A Critical Appraisal of the Dark-Triad Literature and Suggestions for Moving Forward

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Abstract

Since its introduction in 2002, dark-triad research—the simultaneous study of psychopathy, narcissism, and Machiavellianism—has exploded, with the publication of hundreds of peer-reviewed articles, books, and chapters, as well as coverage by the lay media. Unfortunately, several limitations to this research are unrecognized or ignored. These limitations include (a) the treatment of dark-triad constructs as unidimensional, contrary to evidence for their multidimensionality; (b) the indistinctness between current measures of Machiavellianism and psychopathy; (c) the use of multivariate statistical approaches that pose statistical and interpretive difficulties; (d) failure to test dark-triad relations directly against one another; and (e) methodological concerns related to convenience sampling and reliance on mono-method approaches. We discuss these problems in detail and describe solutions that can result in a more robust, replicable, and meaningful literature moving forward.

Keywords

psychopathy, narcissism, Machiavellianism, partialing, multidimensionality

In 2002, Paulhus and Williams published a seminal study on the *dark triad*—psychopathy, narcissism, and Machiavellianism—with the goal of examining the ways in which these personality constructs overlap and diverge. The authors chose these three "socially aversive" constructs, out of several, because of their belief that the three had the largest empirical literatures. Despite obvious parallels, these constructs have substantially different origins. Modern descriptions of psychopathy can be traced back to the writings of Cleckley (1941) and Hare (e.g., Hare, 1991) and emphasize traits related to egocentricity, lying, lack of empathy and remorse, superficial charm, irresponsibility, and impulsivity. The substantial relation between these traits and antisocial behavior drives much of the interest in this construct; thus, much of the work on this construct has been conducted in offender and forensic samples. Modern descriptions of narcissism trace back to work by psychoanalytic and dynamic writers (e.g., Freud, 1914/1957; Kernberg, 1975) and describe traits related to grandiosity, attention

seeking, egocentricity, entitlement, and a domineering interpersonal style. Finally, Machiavellianism, based on the writings of Niccolo Machiavelli, involves deliberate and strategic interpersonal manipulation aimed at acquiring and maintaining power and control. In general, the three dark-triad constructs are moderately to strongly related (meta-analytic correlations: $r = .35$ for Machiavellianism and narcissism, $r = .38$ for narcissism and psychopathy, $r = .52$ for Machiavellianism and psychopathy; Vize, Lynam, Collison, & Miller, 2018) because they reflect a noncommunal, dishonest, and self-focused approach to interpersonal relations (e.g., Hodson et al., 2018; Moshagen, Hilbig, & Zettler, 2018; Muris, Merckelbach, Otgaar, & Meijer, 2017).

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Table 1. Summary of Data From 131 Studies on the Dark Triad

Variable	Value
Sample size	$M = 407.86$ ($SD = 391.21$), $Mdn = 287$
Tests of significance	$M = 97.17$ ($SD = 87.79$), $Mdn = 75$
Sample type	
Adolescents	$n = 10$, 8%
Community	$n = 16$, 12%
Undergraduates	$n = 59$, 45%
Online recruitment	$n = 32$, 25%
Combined samples	$n = 13$, 10%
Correctional	$n = 1$, 1%
Measurement	
Domain scores only	$n = 113$, 85%
Self-report only	$n = 106$, 80%
Analysis	
Multivariate approach	$n = 108$, 82%
Controlled Type I error	$n = 12$, 8%
Tested correlation difference	$n = 6$, 5%
Report power analysis	$n = 4$, 3%

Note: "Combined samples" include subsamples (e.g., community, undergraduates) as well as snowball samples of recruited students and peers or members of the community who may or may not have been students. "Domain scores only" refers to the use of total scores only for the dark-triad constructs rather than also reporting relations at the subscale level. "Controlled Type I error" includes studies that lowered the nominal α criterion to below the standard .05. "Tested correlation difference" refers to whether correlations reported between dark-triad scales and "outcomes" differed among one another (i.e., test of dependent *r*s).

Shortcomings of Existing Dark-Triad Research

Paulhus and Williams's (2002) publication spawned a rapidly growing literature. Articles on the dark triad are published in a variety of psychology subdisciplines, and the research has been covered widely in mainstream media outlets (e.g., *The New York Times*; BBC; *The Guardian*). Unfortunately, this literature is rife with methodological and conceptual problems that are often unrecognized or ignored. In this review, we detail five concerns: (a) failure to recognize the multidimensional nature of the three dark-triad constructs, (b) failure of existing Machiavellianism measures to adequately capture the construct, (c) failure to acknowledge the interpretive perils posed by the prescribed multivariate approach to data analysis, (d) failure to adequately test claims of differential validity among dark-triad constructs, and (e) overreliance on cross-sectional studies using single methods in samples of convenience.[1] We illustrate the prevalence of many of these issues with data from our recent meta-analysis (Vize et al., 2018; see Table 1). We close with suggestions for improving research in this area.

The multidimensionality of the dark triad

Most dark-triad research treats each construct as unidimensional despite evidence that each construct is multidimensional. From a personality perspective, descriptions of psychopathy combine content related to interpersonal antagonism and disinhibition (Lynam & Miller, 2015), and some include a boldness component (Patrick, Fowles, & Krueger, 2009). Similarly, most comprehensive models of narcissism include two (e.g., Back et al., 2013) or three (Krizan & Herlache, 2018; Miller, Lynam, Hyatt, & Campbell, 2017) basic traits related to antagonism, extraversion or agency, and neuroticism or inhibition. Examination of the structure of Machiavellianism similarly suggests multidimensionality (e.g., Collison, Vize, Miller, & Lynam, 2018). Failure to appreciate the multidimensionality of these constructs can lead to inadequate measurement and less-coherent theoretical models. Reliance on total scores also obscures substantial differences among the components within each construct (e.g., Miller et al., 2010; Watts, Waldman, Smith, Poore, & Lilienfeld, 2017) and leads to interpretive difficulties (Smith, McCarthy, & Zapolski,

2009). For instance, components of narcissism are differentially related to self-esteem, with some components being positively related (i.e., agentic extraversion, admiration, leadership or authority), others being negatively related (e.g., neuroticism or emotional vulnerability, rivalry), and still others being unrelated (e.g., antagonism; e.g., Geukes et al., 2017; Miller et al., 2016). These differences are obscured if total scores are used. Similarly, Vize et al. (2019) demonstrated that interpersonal antagonism, rather than extraversion or neuroticism, explains the relations between narcissism and various forms of externalizing behaviors. Unfortunately, 85% of studies published on the dark triad used only total scores (see Table 1). Part of the problem is that the two commonly used omnibus measures of the dark triad, the Dirty Dozen (Jonason & Webster, 2010) and the Short Dark Triad (Jones & Paulhus, 2014), provide only total scores for each construct, making it impossible to examine these constructs in the more nuanced manner required.

Existing measures of Machiavellianism do not assess Machiavellianism

Existing measures of Machiavellianism do not align with expert ratings of the construct (Miller, Hyatt, Maples-Keller, Carter, & Lynam, 2017) and are virtually indistinguishable from measures of psychopathy (Vize et al., 2018). The main problem is that existing measures of Machiavellianism correlate positively with measures of disinhibition that assess traits related to impulsivity, laziness, incompetence, and a lack of perseverance. This is problematic given that Machiavelli wrote about the use of deception, manipulation, coercion, intimidation, and violence to achieve and maintain power, status, and control via the use of prudence, calculation, and the careful, thoughtful consideration of risk—these latter characteristics are the antithesis of disinhibition. This is in line with the current-day expert descriptions seen in Table 2. Experts describe the prototypical Machiavellian individual as having low levels of traits related to agreeableness (e.g., cynical, suspicious, manipulative) but average to high levels of traits related to conscientiousness (e.g., deliberate, persistent, responsible, ambitious). Unfortunately, existing measures are negatively correlated with both agreeableness and conscientiousness, indicating that Machiavellian individuals describe themselves as impulsive, undisciplined, unambitious, incompetent, and sensation seeking in addition to being cynical, suspicious, and manipulative. Because low agreeableness and low conscientiousness are the defining features of psychopathy, Machiavellianism's empirical profile is more strongly aligned with expert ratings of psychopathy than of Machiavellianism (rs = .27 vs. .50; see Table 2).

Thus, most dark-triad research is actually studying narcissism and two versions of psychopathy (see also Glenn & Sellbom, 2015). This problem is not limited to self-report studies. Individuals who describe themselves as high in Machiavellianism on existing scales are described as disinhibited by informants (Maples-Keller & Miller, 2018; Miller, Hyatt, et al., 2017). Similarly, individuals described as Machiavellian by peers describe themselves as impulsive (Miller, Hyatt, et al., 2017). These results suggest an untethering of current assessments from the theoretical description of Machiavellianism. The only exception is the recently developed Five Factor Machiavellianism Inventory (Collison et al., 2018), which began with expert descriptions of the traits comprising Machiavellianism.

The perils of partialing

Furnham, Richards, and Paulhus (2013) prescribed the use of multivariate statistical approaches in which outcomes (e.g., aggression) are regressed on all three dark-triad constructs simultaneously in order to understand the unique variance accounted for by each dark-triad construct (see Fig. 1 for a visual depiction). The field has generally followed this prescription: 82% of studies include multivariate analyses (see Table 1). However, there are serious statistical and interpretive difficulties that come with such an approach (e.g., Lynam, Hoyle, & Newman, 2006), especially when the variables are substantially correlated and multidimensional as they are for the dark triad. These approaches can yield residual variables whose content is difficult to discern and that bear little resemblance to their unresidualized counterparts. This concern is especially problematic in the face of suppression (i.e., relations emerging following partialing that were not present before) and when authors conflate the raw and residual variables with one another (e.g., by ascribing to Machiavellianism the relations observed for residual Machiavellianism). For example, once the variance shared with narcissism and psychopathy is removed, Machiavellianism becomes more strongly related to noncentral traits (e.g., depression, anxiety; Sleep, Lynam, Hyatt, & Miller, 2017).

These issues are less worrisome when the variables are not highly correlated or multidimensional, when there is no suppression, and when authors are careful to distinguish between results for the raw and residual variables. Additionally, the residual variable contains less-reliable variance than the raw variable in direct proportion to the correlations between variables (Lynam et al., 2006); for example, Sleep et al. (2017) found that

Table 2. Comparison of Machiavellianism's Empirical Trait Profile With Experts' Ratings of Machiavellianism and Psychopathy

FFM domain and facet	Machiavellianism meta-analysis	Machiavellianism expert		Psychopathy expert	
	Unweighted *r*	*M*	*SD*	*M*	*SD*
Neuroticism					
Anxiety	.16	2.39	1.10	*1.47*	0.52
Angry hostility	**.34**	3.28	1.00	3.87	0.64
Depression	.24	2.94	0.98	*1.40*	0.51
Self-consciousness	.11	*1.92*	1.05	*1.07*	0.26
Impulsiveness	**.27**	2.08	0.94	**4.53**	0.74
Vulnerability	.15	*1.92*	0.87	*1.47*	0.52
Extraversion					
Warmth	−.23	2.06	1.07	*1.73*	1.10
Gregariousness	.01	3.39	0.99	3.67	0.62
Assertiveness	.02	**4.14**	0.87	**4.47**	0.52
Activity	−.09	3.78	0.93	3.67	0.98
Excitement seeking	.23	2.81	1.01	**4.73**	0.46
Positive emotions	−.23	2.72	0.74	2.53	0.92
Openness					
Fantasy	.14	2.28	1.09	3.07	0.88
Aesthetics	−.10	2.77	0.84	2.33	0.62
Feelings	−.07	3.31	1.12	*1.80*	0.86
Actions	−.03	2.94	0.92	**4.27**	0.59
Ideas	−.10	2.78	1.02	3.53	1.10
Values	.01	3.03	0.91	2.87	0.99
Agreeableness					
Trust	**−.41**	*1.42*	0.81	*1.73*	0.80
Straightforwardness	**−.70**	*1.28*	0.94	*1.13*	0.35
Altruism	**−.47**	*1.28*	0.51	*1.33*	0.62
Compliance	**−.51**	2.08	0.65	*1.33*	0.49
Modesty	**−.29**	*1.89*	0.71	*1.00*	0.00
Tendermindedness	**−.33**	*1.36*	0.54	*1.27*	0.46
Conscientiousness					
Competence	−.22	3.69	0.89	**4.20**	1.00
Order	−.18	3.97	0.84	2.60	0.51
Dutifulness	**−.46**	2.53	1.08	*1.20*	0.78
Achievement striving	**−.25**	3.86	0.87	3.07	1.20
Self-discipline	**−.27**	3.42	1.11	*1.87*	0.83
Deliberation	**−.36**	3.78	0.90	*1.60*	1.10

Note: In the "Machiavellian meta-analysis column," correlations of .25 or higher are boldfaced. Data for the meta-analytic correlations between Machiavellianism and the five-factor model (FFM) come from the following studies: Collison, Vize, Miller, and Lynam (2018); DeShong, Helle, Lengel, Meyer, and Mullins-Sweatt (2017); Miller, Hyatt, Maples-Keller, Carter, and Lynam (2017; total *N* = 836). The experts' ratings for Machiavellianism and psychopathy were previously reported by Miller, Hyatt, et al. (2017) and Miller, Lynam, Widiger, and Leukefeld (2001), respectively. Facets rated as particularly low (2 or less) for psychopathy or Machiavellianism are italicized; facets rated as particularly high for these constructs (4 or more) are boldfaced. Similarity between the Machiavellian empirical profile and the Machiavellian experts' ratings was weaker than between the Machiavellian empirical profile and the psychopathy experts' ratings, *r*s = .27 and .51, respectively.

partialed Machiavellianism contained far less reliable personality variance following partialing. In addition, the lower reliabilities of the partialed variables provide little guarantee that the partialed versions of the dark-triad traits will be the same across samples. Additionally, this approach doubles the number of statistical tests conducted, which increases the number of results from which to choose, which substantially increases the family-wise Type I error rate (see also Westfall & Yarkoni, 2016) unless researchers correct their alpha levels to control for the number of significance tests. Unfortunately, despite the large number of significance
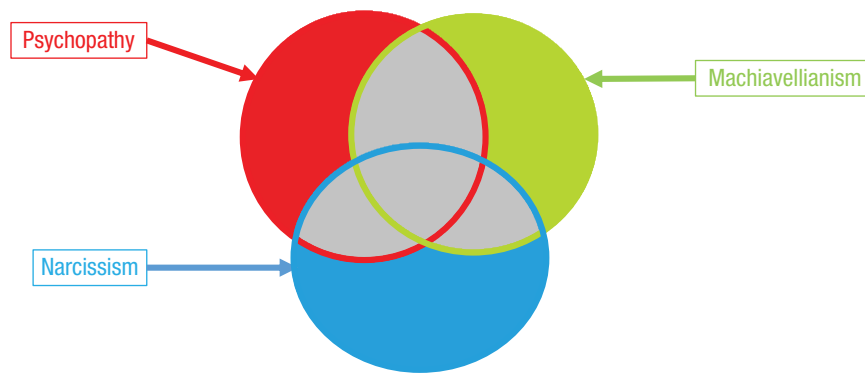
Fig. 1. Representation of raw (unpartialed) and residual (partialed) dark-triad variables that shows the unique variance accounted for by each construct. Each raw variable is represented by a full circle. The residual variable is represented by the colored (i.e., nonoverlapping) portion of the circle.

tests reported in dark-triad studies (i.e., an average of 97),[2] very few (i.e., only 8%) report any attempt to control family-wise Type I error rate (e.g., by using an alpha criterion of < .05).

Claims of differential relations require direct tests of those relations against one another

Despite the desire to draw conclusions about differential relations to criteria among the dark triad, much research has not tested dark-triad correlations against one another. If one wants to report that psychopathy is a stronger correlate of antisociality than narcissism or Machiavellianism, one must test the correlations against one another directly; such tests appeared in only 5% of the studies. It is not sufficient to claim differential relations on the basis of differences in statistical significance. Differences in statistical significance tell whether two correlations are different in their relations to zero, not whether they are different from one another. Dark-triad research would benefit dramatically by always reporting tests of dependent correlations (e.g., Meng, Rosenthal, & Rubin, 1992) so that readers can discern if the correlations between the three dark-triad constructs and the criterion of interest differ significantly.

Cross-sectional, mono-method studies in samples of convenience

The majority of dark-triad research uses cross-sectional data collected from a single source in samples of convenience (e.g., online community samples, undergraduate samples, snowball sampling). As can be seen in Table 1, 70% of samples used in dark-triad research are either college or online community samples. Similarly, 80% use only self-reports for all measured variables. Cross-sectional data do not allow examination of stability or change across time or accurate testing of mediational hypotheses (Maxwell & Cole, 2007)—foci of several dark-triad articles. Mono-method studies likely overestimate the true relation between variables. Although there is nothing inherently disqualifying about a sample of convenience (e.g., Chandler & Shapiro, 2016; Miller, Crowe, Weiss, Maples-Keller, & Lynam, 2017), excessive reliance on such samples naturally raises questions about generalizability. These concerns would be eased if these constructs were more often examined in other relevant contexts, including occupational and forensic settings. Remarkably, we are aware of only a single dark-triad study among offenders (Glenn & Sellbom, 2015), despite the relevance of these constructs in these settings.

Recommendations and Conclusions

Our recommendations to improve the field are straightforward (see Table 3). The first is theoretical. Currently, much dark-triad research primarily cites other dark-triad research and thus does not benefit from drawing on the larger and more established literatures surrounding narcissism and psychopathy. Our second recommendation is assessment focused: It is critical that scholars acknowledge the multidimensionality of dark-triad constructs, measure the components, and report relations at the lower-order level. This allows for a more nuanced study of the constructs both separately and jointly. This means that researchers should not rely solely on

Table 3. Recommendations for Improving Dark-Triad Research

Theoretical:
- Attend to the individual literatures on narcissism and psychopathy.

Assessment:
- Develop better measures of Machiavellianism that are separable from psychopathy.
- Employ multifaceted measures of the dark triad that recognize and operationalize the multifaceted nature of the constructs.

Methods:
- Expand beyond self-reports (e.g., peer reports, official records, psychophysiological) in samples of convenience.
- Adopt open-science practices:
  - Conduct power analyses.
  - Preregister protocol, data-decision rules, analyses.
- Replicate, replicate, replicate.

Statistical:
- Always report zero-order correlations.
- Use multivariate approaches with care.
  - Do not use them as the default.
  - Have strong rationale for their use.
  - Be careful with interpretation.

existing omnibus measures that make such an approach impossible (e.g., Dirty Dozen, Short Dark Triad). Additionally, new measures of Machiavellianism must be developed that hew closer to theoretical conceptions and are less correlated with psychopathy. We have developed one such measure—the Five Factor Machiavellianism Inventory (e.g., Collison et al., 2018)—but it requires further validation, and other measures should be developed.

The third set of recommendations is methodological. Research on the dark triad should move beyond reporting the correlations among self-report measures in cross-sectional samples of convenience. Increasing the diversity of assessment modalities and sampling approaches will yield a more robust and generalizable literature. Similarly, we hope scholars in this area adopt "best" methodological practices to increase replicability. This would include a stronger focus on statistical power, better control of Type I error rates, and preregistration of studies to limit "researcher degrees of freedom" (Simmons, Nelson, & Simonsohn, 2011, p. 1359). These degrees of freedom include the ability to present exploratory work as confirmatory, conduct more analyses than reported, report only a subset of study measures, choose covariates on the basis of results, exclude outliers on the basis of results, and design flexible stopping rules for data collection, to name just a few.

Our final recommendations are statistical: Recognize the interpretive difficulties that come with employing multivariate approaches with highly correlated and multidimensional scales. The resultant residual variables are less reliable (Sleep et al., 2017), often have different relations to outcomes (Lynam et al., 2006), and are no longer explicitly linked to their measurement (i.e., one cannot look at items to understand scale content). Researchers should decide how differences between zero-order and multivariate relations will be handled a priori and avoid conflating the two types of variables (i.e., raw and residual) with one another. Machiavellianism, as measured by the MACH-IV scale (Christie & Geis, 1970), is not equivalent to the small amount of variance that remains in the scale after removing its overlap with psychopathy and narcissism. Emphasize zero-order relations. Always present both sets of analyses if multivariate analyses are presented. If claims of differential validity are made, these relations must be tested directly against one another (e.g., test of dependent correlations).

In conclusion, there is great interest in studies that examine psychopathy, narcissism, and Machiavellianism, both separately and together, in a dark-triad framework. Such interest is natural given the societal costs and interpersonal harm associated with these constructs; however, we believe that dark-triad research should be made theoretically and methodologically stronger, which would enable such research to have a greater impact (e.g., Thomaes, Brummelman, Miller, & Lilienfeld, 2017).

Recommended Reading

Collison, K. L., Vize, C. E., Miller, J. D., & Lynam, D. R. (2018). (See References). Reports on the development of a new Machiavellianism measure (based on five-factor-model descriptions of the prototypical Machiavellian individual) that is more differentiated from psychopathy than existing scales.

Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). (See References). First review of the dark-triad literature that summarizes what was learned in the first decade and advocates the use of multivariate statistical approaches in order to isolate the unique components of the dark triad.

Miller, J. D., Hyatt, C. S., Maples-Keller, J. L., Carter, N. T., & Lynam, D. R. (2017). (See References). Demonstrates that psychopathy and Machiavellianism manifest nearly

identical personality profiles and that the empirical profile for Machiavellianism differs substantially from the theoretical profile generated by Machiavellianism experts.

Paulhus, D. L., & Williams, K. M. (2002). (See References). A seminal article introducing the term *dark triad* and exploring the personality correlates of psychopathy, narcissism, and Machiavellianism.

Sleep, C. E., Lynam, D. R., Hyatt, C. S., & Miller, J. D. (2017). (See References). Demonstrates the interpretative problems that arise from using multivariate statistical approaches to study highly overlapping constructs such as the dark triad.

Vize, C. E., Lynam, D. R., Collison, K. L., & Miller, J. D. (2018). (See References). A meta-analytic review of the dark-triad literature in relation to underlying personality constructs and behavior correlates.

Action Editor

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The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Notes

1. Although too large of an issue to include here in a manner that does it justice, it is worth noting that some authors have argued that psychopathy encompasses narcissism and Machiavellianism, and that the latter two are nested within the former (e.g., Glenn & Sellbom, 2015). For instance, pathological lying, being cunning and manipulative, and having a grandiose sense of self-worth are all traits assessed by the Psychopathy Checklist–Revised (Hare, 1991).

2. This value may include tests not directly related to focal hypotheses, but the general lack of consideration of family-wise Type 1 error rate is worrisome nonetheless.

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