



ELSEVIER

Contents lists available at ScienceDirect

# Personality and Individual Differences

journal homepage: [www.elsevier.com/locate/paid](http://www.elsevier.com/locate/paid)

## Short Communication

# Serbian adaptations of the Dark Triad Dirty Dozen (DTDD) and Short Dark Triad (SD3)

Bojana M. Dinić<sup>a,\*</sup>, Boban Petrović<sup>b</sup>, Peter K. Jonason<sup>c</sup>

<sup>a</sup> Department of Psychology, Faculty of Philosophy, University of Novi Sad, Dr Zorana Đinđića 2, 21000 Novi Sad, Serbia

<sup>b</sup> Institute of Criminological and Sociological Research, Belgrade, Serbia

<sup>c</sup> School of Social Sciences and Psychology, University of Western Sydney, Milperra, Australia

## ARTICLE INFO

### Keywords:

Dark Triad  
Dark Triad Dirty Dozen  
Short Dark Triad  
Validation  
IRT

## ABSTRACT

We conducted three studies to examine the psychometric properties of the Serbian translations of the Dark Triad Dirty Dozen (Study 1,  $N = 364$ ) and the Short Dark Triad (Study 2,  $N = 409$ ), as well as their convergent and discriminant validity in relation to basic HEXACO personality traits and empathy (Study 3,  $N = 443$ ). The three-factor structure, convergent validity, and discriminant validity were confirmed for both instruments. The main correlates of the traits, from both instruments, were low Honesty-Humility and lack of affective empathy. Also, alpha coefficients for scale scores were satisfactory and scale information was good, with more precision in above-average levels of trait for some of the scales (e.g., psychopathy). Both instruments are recommended to be used in further research.

## 1. Introduction

There is a “dark” thread growing in personality psychology, along with work on the Big Five and, especially, the HEXACO personality model. The Dark Triad traits (Paulhus & Williams, 2002) are Machiavellianism (i.e., manipulativeness and cynism), psychopathy (i.e., callousness, impulsivity, and lack of remorse), and narcissism (i.e., a sense of grandiosity and entitlement). Collectively, the traits are characterized by limited empathy (Paulhus & Jones, 2015), especially affective aspects of empathy (Wai & Tiliopoulos, 2012), and disagreeableness, dishonesty, and limited humility (Book, Visser, & Volk, 2015; Lee et al., 2013; Međedović, 2012). The traits are distinguished by unique relationships like narcissists showing evidence of extraversion and those high in psychopathy showing limited conscientiousness (Lee et al., 2013). To facilitate this research, two brief measures have been developed. The first of these is the Dark Triad Dirty Dozen (DTDD; Jonason & Webster, 2010) which was followed by the Short Dark Triad (SD3; Jones & Paulhus, 2014). These measures have been translated and validated in other languages (e.g., Özsoy, Rauthmann, Jonason, & Ardiç, 2017), but more work is needed. We present a series of studies that translate and adapt these two measures into Serbian and then validates them both in a further study.

There is considerable evidence for the validity of these measures in terms of relationships with their full-length measures, test-retest validity, internal consistency, structural properties, and efficacy in

answering research questions (Jonason & Webster, 2010; Jones & Paulhus, 2014). However, there are some concerns about each measure which is unsurprising given their relative brevity in relation to the full-length measures and other psychometric problems associated with brief measures. One of the issues is whether there are actually three traits captured or, instead, a narcissism factor and a combined psychopathy-Machiavellianism factor (e.g., Carter, Campbell, Muncer, & Carter, 2015; Egan, Chan, & Shorter, 2014). However, we expect that our measures will capture three inter-related and distinguishable traits as evidence of their validity.

Another concern is the validity of these short measures, especially in relation to the DTDD. This measure is so short that it might have insufficient breadth to capture some aspects of psychopathy and narcissism capture both vulnerable and grandiose facets (Maples, Lamkin, & Miller, 2014). However, Jonason and Luévano (2013) have shown that the DTDD narcissism captures six of the seven aspects of the Narcissistic Personality Inventory, which is a measure of grandiose narcissism. In addition, work on other traits, like those found in the HEXACO, suggest the DTDD (Jonason & McCain, 2012) and the SD3 (Book et al., 2015) are valid measures of the Dark Triad traits. Importantly, we can assess the relative validity in the DTDD and the SD3 in relation to the HEXACO and empathy. Given that the low Honesty-Humility and lack of affective empathy represent the common characteristics of the Dark Triad traits (e.g., Book et al., 2015; Wai & Tiliopoulos, 2012), we expected that these traits would be the main correlates of dark traits from

\* Corresponding author.

E-mail addresses: [bojana.dinic@ff.uns.ac.rs](mailto:bojana.dinic@ff.uns.ac.rs) (B.M. Dinić), [boban.petrovic@iksi.ac.rs](mailto:boban.petrovic@iksi.ac.rs) (B. Petrović), [pkjonason@gmail.com](mailto:pkjonason@gmail.com) (P.K. Jonason).

**Table 1**  
Descriptive statistics and gender differences for the DTDD and SD3.

		Total sample			α	Men		Women		Sex difference	
		M	SD	MIC		M	SD	M	SD	t	d
Study 1 (N = 364)											
DTDD	Machiavellianism	10.46	5.71	0.66	0.88	11.31	6.25	10.00	5.35	2.11*	0.23
	Psychopathy	11.16	5.49	0.46	0.77	12.50	5.74	10.42	5.21	3.52***	0.38
	Narcissism	14.41	5.26	0.50	0.80	14.74	5.42	14.23	5.18	0.89	0.10
Study 2 (N = 409)											
SD3	Machiavellianism	27.13	5.98	0.29	0.78	28.18	5.98	26.28	5.89	3.20***	0.32
	Psychopathy	19.32	5.30	0.21	0.70	20.76	5.26	18.10	5.02	5.18***	0.52
	Narcissism	26.08	5.20	0.21	0.70	26.75	5.14	25.56	5.23	2.29*	0.23
Study 3 (N = 443)											
DTDD	Machiavellianism	9.67	6.02	0.69	0.90	10.52	6.60	8.81	5.24	3.02**	0.28
	Psychopathy	10.36	5.08	0.36	0.69	11.30	5.33	9.42	4.63	4.99***	0.38
	Narcissism	12.38	5.93	0.56	0.84	12.93	5.93	11.82	5.90	1.97*	0.19
SD3	Machiavellianism	27.35	6.70	0.30	0.80	28.74	6.34	25.96	6.77	4.46***	0.43
	Psychopathy	17.54	6.11	0.27	0.77	19.55	6.42	15.52	5.03	5.77***	0.70
	Narcissism	24.29	6.78	0.25	0.74	25.53	6.48	23.05	6.87	3.91***	0.37

Note. MIC = mean inter-item correlation, *d* = Cohen's *d* for effect size, *df* in Study 1 was 362, in Study 2 was 403, and in Study 3 was 441.

\* *p* < .05.

\*\* *p* < .01.

\*\*\* *p* < .001.

**Table 2**  
Fit indices for the DTDD and SD3.

	Model	DWLSχ <sup>2</sup> ( <i>df</i> )	CFI	TLI	RMSEA	SRMR
Study 1 (N = 364): DTDD	1	267.02 (54)	0.92	0.90	0.10	0.11
	2	137.55 (53)	0.97	0.96	0.07	0.08
	3	84.73 (51)	0.99	0.98	0.04	0.06
Study 2 (N = 409): SD3	1	906.08 (324)	0.88	0.87	0.07	0.08
	2	678.86 (323)	0.92	0.92	0.05	0.07
	3	645.59 (321)	0.93	0.92	0.05	0.07

Note. 1 = 1-factor model, 2 = 2-factor model with Machiavellianism and psychopathy combined, 3 = 3-factor model. All χ<sup>2</sup>s were significant at *p* < .001.

both instruments. And as evidence of the validity of the adaptations, we expect to find higher mutual correlations between matching-scales (e.g., Machiavellianism scales from both instruments).

In this study, we present Serbian adaptations of the DTDD and SD3 using classical test theory (CTT) and item response theory (IRT). In Study 1 and 2, we adapted the DTDD and the SD3 (respectively) into Serbian and test their psychometric properties independently. In Study 3, we examine the validity of these adaptations by assessing the nomological network surrounding each trait in relation to a measure of basic personality traits and individual differences in empathy.

## 2. Method

### 2.1. Participants and procedure

Study 1 included 364 students (35.4% men), aged between 18 and 28 years (*M* = 20.73, *SD* = 1.76). The students participated in the study for course credits at their respective Universities. Study 2 included 409 participants (43.5% men, for 4 participants information about sex was missing) from the general population, aged between 18 and 76 years (*M* = 27.55, *SD* = 10.52), with 53.1% of the sample comprised of students. Study 3 included 443 participants (50.1% men) from the general population, aged between 19 and 49 years (*M* = 28.13, *SD* = 6.66), different education levels. Participants from all studies were from Serbia with Serbian as their first language. Data in Study 2 and 3 was collected by trained undergraduate students as a part of their pre-exam activity. Each student had to collect data from a specific number of participants based on given sex and age quotas in order to get a heterogeneous sample.

### 2.2. Instruments

In Study 1, the Dark Triad Dirty Dozen (DTDD; Jonason & Webster, 2010) – Serbian adaptation was used (see Tables C and D in Appendix). The DTDD consists of 12 items with a 7-point Likert scale (form 1 = *strongly disagree* to 7 = *strongly agree*), which measures three dark traits (4 items per scale): Machiavellianism, psychopathy and narcissism. In Study 2, the Short Dark Triad (SD3; Jones & Paulhus, 2014) – Serbian adaptation was used. SD3 consists of 27 items with a 5-point Likert scale (form 1 = *strongly disagree* to 5 = *strongly agree*), which measure three dark traits (9 items per scale). In Study 3, both DTDD and SD3 were used (Cronbach's alphas in all studies are presented in Table 1) along with HEXACO-60 and ACME. HEXACO-60 (Ashton & Lee, 2009, for Serbian adaptation see Mededović, Čolović, Dinić, & Smederevac, 2017) is a short version of HEXACO-PI-R and contains 60 items which measure six basic lexical HEXACO traits (each per 10 items, Cronbach's alpha of scores ranged from 0.71 to 0.86). Affective and Cognitive measure of Empathy (ACME: Vachon & Lynam, 2015) contains 36 items (12 per scale) and measures cognitive empathy (α = 0.90), affective resonance (α = 0.81), and affective dissonance (α = 0.86).<sup>1</sup> Both HEXACO-60 and ACME have items with a 5-point Likert scale (form 1 = *strongly disagree* to 5 = *strongly agree*). All instruments were forward translated by native Serbian-speaking author, independently, back-translated by another Serbian-speaking author, and approved by a third, English-speaking co-author.

### 2.3. Data analysis

In all studies, we report descriptive characteristics, mean inter-item correlations (MIC), Cronbach αs, and sex differences were calculated (i.e., *t*-tests and Cohen's *d*). Because multivariate normality was violated, robust diagonal weighted least squares (DWLS) estimator in CFA was used ("lavaan" R package; Rosseel, 2012). Several fit indices were used to determine model fit: χ<sup>2</sup>, comparative fit index = CFI, Tucker-Lewis index = TLI, root mean square error of approximation = RMSEA, and standardized root mean residual = SRMR. Although there were no absolute standards, determining the model fit requires a consideration

<sup>1</sup> Because this is the first use of Serbian adaptation of ACME, a CFA was conducted and resulted in good model fit (DWLS χ<sup>2</sup>(591) = 1019.83, *p* < .001, CFI = 0.96, TLI = 0.96, RMSEA = 0.04, SRMR = 0.07).

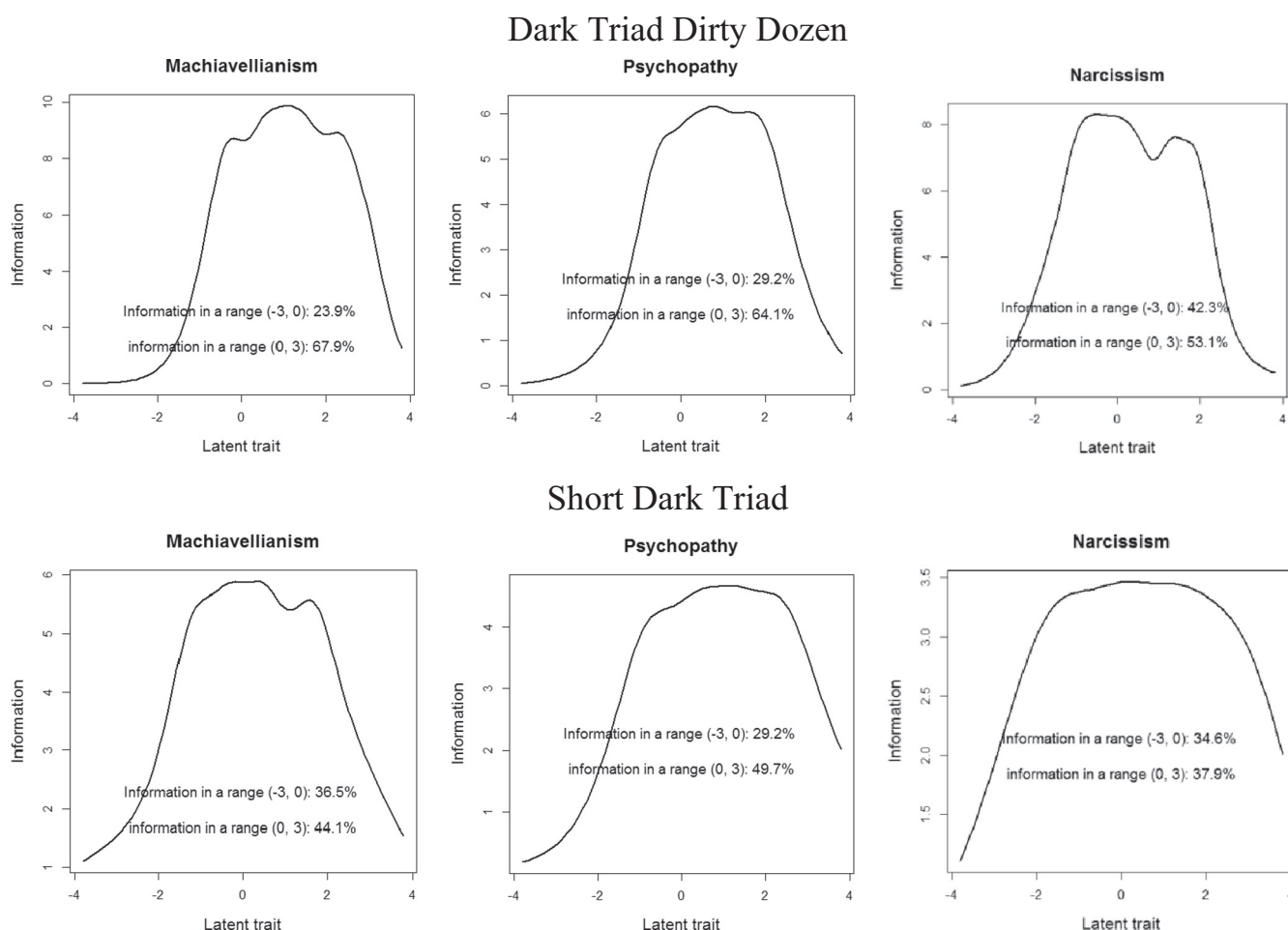


Fig. 1. Information of the Dark Triad Dirty Dozen and Short Dark Triad scales as translated into Serbian.

of a range of fit indices which may evidence a good fit (e.g., RMSEA and SRMR < 0.06, TLI and CFI > 0.95) or an acceptable fit (e.g., RMSEA and SRMR < 0.08, TLI and CFI > 0.90, see Hu & Bentler, 1999). We report Tucker's congruence coefficients to test whether the factor structures differed in the sexes. In the IRT analysis ("lrm" R package; Rizopoulos, 2006), graded response models were used and two item parameters were analyzed: difficulty ( $\beta$ ), which refers to the amount of the latent trait necessary to have a 50% chance of endorsing the item, and discrimination ( $a$ ), which refers to the capability of an item to determine people at different levels of latent trait. The key characteristic in IRT is information, which reflects the reliability or precision of measurement at each level of the latent trait. The nomological networks were assessed using zero-order correlations (IBM SPSS 23.0).

### 3. Results

Men scored higher than women in all traits in both instruments. The effect sizes were small, with the exception of psychopathy from SD3, which is consistent with all studies on them (Table 1). Both DTDD and SD3 scale scores showed adequate internal consistency and homogeneity through all three studies. The three-factor model (with correlated factors) had good model fit in both instruments (Table 2) and better than the one-factor (DTDD:  $\Delta\chi^2(3) = 182.28, p < .001$ ; SD3:  $\Delta\chi^2(3) = 260.49, p < .001$ ), or two-factor—Dark Dyad—model with Machiavellianism and psychopathy combined (DTDD:  $\Delta\chi^2(32) = 52.81, p < .001$ ; SD3:  $\Delta\chi^2(2) = 33.27, p < .001$ ). Factor loadings for both instruments were high, with exception of three reverse coded items in SD3 which had low loadings (> 0.30, see

Tables A and B in Appendix). Tucker's congruence coefficients across sexes were acceptable for both instruments (from 0.83 to 0.99), meaning the same factor structure was obtained in both sexes.

Results from IRT showed that discrimination parameters of the DTDD items were high (see Table A in Appendix). Machiavellianism and psychopathy items tended to be "difficult" to endorse. Accordingly, these two scales were more informative in above-average scores, while narcissism seems to be informative across a wider range of scores (Fig. 1, Top Panel). Discrimination of the SD3 items was high, except for three reverse coded items (see Table B in Appendix). Psychopathy items tended to be "difficult" to endorse and this scale delivered more information at higher levels of trait (Fig. 1, Bottom Panel). Narcissism and Machiavellianism from the SD3 seemed to be informative across a wide range of scores.

In Study 3, correlations between matching scales from the DTDD and the SD3 were high, but it was noticeable that the DTDD measure of Machiavellianism had a higher correlation with the SD3 measure of psychopathy (Table 3). To get insight into the overlapping variance between the scales from two instruments, each scale from one instrument was regressed on all three scales from the other instrument. The overlapping variances were relatively close, ranging from 29 to 42%. Honesty-Humility was the main correlate of both instruments, followed by Agreeableness and Conscientiousness. However, the overlapping variance with Honesty-Humility was higher in the DTDD measure (mostly because of Machiavellianism and narcissism). Moreover, the overlapping variance with Extraversion was higher in the SD3 measure (mostly because of narcissism). Regarding relations with the empathy

**Table 3**  
Construct validity correlations of the DTDD and SD3 (Study 3, N = 443).

	DTDD			SD3			DTDD	SD3
	M	P	N	M	P	N	R <sup>2</sup>	R <sup>2</sup>
<b>DTDD</b>								
Machiavellianism	1							
Psychopathy	.57***	1						
Narcissism	.56***	.38***	1					
<b>SD3</b>								
Machiavellianism	.51***	.38***	.48***	1				
Psychopathy	.57***	.53***	.32***	.56***	1			
Narcissism	.42***	.32***	.61***	.48***	.47***	1		
R <sup>2</sup>	.39***	.29***	.42***	.33***	.40***	.38***		
<b>HEXACO-60</b>								
Honesty-Humility	-.67***	-.43***	-.56***	-.54***	-.52***	-.45***	.51***	.38***
Emotionality	-.05	-.30***	-.05	-.03	-.20***	-.18***	.13**	.07***
Extraversion	.18***	.05	.20***	.08	.11*	.50***	.05***	.29***
Agreeableness	-.25***	-.28***	-.24***	-.28***	-.31***	-.30***	.10***	.13***
Conscientiousness	-.27***	-.25***	-.19***	-.13**	-.33***	-.05	.09***	.12***
Openness	-.09	-.07	-.05	-.10*	.10*	.06	.02**	.03**
<b>ACME</b>								
Cognitive empathy	-.00	-.09	.06	.02	-.15**	.04	.02*	.04***
Affective resonance	-.34***	-.54***	-.21***	-.34***	-.54***	-.25***	.29***	.29***
Affective dissonance	-.50***	-.49***	-.39***	-.40***	-.62***	-.29***	.32***	.39***

Note. M = Machiavellianism, N = narcissism, P = psychopathy, R<sup>2</sup> = variance explained by the each scale regressed to all three scales from other Dark Triad instrument, DTDD R<sup>2</sup> = variance explained by the DTDD, SD3 R<sup>2</sup> = variance explained by the SD3.  
Gray cells indicated convergent validity correlations.  
\*p < .05.

dimensions, scales from both instruments, especially psychopathy, had higher, negative correlations only with affective empathy, with similar overlapping variance.

**4. Discussion**

In this brief report, containing three independent datasets drawn from community and student samples, we demonstrated the good CTT reliability and validity, and the IRT parameters of the Serbian adaptations of the DTDD and the SD3. The CFA confirmed the best model fit for three-factor structure of both measures. This was an important result, given the concerns that Machiavellianism is a part of, and even redundant to, psychopathy (e.g., Vize, Lynam, Collison, & Miller, 2018). Our results suggest these two traits should be separated, at least in the case of the DTDD and the SD3 measures in Serbian. That is, despite strong correlations, these traits are distinguishable in terms of psychometric properties alone. We also showed that Honesty-Humility

had the biggest overlap with the scales from both instruments, although the overlap with the DTDD was higher. This is consistent with prior work suggesting the “core” of the Dark Triad is dishonesty and limited humility (e.g., Book et al., 2015). And last, dark traits on each scale, especially psychopathy, may also be bound by affective, but not cognitive empathy, consistent with prior work (Wai & Tiliopoulos, 2012).

Despite the overlap that we detected with each measure, we must re-assert that each of the traits is likely to have unique correlates as a result of the content of each measure and the nature of each trait itself. The most noticeable difference was in relation to narcissism. Namely, the SD3 measure of narcissism was more highly correlated with Extraversion than the DTDD narcissism measure was, in line with Maples et al. (2014). Given that the SD3 measure of narcissism was mostly based on Narcissistic Personality Inventory, which measures grandiose narcissism and was highly related to HEXACO Extraversion (e.g., Lee & Ashton, 2005), this was not surprising. However, there is an ongoing debate whether Extraversion is theoretically central to

narcissism, along with antagonism (e.g., Miller, Gaughan, Pryor, Kamen, & Campbell, 2009) or not (e.g., Corbitt, 2002). The DTDD measure of narcissism is more related to affective dissonance, indicating it also captures the vulnerable and not only the grandiose narcissism. Despite these differences, we conclude that both the DTDD and the SD3 measures in Serbian showed good convergent and discriminant validity, bearing in mind their inter-correlations and relationships with the HEXACO and empathy dimensions.

However, according to homogeneity coefficients, it seemed that the content of the DTDD measure of Machiavellianism was particularly narrow. This measure may capture only interpersonal manipulation and not other aspects of this trait like pragmatism and cynicism as better captured in the content of the SD3 measure. Although all items had adequate-to-good discrimination, psychopathy items from both instruments were more “difficult” to endorse, while narcissism items adequately covered different trait levels. Differences between two instruments emerged regarding the Machiavellianism scale, which was more informative on a higher trait level in the case of the DTDD, while the SD3 measure of Machiavellianism better covered all trait levels. This is in line with previous studies using tIRT on the DTDD (Webster & Jonason, 2013) and SD3 (Persson, Kajonius, & Garcia, 2017) measures and makes sense given the “darker” nature of the questions being asked.

Regardless of the strong psychometric similarities with the English versions of each scale, it is important to address some limitations. The main limitations are that only self-report measures were used, the data was cross-sectional in nature, we relied on modest sample sizes, and we assessed a limited nomological network. In future studies, relations with full-length measures of the Dark Triad traits should be explored as

the criterion validity. Despite these limitations, the results support the good psychometric properties of the Serbian adaptations of the DTDD and the SD3 and these instruments can be used in a wider region regarding Serbian-like languages, such as Bosnian, Montenegrin, and Croatian. Results of this study add to cross-cultural validity of both the DTDD and the SD3 measures and both are recommended to be used in further research when brief measure of the Dark Triad traits is required.

**Acknowledgements**

Data from Study 1 were collected within the project “Self-enhancement in a cross-cultural perspective”, which is part of the project “Agency-communion model of collective narcissism: Antecedents, correlates and consequences”, granted by the Polish National Science Centre [Grant No. 2016/21/B/HS6/01069]. The authors would like to thank Ljiljana B. Lazarević and Bojana Bodroža for their significant contribution in the back-translation of the DTDD and data collection for Study 1. The authors also would like to thank Goran Knežević for his significant contribution in the back-translation of the SD3. Data from Study 2 and 3 were collected within the project granted by the Ministry of Education, Science and Technological Development of the Republic of Serbia [Grant No. 179006].

**Ethical statement**

We state that the research meets all ethical requirements, and is adherent to the legal requirements of the Republic of Serbia which are in agreement with the Declaration of Helsinki.

**Appendix**

Table A  
Factor loadings and IRT parameters for the DTDD (Study 1, N = 364).

Item	Loading	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$\beta_5$	$\beta_6$	$a$
M1	.76	-0.55	0.26	0.65	1.00	1.75	2.55	2.42
M2	.84	-0.33	0.59	1.01	1.29	1.80	2.30	2.97
M3	.72	-0.75	0.21	0.70	0.99	1.76	2.47	2.41
M4	.93	-0.32	0.53	1.11	1.47	2.42	3.01	3.38
P5	.69	-0.59	0.30	0.71	1.02	1.55	2.37	1.99
P6	.68	-0.34	0.56	1.02	1.48	1.92	2.55	1.96
P7	.79	-0.52	0.21	0.68	0.95	1.58	1.97	3.12
P8	.57	-1.10	-0.15	0.35	0.77	1.72	2.34	1.36
N9	.81	-0.96	-0.52	-0.03	0.43	1.31	1.89	3.77
N10	.64	-1.60	-0.86	-0.34	0.14	1.05	2.03	2.67
N11	.65	-1.73	-1.10	-0.69	-0.15	0.72	1.62	2.07
N12	.73	-0.86	0.36	1.02	2.23	2.95	3.80	1.20

Note.  $\beta_1$ – $\beta_4$  – threshold parameters,  $a$  – discrimination parameter.

Table B  
Factor loadings and IRT parameters for the SD3 (Study 2, N = 409).

Item	Loading	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$a$
M1	.36	-5.98	-3.44	-1.52	0.97	0.83
M2	.72	-0.86	0.35	1.34	2.61	1.47
M3	.68	-1.14	0.27	1.44	2.99	1.64
M4	.34	-2.16	-0.57	0.96	3.56	1.00
M5	.71	-1.20	-0.32	0.49	1.67	2.82
M6	.65	-0.68	0.36	1.15	2.12	1.72
M7	.42	-3.16	-1.89	-0.68	1.47	1.15
M8	.37	-3.52	-1.63	0.15	2.61	0.80
M9	.46	-3.52	-1.46	-0.05	2.39	0.91
N10	.64	-1.56	-0.23	1.25	2.53	1.54

(continued on next page)

Table B (continued)

Item	Loading	$\beta_1$	$\beta_2$	$\beta_3$	$\beta_4$	$a$
N11 R	.38	-2.38	-0.77	0.73	2.43	1.16
N12	.56	-2.21	-0.25	1.44	3.19	1.27
N13	.61	-1.44	0.23	1.58	3.26	1.54
N14	.53	-2.84	-1.24	0.28	2.24	1.11
N15 R	.19	-5.97	-1.38	1.33	5.35	0.40
N16	.41	-1.55	0.09	1.26	3.44	1.04
N17 R	.42	-2.37	-0.54	0.70	2.21	1.15
N18	.35	-6.81	-3.33	-0.39	4.03	0.50
P19	.62	-0.98	0.52	1.50	2.24	1.67
P20 R	.16	-8.21	-0.57	3.48	8.23	0.29
P21	.52	-0.31	0.87	2.20	2.93	1.33
P22	.45	-0.38	1.28	2.14	3.35	1.52
P23	.57	-1.05	0.20	0.86	2.73	1.60
P24	.70	-0.82	0.40	1.34	2.36	2.21
P25 R	.12	1.05	3.37	4.46	6.39	0.43
P26	.32	0.54	2.37	4.46	6.92	0.59
P27	.56	-0.35	1.44	2.63	4.38	0.96

Note. R – reverse coded item,  $\beta_1$ – $\beta_4$  – threshold parameters,  $a$  – discrimination parameter.

Table C  
The Serbian adaptation of DTDD.

## DTDD Machiavellianism

1. Sklon sam da manipulišem drugim ljudima da bih dobio ono što želim.  
(I tend to manipulate others to get my way.)
2. Varao sam i lagao da bih dobio ono što želim.  
(I have used deceit or lied to get my way.)
3. Laskao sam drugima da bih dobio ono što želim.  
(I have used flattery to get my way.)
4. Sklon sam da iskoristim druge da bih dobio ono što želim.  
(I tend to exploit others towards my own end.)

## DTDD Psychopathy

5. Sklon sam da ne osećam često kajanje.  
(I tend to lack remorse.)
6. Ne razmišljam previše da li je nešto moralno ili nije.  
(I tend to be unconcerned with the morality of my actions)
7. Sklon sam da budem neosetljiv prema drugima.  
(I tend to be callous or insensitive.)
8. Sklon sam da budem ciničan.  
(I tend to be cynical.)

## DTDD Narcissism

9. Želim da mi se drugi dive.  
(I tend to want others to admire me.)
10. Želim da drugi ljudi obraćaju pažnju na mene.  
(I tend to want others to pay attention to me.)
11. Težim da imam visok status u grupi kojoj pripadam.  
(I tend to seek prestige or status.)
12. Sklon sam da tražim posebne usluge od drugih.  
(I tend to expect special favors from others.)

Note. Original items are in parenthesis.

Table D  
The Serbian adaptation of SD3.

## SD3 Machiavellianism

1. Nije mudro odavati svoje tajne.  
(It's not wise to tell your secrets.)
2. Mora se manipulirati da bi se isteralo svoje.  
(I like to use clever manipulation to get my way.)

(continued on next page)

Table D (continued)

3. Moraš učiniti šta god je potrebno kako bi važne ljude pridobio na svoju stranu.  
(Whatever it takes, you must get the important people on your side.)
4. Treba izbegavati direktni sukob sa drugima jer će ti možda biti od koristi u budućnosti.  
(Avoid direct conflict with others because they may be useful in the future.)
5. Mudro je voditi računa o informacijama koje možeš kasnije iskoristiti protiv nekoga.  
(It's wise to keep track of information that you can use against people later.)
6. Za osvetu treba sačekati povoljan trenutak.  
(You should wait for the right time to get back at people.)
7. Postoje stvari koje drugi ljudi ne treba da znaju o meni.  
(There are things you should hide from other people because they don't need to know.)
8. Treba se pobrinuti da tvoji planovi koriste tebi, a ne drugima.  
(Make sure your plans benefit you, not others.)
9. Većinom ljudi se može manipulirati.  
(Most people can be manipulated.)
- SD3 Psychopathy
10. Volim da se osvetim autoritetima.  
(I like to get revenge on authorities.)
11. Izbegavam opasne situacije.  
(I avoid dangerous situations. (R))
12. Osveta treba biti brza i okrutna.  
(Payback needs to be quick and nasty.)
13. Ljudi često kažu da sam van kontrole.  
(People often say I'm out of control.)
14. Tačno je da mogu da budem zao prema drugima.  
(It's true that I can be mean to others.)
15. Ljudi koji se kače sa mnom uvek zažale zbog toga.  
(People who mess with me always regret it.)
16. Nikada nisam imao problema sa zakonom.  
(I have never gotten into trouble with the law. (R))
17. Uživam da imam seks sa osobama koje jedva poznajem.  
(I enjoy having sex with people I hardly know.)
18. Reći ću bilo šta kako bih dobio ono što želim.  
(I'll say anything to get what I want.)
- SD3 Narcissism
19. Ljudi me vide kao rođenog vođu.  
(People see me as a natural leader.)
20. Mrzim da budem u centru pažnje.  
(I hate being the center of attention. (R))
21. Mnoge zajedničke aktivnosti znaju biti dosadne bez mene.  
(Many group activities tend to be dull without me.)
22. Znam da sam poseban jer mi to svi neprestano govore.  
(I know that I am special because everyone keeps telling me so.)
23. Volim da sklapam poznanstva sa važnim ljudima.  
(I like to get acquainted with important people.)
24. Postidim se kada me neko pohvali.  
(I feel embarrassed if someone compliments me. (R))
25. Poredili su me sa slavnim ličnostima.  
(I have been compared to famous people.)
26. Ja sam prosečna osoba.  
(I am an average person. (R))
27. Insistiram da dobijem poštovanje koje zaslužujem.  
(I insist on getting the respect I deserve.)

Note. Original items are in parenthesis.

### Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.paid.2018.06.018>.

### References

- Ashton, M. C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, 91, 340–345. <http://dx.doi.org/10.1080/00223890902935878>.
- Book, A., Visser, B. A., & Volk, A. A. (2015). Unpacking "evil": Claiming the core of the Dark Triad. *Personality and Individual Differences*, 73, 29–38. <http://dx.doi.org/10.1016/j.paid.2014.09.016>.
- Carter, G. L., Campbell, A., Muncer, S., & Carter, K. A. (2015). A Mokken analysis of the

- Dark Triad 'Dirty Dozen': Sex and age differences in scale structures, and issues with individual items. *Personality and Individual Differences*, 83, 185–191. <http://dx.doi.org/10.1016/j.paid.2015.04.012>.
- Corbitt, E. M. (2002). Narcissism from the perspective of the five-factor model. In P. Costa, & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (pp. 199–203). Washington, DC: APA.
- Egan, V., Chan, S., & Shorter, G. W. (2014). The Dark Triad, happiness and subjective well-being. *Personality and Individual Differences*, 67, 17–22. <http://dx.doi.org/10.1016/j.paid.2014.01.004>.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>.
- Jonason, P. K., & Luévano, V. X. (2013). Walking the thin line between efficiency and accuracy: Validity and structure of the Dirty Dozen. *Personality and Individual Differences*, 55, 76–81. <http://dx.doi.org/10.1016/j.paid.2013.02.010>.
- Jonason, P. K., & McCain, J. (2012). Using the HEXACO model to test the validity of the Dirty Dozen measure of the Dark Triad. *Personality and Individual Differences*, 53, 935–938. <http://dx.doi.org/10.1016/j.paid.2012.07.010>.
- Jonason, P. K., & Webster, G. D. (2010). The Dirty Dozen: A concise measure of the Dark Triad. *Psychological Assessment*, 22, 420–432. <http://dx.doi.org/10.1037/a0019265>.
- Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personalities. *Journal of Research in Personality*, 21, 28–41. <http://dx.doi.org/10.1177/1073191113514105>.
- Lee, K., & Ashton, M. C. (2005). Psychopathy, Machiavellianism and narcissism in the Five-Factor model and the HEXACO model of personality structure. *Personality and Individual Differences*, 38, 1571–1582. <http://dx.doi.org/10.1016/j.paid.2004.09.016>.
- Lee, K., Ashton, M. C., Wiltshire, J., Bourdage, J. S., Visser, B. A., & Gallucci, A. (2013). Sex, power, and money: Prediction from the Dark Triad and Honesty-Humility. *European Journal of Personality*, 27, 169–184. <http://dx.doi.org/10.1002/per.1860>.
- Maples, J., Lamkin, J., & Miller, J. D. (2014). A test of two brief measures of the dark triad: The Dirty Dozen and Short Dark Triad. *Psychological Assessment*, 26, 326–331. <http://dx.doi.org/10.1037/a0035084>.
- Mededović, J. (2012). Topography of dishonesty: Mapping the opposite pole of honesty-humility personality domain. *Primenjena Psihologija*, 5, 115–135. <http://dx.doi.org/10.19090/pp.2012.2.115-135>.
- Mededović, J., Čolović, P., Dinić, B. M., & Smederevac, S. (2017). The HEXACO personality inventory: Validation and psychometric properties in the Serbian language. *Journal of Personality Assessment*. (Advance online publication) <https://doi.org/10.1080/00223891.2017.1370426>.
- Miller, J. D., Gaughan, E. T., Pryor, L. R., Kamen, C., & Campbell, W. K. (2009). Corrigendum to "Is research using the Narcissistic Personality Inventory relevant for understanding narcissistic personality disorder?". *Journal of Research in Personality*, 43, 482–488. <http://dx.doi.org/10.1016/j.jrp.2009.05.007>.
- Özsoy, E., Rauthmann, J. F., Jonason, P. K., & Ardic, K. (2017). Reliability and validity of the Turkish versions of Dark Triad Dirty Dozen (DTDD-T), Short Dark Triad (SD3-T), and Single Item Narcissism Scale (SINS-T). *Personality and Individual Differences*, 117, 11–14. <http://dx.doi.org/10.1016/j.paid.2017.05.019>.
- Paulhus, D. L., & Jones, D. N. (2015). Measures of dark personalities. In G. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social psychological constructs* (pp. 562–594). London, UK: Academic Press. <http://dx.doi.org/10.1016/B978-0-12-386915-9.00020-6>.
- Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: Narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality*, 36, 556–563. [http://dx.doi.org/10.1016/S0092-6566\(02\)00505-6](http://dx.doi.org/10.1016/S0092-6566(02)00505-6).
- Persson, B., Kajonius, P., & Garcia, D. (2017). Testing construct independence in the short dark triad using Item Response Theory. *Personality and Individual Differences*, 117, 74–80. <http://dx.doi.org/10.1016/j.paid.2017.05.025>.
- Rizopoulos, D. (2006). ltm: An R package for latent variable modelling and item response theory analyses. *Journal of Statistical Software*, 17, 1–25. Retrieved from: <http://www.jstatsoft.org/v17/i05/>.
- Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48, 1–36. Retrieved from: <http://www.jstatsoft.org/v48/i02/>.
- Vachon, D. D., & Lynam, D. R. (2015). Fixing the problem with empathy: Development and validation of the affective and cognitive measure of empathy. *Assessment*, 23, 135–149. <http://dx.doi.org/10.1177/1073191114567941>.
- Vize, C. E., Lynam, D. R., Collison, K. L., & Miller, J. D. (2018). Differences among Dark Triad components: A meta-analytic investigation. *Personality Disorders: Theory, Research, and Treatment*, 9, 101–111. <http://dx.doi.org/10.1037/per0000222>.
- Wai, M., & Tiliopoulos, N. (2012). The affective and cognitive empathic nature of the Dark Triad of personality. *Personality and Individual Differences*, 52, 794–799. <http://dx.doi.org/10.1016/j.paid.2012.01.008>.
- Webster, G. D., & Jonason, P. K. (2013). Putting the "IRT" in "Dirty": Item response theory analyses of the Dark Triad Dirty Dozen – An efficient measure of narcissism, psychopathy, and Machiavellianism. *Personality and Individual Differences*, 54, 302–306. <http://dx.doi.org/10.1016/j.paid.2012.08.027>.