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**FACTOR STRUCTURE OF THE SHORT DARK TRIAD (SD3) IN  
ADOLESCENTS**

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*Abstract*

The factor structure of the Short Dark Triad or SD3 questionnaire was investigated using a sample of adolescents. The SD3 is a time-efficient method designed for the assessment of three overlapping negative personality traits: Machiavellianism, subclinical narcissism, and subclinical psychopathy. Conceptually, the questionnaire is based on the idea that Machiavellianism, narcissism, and psychopathy, while being relatively independent constructs, nonetheless have a common core and a similar manifestation in interpersonal relationships and exacerbate the negative influence of other Dark Triad traits. The questionnaire's psychometric characteristics were obtained using a sample of adults. A detailed analysis of the questionnaire's factor structure in adolescents is available only for a translated version of the questionnaire. Our study was conducted with 393 participants (average age 15.37, SD=1.17, 54% female). The participants completed 1) the Russian edition of the SD3, previously validated for adults, and 2) a personality inventory (Short Portrait Big Five Questionnaire). When comparing the means, no significant differences were found between the younger (grades 8-9) and older (grades 10-11) groups. An analysis of the structure of the SD3 showed that 7 questionnaire items contribute simultaneously to different scales. 4 of these items are meant for diagnosing psychopathy. When analyzing the interrelations between Dark Triad traits, narcissism was not shown to have a significant correlation with Machiavellianism. When comparing the Dark Triad to the Big Five, no correlation was observed between narcissism and Agreeableness.

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**Keywords:** The Short Dark Triad (SD3), Machiavellianism, narcissism, psychopathy, adolescents.



## 1. Introduction

In the recent two decades, studies conducted in the realms of personality psychology and differential psychology have demonstrated a distinct interest in the phenomenon of negative personality traits and the causes of their variability (Zeigler-Hill & Marcus, 2016). Among personality traits attracting researchers' interest is the so-called Dark Triad, a constellation of the following traits: Machiavellianism, subclinical narcissism, subclinical psychopathy (Paulhus & Williams, 2002). The three personality traits that constitute the Dark Triad, while relatively independent, have a number of common manifestations: cynicism, a superiority complex, a lack of regard for others and unabashed exploitation of others for own gains, emotional coldness, and egotism. The destructiveness of the Dark Triad traits defines the direction of their correlation with personality traits (Lee & Ashton, 2014; Muris, Merckelbach, Otgaar, & Meijer, 2017) and conduct in a variety of situations (Egorova & Sitnikova, 2014; Furnham, Richards, & Paulhus, 2013; Lyons, 2019; O'Boyle, Forsyth, Banks, & Story, 2013).

The cornerstone of the diagnostic measures used to assess the Dark Triad is the idea that Machiavellianism, narcissism, and psychopathy, while remaining relatively independent constructs, nonetheless possess a common core, have similar manifestations in interpersonal interactions and amplify each other. One such measure is the Short Dark Triad (SD3).

While constructing the SD3, the questionnaire's authors strived to account for the distinctiveness of each of the Dark Triad traits and diagnose Machiavellianism, narcissism, and psychopathy using the fewest possible items (Jones & Paulhus, 2014). Ultimately, the final version of the tool comprised 27 items, 9 for each of the Dark Triad traits. The statements relating to Machiavellianism mention manipulative tactics and cynicism. Narcissism is diagnosed by evaluating the desire to be at the center of attention, drive for leadership, and the self-image of being exceptional. In order to diagnose psychopathy, the authors had selected asocial statements, listing the violations of all possible rules and norms of conduct, amorality, recklessness, and a tendency toward taking unjustifiable risks. When measuring internal consistency for two distinct samples, satisfactory values for Cronbach's  $\alpha$  were obtained: 0.74 and 0.76 for Machiavellianism, 0.68 and 0.78 for narcissism, and 0.72 and 0.73 for psychopathy. Interrelations between the Dark Triad traits range from 0.22 to 0.47 ( $p < 0.01$ ), which is in agreement with the theoretical notions about the co-variation of the Dark Triad traits. It is worth noting that the intercorrelations of the Dark Triad traits were also exposed during structural analysis: certain SD3 items were loaded approximately equally for two or three factors at once, i.e. contributed almost equally, for instance, to narcissism and Machiavellianism. The validity of the questionnaire has been confirmed also when validating against other diagnostic measures for Machiavellianism, narcissism, and psychopathy.

## 2. Problem Statement

The studies of age-related changes and age-related differences for the Dark Triad of Machiavellianism, narcissism, and psychopathy have primarily focused on adults. It has been assumed that Machiavellianism, narcissism, and psychopathy scores peak in early adulthood (18-30 years), while at later ages, the "dark" personality traits gradually "lighten." Thus, adults have a lower composite Dark Triad score than college students (Jonason, Slomski, & Partyka, 2012), while the correlations of the Dark Triad

with age in samples with large age ranges (from young adult to old age), have been negative (Aghababaei, Mohammadtabar, & Saffarinia, 2014; Barlett & Barlett, 2015; Egorova, Sitnikova, Parshikova, & Chertkova, 2015a; Jonason, 2015).

The available data about earlier age ranges are less definitive. Supposedly, in adolescence, Machiavellianism, narcissism, and psychopathy have lower values than in early adulthood. This assumption corresponds to the interpretational schemes used for the analysis of Dark Triad research results. Thus, within the scope of the evolutionary model (Buss & Schmitt, 1993; Figueredo, Gladden, Sisco, Patch, & Jones, 2015), high Dark Triad scores are viewed as the result of adapting to life conditions that predispose toward the formation of fast life history strategies (Figueredo, et al., 2015; McDonald, Donnellan, & Navarrete, 2012). An individual living in a situation of constant hazard and lack of resources has a higher tendency toward risky, impulsive behavior and the use of violent or unlawful methods to achieve his or her goals. There is no contradiction between this conjecture and the correlation between the Dark Triad and psychological characteristics. Thus, the Dark Triad is associated with aggression, antisocial behavior, casual sexual relationships and a preference for short-term relationships (Jonason, Li, Webster, & Schmitt, 2009). In this context, the escalation of Dark Triad scores between young and mature adulthood can be explained by relative hazardousness (for instance, due to competition) of the social situation, and the consequent rolling back of Dark Triad scores with age by a transfer to a safer environment and gradual renouncement of “early” strategies.

A different approach (Theory of Emerging Adulthood) connects the leap of Dark Triad traits with age to life changes such as starting college, gaining physical and/or financial independence from parents, and entering the labor market. Arnett (2000) considers the difference between the developmental stage of 18-25 years (emerging adulthood) and the previous and subsequent stages to lie in the fact that an individual of this age has already obtained independence but has not been yet burdened with obligations. For this reason he or she tends to experiment with social roles, is concentrated on him or herself, and experiences contradictory feelings ranging from optimism (due to new opportunities) to confusion and disillusionment (from collision with reality and loss of childhood illusions). These are the reasons ascribed to the higher Dark Triad scores in young adults (Barlett & Barlett, 2015).

In accordance with these two approaches, we should expect to see Machiavellianism, narcissism, and psychopathy growing as individuals progress from adolescence to young adulthood. However, age dynamics at an earlier age are not considered; speculations can be made about Dark Triad scores changing in any direction. Comparing adolescence and young adulthood (and thus gaining understanding of the evolution of the Dark Triad) is doubtlessly a crucial task that must be approached with appropriate diagnostic tools with comparable metrics for both adolescence and young adulthood.

### **3. Research Questions**

We investigated whether the three-factor structure of the Dark Triad is reproducible in adolescents.

### **4. Purpose of the Study**

The purpose of the study was to analyze the factor structure of the SD3 in adolescents.

## 5. Research Methods

### 5.1. Participants

The sample included 393 participants, with the ratio of young men to young women being 46% to 54%, mean age 15.37, SD=1.17.

### 5.2. Measures

In the course of our study the participants had filled out two questionnaires.

- Dark Triad scores were assessed with the Short Dark Triad (SD3) brief measure (Jones & Paulhus, 2014), validated for Russian participants (Egorova, Sitnikova, & Parshikova, 2015). Like the original, it contains 27 statements and measures Machiavellianism, subclinical narcissism, subclinical psychopathy, and the composite score. The items were rated on a 5-point Likert scale. The scores obtained were divided by the number of items corresponding to a particular trait, and thus are all comparable in dimension and range from 1 to 5.
- The Big Five traits were measured with the ten-item personality inventory (Egorova & Parshikova, 2016) that consisted of ten profiles such as “Doesn’t talk a lot, does not attract attention at a party, and doesn’t like being the centre of attention.” The respondent had to evaluate his or her similarity to the character on a 6-point scale ranging from “not at all like me” to “very much like me.” The aggregated values were divided by the number of items and thus all scales range from 1 to 6.

## 6. Findings

The means and standard deviations for the entire sample, as well as for the subsamples of grades 8-9 and grades 10-11 are listed in Table 01. No difference between older and younger students could be demonstrated for any of the Dark Triad traits (all t-values are below significance level). Cronbach’s  $\alpha$  for the entire sample (see Table 02) was 0.69 for Machiavellianism and narcissism and 0.68 for psychopathy. The internal consistency of the questionnaire scales for the adolescent sample is somewhat lower than for the adult sample (Egorova, Sitnikova, & Parshikova, 2015). For the adult Russian sample (age range 16-84 years) Cronbach’s  $\alpha$  was within 0.70 – 0.74. However, an Italian study on adolescents (mean age 16.06) obtained values similar to ours (ranging from 0.66 to 0.69) (Somma, Paulhus, Borroni, & Fossati, 2019).

**Table 01.** Descriptive statistics and differences between older and younger students

Dark Triad	Grades 8-11		Grades 8-9		Grades 10-11		8-9 vs 10-11 t-criterion
	M	SD	M	SD	M	SD	
Machiavellianism	3.48	0.74	3.48	0.78	3.48	0.72	-0.05
Narcissism	2.84	0.74	2.89	0.73	2.80	0.75	1.12
Psychopathy	2.61	0.77	2.54	0.82	2.66	0.72	-1.43

The correlations between Machiavellianism and narcissism (see Table 02) for both age groups and the entire sample were not shown to be significant. The correlations between Machiavellianism and psychopathy, as well as between narcissism and psychopathy, range from 0.29 to 0.42. An evaluation of a sample consisting of Russian adults resulted in all significant correlations within the range of 0.31 – 0.47

( $p < 0.01$ ). The Italian adolescent sample showed the correlation between narcissism and Machiavellianism also to be below the other two pairs of traits, but above those shown for the Russian sample: our sample (grades 8-11) showed a value of  $r = 0.20$ , while the Italian study demonstrated a value of  $r = 0.29$  ( $p < 0.001$ ). Thus, our sample provides a more distinct departure of narcissism from the Dark Triad constellation.

The correlations of Machiavellianism, narcissism, and psychopathy with the composite Dark Triad score range from 0.66 to 0.78.

Analysis of the structure of the obtained results (principal component analysis, orthogonal and oblique rotation) resulted in a three-factor model that explains over 30% of the variance for both types of rotation (see Table 03).

Each scale has items with high factor loadings for other factors as well as their “own” factor. Thus, the item “It’s wise to keep track of information that you can use against people later,” part of the Machiavellianism scale (0.55 and 0.54), is shown to also contribute to psychopathy (0.38 and 0.34). An item from the narcissism scale (“I like to get acquainted with important people”) is represented in the narcissism and Machiavellianism factors, whereas the item “I feel embarrassed if someone compliments me” has low loadings for all factors. The psychopathy scale has four such items with “double” meaning: “I avoid dangerous situations,” “Payback needs to be quick and nasty,” “People who mess with me always regret it,” and “I’ll say anything to get what I want”.

**Table 02.** Intercorrelation between Dark Triad traits and Cronbach’s Alpha for the entire sample (along the table diagonal)

Traits	Grades 8-11			Grades 8-9			Grades 10-11		
	M	N	PP	M	N	PP	M	N	PP
Machiavellianism	.69								
Narcissism	.15	.69		.13			.20		
Psychopathy	.34***	.39***	.68	.29*	.37***		.40***	.42***	
Dark Triad composite	.66***	.69***	.77***	.64***	.69***	.76***	.71***	.70***	.78***

Note: \* –  $p < 0.05$  \*\* –  $0.05 < p < 0.01$  \*\*\* –  $0.01 < p < 0.001$ ; N – narcissism, M – Machiavellianism, PP – psychopathy

**Table 03.** Factor analysis of SD3 items

Items of SD3	Orthogonal rotation			Oblique rotation		
	M	N	PP	M	N	PP
Machiavellianism						
1. It’s not wise...	.40	-.19	.06	.41	-.25	.04
4. People won’t...	.49	.0	.08	.50	.06	.02
7. Whatever it takes...	.58	.23	-.01	.59	.16	-.17
10. Avoid direct conflict...	.51	-.06	-.24	.53	-.12	-.27
13. It’s wise to keep track...	.55	.05	.38	.54	-.05	.34
16. You should wait...	.62	-.04	.21	.61	-.13	.16
19. There are things...	.39	-.06	-.05	.41	-.11	-.09
22. Make sure your plans...	.52	.0	.18	.52	-.07	.14
25. Most people...	.47	.35	.12	.46	.28	.06
Narcissism						
2. People see me...	-.08	.53	.19	-.10	.54	.15
5. I hate being the center..(R)	-.13	-.67	-.06	.13	-.69	.11
	-.02	.55	.17	-.02	.55	.11

8. Many group activities...	.08	.62	.14	.08	.62	.06
11. I know that I am special...	.39	.52	-.04	.40	.48	-.14
14. I like to get acquainted...	-.05	-.26	-.14	.09	-.25	-.14
17. I feel embarrassed...(R)	.06	.46	-.03	.07	.46	-.09
20. I have been compared to...	.01	-.52	.24	.01	-.49	-.23
23. I am an average... (R)	.17	.47	-.06	.19	.46	-.16
26. I insist on getting...						
Psychopathy						
3. I like to get revenge...	.23	.01	.41	.21	-.04	.39
6. I avoid dangerous... (R)	-.23	-.36	-.39	.26	-.35	-.40
9. Payback needs...	.39	.17	.38	.39	.10	.31
12. People often say...	.04	.22	.51	.02	.19	.47
15. It's true that I can be...	.17	.03	.70	.14	-.05	.69
18. People who mess ...	.30	.34	.42	.28	.29	.35
21. I have never gotten...(R)	-.15	-.04	-.55	.18	.07	-.60
24. I like to pick on...	.27	.21	.51	.25	.14	.47
27. I'll say anything to get....	.53	.29	.18	.54	.22	.08

Note: N – narcissism, M – Machiavellianism, PP – psychopathy

It is worth noting that this “ambiguity” of a number of items is found not only in studies involving adolescents. Thus, in their description of the Short Dark Triad measure and its psychometric properties (Jones & Paulhus, 2014), the authors cite the results of structural analyses conducted in the course of two other studies. One result contains 6 items with loadings of over 0.30 for two of the factors, the other contains 7 such items. A study we had conducted using a sample of adult participants had uncovered such item ambiguity (for instance, links to both narcissism and Machiavellianism) for 6 items.

When comparing Dark Triad traits with Big Five personality traits (Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness), we obtained significant correlations for Agreeableness only with psychopathy and Machiavellianism ( $p < 0.001$ ), while narcissism, as well as psychopathy, was significantly correlated with Extraversion, Openness to Experience, and Neuroticism (see Table 04). The Russian adult sample (Egorova et al., 2015) demonstrated the same correlations, with the only difference being that the correlation between narcissism and Agreeableness was found to have a significance level of 0.05.

**Table 04.** Interrelation between the Dark Triad and the Big Five (Grades 8-11)

Dark Triad traits	Big Five traits				
	E	A	C	N	O
Machiavellianism	-.11	-.22***	.15	-.01	-.05
Narcissism	.59***	-.09	-.14	-.21**	.55***
Psychopathy	.22**	-.42***	-.12	.29***	.13
Dark Triad composite	.30***	-.31***	-.07	-.24**	.28***

Note: E – Extraversion, A – Agreeableness, C – Conscientiousness, N – Neuroticism, O – Openness to Experience; \* –  $p < 0.05$  \*\* –  $0.05 < p < 0.01$  \*\*\* –  $0.01 < p < 0.001$

## 7. Conclusion

Our analysis of the factor structure of the SD3 questionnaire in a sample of adolescents (mean age 15.37) showed the following results:

1. Factor structure was similar to that in a sample of adults.
2. Factor analysis showed that 7 SD3 items apply to more than one scale. 4 of these 7 items are in the psychopathy scale.
3. Judging by the structure of the interrelations between Dark Triad traits, as well as the interrelations between the Big Five and the Dark Triad, narcissism is integrated into the Dark Triad to a lesser degree than psychopathy and Machiavellianism.
4. No age differences between two groups of adolescents (grades 8-9 vs. 10-11) were found for any of the Dark Triad traits.

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