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Research Article

Structure of Darkness: The Dark Triad, the „Dark" Empathy and the „Dark" Narcissism

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ABSTRACT

While it is universally agreed that empathy deficit is a necessary condition for the dark roster membership, the literature reports differential associations between individual Dark Triad traits, especially narcissism, with cognitive and affective empathy. With this in mind, we have investigated topology of the network consisting of Affective and Cognitive Measure of Empathy, Narcissistic Admiration and Rivalry Questionnaire, and Short Dark Triad traits (SD3). The additional model of Narcissism was included in the analysis due to the accumulated evidence questioning antagonistic nature of Narcissism as defined by SD3. The standard paper and pencil testing procedure was utilized on an *ad hoc* sample of 263 senior high school and university students (M_{age} = 18.30; SD_{age} = 1.65). The network analysis disclosed cohesive configuration of multiply connected study variables, thus confirming their aversive coaction. Two main axes of study variables were identified: the "dark" affective dissonance-rivalry-psychopathy axis, and the "brighter" admiration-SD3 narcissism axis; each characterized by its specific manifestation of empathic deficit. Affective dissonance was the most central while affective resonance was the most redundant node of the network. Rivalry — a node connecting the two axes — had the greatest strength in the network and was closer to affective dissonance than to psychopathy. Involvement of affective dissonance uncovered the dual nature of Machiavellianism by shifting it away from psychopathy and closer to narcissism. By use of structural information not accessible by other means, this study substantiates the proposition about the essential role of distinct empathic deficits in the constellation of antagonistic traits.

Keywords: network analysis, empathic deficits, the Dark Triad, rivalry, admiration

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Introduction

The concept of Dark Triad (DT; Paulhus & Williams 2002) is based on the idea that human malevolence is best understood as a constellation of three unique but overlapping malevolent traits: psychopathy, Machiavellianism, and narcissism. Since its inception, the Short Dark Triad (SD3; Jones & Paulhus 2014) has become the most popular DT measurement instrument as it has repeatedly demonstrated its value for study of socially undesirable personality traits. Being a concise and reliable estimate of the DT, it has been translated to various languages and has been used in numerous empirical studies worldwide. As such, it has stimulated debates about the dark core of personality and its relations with fundamental personality traits (Hodson et al., 2018; Moshagen et al., 2018). However, divergent linear associations of narcissism with psychopathy and Machiavellianism questioned not only the antagonistic nature of narcissism but also the very concept of the DT (Miller et al., 2017; Persson et al., 2019). As more studies have repeatedly indicated the multifaceted nature of DT constructs (Watts et al., 2017), it seems plausible to assume that a more elaborated approach to each individual DT trait – such as narcissism – should be helpful for our understanding of dark personalities.

Nevertheless, in majority of studies on the DT data were analyzed under the standard latent variable model i.e., the assumption that manifest covariance among the traits is due to the underlying effect of a shared latent variable. Though they have greatly improved our knowledge, these studies fall short in providing information on structural relationships of DT traits with personality traits that are closely embroiled in the very conceptualization of DT, such as empathy.

While empathy deficit is a necessary condition for the dark roster membership (Paulhus, 2014), it was not uniformly confirmed across all DT traits since differential associations between individual DT traits (above all, narcissism) with cognitive and affective empathy have been reported in the literature (Jonason & Kroll, 2015; Kajonius & Björkman, 2019). Incongruence of these reports can be explained by the dual nature of narcissism as defined by SD3 (SD3N;

Rogoza et, al. 2018), but can also be attributed to the dual nature of empathy that is not captured by either Interpersonal Reactivity Index (IRI; Davis, 1983) or Empathy Quotient (EQ; Baron-Cohen & Wheelwright, 2004), by far the most widely used empathy scales (Hall & Schwartz, 2019). Contrary to the standard latent variable model, the network analysis model rests on the assumption that psychological variables directly affect each other and that their covariance is not rooted in the veiled existence of an underlying construct (Epskamp et al., 2017). So far, there are no studies investigating structural constellation of DT traits in the context of divergent manifestations of empathy and the dual manifestations of narcissism. The present study was conducted to fill this void.

Heterogeneity of the SD3 narcissism: the bright and the dark face of SD3 narcissism

While there is strong evidence about empirical overlap of all DT traits there is also sufficient evidence indicating consistent and substantial divergence of narcissism from psychopathy and Machiavellianism. Heterogeneity of the SD3N has been repeatedly demonstrated by its divergent correlation with empathy and other external criteria (Muris et al., 2017). This led some authors to question equal importance of narcissism's contribution to the DT construct since– in the company of psychopathy and Machiavellianism – narcissism is viewed as the „the lightest" (Egan et al., 2014) or the „brightest" DT trait (Rauthmann & Kolar, 2012). Furthermore, narcissism's nomological network was found to be meaningfully different from a substantial overlap between nomological networks of psychopathy and Machiavellianism (Vize et al., 2018). Divergent status of narcissism vis-à-vis two other DT traits is also evident with respect to relations to basic personality traits and different psychosocial outcomes (Jonason et al., 2015; Muris et al., 2017; Prusik & Szulawski, 2019). In contrast to two other DT traits, narcissism is a poor predictor of antisocial and asocial online behaviors (Moor & Anderson, 2019), is even positively related to motivation at work and burnout resilience (Prusik & Szulawski, 2019), and is positively related to emotional intelligence and leadership/authority (Szabó & Bereczkei, 2017). This discrepancy is especially evident after controlling for the

common variance of DT traits as residualized narcissism, as opposed to residualized psychopathy and Machiavellianism, positively correlates with Extroversion, Conscientiousness and Openness (Muris et al., 2017).

Dual nature of narcissism: admiration and rivalry

Although there is a universal agreement about its maladaptive nature, there is also convincing evidence that contrary to two other DT traits narcissism has the essential features of not only antagonism, but also agency (Back, 2018). In their theoretical model of grandiose narcissism Back and his colleagues (Back et al., 2013) postulated two contrasting yet correlated dimensions of grandiose narcissism: admiration (self-promoting, agentic, self-enhancing) and rivalry (aggressive, derogating, antagonistic, self-protective). Admiration (the interpersonal component) and rivalry (the intrapersonal component) supplement each other to form a more inclusive picture of grandiose narcissism. This approach, operationalized by the Narcissistic Admiration and Rivalry Questionnaire (NARQ), has demonstrated its utility in studies on social consequences of narcissism, as initial admiration-driven popularity of narcissists is quenched by their manifestations of rivalry (Leckelt et al., 2015) eventually affecting quality and stability of romantic relationships (Wurst et al., 2017). Furthermore, admiration is positively correlated while rivalry is negatively correlated with forgiveness (Fatfouta et al., 2017) and willingness to apologize (Leunissen et al., 2017). The difference between agentic and antagonistic dimensions of narcissism is also documented by the finding that admiration is positively, and rivalry is negatively associated with prosocial and self-improving dimensions of consumption behavior (Martin et al., 2019). Admiration is positively correlated with Extroversion while Rivalry is negatively correlated with Agreeableness (Rogoza et al., 2016). Rogoza, Kowalski, and Schermer (2019) report that SD3N is closely related to admiration, a finding suggestive of predominately agentic nature of SD3N. Recently it was reported that admiration, similar to SD3N, is positively while rivalry is negatively associated with measures of trait empathy (Burgmer et al., 2021). However, the evidence on structural relationship between the SD3N/admiration cluster and empathy as

operationalized by Affective and Cognitive Measure of Empathy (ACME; Vachon & Lynam, 2016), is still wanting. This evidence should provide critical information regarding agentic/antagonistic nature of the SD3N.

Lack of empathy: the dual nature of empathy

In spite of remarkable disagreements among conceptual and operational definitions in the literature, empathy has been central to explanation of human nature (Hall & Schwartz, 2019) as our hardwired (Bernhardt & Singer, 2012) capacity for cognitive (knowing what others feel) and affective empathy (feeling what others feel) is so fundamental for social bonding and cooperation. While absence of empathic responding has been recognized as the common feature of all DT traits (Heym et al., 2019), there is no universal agreement on how lack of empathy is associated with the DT.

Heartless and dispassionate face of dark personalities was not uniformly confirmed across all DT traits since differential associations between individual DT traits with cognitive and affective empathy were reported in the literature. Jonason and Krause (2013) found that narcissism was linked to empathy skills, whereas psychopathy and Machiavellianism were linked to empathy deficits. In a more recent study (Turner et al., 2019) psychopathy was unrelated to cognitive empathy, whereas narcissism and Machiavellianism were both positively related to cognitive empathy. The picture was additionally complicated by Kajonius and Björkman (2019) who reported a very strong negative relationship between dispositional trait-based empathy with all DT traits and absence of any relationship between DT traits with ability-based empathy.

This inconsistent relationship between dark traits and various indices of empathy might be accounted for by inadequacy of traditional measures of empathy as all three studies relied on psychometric scales that were not sensitive to difference between resonant and dissonant manifestations of affective empathy (Basic Emphaty Scale - BES; Jolliffe & Farrington, 2006; EQ; Baron-Cohen & Wheelwright, 2004; IRI; Davis, 1983).

Affective empathy is commonly understood as sharing the same emotional state with another person. This definition is limited in its scope since

it refers only to positive, resonant manifestations of affective empathy. However, empathy deficits observed in antisocial personalities also entail dissonant or „contrast empathy" (Stotland et al., 1971), that is experiencing hatred and even joy in situations where most people feel compassion and concern when witnessing the pain of others. Accordingly, empathy deficits are not limited only to absence of appropriate emotions but also entail presence of inappropriate emotions. Therefore, empathy — as a vital ingredient of human affective resources— may be distorted both in a quantitative (an attenuated capacity for an appropriate resonant affective response) and/or in a qualitative (a deviant, contradictory affective response) manner. Thus, it seems plausible to assume that measures of empathy sensitive to dissimilarity between absence of resonant and presence of dissonant affective empathy would provide additional insights on empathy's relationship with dark traits.

Vachon and Lynam (2016) redefined affective empathy by adding a complementary dimension of affective dissonance (enjoying the pain and humiliation of others, getting angry when others are having a good time, schadenfreude) as this self-centered and anomalous affect is one of the hallmarks of psychopathy and the related personality traits (Baron-Cohen, 2012; Hare & Neumann, 2009). Addition of this negative dimension of affective empathy opens a new and promising angle for study of antisocial behavior. This novel approach to empathy has been operationalized through the Affective and Cognitive Measure of Empathy psychometric scale (ACME; Vachon & Lynam 2016). Recently, Murphy et al. (2018) reported ACME's superiority over IRI – by far the most widely used empathy scale (Hall & Schwartz, 2018) – with respect to its predictive relations with interpersonally malevolent traits.

Scrutiny of structural relationship between ACME-defined empathy and the Dark Tetrad traits revealed that psychopathy and sadism are primarily linked to deficits in affective empathy (Dinić & Wertag, 2017). Recently, a person centered approach (Heym et al., 2021) identified the distinct cluster (Dark Emapths) presenting high empathy and elevated levels of DT traits, quite distinct from the cluster characterized by elevated DT traits and low empathy (Traditional Dark Triad). The very concept of the Dark Empath is in line with the

view that besides its obvious prosocial contribution empathy may also be harmful (Murphy et al., 2018). Thus, it seems plausible to assume that measures of empathy sensitive to distinction between the absence of resonant and the presence of dissonant affective empathy would provide additional insights on empathy's relationship with the DT.

Network analysis of malevolent traits

Network analysis provides structural information and visualization of bivariate relationships among the variables with respect to their centrality (how essential is a trait for the overall network topology) and redundancy (a degree to which a trait is replaceable with other traits from the network). Admittance of network analysis opened a new perspective for research on antagonistic personalities by providing relevant information not accessible by other statistical analyses. The existing knowledge on nomological framework of DT and DT-related variables is thus advanced by new insights into pairwise interactions of study variables and their spatial arrangements. Through different metrics of centrality and redundancy, network analysis presents distinctive information about importance of individual traits for the general network topology.

Use of the network analysis has established multidimensionality of each DT trait and high centrality of Antagonism, a facet of grandiose narcissism (Truhan et al., 2020). The central position of psychopathy and isolated position of narcissism was reported in the spatial arrangement of Dark Tetrad traits, but also that psychopathy's facet callousness is a key common feature of all Dark Tetrad traits (Dinić et al., 2020). Application of the same analytic methodology indicated a strong spatial connection (constituting the core of the evil) between psychopathy and Machiavellianism but also revealed that SD3N is mostly agentic and only indirectly linked with two other DT traits via its narrow antagonistic component (Trahair et al., 2020). An earlier study (Papageorgiou et al., 2019) reported central position of SD3N among prosocial traits, suggestive of its strategic position for coupling prosocial and antisocial personality traits. Nevertheless, analysis of a network constellation encompassing DT traits, and dual natures of empathy and narcissism is still wanting.

Present study

The main objective of the current study was to investigate collective structure of empathy (as defined by ACME), DT traits (as defined by SD3), and narcissism (as defined by NARC) by use of network analysis. This goal was built on the following rationale: first, empirical evidence for empathic deficit as connective component of DT traits is still incomplete. Disagreement among the existing reports (utilizing the latent variable approach) on relationship between DT traits (particularly narcissism) and empathy deficits challenges the homogeneity of the DT construct but also questions the antagonistic nature of narcissism as operationalized by SD3. Secondly, quantitative and qualitative empathic deficits have not been studied alongside multidimensional definition of grandiose narcissism and their joint interaction with the DT. Network modeling should provide unique information pertaining to importance and relative positioning of study variables in a connective structure of antagonistic traits. This new approach to personality data may supplement our knowledge about the status of quantitative and qualitative empathic deficits, and the status of agentic and antagonistic narcissism in the comprehensive constellation of malevolent traits.

We predict:

H1: The highest centrality of affective dissonance in a coherent constellation of an antagonistic network. According to Vachon & Lynam (2016) distinction between affective dissonance and affective resonance delivers stronger predictive associations with all measures of aggression and externalizing psychopathology relative to any other measure of empathy that is focused on resonant responses alone. As a matter of fact, in their study the strongest incremental predictive contribution was displayed by affective dissonance. Thus, it is quite reasonable to assume that the network analysis will confirm the highest centrality of affective dissonance in a network of antagonistic traits.

H2: Strong pairwise connection with affective dissonance accompanied by a negative or absent pairwise connection with affective resonance is then a

critical evidence of a trait's malevolence. If so, structural proximity/remoteness vis-a-vis affective resonance/affective dissonance may provide singular information about the nature of empathic deficit characterizing each study variable of the network.

H3: Psychopathy will have the strongest pairwise connection with affective dissonance and affective resonance, although in opposite directions. According to Paulhus (2014) cruelty and sadism are essential features of psychopathy. Of all DT traits, psychopathy has the highest correlation with both affective resonance and affective dissonance (Dinić & Wertag, 2017). Among the Dark Tetrad traits, psychopathy is most closely associated with sadism (Johnson et al., 2019).

H4: Consequently, psychopathy will be the main source of information about the DT affective deficit, while Machiavellianism — as the „cold personality syndrome"—will become redundant. We assume that inclusion of affective dissonance in the measurement space will weaken the frequently confirmed association between Machiavellianism and psychopathy (Vize et al., 2018), the overlap that is usually referred as „the core of the evil".

Earlier studies, utilizing the latent variable approach, report similar pattern of psychopathy's and Machiavellianism's correlations with affective resonance and affective dissonance (Dinić & Wertag, 2017). However, this similarity may be somewhat surprising as dissonance implies patent display of contradictory affective tone, which is quite conflicting with Machiavellian calculated suppression of emotional expression (Christie & Geis, 1970). Therefore, should affective dissonance be verified as the central antagonistic trait and should psychopathy be established as the main information carrier about the empathic deficit of DT traits, we assume that Machiavellianism will become redundant. That is, removal of Machiavellianism will not result in a considerable loss of information about the status of empathic deficits in the network.

H5: Both the latent variable approach and the network analysis report a strong direct connection between SD3N and admiration (Rogoza et al., 2019; Trahair et al., 2020). Results of the latent variable approach also indicated similar association of these two expressions of narcissism with empathy. As the latent

variable approach provides no insight into structural relationships of the study variables, the absence of the expected negative association with affective empathy was explained by the „prosocial/ agentic" side of SD3N. However, we assume an indirect link of the SD3N/admiration cluster with affective empathy, a link mediated by psychopathy and rivalry, which would be in accordance with the existing theoretical models (DT; Paulhus & Williams, 2002; NARC; Back et al., 2013).

Method

Participants and procedure

The study was conducted on a sample of 263 participants, senior high school and university students from Vojvodina, Serbia *(M_{age} =18.3; SD_{age} =1.65)* of whom 155 (59%) were females and 108 (41%) were males. The data were collected with the standard paper and pencil testing procedure not causing any reasonably anticipated distress to the participants. All participants provided informed consent for their voluntary participation in the study. The study was approved by the Ethical Committee of the Faculty of Legal and Business Studies Dr Lazar Vrkatić.

Measures

Short Dark Triad (SD3)

The Dark Triad was assessed by the Short Dark Triad (SD3; Jones & Paulhus, 2014; Serbian adaptation Dinić et al., 2018). This 5– point Likert-type scale was composed of 27 items, 9 for each trait: Machiavellianism, Narcissism, and subclinical Psychopathy. Higher score on each SD3 dimension reflects more pronounced presence of a given trait.

Empathy (ACME)

Empathy was assessed by ACME (Vachon & Lynam, 2016) which included 36 self-report items. ACME entailed 3 subscales: cognitive empathy, affective resonance, and affective dissonance. The items were administered using a 5-

point Likert scale. For calculation of the total ACME score affective dissonance scores have been reversed so that the total ACME score represents the overall measure of empathy, with higher ACME scores reflecting higher empathy.

The Narcissistic admiration and rivalry (NARQ)

The Narcissistic admiration and rivalry were assessed by the NARQ scale consisting of eighteen 5-point Likert-type items that measure two dimensions of narcissism (Back at al., 2013): narcissistic admiration and narcissistic rivalry. The original 6-point Likert type rating was replaced with a 5-point rating scale. This was done in order to secure equidistance as an essential feature of interval measurement since 1-5 grading is uniformly used in the Serbian school system and therefore was more familiar to our respondents. Higher score on each NARQ dimension reflects more pronounced presence of a given trait.

Statistical analysis

In the first stage, by use of SPSS software version 25, linear associations of the study variables were analyzed by means of bivariate Pearson product moment correlations. In the second stage, network analysis was used to assess topology of the data set based on direction and strength of mutual linear associations among individual study variables. We relied on the network where nodes represent observed variables and edges represent regularized partial correlations between two variables after controlling for all other variables. Regularized EBICglasso estimation method was used in order to minimize spurious correlations, emphasize unique pairwise interactions and map predictive mediations among the variables (Epskamp et al., 2017). Centrality of variables was assessed via indices of strength, closeness, and betweenness, accompanied by a centralized Zhang clustering coefficient indicating node redundancy (Costantini et al., 2019). Nonparametric bootstrap on 1000 samples was used for assessing edge-weight accuracy. All estimates were performed using R package "qgraph" (Epskamp et al., 2012) and "bootnet" package (Epskamp et al., 2017). The R script and the sample data are available at https://osf.io/7jcks/.

Results

Descriptive statistics, zero-order correlation and internal consistency

We report descriptive statistics and internal consistency for the whole 11-variable data set (Table 1). Reasonable internal consistency was demonstrated for the three psychometric scales and their respective subscales, with Cronbach's alpha ranging from .69 for SD3N to .88 for cognitive empathy, affective dissonance, and the total ACME score. Table 1 displays 55 zero-order correlations among SD3, NARQ, ACME, and their respective components. Since simultaneous presentation of so many inter-correlations is beset by a high probability of Type I error they are primarily inspected for descriptive purposes.

Table 1

Descriptive Statistics, Reliability, Zero-order correlation for SD3, NARQ, and ACME dimensions

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	α	*M*	*SD*
1. SD3M											.72	3.52	0.66
2. SD3N	.37***										.69	3.07	0.68
3. SD3P	.45***	.40***									.72	2.46	0.73
4. Adm	.31***	.68***	.41***								.81	2.27	0.71
5. Riv	.38***	.34***	.58***	.44***							.80	2.68	0.62
6. CEm	.13* (p=.040)	.24***	-.05	.18** (p=.003)	-.22***						.88	3.98	0.65
7. ARe	-.29***	-.18**(p=.004)	-.52***	-.27***	-.63***	.31***					.83	2.16	0.59
8. ADi	.37***	.26***	.64***	.33***	.76***	-.20** (p=.001)	-.66***				.88	3.52	0.66
9. SD3	.77***	.75***	.81***	.56***	.60***	.44***	-.29***	.55***			.83	3.09	0.74
10. NARQ	.40***	.60***	.58***	.86***	.84***	-.02	-.52***	.64***	.68***		.85	2.86	0.67
11. ACME	-.24***	-.09	-.53***	-.19** (p=.002)	-.71***	.64***	.84***	-.83***	-.37***	-.52***	.88	3.86	0.50

Notes. * p<.05; **p<.01; *** p<.001;

Exact p values are shown for all coefficients where p ≥ .001;

α = Cronbach' s alfa; SD3M = the Short Dark Triad measure of Machiavellianism; SD3N = the Short Dark Triad measure of narcissism; SD3P = the Short Dark Triad measure of psychopathy; Adm = admiration; Riv = rivalry; CEm = cognitive empathy; ARe = affective resonance; ADi = affective dissonance; SD3 = the total Short Dark Triad score; NARQ = the total NARQ score; ACME = the total ACME score.

Network analysis

The network analysis represented the study variables as 8 nodes connected by 21 (out of 28 possible) non-zero edges illustrating strength and direction of pairwise partial correlations. The network topology is illustrated in Figure 1. Positive associations were colored by blue while negative associations were colored by red lines. The thickness of an edge corresponds with the strength of the association. The obtained network configuration speaks for integrity of each measuring domain as all nodes from the same measurement domains were directly connected (save for the edge between cognitive empathy and affective dissonance that was estimated close to zero by the EBICglasso methodology). It also speaks for integration of those specific domains into a unique measuring space since the thickest positive edges were observed connecting the nodes from different measurement domains: SD3N – admiration, affective dissonance - rivalry, and affective dissonance – psychopathy.

Twenty-eight regularized partial correlations that were taken into consideration for construction of the network structure depicted in Figure 1 are presented in Table 2. Seven correlations (admiration - affective dissonance; admiration - affective resonance; admiration – Machiavellianism; SD3N - affective dissonance; SD3N - affective resonance; SD3N – rivalry; and psychopathy – cognitive empathy) were limited to zero by the regularized EBICglasso estimation method. However, 95% confidence intervals of eight additional regularized partial correlations included zero (Machiavellianism – rivalry; Machiavellianism - cognitive empathy; Machiavellianism - affective resonance; Machiavellianism - affective dissonance; psychopathy – admiration; psychopathy – rivalry; cognitive empathy - admiration; cognitive empathy - affective dissonance), indicating at uncertainty of those edges (Table 2). The two highest positive regularized partial correlations were between SD3N and admiration and between rivalry and affective dissonance relating to 30% and 22% of the unique shared variance, respectively. The third highest positive regularized correlation was between affective dissonance and psychopathy,

followed by the positive partial correlation between Machiavellianism and psychopathy.

The thickest negative edge was observed between affective resonance and affective dissonance, quite in accordance with the specific measurement domain. Rivalry and SD3N were connected only indirectly via admiration as there was no direct connection between rivalry and SD3N. In addition, rivalry indirectly connected affective resonance and affective dissonance with admiration as there were no direct connections between either affective resonance or affective dissonance with admiration. SD3N was only remotely connected with the two measures of affective empathy, either through the rivalry-admiration or through the Machiavellianism - psychopathy pathways. The shortest connection between psychopathy and cognitive empathy was via rivalry. According to the network analysis, psychopathy and rivalry were also indirectly connected by way of affective dissonance and more remotely by affective resonance.

Relevance of rivalry and affective dissonance for the network configuration was emphasized by the highest frequency of their regularized partial correlations with other variables that exceeded or were equal to the absolute .20 value (Table 2). Regularized partial correlations of Machiavellianism (except with psychopathy) and of cognitive empathy (except with affective resonance) were always bellow the absolute .20 value. The regularized partial correlation between psychopathy and rivalry was close to zero, quite incongruous with their moderate to high zero-order correlation (Table 1), indicating the direct mediating effect of affective dissonance that was observed in Figure 1. On the other hand, the relatively unimpressive regularized partial correlation between Machiavellianism and psychopathy cannot be attributed to any direct mediating effect since the two nodes were connected via the straight edge. Rather, it seems that once direct measures of affective deficits were included in the measurement space their presence – accompanied by the considerable unique variance that was shared between affective dissonance and rivalry (22%) – eclipsed the often-cited link between Machiavellianism and psychopathy.

Nodes' centrality indices: betweenness, closeness, and degree (strength) given in Figure 2 suggest that affective dissonance and rivalry occupied dominant positions of the network. This was evidenced by superiority of affective dissonance in terms of betweenness and closeness, and rivalry's superiority in terms of the degree relative to other nodes of the network. Conversely, the least central positions of the network were occupied by Machiavellianism and cognitive empathy. Nevertheless, based on their respective Zhang clustering coefficients neither Machiavellianism nor cognitive empathy should be labeled as redundant. Affective resonance was the most redundant node of the network as was evidenced by its highest Zhang clustering coefficient accompanied with its low centrality indices. Redundancy of affective resonance is readily explained by its close inverse relationship with affective dissonance. Additional details of the network analysis are provided in the Supplementary materials.

Table 2.

EBICglasso regularized partial correlation for SD3, NARQ, and ACME dimensions

	1.	2.	3.	4.	5.	6.	7.
1. SD3M							
2. SD3N	.14 [.03, .25]						
3. SD3P	.22 [.10, .34]	.12 [.01, .22]					
4. Adm	0	.55 [.46, .64]	.06 [-.03, .15]				
5. Riv	.10 [-.01, .20]	0	.08 [-.03, .19]	.20 [.11, .30]			
6. CEm	.13 [-.01, .26]	.16 [.04, .27]	0	.11 [-.01, .23]	-.13 [-.25, -.01]		
7. ARe	-.02 [-.11, .06]	0	-.13 [-.25, -.02]	0	-.20 [-.32, -.08]	.21 [.10, .32]	
8. ADi	.03 [-.06, .11]	0	.29 [.17, .40]	0	.47 [.37, .58]	-.01 [-.10, .08]	-.29 [-.41, -.17]

Notes. 95% Confidence Intervals are given in square brackets; SD3M = the Short Dark Triad measure of Machiavellianism; SD3N = the Short Dark Triad measure of narcissism; SD3P = the Short Dark Triad measure of psychopathy; Adm = admiration; Riv = rivalry; CEm = cognitive empathy; ARe = affective resonance; ADi = affective dissonance.

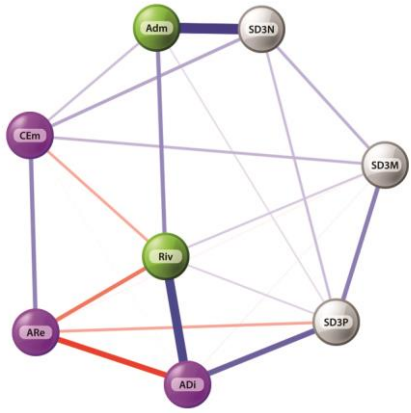

Figure 1. Estimated network structure of SD3, NARQ, and ACME dimensions.

Note. SD3M = Machiavellianism, SD3P = psychopathy, Adm = admiration, Riv = rivalry, CEm = cognitive empathy, ARe = affective resonance, ADi = affective dissonance.

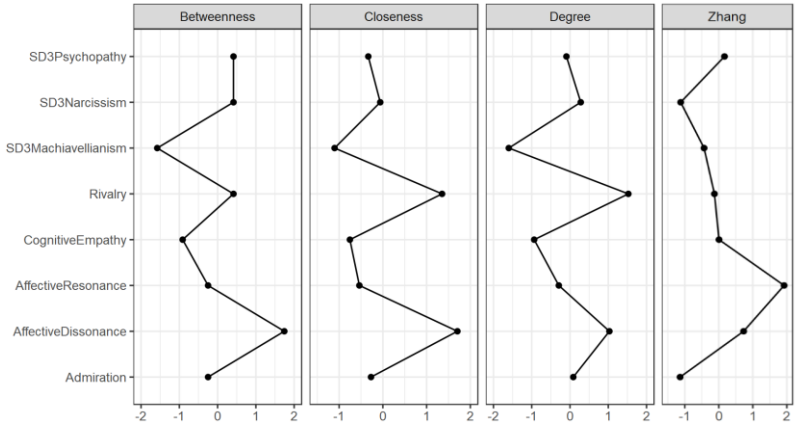

Figure 2. Centrality plot and Zhang clustering coefficient.

Note. Betweenness = number of times a given node lies on shortest path between any two other nodes. Closeness = average distance between a given node and all other nodes, calculated from the inverse of the weighted sum of shortest path from a given node to all other nodes. Degree (strength) = the sum of the absolute input weights of that node. Zhang = the number of connections among the neighbors of a focal node over the maximum possible number of such connections.

Discussion

Structural connectedness of the study variables: affective empathy as a criterion of antagonism

Coherent structure of the present measurement space has been validated by the fact that no study variable was disconnected from the variables of its own measurement domain and from the variables of two other measuring domains. Two mutually remote axes interconnected via rivalry dominated the network topology. Affective dissonance was the most central node of the network, according to both closeness and betweenness criteria. However, according to the strength (degree) criterion the most central position was occupied by rivalry but not by psychopathy, as we have expected. Apparently, overshadowed by affective dissonance and rivalry, psychopathy loses much of its information value. Affective resonance was the most redundant node — as evidenced by its highest Zhang clustering coefficient — contrary to our expectation about Machiavellianism's redundancy given the presence of affective dissonance in the network. In the present pattern of antagonistic traits affective resonance deficit was, most likely, offset by affective dissonance; its opposite and complementary disposition (Vachon & Lynam, 2015). Removal of affective resonance would be least consequential for the topology and the amount of information conveyed by the present network.

So, high extent of antagonism is better defined by the presence of the contradictory affect than by the absence of an appropriate compassionate affect. Absence of affective resonance was a common feature of all study variables, suggesting their malevolent nature. However, high centrality of affective dissonance and redundancy of affective resonance — accompanied by the peripheral position of cognitive empathy in the network — supports the notion about the dual nature of empathy, quite in line with the report on the Dark Empath personality profile (Heym et al., 2021). From this perspective, the proximity and the strength of association with affective dissonance defines the dark roster (affective dissonance, rivalry, and psychopathy), whereas the

remoteness and the absence of direct association with affective dissonance defines the brighter or the duplicitous SD3N – admiration axis. Thus, the data supported both the H1 and the H2 predicting the focal position of affective dissonance in a congregation of toxic traits. Strong positive association with affective dissonance is a critical evidence of trait's malevolence.

Psychopathy as overshadowed by rivalry: the dark (affective dissonance – rivalry – psychopathy) axis

Contrary to our assumption that presence of affective dissonance will further augment psychopathy's position at the dark core, our data pointed at priority of rivalry. Rivalry, but not psychopathy, was the strongest trait in the network, and it was directly connected to all three empathy components. Antagonistic narcissism embedded in rivalry is the vital element of callousness and at the same time the bridge towards the brighter side of antagonism. Thus, rivalry predicts not only the absence of an adequate emotional response and the ability for recognizing the feelings of others, but also the presence of the contradictory affect. It seems that qualitative empathic deficit accompanied with the antagonistic narcissism is located at the core of the evil (Baron-Cohen, 2012).

Proximity between psychopathy and rivalry (high zero-order correlation) was almost entirely mediated by affective dissonance, stressing again the highest strength of rivalry in the network. This mediation suggests that affective dissonance is a common constituent of both rivalry and psychopathy, quite in line with a close parallel between Hare's aggressive and antisocial characterization of psychopathy and antagonistic characterization of rivalry. According to Hare (Hare et al., 1991), manifestations of narcissistic personality disorder and subclinical narcissism have much in common with interpersonal-affective component (Factor I) psychopathy. According to our data, propensity for hurting others and for „sadistic pleasure" is not contained only to psychopathy and sadism (Dinić & Wertag, 2017), as it is also related to antagonistic side of narcissism. Similarly, Truhan et al. (2021) report that antagonism — a facet of grandiose narcissism — is the central feature in the

measurement space encompassing different forms of narcissism, Machiavellianism, and psychopathy. While our findings did not support the H3 — predicting the highest strength of psychopathy — they demonstrated the importance of rivalry for the essence of evil since rivalry was detected as the strongest trait in the whole network.

Machiavellianism

Machiavellianism was the most peripheral and the weakest node of the network, but was not redundant. Removal of this node would considerably affect the overall network composition. Together with cognitive empathy — the second most peripheral node of the network — Machiavellianism is close to the SD3N – admiration axis. It has been established that in the same measurement space with rivalry, Machiavellianism and psychopathy form the common nucleus (Trahair et al., 2020). Our data suggest that the presence of affective dissonance weakens this close connection between Machiavellianism and psychopathy and moves Machiavellianism to a less central position in the network.

This is quite in line with cold and manipulative, characterization of Machiavellianism (Paulhus, 2014). One should keep in mind that Machiavellianism — just like narcissism — can have socially desirable outcomes (Paulhus & Williams, 2002), especially when clear of manifestations that it shares with psychopathy (Sleep et al., 2017). However, in the present data set Machiavellianism's and cognitive empathy's close connections with the SD3N-admiration axis speak of manipulative and duplicitous quality of this four-trait cluster. Although the H4 —predicting redundancy of Machiavellianism —was not supported by our data it was instrumental for structural detection of the dual nature of Machiavellianism.

Duplicity and the dual nature of antagonism: the „brighter" (SD3N – admiration) axis

Another focal point of the network was occupied by the SD3N – admiration axis. These two manifestations of narcissism articulated the strongest conjunction in the network. Like Machiavellianism, both nodes had no direct

connections with either index of affective empathy and positively correlated with cognitive empathy. Besides, SD3N and admiration (agentic narcissism) were strongly connected and had comparable centrality and redundancy coefficients. This is consistent with previous reports on the heterogenic nature of narcissism and on the agentic rather than antagonistic nature of SD3N (Rogoza et al., 2019). However, there are several reasons why the SD3N – admiration axis stands as a reminder of antagonistic duplicity. Firstly, it carried unique information since according to Zhang clustering coefficient the overall network configuration would be more affected by the removal of SD3N than by the removal of psychopathy. Secondly, at the zero-order correlation level of analysis, both SD3N and admiration positively correlated with psychopathy, Machiavellianism, rivalry, and affective dissonance, and negatively with affective resonance indicating that SD3N's nature is not entirely agentic. Direct link of SD3N- admiration nodes with cognitive empathy but not with either index of affective empathy additionally supports the premise about the duplicitous face of narcissism (Back et al, 2013). Through its positive association with cognitive empathy, narcissism camouflages its fundamentally aversive character since the absence of the resonant affective response unequivocally conveys the antagonistic nature of SD3N. In the narcissists, presence of cognitive empathy is primarily indicative of instrumentally refined proficiency for reading emotional states of others. Thus, both narcissism and Machiavellianism disguise their fundamentally aversive character since the absence of the resonant affective response unequivocally conveys the antagonistic nature of SD3N. From this perspective, it could be argued that narcissism provides plasticity to the dual nature of antagonism (Rogoza et al., 2019). With caution, the SD3N – admiration axis can be described as „brighter" since it was not directly connected to contradictory affective deficits, quite in line with the H5 – predicting an indirect link between the SD3N/admiration cluster with affective empathy, a link mediated by psychopathy and rivalry.

In this context, the place and role of cognitive empathy in the constellation of aversive traits deserves additional comments. In their seminal paper, Vachon and Lynam (2016) likewise report that cognitive empathy bore

little association with externalizing psychopathology. Thus, position of cognitive empathy vis-à-vis different dimensions of affective empathy and vis-à-vis malevolent personality traits remains unclear and should be a subject of future studies.

The Dark Triad and empathy

Structural analysis of the present measurement space confirmed consistency of the DT but also the dual nature of both narcissism and Machiavellianism. The DT traits were divergently related to distinct forms of empathic deficit, quite in alignment with the original paradigm (Paulhus & Williams, 2002). Psychopathy was the linchpin connecting affective deficit and two other DT traits, a clear manifestation of its central position in the DT. This finding may throw additional light on the incongruous reports on the connection between DT and empathy (Wai & Tiliopoulos, 2012). Psychopathy is the mainstay of the variance shared by DT traits (Glenn & Sellbom, 2015). It seems that affective dissonance is the central point of antagonism or the core of evil, and psychopathy is the core of the DT.

Contributions and implications

The foremost novelty of the study arises from the application of a structural viewpoint and the ensuing importance of rivalry (the dark narcissism) and affective dissonance (the dark empathy) in the constellation of antagonistic traits. This change of perspective was enabled by the relatively novel and more nuanced approaches to empathy as defined by ACME, and narcissism as defined by NARQ. According to Jonason and Kroll (2015), one- and two-dimensional approaches to empathy fall short of demonstrating any compelling moderation effect between empathy and the DT traits. This study has successfully overcome this deficiency by revealing an intricate web bridging ACME and SD3 dimensions. The network analysis identified both direct and indirect structural relationships among the study variables, an information exceeding the scope of the traditional latent variable approach. In addition to original insights about the roles of qualitative empathic deficit and toxic narcissism in the pattern of antagonistic

traits, the network analysis supported the notion about the heterogeneous nature of DT, with psychopathy as the mainstay of the joint nucleus. The use of the ACME model was justified by findings pointing at the prominence of qualitative distortion of empathic response. While this is in line with previous reports on presence of inappropriate emotions among the psychopaths, this study recommends simultaneous assessment of antagonistic narcissism in the forthcoming studies of socially aversive behaviors.

Limitations

Several imperfections hinder contributions of this study. It was based on self-reports from a relatively small, non-clinical and non-representative sample of mostly adolescents from a geographically limited area, potentially restricting variability of their responses and power of statistical analyses. We relied on the validated Serbian version of SD3 (Dinić et al., 2018) and on non-validated translations of NARQ and ACME. While both NARQ and SD3 have been used in studies including adolescents (Rogoza et al., 2019) they were originally developed and validated on adult respondents. Another important limitation originates from the relatively modest reliability of SD3N. Relatively low reliability of this measure has been reported in other studies utilizing SD3 (Dinić et al., 2020). Nevertheless, the soundness of our data was demonstrated by their overall interpretability and internal consistency.

Conclusion

Network analysis disclosed critical position of affective dissonance and rivalry in the overall network composition, and pointed at predictive mediations among the variables, an information that was inaccessible by other statistical methods. Our data support the notion that empathic deficit is the mainstay of antagonism. Accordingly, divergent forms of empathic deficit may explain different manifestations and intensity of antagonism. It seems that the critical empathic deficit is not the absence of an adequate affective response but rather the presence of a contradictory affective response. If so, as suggested by our

data, affective dissonance (additionally endorsed by its strong association with rivalry) is a strong candidate for the dark core of personality.

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Conflict of Interest

There is no conflict of interest to report.

Data availability statement

The dataset, R code and Supplementary Materials are publicly available at: https://osf.io/7jcks/.

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Struktura mraka: mračna trijada, „mračna" empatija i „mračni" narcizam

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SAŽETAK

Uprkos opšte saglasnosti da je empatski deficit osnovna karakteristika mračnog karaktera, savremena istraživanja ukazuju da su osobine mračne trijade, posebno narcizam, različito povezane sa kognitivnom i afektivnom empatijom. Imajući to u vidu, istraživali smo strukturu mrežnog prostora definisanog upitnicima za merenje afektivne i kognitivne empatije, narcističkog divljenja i rivaliteta i mračne trijade (SD3). Dodatni model narcizma je uključen u merni prostor, jer su mnogobrojni nalazi doveli u pitanje antagonističku prirodu narcizma SD3. Primenom metoda olovka-papir testiran je *ad hoc* uzorak koji se sastojao od 263 maturanata i studenata,

prosečno starih 18.3 godine. Analizom mreže utvrđeno je da sve merene varijable pripadaju jedinstvenom prostoru, čime je potvrđena njihova antagonistička priroda. Izdvojene su dve osovine koje su se razlikovale prema specifičnom tipu afektivnog deficita: osovina „mraka" koju su činile afektivna disonanca, rivalitet i psihopatija, i „svetlija" osovina koju su činile narcizam SD3 i divljenje. Centralno mesto u mreži je imala afektivna disonanca, dok je afektivna rezonanca bila redudantna. Rivalitet – most koji povezuje dve osovine – je imao najveću snagu u mreži i bio je bliži afektivnoj disonanci od psihopatije. Uključivanje afektivne disonance udaljilo je makijavelizam od psihopatije i približilo ga narcizmu, čime je potvrđena dvolična priroda makijavelizma. Mrežnom analizom došlo se do informacija koje su nedostupne tradicionalnim statističkim metodama i ukazano je na značajnu distinktivnu ulogu različitih tipova empatskog deficita u konstelaciji antagonizma.

Ključne reči: analiza mreže, empatski deficit, mračna trijada, rivalitet, divljenje