Full Length Article

A network of dark personality traits: What lies at the heart of darkness? ☆

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ABSTRACT

The question of whether there is a common element at the core of the various dark personality traits (e.g., psychopathy, narcissism, Machiavellianism, spitefulness, aggressiveness) has been the subject of debate. Callousness, manipulativeness, and disagreeableness have all been nominated as possibly serving as the core of these dark traits. Network analysis, which graphically and quantitatively describes the centrality of various related traits, provides a novel technique for examining this issue. We estimated an association network and an Adaptive Least Absolute Shrinkage and Selection Operator network for two large samples, one college student sample ($N = 2831$) and one mixed college student and Mechanical Turk sample ($N = 844$). Interpersonal manipulation and callousness were the traits that were central to the networks.

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1. Introduction

Paulhus and Williams (2002) coined the term "Dark Triad" to encompass the personality traits of Machiavellianism, narcissism, and psychopathy, because these three traits are socially aversive and had received prominent empirical attention. Since the term was coined, empirical interest has increased considerably with a PsycINFO search of the term "Dark Triad" yielding over 330 citations with most of these articles having been published since 2014 (see Muris, Merckelbach, Otgaar, & Meijer, 2017 for a meta-analysis, and Furnham, Richards, & Paulhus, 2013, for a narrative review). The aim of the original Paulhus and Williams (2002) study was to demonstrate that although these three traits are intercorrelated, each has distinct characteristics. Although there is consensus that each of these dark traits has unique qualities, the question of what is at the core of the Dark Triad remains unresolved.

Network analysis may provide a novel methodology for examining this issue.

A meta-analysis of studies that assessed all three Dark Triad traits found a large correlation between Machiavellianism and psychopathy and medium-sized correlations between psychopathy and narcissism and between Machiavellianism and narcissism (Muris et al., 2017). These correlations suggest that the shared variance among these traits may represent a "core of darkness" (Jones & Figueredo, 2013, p. 521). Various traits and characteristics have been proposed as the core of the Dark Triad including low honesty-humility from the HEXACO model of personality (e.g., Book, Visser, & Volk, 2015), low agreeableness (Jakobwitz & Egan, 2006), an exploitive mating strategy (at least in men; Jonason, Li, Webster, & Schmitt, 2009), callousness (Jones & Paulhus, 2011), and callousness combined with manipulativeness (Jones & Figueredo, 2013). A variety of statistical methods have been used in an attempt to identify the core of the Dark Triad including canonical correlation analysis (Book et al., 2015), various types of factor or principal components analysis (Jakobwitz & Egan, 2006), structural equation modeling (Jones & Figueredo, 2013), and confirmatory factor analysis followed by a mediational analysis (Jonason et al., 2009). Because network analysis visually depicts the associations among traits and provides measures of centrality, it may provide unique insight into the core of the Dark Triad (see Costantini et al., 2015, for a review).

In network analysis, traits can be represented as nodes and the associations among pairs of traits are depicted as edges connecting the nodes, with thicker edges depicting stronger associations. Thus, a network figure provides a visual representation of a web of related traits and shows which traits are the most central. Three metrics are commonly used in personality and psychopathology research to provide quantitative descriptions of the centrality of the nodes (McNally, 2016). The *strength* of a node is the sum of the correlations between the node and the other nodes in the network. For most purposes, strength is the most relevant of the three centrality metrics. *Closeness* is the inverse of the distance between the node and the other nodes in the network. *Betweenness* is the number of times that a node is the shortest path between two other nodes. Because there will be increased distance between many nodes of the network if a node with high betweenness is removed, betweenness is a measure of a node's connective value to a network. Thus, if there is a trait in a network of dark personality traits that is high in strength, closeness, and betweenness, it is a likely candidate to be at the core. When there were negative edges (i.e., negative associations) between nodes, we also calculated a fourth centrality metric, *expected influence* (Robinaugh, Millner, & McNally, 2016). Expected influence is similar to strength, but takes into account negative relationships (whereas strength is calculated using the absolute value of the edges). There has been a growing interest in using network analysis in psychopathology research to map the relations among sets of psychiatric symptoms (e.g., Borsboom & Cramer, 2013).

There have only been a few applications of network analysis to personality traits. However, these applications have shown promise in facilitating a novel understanding of personality. For example, a network of conscientiousness across two samples revealed that the industriousness and promotion focus nodes had the highest betweenness in the networks of both samples, indicating that they may be particularly important factors in connecting the different aspects of conscientiousness (Costantini & Perugini, 2016).

Although much of the research on dark personality traits has focused on the Dark Triad, we (Marcus & Zeigler-Hill, 2015; Zeigler-Hill & Marcus, 2016) have advocated for a broader framework that includes additional antagonistic or dysfunctional traits. For the current study, we conducted two network analyses examining the associations among a set of antagonistic dark personality traits (psychopathy, narcissism, Machiavellianism, spitefulness, and, in Sample 2, aggressiveness). For psychopathy and narcissism, which are each multifaceted, we included each facet as a separate node.

2. Method

2.1. Participants

Network analysis of psychological data is a relatively new analytic method that has not yet established standards for sample size or power analysis (Epskamp, Kruis, & Marsman, 2017). However, simulations conducted by Epskamp et al. (2017) indicate that with 10 nodes, LASSO techniques accurately detected sparse networks with about 500 participants. Based on these initial findings, both of our samples were sufficiently large.

Sample 1. This sample included 2831 undergraduate students (663 men, 2165 women, and 3 who did not disclose their gender) from a public university in the Midwestern region of the United States. The original sample included 2971 participants, but 140 participants were excluded because they were missing data for one or more of the instruments. The mean age of the participants was 20.11 years (SD = 3.6). Regarding racial/ethnic identity, 76.6% identified as Caucasian, 8.7% as Black, 5.3% as Asian, 2.9%, as Hispanic, and 6.5% other.

Sample 2. Data for this sample were originally collected for a study of spitefulness (Marcus, Zeigler-Hill, Mercer, & Norris, 2014). This sample included 297 participants who were recruited through Amazon Mechanical Turk (MTurk) and 547 undergraduate students from a public university in the Pacific Northwestern region of the United States. There were originally 853 participants in this combined sample, but 9 of these participants were missing one or measures and were exclude from the analyses, leaving 844 total participants. The MTurk participants received $1.00 in exchange for their participation and the college students received research credits. The mean age of the MTurk participants was 36.4 (SD = 13.1) and 62.3% were women. The racial/ethnic identification of the MTurk sample was 75.4% Caucasian, 9.8% Black, 6.1% Hispanic, and 4.7% Asian. The mean age of the student participants was 19.7 years (SD = 2.8) and 79.1% were women. Regarding racial/ethnic identity, 71.9% identified as Caucasian, 9.0% as Hispanic, 9.0% as Asian, and 4.7%, as Black.

2.2. Materials and procedures

The participants provided informed consent and completed all of the study measures online. The measures were administered in random order.

Self-Report Psychopathy Scale (SRP-III; Paulhus, Neumann, & Hare, in press). The SRP-III is a self-report measure of psychopathy that was modeled on the Psychopathy Checklist-Revised (PCL-R; Hare, 2003). Participants indicated their agreement with each of the 34 statements on scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This version of the SRP-III consists of four subscales: Callousness (8 items; e.g., "I'm not afraid to step on others to get what I want" [$\alpha_{Sample\ 1}$ = .77; $\alpha_{Sample\ 2}$ = .80]), Erratic Lifestyle (8 items; e.g., "I enjoy taking risks" [$\alpha_{Sample\ 1}$ = .77; $\alpha_{Sample\ 2}$ = .78]), Interpersonal Manipulation (8 items; e.g., "I find it easy to manipulate people" [$\alpha_{Sample\ 1}$ = .71; $\alpha_{Sample\ 2}$ = .74]), and Criminal Tendencies (10 items; e.g., "Stole money from my parents" [$\alpha_{Sample\ 1}$ = .82; $\alpha_{Sample\ 2}$ = .80]).

Narcissistic Personality Inventory (NPI; Raskin & Hall, 1981). The NPI is well-validated and is considered to be the standard measure of subclinical narcissistic personality features (Paulhus & Williams, 2002). Items on the NPI are in a forced-choice format such that participants must choose between a narcissistic and a non-narcissistic statement (e.g., "I like having authority over other people" or "I don't mind following orders"). Although there has been controversy regarding the underlying factor structure of the 40-item NPI, Ackerman et al. (2010) suggested that the NPI consists of three factors: Leadership/Authority (11 items; e.g., "If I ruled the world it would be a much better place" [$\alpha_{Sample\ 1}$ = .77; $\alpha_{Sample\ 2}$ = .65]), Grandiose Exhibitionism (10 items; e.g., "I really like to be the center of attention" [$\alpha_{Sample\ 1}$ = .75; $\alpha_{Sample\ 2}$ = .77]), and Exploitativeness/Entitlement (4 items; e.g., "I find it easy to manipulate people" [$\alpha_{Sample\ 1}$ = .45; $\alpha_{Sample\ 2}$ = .50]).

Mach-IV (Christie & Geis, 1970). The Mach-IV is a 20-item instrument that was developed to assess Machiavellianism (e.g., "The best way to handle people is to tell them what they want to hear"). Participants rated their level of agreement with the items using scales that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The Mach-IV has been found to possess adequate psychometric properties and is the most widely used measure of Machiavellianism (McHoskey, Worzel, & Szyarto, 1998). The internal consistency for the Mach-IV was $\alpha_{Sample\ 1}$ = .73 and $\alpha_{Sample\ 2}$ = .67.

Spitefulness Scale (Marcus et al., 2014). The Spitefulness Scale is a 17-item instrument designed to measure the willingness of a participant to engage in behaviors that would harm another but that would also entail potential harm to oneself. This harm could be social, financial, physical, or an inconvenience (e.g., "I would be willing to take a punch if it meant that someone I did not like