

Development of Dark Triad Scales for Machiavellianism, Psychopathy and Narcissism from the Hogan Development Survey

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Abstract: Dark Triad personalities (DT: Psychopathy, narcissism and Machiavellianism) adversely affect organisational functioning. This research was designed to answer three questions: (1) Can DT personality measures be derived from the Hogan Development Survey (HDS)? (2) Will age, tenure, and gender moderate the relationships between the DT personality measures and job performance? (3) What are the relationships between scores on the DT personality measures? Three new DT scales were derived from the HDS. Scales' scores are discrete and measure independent constructs. Controlling for age, tenure, and gender showed significant negative correlations between the DT and job performance. Four hypotheses, derived from the research questions, were tested based on a sample of 918 managers' responses to HDS and independent ratings of their job performance. Mapping of HDS scales was based on Ferrell and Gaddis's (2016) correlations between HDS scales and two widely used independent DT scales. Three new DT scales were produced from the HDS. Six HDS scales map onto Machiavellianism, five onto psychopathy and four onto narcissism. All the new DT scales showed acceptable Alpha reliabilities. The mapping exercise provided evidence of construct validity. An analysis of high scorers on pairings of the three DT scales showed divergent validity. Partial correlation results after controlling for the effect of age, tenure, and gender showed significant negative correlations between psychopathy, narcissism, Machiavellianism and job performance, demonstrating criterion validity. Divergence between the three scales was found. Organisations can use the new DT scale scores for screening applicants and for identifying future management potential and provide developmental feedback to employees.

Keywords: Dark Triad; Machiavellianism; Psychopathy; Narcissism; Job Performance; Splitters

1. Introduction

1.1 Background and Purpose

A problem for researchers investigating relationships between personality disorders and the DT (Paulhus & Williams, 2002) within normal populations is that measures designed for clinical samples may not have an appropriate range of scores to allow discrimination between respondents (Douglas et al, 2012: 237). Douglas et al advise that the HDS may be a more suitable alternative. This is because it is designed to predict maladaptive symptoms in normal workforce samples, applying a continuum of scores rather than cut-off points. In addition, a study that assesses all three elements of the DT simultaneously is warranted as it represents an opportunity to isolate associations to a particular personality trait by controlling for shared variability (Jonason et al, 2012: 449).

There are three research questions: (1) Can Dark Triad personality measures be derived from the Hogan Development Survey? (2) Will age, tenure, and gender moderate the relationships between the DT personality measures and job performance? (3) What are the relationships between scores on the DT personality measures? In this research, the Hogan Development Survey will be mapped onto measures of the DT and hypotheses derived from the research questions will be tested.

1.2 The Hogan Development Survey

The HDS is designed to identify and measure dysfunctional personalities within a working population. With the passage of the American's with Disabilities Act, 1990, it became clear that instruments designed for clinical diagnoses could be viewed as evaluations of mental disabilities which are prohibited in pre-offer employment enquiries. Consequently, a need emerged for a nonclinical inventory to assess interpersonal behaviours that adversely affect the performance or reputation of people at work. This was the impetus that saw work on the HDS by Hogan Assessments to begin (Hogan and Hogan, 1997).

The Hogan 'dark side' measure is now extensively used in organisational research and practice to measure dysfunctional personality in the 'normal population.' It also has the advantage of being psychometrically valid (Furnham, Trickey and Hyde, 2012: 908). Furnham et al, (2012) report that factor analytic studies of the HDS have yielded three factors: Moving Against Others, Moving Away from Others and Moving Towards Others

(Horney, 1950). Table I provides details of the 11 scales: Moving Against (Bold, Mischievous, Colourful, Imaginative), Moving Toward (Diligent, Dutiful), and Moving Away (Excitable, Cautious, Skeptical, Reserved, Leisurely).

Table I: HDS Factors, Scales and Definitions

HDS Factor	HDS Scale	Concerns seeming...
Moving Away	Excitable	Moody and inconsistent, being enthusiastic about new persons or projects and then becoming disappointed with them
	Skeptical	Cynical, distrustful, overly sensitive to criticism, and questioning others' true intentions
	Cautious	Resistant to change and reluctant to take even reasonable chances for fear of being evaluated negatively
	Reserved Leisurely	Socially withdrawn and lacking interest in, or awareness of, the feelings of others Autonomous, indifferent to other people's requests, and becoming irritable when they persist
Moving Against	Bold	Unusually self-confident and, as a result, unwilling to admit mistakes or listen to advice, and unable to learn from experience
	Mischievous	To enjoy taking risks and testing the limits
	Colorful	Expressive, dramatic, and wanting to be noticed
	Imaginative	To act and think in creative sometimes unusual ways
Moving Toward	Diligent	Careful, precise, and critical of the performance of others
	Dutiful	Eager to please, reliant on others for support, and reluctant to take independent action

Source: Gaddis and Foster (2013: p.8)

1.3 The Dark Triad

1.3.1 Machiavellianism

Machiavellianism, the manipulative personality, emerged from the work of Christie and Geis in 1970. They published a measure of normal personality, the Mach IV, based on items and statements from Machiavelli's original work, *The Prince, The Discourses*. Respondents that agree with these statements are more likely to behave in a cold and manipulative fashion.

1.3.2 Narcissism

Nonclinical or normal narcissism emerged with the publication of the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). Certain facets were retained from the clinical syndrome including grandiosity, entitlement, dominance, and superiority. Whether clinical or nonclinical, others find the narcissist to be socially aversive.

1.3.3 Psychopathy

Even at the nonclinical level, psychopathy is considered the more malevolent of the three DT elements. Core character elements include impulsivity, thrill-seeking, low empathy (callousness), an absence of anxiety and a lack of remorse (Ferrell & Gaddis, 2016: 2).

It is possible to consider the three dimensions of the DT as dark side personality or behavioural characteristics that can degrade job performance and interfere with an individual's ability to capitalize on his or her strengths (Hogan and Hogan, 2009).

1.4 Job Performance and The Dark Triad

Job performance is linked to competence and the technical tasks of a job (Motowidlo, Borman & Schmit, 1997). Personality has an impact on job performance and ultimately influences individual job success (Hogan & Hogan, 2009).

LeBreton et al (2018) note that research on the link between DT traits and job performance has been inconclusive. Evidence linking psychopathy to job performance is limited. This is partly because of the difficulty in securing the active co-operation of business organisations, which has limited research to a few small sample studies (Babiak, Neumann & Hare, 2010), and also because there is a lack of reliable, valid, and generally accepted tools for the assessment of psychopathy (Hare & Neumann, 2008: 219).

The role of Machiavellianism and its links with job performance has been examined intensively. However, “*there is still no consensus about Machiavellianism’s function and value with respect to this important outcome*” (Zettler & Solga, 2013: 545).

Research evidence linking narcissism with job performance is mixed. Some studies have found a positive association (Maccoby, 2000), some a negative association (Soyer, Rovenpor and Kopelman, 1999) and others no relationships (e.g., Judge, LePine & Rich, 2006). The mixed evidence emanates from the use of different measures of both narcissism and performance, either self-reported or by use of objective measures (Campbell, Hoffman, Campbell & Marchisio, 2011).

Other studies have found that reductions in the quality of job performance were consistently associated with increases in Machiavellianism and psychopathy (O’Boyle et al, 2012). Gaddis & Foster’s (2013) meta-analysis found that scores on dark side personality measures (HDS) significantly predict critical leader behaviours and call for more research into possible links between dark side measures and job performance.

1.5 Demographic variables

This study includes the demographic variables of gender, age, and organisational tenure as potential moderating variables in the relationship between the DT and job performance. These demographic characteristics have long been considered important variables in psychological research. One of the principal reasons for this is because they often play a role in both human resource decisions and performance evaluations (Cohen, 1993; Griffeth et al, 2000; Sturman, 2003).

The DT personalities share a common capacity to be callous and malevolent in their day-to-day dealings with others (Paulhus and Williams, 2002). Because of these features and positive intercorrelations, some authors (e.g., McHoskey, Worzel, and Szyarto, 1998) have viewed the DT personalities as indistinguishable in normal samples and have “*lumped*” them together. The “*splitters*” argue that they would expect to see some overlap but also *some unique variance*. The correlations reported by Paulhus & Williams (2002) amongst measures of narcissism (NPI: Raskin and Hall, 1979), Machiavellianism (Mach IV: Christie and Geis, 1970) and psychopathy (The Self-Report Psychopathy Scale (SRP): Forth, Brown, Hart & Hare, 1996) show fairly moderate results. The correlation between psychopathy and narcissism is 0.50, the correlation between psychopathy and Machiavellianism is 0.31, while the correlation between Machiavellianism and narcissism is 0.25. Despite their common “*core of darkness*,” Paulhus & Williams (2002: 562) argue that narcissism, Machiavellianism, and psychopathy are distinct traits that warrant separate theorising and measurement.

2. Hypotheses

The research questions and references above led to the framing of four hypotheses:

H1. There is a statistically significant and negative relationship between the Psychopathy measure and Job Performance, moderated by Age, Gender and Tenure.

H2. There is a statistically significant and negative relationship between the Narcissism measure and Job Performance, moderated by Age, Gender and Tenure

H3. There is a statistically significant and negative relationship between the Machiavellianism measure and Job Performance, moderated by Age, Gender and Tenure.

H4. Pairings of Psychopaths, Narcissists and Machiavellians scales show significant divergence between scores.

3. Research Methodology

3.1 Procedure and Sample

The dataset (secondary) for this study was provided by the US-based Hogan Assessment Systems who had collected the data in 2012 from a large company in the US. They provided HDS scores, age, gender, tenure, and job performance data. Respondents are all managers. Their mean age is 37.83 with a range of 49 years and a standard deviation (SD) of 10.7. Mean job tenure is 23 months with a range of 200 and a SD of 22.2 months. Regarding gender, 73% (649) were male and 27% (240) were female while 29 respondents did not disclose their gender.

3.2 Scales

3.2.1 Dark Triad Scales

The Hogan Development Survey (HDS) is described above in Table I. It comprises 11 scales and 154 items in the form of statements to which a respondent indicates a 0 to “disagree” or a 1 to “agree”. Each HDS scale has fourteen items, incorporated into three subscales. Items are scored so that higher scores represent more dysfunctional tendencies. (Hogan & Hogan, 2009: 14). Ferrell & Gaddis (2016) sought to examine correlations between existing DT measures and the HDS at the subscale level. They correlated the 11 HDS scales with two widely used independent DT scales: The Short Dark Triad (SD3: Jones and Paulhus, 2009), a proxy measure for Machiavellianism, psychopathy, and narcissism as well as the Narcissistic Personality Inventory (NPI-40, Raskin & Terry, 1988), each a validated instrument. Their results suggest some overlap between scales across measures but indicate that DT measures assess part of the dark side personality space, but with two HDS Scales, Diligent and Dutiful, unrelated to DT dimensions.

Ferrell and Gaddis’s (2016) results were used by the author as the study provides evidence of the links between the DT and the HDS. This current study extends their work. The overall results are shown in Table II, while details of the research are provided by XXXX (2021) which shows the significant correlations for Machiavellianism, psychopathy, and narcissism. Where all three subscales of an HDS scale are significantly correlated with a DT scale, they are then included in the taxonomy of the final scales used in this study. Table II shows that six HDS scales map onto Machiavellianism, five onto psychopathy and four onto narcissism. Bold and Mischievous map onto all three DT profiles whilst Skeptical and Imaginative, map onto two. There were no significant correlations with all six subscales of HDS Diligent and Dutiful scales.

TABLE II: Mapping the Dark Triad and Hogan Development Survey

Dark Triad Scale	HDS Scale	Description
Machiavellianism	Excitable	Moody, hard to please, intense but short-lived enthusiasm for people, projects, or things.
	Skeptical	Cynical, distrustful, and doubting others’ intentions.
	Reserved	Aloof, detached, and uncommunicative, lacking interest or awareness of the feelings of others.
	Leisurely	Independent, ignoring people’s requests and becoming irritated or argumentative if they persist.
	Bold	Unusually self-confident, feelings of grandiosity or entitlement, over-evaluation of one’s capabilities.
	Mischievous	Risk taking and testing the limits, needing excitement, manipulative, deceitful, cunning, and exploitative.
Psychopathy	Skeptical	Cynical, distrustful, and doubting others’ intentions.
	Bold	Unusually self-confident, feelings of grandiosity or entitlement, over-evaluation of one’s capabilities.
	Mischievous	Risk taking and testing the limits, needing excitement, manipulative, deceitful, cunning, and exploitative.
	Colourful	Expressive, animated, and dramatic, wanting to be noticed and needing to be the centre of attention.
	Imaginative	Acting and thinking in creative and sometimes odd or unusual ways.
Narcissism	Cautious (Reversed)	Reluctant to take risks for fear of being rejected or negatively evaluated.
	Bold	Unusually self-confident, feelings of grandiosity or entitlement, over-evaluation of one’s capabilities.
	Mischievous	Risk taking and testing the limits, needing excitement, manipulative, deceitful, cunning, and exploitative.
	Imaginative	Acting and thinking in creative and sometimes odd or unusual ways.
Not relevant	Diligent	Meticulous, precise, perfectionistic, inflexible about rules and procedures, critical of others’ performance.
	Dutiful	Eager to please and reliant on others for support and guidance, reluctant to take independent action or go against popular opinion.

3.3 Demographics and Job Performance Scale

Demographic data on age in years, tenure in months and gender (male or female) were available. Job Performance was based on supervisor ratings collected using an online performance rating form with a 5-point scale: 1=Not Effective; 2=Needs Improvement; 3=Meets Expectations; 4=Highly Effective; and 5=Exceptional.

4. Findings

4.1 Hypotheses and Validity Testing

Results reported in Table III show that Hypotheses 1, 2 and 3 are supported. The partial correlations show a statistically significant relationship between each of the DT elements and job performance when controlling for the influence of age, gender and tenure. Evidence is also provided regarding criterion validity. The table presents the Partial & Bi-variate correlations between Dark Triad Scales and Job Performance. The right-hand column, Bivariate, shows Pearson product-moment correlations for each of the DT scales with Job Performance but not controlling for age, tenure and gender. The negative correlations are significant at the 5% level for Narcissism but not significant for Psychopathy and Machiavellianism. All three demographic variables were then entered together. The left-hand column in Table III, Partial, shows the partial correlation results after controlling for the effect of age, tenure, and gender. There are significant negative correlations between job performance and psychopathy, narcissism, and Machiavellianism. This suggests that controlling for age, tenure and gender has a greater effect on the strength of the relationships between the DT and job performance, with psychopathy and narcissism significant at the 1% level.

TABLE III: Partial and Bi-variate Correlations between Dark Triad Scales and Job Performance

	Partial		Bivariate	
Psychopathy	-0.100	**	-0.060	
Narcissism	-0.097	**	-0.067	*
Machiavellianism	-0.069	*	-0.038	
df	856	N	918	

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

4.2 Reliability

Cronbach alpha scale *reliability* values (Cronbach, cited in Field, 2013) were determined. Hair et al (2018) state that 0.6 and above is acceptable for exploratory research, whilst Nunnally suggests that values of 0.5 and above will also suffice in the early stages of research (Field, 2013). This study showed that the Cronbach alpha for Narcissism is 0.6, Psychopathy is 0.8 and Machiavellianism is 0.6. Therefore, all of the DT scale's Cronbach alpha values are within the acceptable ranges just cited and so are reliable.

4.3 Relationships between Dark Triad Variables

In order to identify those with high scores on each DT scale, new variables were developed whereby 'high scorers', those cases with scores above one-half a standard deviation above the mean, i.e., the top one-third (33%) of the sample, were assigned 1 and 'lower scorers', those in the bottom 33%, were assigned 0. Three pairings of the DT constructs, Psychopathy-Narcissism, Narcissism-Machiavellianism and Psychopathy-Machiavellianism were compared using Crosstabs (2 by 2) and Pearson Chi-square.

TABLE IV: Dark Triad Variable Pairings and High Scores on the DT Scales

DT Pairing	High scores on both %	Other scores %	Chi Sq. Value	Sig Level
Psychopathy-Narcissism	28.5	71.5	529.8	0.001
Narcissism-Machiavellianism	20.5	79.5	154.1	0.001
Psychopathy-Machiavellianism	24.2	75.8	284.6	0.001

Results presented in Table IV show highly significant divergence on all three DT pairings, thus providing support for H4 and evidence of discriminant validity. For Psychopathy-Narcissism, 28.5% of the sample shared higher scores (1) while 71.5% did not. The Chi-square value from the Crosstabs was highly significant, reflecting a clear divergence of scores on these two DT constructs. With Narcissism-Machiavellianism, 20.5% of the sample shared higher scores and 79.5% did not. The Chi-square value was also highly significant, reflecting a clear divergence of scores on these two DT constructs. For Psychopathy-Machiavellianism, 24.2% of the sample shared higher scores while 75.8% did not. The Chi-square value again was highly significant, reflecting a clear divergence of scores on these two DT constructs.

5. Discussion

5.1 Correlations between the Dark Triad and Job Performance

LeBreton et al (2018: 393) consider that simple bivariate relationships between DT traits and job performance may be an oversimplification and that researchers should consider possible moderators of the relationships between the DT and job performance. The aim of the partial correlations was to test hypotheses H1 to H3. They posited that the demographic variables of age, gender and tenure will moderate the relationship between each of the DT personality variables and job performance. The partial correlation results support the case for moderation. Controlling for age, tenure and gender has a greater and significant effect on the strength of the relationships between the Dark Triad and job performance.

O’Boyle et al (2012) hypothesised that Machiavellianism, narcissism, and psychopathy will all be negatively related to job performance. They found that in authority roles, narcissism showed a significantly stronger relationship to job performance (-.48) at the .05 confidence level. For individuals in positions of authority, such as managers, the higher the level of narcissism, the lower the quality of their work product (p.564). Other literature also indicates that authority acts as a moderator, strengthening the relationship between narcissism and job performance (Judge, Piccolo and Kosalka, 2009: 863).

O’Boyle et al (2012) also found that elevated scores on Machiavellianism were associated with lower performance. The r_c value was relatively small but was statistically significant and supports the finding in this research. They note that the negative relation may not be particularly consistent across subpopulations (p.564). They also found that psychopathy was negatively related to job performance (r_c -.100). Even though a small effect size, it is significant and replicates the finding made in this research. However, O’Boyle et al (2012: 564) found that narcissism has no overall relationship with job performance, although it was significant for positions of authority which is also in line with this study.

5.2 Reliability and Validity of Dark Triad Scales

The findings show that all the DT scales have acceptable alpha reliabilities above threshold levels recommended by Hair et al (2018) and Nunnally (cited in Field, 2013). The partial correlation results shown in Table III demonstrate criterion validity with significant results for all three DT scales against job performance. The mapping exercise, correlating HDS scales with scores from two valid external scales, provide evidence that the three DT constructs are covered by some HDS scales, demonstrating *construct validity*. The findings from Table IV provide some evidence of discriminant validity, see below. These overall results provide sufficient evidence to support the use of the new DT scales in applied settings.

5.3 “Lumpers” versus “Splitters”

The DT constructs share some common traits. As a result, some authors (e.g., McHoskey, Worzel, and Szyarto, 1998) view the DT constructs as indistinguishable and have “lumped” them together. The “splitters” argue that they expect to see some overlap but also some unique variance. Paulhus & Williams (2002) argue that narcissism,

Machiavellianism, and psychopathy are distinct traits that warrant separate theorising and measurement. O'Boyle et al (2012) found a high percentage of non-common variances in correlations between all three DT pairings and concluded that Machiavellianism, narcissism, and psychopathy are distinct constructs (p.571).

The findings from this research support the “splitters” argument. The research adopted a different approach to correlation by identifying high scorers and comparing frequencies on pairs of DT constructs. Using case scores is more precise than broad relationships as they focus on each individual's score. Results showed a clear majority of respondents did not share high scores on each pair of DT constructs and highly significant divergences on all three, thus providing support for H4. Results thus confirmed that the partitioning or “splitting” of the DT variables should be treated as distinct constructs for theory, for measurement, assessment, and development purposes.

6. Limitations and Further Research

This research is based on a large sample (N=918) but, is a single study of managers from a US company with a western culture. Demographic data only covered age, gender, and tenure because the study was based on secondary data. HDS sub-scale data were not available which ruled out a more rigorous analysis which could have been beneficial by identifying sub-scale facets that differentiated DT behaviours. The secondary nature of the data meant that further information was not available on supervisor ratings. Given these limitations, further research would be beneficial to extend the application to other organisations to broaden validity and generalisability. Other studies should consider the use of the new DT scales for selection, identification and development purposes. Future research could benefit from looking at the context around those with dark personalities rather than looking just at those aversive personalities in isolation.

7. Contribution to knowledge

One aim of this study was to assess the viability of the Hogan Development Survey (HDS) as a single, valid and reliable test to measure the three Dark Triad personality scales. It answers the call from researchers (Rauthmann, 2012; Wu and LeBreton, 2011) for improved measurement of the DT as current measures appear “inadequate”, relying almost entirely on the use of clinical instruments (O'Boyle et al, 2012).

Construct validity of the new DT scales was demonstrated by the scale mapping exercise conducted in this research. *Criterion validity* was established by applying the three new DT scales against measures of job performance. By controlling for the effects of age, gender and tenure, the partial correlations show that all three DT variables significantly and negatively predict job performance. The results answer the call from O'Boyle et al (2012) for a different set of control variables or moderators that better explain the variance in effect sizes.

Another contribution is related to the “lumpers” versus “splitters” debate. Whilst there is evidence of expected overlap, the findings in this research show that for each of the three DT personality pairings, a clear majority of respondents did not share high scores, supporting the “splitters” case, therefore providing some evidence of *discriminant validity*. Finally, Cronbach's alpha test of *reliability* for the narcissism, psychopathy and Machiavellianism scales were all above the acceptable ranges cited in the literature and so are reliable.

8. Contribution to practice

As the DT becomes more integrated within applied psychology and organisational behaviour, its application to employee selection (and by implication, identification of potential and development) becomes one of the most important criteria in judging worth (O'Boyle et al, 2012). One contribution is to employee selection and the potential application of the HDS incorporating measurement of all the DT constructs to a normal (nonclinical) population. As LeBreton et al (2018) point out “One of the principal advantages of using the HDS is that it provides information not only about the DT traits but also about other maladaptive or problematic tendencies that may be particularly disruptive in organisational contexts” (p.405).

Organisations could apply the HDS as a single instrument to measure all three DT constructs' scores, thus saving time and money. The DT scores could be valuable in complementing the job interview. Furthermore, the behaviours associated with the dysfunctional dispositions assessed by the broader application of the HDS can be enhanced by viewing high scores on the individual scale scores in the context of the other scales (Hogan and Hogan, 2009).

9. Conclusion

This paper is of interest to those who are involved in identifying the potential of new personnel, their selection and development. It describes how measures of narcissism, psychopathy and Machiavellianism can be derived from a single personality questionnaire, the HDS, which is more efficient and cost-effective than using separate scales to measure them. Confidence in applying these new scales for employee selection, identification and development is provided by the findings presented on the reliability, and the construct, criterion and discriminant validity of the new scales. Finally, this paper answers the three research questions posed earlier. First, can DT personality measures be derived from the Hogan Development Survey? Secondly, will age, tenure, and gender moderate the relationships between the DT personality measures and job performance? Third, what are the relationships between scores on the DT personality measures?

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