



More or less than the sum of its parts? Mapping the Dark Triad of personality onto a single Dark Core



Bianca Bertl^{a,b,*}, Jakob Pietschnig^c, Ulrich S. Tran^b, Stefan Stieger^{b,d}, Martin Voracek^b

^a School of Health and Education, Middlesex University Dubai, United Arab Emirates

^b Department of Basic Psychological Research and Research Methods, Faculty of Psychology, University of Vienna, Austria

^c Department of Applied Psychology: Health, Development, Enhancement and Intervention, Faculty of Psychology, University of Vienna, Austria

^d Research Methods, Assessment, and iScience, Department of Psychology, University of Konstanz, Germany

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ABSTRACT

The Dark Triad of personality has received considerable attention since its introduction to the literature. However, this personality configuration has been assumed to be merely based on observed positive intercorrelations between narcissism, Machiavellianism, and psychopathy, whereas the underlying factorial structure has not yet been thoroughly investigated. This study set out to test the factorial structure of the Dark Triad, and further examined one proposed conceptual extension, namely the Dark Tetrad, with trait sadism included. A large, community-based sample ($N = 2463$, 56% women, mean age = 41.4 yr.) completed self-report measures of the adverse personality traits narcissism, Machiavellianism, psychopathy, and sadism. Structural equation modelling indicated a better fit for a single latent Dark Core, as compared with assuming the Dark Triad traits as independent constructs. Adding sadism did not improve the explanatory value of the construct. These findings suggest that aversive personalities may best be represented by a single Dark Core of personality.

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1. Introduction

Research into antagonistic traits has gained momentum with the introduction of the Dark Triad of Personality in 2002 (Paulhus & Williams, 2002). The Dark Triad has been proposed as an extension of extant personality theories and has attracted considerable attention in the scientific community. As for just one indicator, as of this writing, the above, initial article introducing the Dark Triad concept has been cited >1400 times according to Google Scholar.

The Dark Triad comprises three aversive traits, namely narcissism, psychopathy, and Machiavellianism. Narcissism is expressed through exhibitionism, entitlement, and interpersonal exploitation (Raskin & Hall, 1979). Machiavellianism is characterized by emotional coldness, the use of interpersonal strategies to manipulate others, lack of concern with conventional morality, and low ideological commitment (Christie & Geis, 1970). Psychopathy is characterized by callousness, lack of remorse, high impulsivity, and stimulation-seeking (Hare, 1991; Paulhus & Williams, 2002).

The construct of the Dark Triad has been based on the observation that its three constituents (narcissism, Machiavellianism, psychopathy) exhibit moderate positive correlations among each other, but contribute

unique increments of variance explanation vis-à-vis investigated target traits. It thus appears that these traits share common elements as well as specific independent components (Paulhus, 2014; Paulhus & Williams, 2002). In accordance with this idea, research including the Dark Triad traits has revealed differentiated patterns of relations between the three traits and a number of variables of interest (e.g., Furnham, Richards, & Paulhus, 2013; Petrides, Vernon, Schermer, & Veselka, 2011).

In contrast, other researchers have advocated to merge the three traits into a single dimension because of their close relationships, instead of treating them as independent traits (Jakobwitz & Egan, 2006; Jonason, Li, & Teicher, 2010b). Following this rationale, Jonason, Li, Webster, and Schmitt (2009) proposed a composite Dark Triad measure, which aimed to represent such a common Dark Core. Psychometric evidence for the utility and validity of such an approach is still warranted.

Indeed, the incremental validity of the Dark Triad has not yet been satisfactorily established. For instance, it has been argued that psychopathy may sufficiently represent the core of the Dark Triad (Glenn & Sellbom, 2015). According to this idea, most self-report measures of psychopathy also gauge facets of narcissism and Machiavellianism. It has also been argued that Machiavellianism and psychopathy largely comprise identical content, thus representing just different labels for one and the same trait, as originating from separate subdisciplines of psychology (McHoskey, Worzel, & Szyarto, 1998).

* Corresponding author at: School of Health and Education, Middlesex University Dubai, United Arab Emirates.

E-mail address: b.bertl@mdx.ac.ae (B. Bertl).

In similar vein, there seems to be no general consensus in the literature regarding the interpretation of narcissism as a dark trait. Rather, narcissism is seen as a trait possessing both adaptive and maladaptive facets (Ackerman et al., 2011). This ambiguity is rooted in the observation that positive associations of narcissism with psychopathy and Machiavellianism have not been unequivocally observed (Lee & Ashton, 2005). However, most researchers seem to stick with the original conceptualization of the Dark Triad as being composed of distinct, but overlapping, constructs. This assumption deserves further evaluation.

As of yet, the factorial structure of the Dark Triad has been examined via a brief measure of the Dark Triad (i.e., the Dirty Dozen scale) and by testing one-factor, bifactor, and hierarchical models (Jonason & Luévano, 2013; Jonason & Webster, 2010). Corresponding evidence suggested that, based on the Dirty Dozen scale, model fit was best for a bifactor model, worse for hierarchical model, and worst for a one-factor solution (Jonason & Luévano, 2013; Jonason & Webster, 2010). However, these results might not be widely generalizable, as criticism has been raised with regards to the psychometric properties of the Dirty Dozen measure (e.g., Miller et al., 2012).

Consequently, although past research oftentimes has interpreted the Dark Triad at face value, presently it seems to be less clear than desired whether the originally postulated structure of three correlated, but distinct, traits adequately describes the dimensionality of the latent construct (or constructs). Arguably, a common Dark Core may represent a more suitable conceptualization of dark personalities. The idea of a Dark Core, as opposed to a Dark Triad, seems plausible, considering strikingly similar correlational patterns of individual Dark Triad traits with the Big Five dimensions, taken as broad measures of personality (e.g., Jakobwitz & Egan, 2006), and with further target traits, including the HEXACO model of personality (Jonason & Kavanagh, 2010; Jonason, Koenig, & Tost, 2010a; Lee & Ashton, 2005).

Interest into other dark personality traits has motivated proposals to extend the Dark Triad by additional aversive traits, in order to enhance the incremental predictive power of the construct. Perhaps most interestingly, moderate positive correlations between Dark Triad traits and trait sadism have led to the idea to extend the construct to a Dark Tetrad of personality (Chabrol, Van Leeuwen, Rodgers, & Séjourné, 2009). Seemingly in line with other antagonistic personality traits, sadistic personalities show cruel behaviors, tend to inflict psychological, sexual, or physical pain on others, and enjoy hurting others.

Initial evidence suggests unique contributions of sadism to variance explanation of cruel behavior, when controlling for the Dark Triad (Buckels, Jones, & Paulhus, 2013). Likewise, a recent study investigating correlational patterns of the Dark Tetrad with personality traits has suggested to include sadism in this framework (Mededović & Petrović, 2015), but the factorial validity of the Dark Tetrad model has yet to be established.

In the light of these apparent inconsistencies and variants of prior related research, the present study addressed three aims: First, we evaluated the Dark Triad as a three-dimensional hierarchical model. Conceptually, this model is directly related to the assumption of the Dark Triad consisting of three overlapping, yet distinct, traits. Second, we investigated the evidence for a Dark Core of personality, as opposed to the commonly assumed three-factor structure of the Dark Triad. Third, we compared model fits of the Dark Triad, the Dark Core, and the Dark Tetrad.

2. Method

2.1. Participants

A sample of 2463 German-speaking volunteers was recruited from the general population, using an age-stratified sampling approach. In all, 56% of participants were women, 40% men, and 4% provided no gender information; 66% of participants were from Austria, 26% from Germany, and 7% from other countries (1% did not provide country

information). Participant age ranged from 14 to 93 yr. ($M = 41.4$, $SD = 17.2$ yr.).

2.2. Procedure

Participants were recruited by students enrolled in research seminars. Potential participants were approached in various public locations and through personal contacts. After participants provided written informed consent, participants were briefed (informed parental consent was obtained for participants younger than 18 yr. of age). Subsequently, participants filled in questionnaires in the below order. Study participation was voluntary and participants were thanked and debriefed after completing the questionnaires.

2.3. Materials

2.3.1. Narcissistic personality inventory (NPI-15; Schütz, Marcus, & Sellin, 2004)

The NPI measures narcissism in non-clinical populations. This measure is a short version of the original NPI-40 (Raskin & Hall, 1979) and consists of 15 items. Higher scores indicate higher narcissism. Following recommendations of prior research (Kubarych, Deary, & Austin, 2004), instead of forced-choice categories 6-point scales were used, indicating differential preference for one of two contrasting statements. Sample Cronbach α was 0.90 and 0.89 for the leadership (adaptive narcissism) and exhibitionism/entitlement (maladaptive narcissism) subscales, and 0.96 for total NPI-15 scores.

2.3.2. Machiavellianism inventory-version IV (MACH-IV; Christie & Geis, 1970)

The MACH-IV assesses Machiavellianism with 20 items. Higher scores indicate higher Machiavellianism. Responses are given on 6-point scales (1: Strongly disagree; 6: Strongly agree). Cronbach α was 0.68 and 0.54 for the manipulative tactics and cynical worldviews subscales, and 0.75 for total MACH-IV scores. A German translation of the instrument was created via the parallel blind technique (Behling & Law, 2000), i.e., after independent translation by two researchers, translation drafts were compared and differences therein discussed and resolved. The same procedure was used to translate the SRP-III and the SSIS (see below).

2.3.3. The self-report psychopathy scale-III (SRP-III; Hare, 1991)

The SRP-III measures psychopathy in non-clinical populations with 31 items. Higher scores indicate higher psychopathy. Responses are given on 5-point scales (1: Strongly disagree; 5: Strongly agree). Cronbach α was 0.64, 0.14, 0.81, and 0.73 for the manipulation, callousness, erratic lifestyle, and antisocial behavior subscales, and 0.86 for total SRP-III scores.

2.3.4. The short sadistic impulse scale (SSIS; O'Meara, Davies, & Hammond, 2011)

The SSIS measures sadistic tendencies in non-clinical populations. Higher scores indicate higher sadism. Responses are given on 6-point scales (1: Strongly disagree; 6: Strongly agree). Internal scale consistency was $\alpha = 0.72$.

2.4. Analysis

Univariate statistical analyses were performed using SPSS 21, and structural equation models were run in MPlus (Muthén & Muthén, 2015). MLMV (maximum likelihood estimator, mean- and variance-adjusted) and WLSMV (weighted least-squares means and variance) estimators were used for examining model fit of the structural equation models. The MLMV is a mean- and variance-adjusted χ^2 test statistic and robust to non-normality (Brown, 2006). Because univariate normality assumptions of variables were not met, we assumed multivariate

non-normality of the data. WLSMV estimation is suited for structural equation modelling with ordered categorical items and based on the polychoric item intercorrelation matrix. This estimation method was chosen for all item-level models, because items were rated on 5- or 6-point scales, thereby conceptually not meeting the assumption of measurement on an interval-scale level. Applying standard criteria of model evaluation, RMSEA values <0.06 (Brown, 2006) and CFI and TLI values >0.95 (Hu & Bentler, 1999) were taken to indicate adequate model fit.

3. Results

Means and standard deviations of the dark personality traits are provided in Table 1. As expected, Spearman correlations (utilized due to distributional non-normality) between traits were medium-sized (Table 1; see Table 2 for subscale correlations).

To examine the factorial structure of the Dark Triad, a series of structural equation models was calculated. The first model examined the relationship between the Dark Triad traits through an item-level analysis (Fig. 1, Model A), including a higher-order latent factor (referred to as the Dark Triad Factor). This model evaluated whether items were suitable indicators of the latent traits and whether there was evidence for a three-dimensional higher-order structure (hierarchical model). The WLSMV estimator was used in this analysis (Factor loadings for this model are presented in Supplementary file S1).

Fit indices indicated poor model fit ($\chi^2(2076) = 15,119.7, p < 0.001$; RMSEA = 0.054; CFI = 0.779; TLI = 0.772). This result was not unexpected because of cross-loadings observed for some items, as indicated through large modification indices. Following standard procedures, items were iteratively removed according to the lowest factor loadings, and structural equation models were recalculated until none of the retained items had loadings of <0.30 . The resulting model ($\chi^2(1536) = 12,071.2, p < 0.001$) showed better model fit in both CFI and TLI values than the initial model (CFI = 0.819; TLI = 0.811), although the RMSEA increased somewhat (RMSEA = 0.062). The poor model fit indicated that a three-dimensional lower-order model with one higher-order factor of the Dark Triad would be difficult to justify.

Furthermore, low item loadings on respective factors should raise general concerns about model appropriateness and construct validity. We did not fit a one-factor model on the three subscales (see below). Such a model would be a just-identified one ($df = 0$) and thus, as a necessity, would perfectly fit the data and would not provide usable information with regards to differential model fit, when compared to competing models (see below).

Consequently, in the next model (Model B) we evaluated the Dark Core of personality. In this model, the subscales of the three measures were specified as manifest variables (Fig. 1, Model B). Based on the modification indices from the prior models, we did not restrict error correlations between subscales for this and all further analysis. Also, The MLMV estimator was used for this and all further analysis. Fit indices indicated Model B fitted acceptably ($\chi^2(16) = 131.1, p < 0.001$; RMSEA = 0.058; CFI = 0.974; TLI = 0.954). The highest factor loadings were observed for the erratic lifestyle and manipulation subscales.

Because Model B yielded an acceptable model fit (Fig. 1, Model B), we examined the Dark Core in Model C (Fig. 1, Model C). Following a prior research approach (Jones & Figueredo, 2013), the SRP-III manipulation and callousness subscales were used as regressive factors, in order

to examine whether this would improve the explanatory value of the Dark Core model. This approach was adopted because evidence from a previous study (Jones & Figueredo, 2013) suggested that callousness and manipulation may be seen as sufficient components for the description of a malevolent personality.

Once again, fit indices indicated acceptable model fit ($\chi^2(16) = 131.1, p < 0.001$; RMSEA = 0.058; CFI = 0.973; TLI = 0.954). Notably, the fit of Model C was virtually indistinguishable from the fit of Model B. The selection of competing Models C or B thus appears to be foremost a conceptual, rather than an empirical, issue with the present data. Callousness and manipulation accounted for 66% of the variance of the Dark Triad factor. Next, because erratic lifestyle had a higher loading than callousness, a further model, including manipulation and erratic lifestyle as regressive factors, was fitted. Fit indices for this model were considerably worse than for the previous model and, for this reason, this additional model was rejected.

Based on the so far best-fitting model (Model C), another model, including sadism (i.e., extending the model to represent the Dark Tetrad), was calculated (Fig. 1, Model D). The CFI value indicated good model fit, although the TLI value was smaller than the recommended cut-off value for acceptable fit ($\chi^2(22) = 270.2, p < 0.001$; CFI = 0.947; TLI = 0.915). Furthermore, the RMSEA value was higher than for Model C, therefore yielding a slightly worse model fit (RMSEA = 0.073). These results suggest that although sadism might conform to the concept of a Dark Core, it does not appear to contribute incremental validity.

4. Discussion

This study examined the factorial structure of the Dark Triad of personality, as based on the evidence from a large, community-based sample, comprised of almost 2500 individuals. All in all, dimensional models assuming a Dark Core provided a better data fit than the hierarchical model. Although there were only small model-fit differences between the two Dark Core models, the model based on the Dark Triad scales appeared to account for the data suitably well, whereas adding trait sadism did not contribute additional explanatory value. Hence, at least vis-à-vis the widely used operationalizations in this research field, being based on either three (Dark Triad) or four traits (Dark Tetrad), aversive, or dark, personalities may best be described by means of one common Dark Core, instead by three (or, alternatively, four) independent, yet overlapping, traits.

The Dark Triad of personality has been rooted in the observation of substantial (or even strong) and invariably positive correlations between the three aversive traits of narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002). However, the current results suggest that the assumption that these traits represent conceptually distinct, but overlapping, constructs appears to be questionable. If indeed these traits would be best characterized by being distinct, yet overlapping, modelling the Dark Triad as a three-trait hierarchical factor structure should show the best fit. However, our results indicate that this is not the case.

Conceivably, two different explanations might account for the current results. On the one hand, model non-conformity could be linked to the less than optimal psychometric qualities of the measures utilized. Indeed, concerns have been raised with regard to the dimensionality and validity of the most widely used instruments for assessing the Dark Triad (i.e., NPI, MACH, and SRP; see Ackerman et al., 2011; Moss, 2005; Rauthmann, 2013) which, for consistency reasons and comparability with the extant research, also have been used in the present study. This interpretation received some support in the item-level analysis which revealed several poor-fitting items within respective scales and, for a number of items, considerable cross-loadings.

On the other hand, the lack of model fit for the hierarchical solution could be due to dimensionality issues of the measured construct (i.e., reflecting one latent variable, instead of several distinct ones). Our model tests showed that when the different subscales of the narcissism,

Table 1
Means, standard deviations, and Spearman correlations among the dark personality traits.

	M	SD	Psychopathy	Narcissism	Machiavellianism
Psychopathy	2.12	0.49			
Narcissism	3.04	0.83	0.469***		
Machiavellianism	2.99	0.57	0.404***	0.209***	
Sadism	1.52	0.57	0.378***	0.154***	0.364***

*** $p < 0.001$.

Table 2
Spearman correlations of subscale scores.

Factors	1	2	3	4	5	6	7	8
1. SRP: Manipulation								
2. SRP: Erratic	0.527***							
3. SRP: Antisocial	0.386***	0.609***						
4. SRP: Callousness	0.243***	0.348***	0.283***					
5. NPI: Leadership	0.287***	0.342***	0.193***	0.192***				
6. NPI: Grandiosity	0.343***	0.377***	0.231***	0.241***	0.520***			
7. MACH: Tactics	0.369***	0.334***	0.322***	0.255***	0.161***	0.164***		
8. MACH: Views	0.233***	0.219***	0.231***	0.174***	0.040*	0.020	0.473***	

SRP = psychopathy measure, NPI = narcissism measure, MACH = Machiavellianism measure.

* $p < 0.05$.

*** $p < 0.001$.

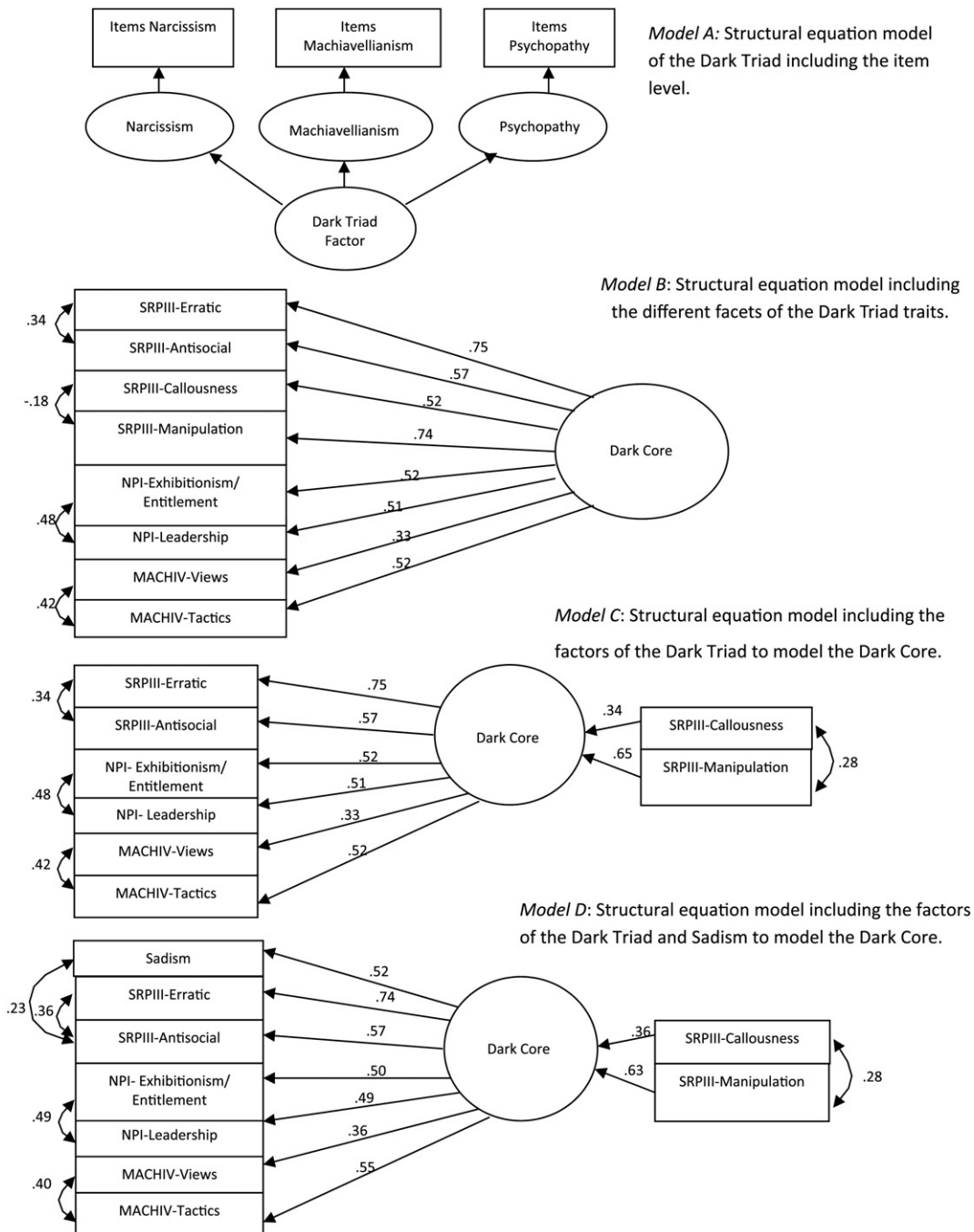


Fig. 1. Structural equation models for the Dark Triad and Dark Tetrad. MACHIV = Machiavellianism measure, SRPIII = psychopathy measure, NPI = narcissism measure.

Machiavellianism, and psychopathy instruments were included, overlap between the three traits was better explained by a single Dark Core of personality. What is more, this interpretation would account for the view that the three aversive personality traits may in fact consist of both adaptive and maladaptive facets (Furnham et al., 2013). One such example of adaptive elements within the Dark Triad traits has been shown for narcissism, where the leadership/authority facet has been proposed to represent an adaptive trait (Ackerman et al., 2011). Conceivably, Machiavellianism and psychopathy may include similar adaptive facets. For these combined reasons, the current results support the idea of a Dark Core, as opposed to a Dark Triad, when attempting to explain the factorial structure of aversive personalities.

Based on the above evidence for a single Dark Core, we attempted to account for the overlap between the three traits. Following the approach of Jones and Figueredo (2013), we linked the overlap of the dark personality traits to the callousness and manipulation subscales of psychopathy. These two subscales accounted for 66% of variance in the Dark Core, thus indicating that callousness and manipulation represent a considerable portion of the Dark Core, as shared by all other dark traits. This finding is consistent with the idea that the explanatory value of the Dark Triad framework is mainly rooted in the trait psychopathy (Glenn & Sellbom, 2015).

In further analysis, we examined the proposed extension of the Dark Triad to a Dark Tetrad model, by adding the personality trait of sadism (Chabrol et al., 2009). Results showed that sadism can be added to the original dark traits sharing a Dark Core. However, although this model fitted the data equally well, the explanatory value of the Dark Core elements callousness and manipulation remained virtually unchanged when sadism was added to the model. It is interesting to note that for sadism a correlated error with the psychopathy subscale of antisocial behavior had to be added to the model. This indicates trait overlap between sadism and antisocial behavior, not due to callousness or manipulation. We opine this is an expected finding, when considering that, by definition, sadists show antisocial behavior. Also, sadism may represent actual behaviors more so than a personality component, which is consistent with the idea of the three dark traits sharing a particular Dark Core of personality, but possessing independent behavioral and attitudinal components (Jones & Figueredo, 2013). In addition, there might be further traits, such as social dominance orientation, which could conceivably be added to this framework. However, it remains to be tested whether such additions will increase the exploratory value of the Dark Core.

4.1. Limitations

As with all research relying on self-reports, socially desirable responding may have some role in the assessment of aversive traits, even when study participation is anonymous. However, such response tendencies would lead to lower reliabilities, making true effects more difficult to detect, and operating against the substantive research hypotheses. Further, a common issue in utilizing self-reports of aversive traits is distributional skewness of response patterns. We dealt with this limitation by using robust, distributionally insensitive, parameter estimators in the structural equation models. Finally, structural equation models are known to be sensitive in terms of sample characteristics and thus may yield divergent results with data stemming from narrow sampling frames. In order to rule out such problems, we recruited a large and sex-balanced sample of participants from a wide age range.

The size of the sample and its community (general population) origin is one strength of the current study, when directly compared with the field of extant Dark Triad research, wherein most samples are of smaller size than ours and many studies have been based on (psychology) undergraduate student samples exclusively.

4.2. Conclusion

We provide evidence that dark, aversive personalities, as conceptualized by the Dark Triad traits, factorially and dimensionally may be

best represented by a single Dark Core. Extending the Dark Triad to include another dark trait (sadism) does not lead to improvements of the explanatory value of the model.

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.paid.2017.04.002>.

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