n* = 47) were native English speakers and 63% (*n* = 60) had a university-level background in psychology. Canadian nationals made up 44% of the sample population with *n* = 42 and German nationals represented 48% of the sample population with *n* = 46. Additionally, 8% of the sample population reported a different nationality, with *n* = 1 identifying as British, *n* = 1 identifying as Belgian, *n* = 1 identifying as Chinese, *n* = 1 identifying as U.S. American, and *n* = 4 identifying as dual Canadian-German citizens. The ratio of men to women was 25:71, with 26% male (*n* = 25) and 74% (*n* = 71) female participants. The sample population's age distribution can be seen in Table 2.

Table 2
Age Distribution in Sample Population

Age Range (years)	*n*
Under 18	0
18-24	36
25-30	29
31-40	3
Over 40	28

Measures

MACH-IV. The MACH-IV questionnaire (Christie & Geis, 1970; 2013) was used to measure Machiavellianism, with its Tactics subscale being applied to evaluate the construct of manipulativeness. The MACH-IV scale is a three-dimensional self-report measure consisting of 20 items (Láng, 2020), divided into three subscales. These subscales are Tactics, Cynical View of Human Nature, and Disregard for Conventional Morality (Corral & Calvete, 2000). Items such as "Honesty is the best policy in all cases" are measured using a 7-point Likert scale (1 = *disagree strongly,* 2 = *moderately disagree,* 3 = *slightly disagree,* 4 = *neutral,* 5 = *slightly agree,* 6 = *moderately agree,* 7 = *strongly agree*) resulting in a total score out of 100 (Láng, 2020). Scores range from 20 to 100, with scores below 60 being classified as "Low MACHs" and scores above 60 as "High MACHs" (Covert, 2019). Previous studies performed confirmatory factor analyses to assess the validity of the MACH-IV scale (Miller et al., 2019). A Comparative Fit Index (CFI) of .894 indicated an acceptable model fit, and a Root Mean Square Error of Approximation (RMSEA) of .05 indicated good construct validity and internal consistency (Miller et al., 2019).

SRP-III. The Self-Report Psychopathy (SRP-III) scale (Paulhus et al., 2009) was utilized to measure psychopathy, with its Erratic Lifestyle (ELS) subscale being applied to assess the construct of impulsiveness. The SRP-III is a scale made up of 64 items, which are divided into four subscales (Gordts et al., 2017). These four subscales are Erratic Lifestyle (ELS), Antisocial Behaviour (ASB), Interpersonal Manipulation (IPM), and Callous Affect (CA), and they are based on Hare's (2003) 4-factor model of psychopathy (Paulhus et al., 2009). Each subscale of the SRP-III is made up of 16

items, of which five items are reverse coded (Paulhus et al., 2009). Items such as "I'm a rebellious person" are measured using a 5-point Likert-scale (1 = *disagree strongly,* 2 = *disagree*, 3 = *neutral*, 4 = *agree,* 5 = *strongly agree*) and the average of each subscale's 16 items results in its mean (Paulhus et al., 2009). The mean of each subscale is then added together and divided by four to determine the overall SRP-III score (Paulhus et al., 2009). Previous studies performed confirmatory factor analyses to assess the validity of the SRP-III scale (Gordts et al., 2017). A Comparative Fit Index (CFI) of .84 indicated an acceptable model fit and a Root Mean Square Error of Approximation (RMSEA) of .05 indicated good construct validity and internal consistency (Gordts et al., 2017).

NFC-S. NfC was calculated using the Need for Cognition – Short scale (NFC-S; Cacioppo et al., 1984). The NFC-S consists of 4 items, two of which are reverse coded, within two facets ("engagement" and "joy") of the construct NfC (Beißert et al., 2015). Items such as "I prefer my life to be filled with puzzles that I solve" are measured using a 7-point Likert scale (1 = *doesn't apply at all,* 4 = *neither applies nor does not apply,* 7 = *applies completely*) and are often integrated into larger self-report surveys (Beißert et al., 2015), such as in this study. Cronbach's Alpha has been calculated between .51 and .54, with a retest-reliability score between .58 and .78 (Beißert et al., 2015).

Grit Scale for Perseverance and Passion for Long-Term Goals. The Grit Scale for Perseverance and Passion for Long-Term Goals (Breyer & Danner, 2015) was used to measure the predictive variable grit. The self-report questionnaire consists of nine items, four of which are reverse-coded (Breyer & Danner, 2015). Items such as "I am a hard worker" are measured using a 5-point Likert scale (1 = *not at all* to 5 = *to a high extent*), and the mean of all items results in the composite scale score (Breyer & Danner, 2015). Cronbach's Alpha has been calculated between .62 and .74, with a Raykov's Composite Reliability score between .70 and .77 (Breyer & Danner, 2015).

Results

Descriptive Statistics

The characteristics of the dataset can be found in the Supplementary Materials. Here, measures of central tendency (Table A.1), dispersion/variation (Table A.2), posterior dispersion/variation (Table A.3), and position (Table A.4) are reviewed.

Inferential Statistics

Two hierarchical multiple regression models were used to examine the relationship between the independent variables (i.e., manipulativeness, impulsiveness, grit, and NfC) and a dependent variable. Machiavellianism was the dependent variable in the first hierarchical regression analysis and psychopathy was the dependent variable in the second analysis. Hierarchical regression analyses were chosen as the statistical method to compare models and to isolate predictors with significant influence on psychopathy and Machiavellianism. In determining a statistically significant amount of variance after accounting for other variables, the hierarchical regression analyses aim to propose predictive variables that will be helpful in further differentiating between Dark Triad traits. A comprehensive overview of the hierarchical regression analyses' results for the criterion variables Machiavellianism and psychopathy can be found in Table 3 and Table 4 respectively. Manipulativeness was determined to be the only significant predictor for Machiavellianism. Both manipulativeness and impulsiveness were found to be significant predictors for psychopathy with impulsiveness showing the stronger predictive quality.

Discussion

The only significant results found for the predictability of Machiavellianism were for manipulativeness, which demonstrated the highest predictability for Machiavellianism in step 1 (B = .571, $ß$ = .669, p = .000). Manipulativeness' predictive ability of Machiavellianism appears to decrease with the addition of independent variables impulsiveness (step 2), NfC (step 4), and grit (step 3) respectively. The model accounts for .447 (step 1), .448 (step 2), .458 (step 3), and .469 (step 4) of the variation in Machiavellianism, however the coefficients of determination do not disclose information about the causal relationship between independent variables and Machiavellianism. Given the increasing nature of the coefficients of determination for each step, it appears that a better fit for the model was achieved with the addition of independent variables manipulativeness, impulsiveness, grit, and NfC respectively. However, as the coefficient of determination values are neither low nor high, and only manipulativeness was found to be significant, this model does not appear to have a significant predictive quality.

Table 3
Summary of Hierarchical Regression Analysis for Variables Predicting Machiavellianism (N = 96)

Variable	Step 1					Step 2					Step 3					Step 4				
	B	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*
M	.571	.065	.669	8.72	.000**	.569	.066	.667	8.61	.000**	.183	.067	.248	2.73	.008*	.185	.068	.251	2.73	.008*
I						.020	.072	.021	0.27	.786	-.008	.075	-.009	-0.11	.913	-.009	.075	-.010	-0.12	.905
G											-.091	.068	-.112	-1.35	.181	-.063	.071	-.078	-0.90	.373
NfC																-.099	.075	-.107	-1.33	.188
R^2	.447					.448					.458					.469				
Adj R^2	.441					.436					.441					.445				
SE	.458					.460					.458					.456				
F	76.02					37.67					25.94					20.06				

Note: * p < .05, ** p < .001, M = Manipulativeness, I = Impulsiveness, G = Grit, NfC = Need for Cognition, *B* = Unstandardized Regression Coefficient, *SE* = Standard Error, ß = Standardized Coefficient Beta, *t* = t value, *p* = p value, R^2 = Coefficient of Determination, *Adj* R^2 = Adjusted R Square, *F* = Frequency.

Table 4
Summary of Hierarchical Regression Analysis for Variables Predicting Psychopathy (N = 96)

Variable	Step 1					Step 2					Step 3					Step 4				
	B	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*	*B*	*SE*	ß	*t*	*p*
M	.223	.073	.303	3.08	.003*	.191	.065	.259	2.96	.004*	.183	.067	.248	2.73	.008*	.185	.068	.251	2.73	.008*
I						.367	.071	.454	5.19	.000**	.358	.074	.443	4.85	.000**	.358	.074	.443	4.82	.000**
G											-.029	.067	-.041	-0.43	.669	-.023	.070	-.032	-0.32	.747
NfC																-.021	.074	-.026	-0.28	.778
R^2	.092					.296					.297					.298				
Adj R^2	.082					.280					.274					.267				
SE	.508					.449					.451					.454				
F	9.49					19.51					12.95					9.64				

Note: * p < .05, ** p < .001, M = Manipulativeness, I = Impulsiveness, G = Grit, NfC = Need for Cognition, *B* = Unstandardized Regression Coefficient, *SE* = Standard Error, ß = Standardized Coefficient Beta, *t* = t value, *p* = p value, R^2 = Coefficient of Determination, *Adj* R^2 = Adjusted R Square, *F* = Frequency.

Regarding the hypotheses, H01 can be accepted for the variable of manipulativeness, as it appears to have an explanatory/predictive relationship to Machiavellianism. For the variables of impulsiveness, grit, and NfC, Ha1 can be accepted as no significant explanatory or predictive relationship could be determined for Machiavellianism. These findings are in line with the previous findings which also reported a relationship between manipulation and Machiavellianism (Marcus et al., 2018; Wehner et al., 2021) and previous findings that did not determine a consistent association between Machiavellianism and impulsivity (Jones & Paulhus, 2011). This study's findings present differential psychological findings about the constructs of impulsiveness, grit, and NfC (Marcus et al., 2018; Wehner et al., 2021; Nogueira et al., 2019), as no significant predictive quality for Machiavellianism was found.

Significant results for the predictability of psychopathy were found for the independent variables manipulativeness and impulsiveness, with the latter demonstrating stronger predictability. Manipulativeness demonstrated a higher predictability in step 1 (*B* = .223, *ß* = .303, *p* = .003), with values

decreasing consistently throughout the steps of the hierarchical regression analysis. Impulsiveness demonstrated a higher predictability in step 2 (B = .367, ß = .454, p = .004), with its predictability decreasing to the same values for step 3 and step 4 (B = .358, ß = .443, p = .008) when independent variables grit and NfC were added. The model accounts for .092 (step 1), .296 (step 2), .297 (step 3), and .298 (step 4) of the variation in psychopathy, however, the coefficients of determination do not disclose information about the causal relationship between independent variables and psychopathy. Given the increasing nature of the coefficients of determination for each step, it appears that an improved fit for the model was achieved with the addition of independent variables manipulativeness, impulsiveness, grit, and NfC respectively. However, as the coefficients of determination values are low and only manipulativeness and impulsiveness were found to be significant, this model does not appear to have a significant predictive quality.

Regarding the hypotheses, H02 can be accepted for the variables manipulativeness and impulsiveness, as they appear to have an explanatory/predictive relationship to psychopathy. For the variables of grit and NfC, Ha2 can be accepted as no significant explanatory or predictive relationship could be determined for psychopathy. These findings are in line with the findings of previous studies, which also reported a connection between manipulativeness and impulsiveness in psychopathy (Marcus et al., 2018; Wehner et al., 2021). This study's findings present differential psychological findings about the constructs grit and NfC (Nogueira et al., 2019; Crysel et al., 2015), as no significant predictive quality for psychopathy was found.

In reviewing the hierarchical regression analyses performed for Machiavellianism and psychopathy, it appears that the results for Machiavellianism have a better predictive quality than those for psychopathy. As H01 was accepted for manipulativeness and H02 was accepted for manipulativeness and impulsiveness, it can be concluded that the relationship between Machiavellianism and manipulativeness, as well as between psychopathy and manipulativeness and impulsiveness, has explanatory/predictive power. As H01 and H02 were rejected for grit and NfC, it can be concluded that there is no evidence of explanatory/predictive power between Machiavellianism and grit or NfC, as well as none between psychopathy and grit or NfC, therefore suggesting this model is not compatible for assessing the relationship between grit or NfC and Machiavellianism or psychopathy.

Through this study's application of hierarchical regression analyses, Marcus et al.'s (2018) network analysis findings can be further validated, as manipulativeness was the only significant predictor of Machiavellianism. This aligns with findings that interpersonal manipulativeness is associated with a stronger edge weight than erratic lifestyle (i.e., impulsiveness) in Machiavellianism (Marcus et al., 2018). Similarly, impulsiveness demonstrated a stronger predictive quality than manipulativeness for psychopathy in both this study's hierarchical regression analyses and Marcus et al.'s (2018) network analysis. Contrary to previous research, this study did not determine a predictive quality of grit or NfC for either Machiavellianism or psychopathy (Nogueira et al., 2019; Szabó & Jones, 2019). In particular, the lack of predictability of grit for Machiavellianism in this study differs from Nogueira et al.'s (2019) findings that Dark Triad personality traits, especially Machiavellianism, were associated with high levels of grit. A potential explanation for this discrepancy may be due to this study's higher prevalence of female participants (74%), as Szabó and Jones (2019) postulate different behavioural patterns depending on gender within Machiavellianism. Additional research is required to further explore this theory.

The state of research combined with this study's findings present differing personality traits associated with the Dark Triad, specifically within Machiavellianism. As this study was unable to determine a predictive quality of grit or NfC for either Machiavellianism or psychopathy, no further distinguishment of these Dark Triad personality traits was possible. Further research is required to explore additional predictive variables of Machiavellianism and psychopathy in order to address the research gaps associated with differentiating between Dark Triad traits. However, findings regarding manipulativeness and impulsiveness further build upon past research and provide evidence to further strengthen the overlapping, yet differing weighting, of these constructs within Machiavellianism and psychopathy.

Limitations

Design limitations of this study at the outcome level include potential information bias, publication bias, recall bias, linguistic bias, and sampling bias. The risk of bias in this study was assessed, and preventative measures (i.e., recruiting a diverse sample population and including only peer-reviewed articles from both the EBSCOHost database search and those directly provided by authors) were taken during the methodical conception in order to insure internal validity.

The cross-sectional design of this study may have

contributed to an information bias due to inaccuracy of key variables (i.e., manipulativeness, impulsiveness, grit, and NfC) on account of its self-reporting nature. However, this limitation has been minimized thanks to the extensive validity research of the individual test instruments integrated into this study's survey (Panitz, 1989; Williams et al., 2003; Cacioppo et al., 1984; Breyer & Danner, 2015). Additional limitations may include non-responders whose characteristics potentially differ from those of responders.

A convenience sampling procedure was adopted for the recruitment of this study's sample population. As this type of non-probability sample does not select participants based on randomization criteria (i.e., not every individual in the general population had an equal chance of being included), inferences made are weaker, conclusions are more limited, and there is a higher risk of sampling bias compared to with a probability sample (McCombes, 2019). Despite efforts made in the methodical conception of this study, this limitation results in data that is not generalizable or representative of the global population but instead provides insight into the initial understanding of the relationship between the constructs of manipulativeness, impulsiveness, grit, and NfC within Machiavellianism and psychopathy.

Additionally, as 63% of the sample population had a university-level background in the field of psychology, it is possible that they possessed prior knowledge of the reviewed constructs or items from the integrated test instruments. This prior knowledge could influence their answer responses, resulting in potential recall bias (Wang & Cheng, 2020). Similarly, a linguistic bias may be present due to 51% of participants reporting a native language other than English. This is considered due to linguistic research postulating that personality traits may be influenced by language (Chen et al., 2014). As the MACH-IV, SRP-III, NFC-S, and Grit Scale for Perseverance and Passion for Long-Term Goals test instruments have all been tested for validity in Western cultures (Panitz, 1989; Williams et al., 2003; Cacioppo et al., 1984; Breyer & Danner, 2015) and only $n = 1$ participant belonged to an Eastern culture (i.e., China), there is a very low risk of cultural bias in this study. However, there is also limited cultural diversity within this sample due to the dipropionate representation of Western versus Eastern culture.

Additional limitations include a relatively small sample population and a higher prevalence of women (74%) compared to men (26%). Many participants (approximately 20% of responders) were eliminated from the sample population due to inadequate English language proficiency, as detailed by the eligibility criteria (Table 1). If the test instrument had been adapted into additional languages, such as German, Dutch, and Chinese, this would have eliminated this eligibility criterion and facilitated a larger sample population. In addition, the gender imbalance in the sample population may have influenced results, as previous research findings reported a higher prevalence of psychopathy in males than females (Wynn et al., 2012) and gender-dependent behavioural patterns within Machiavellianism (Szabó & Jones, 2019). This study also did not integrate any covariates such as age, race, sex, nationality, education level, or vocational occupation that could have potentially affected the response variables.

Conclusion and Future Outlook

This study provides an elementary introduction to the relationship of manipulativeness, impulsiveness, grit, and NfC within Machiavellianism and psychopathy. The results correspond with the findings of previous research about manipulativeness and impulsiveness (Marcus et al., 2018; Wehner et al., 2021), as well as ruling out significant influences of NfC and grit within the reviewed Dark Triad personality traits. This study's findings also imply a higher prevalence of Machiavellianism (16.67%) than previously postulated and identify a need for future prevalence studies that incorporate a larger and more diverse sample population.

Future studies may aim to recruit participants through a probability sampling method in order to minimize sampling bias, and a larger diversified sample size would be beneficial. Future studies may also wish to investigate additional covariates that could influence response variables. In addition, 51% of the sample population did not identify English as their native language, contributing to the postulated linguistic bias presented by this study. Therefore, researchers may seek to establish a sample population of solely native speakers to eliminate this limitation in the future. Future studies may also wish to integrate a university-level psychology background into exclusion criteria in order to minimize recall bias. Further research is needed to determine the presence of a cultural bias in the design of future studies.

Overall, this study's findings that manipulativeness has a predictive quality of Machiavellianism and manipulativeness and impulsiveness have a predictive quality of psychopathy strengthen the evidence of past research (Marcus et al., 2018; Wehner et al., 2021). However, the inability to determine a predictive quality of grit or NfC for either Machiavellianism or psychopathy prevent further distinguishment of these Dark Triad personality traits due to the lack of new insights into their respective cognitive processes. The findings of this study are relevant to researchers,

mental health practitioners, and forensic psychologists who are involved with Dark Triad diagnostics, as general psychological findings concerning manipulativeness and impulsiveness are reconfirmed, and the constructs of NfC and grit can be preliminarily eliminated as predictive variables for Machiavellianism and psychopathy.

Conflicts of Interest

The author has no conflicts of interest to declare.

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