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# Structural Investigation of the Short Dark Triad Questionnaire in Polish Population

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**Abstract** Narcissism, Machiavellianism and psychopathy are commonly referred to as the Dark Triad of personality. In the current study, we examined the structure of the Dark Triad measured by the Polish version of the Short Dark Triad (SD3). The study was conducted with 1012 individuals in Poland. The analyses were performed in four steps: (1) the external validity of the SD3 was tested to provide evidence that SD3 is a valid measure of the three dark traits; (2) the structural validity of the SD3 was tested using competing models in confirmatory factor analyses; (3) the structure of narcissism was tested; and (4) the combined bifactor model of Machiavellianism and psychopathy was tested. The results support the differentiation of the Dark Triad into a Dark Dyad (Machiavellianism and psychopathy) and narcissism, which can be used in further theoretical work and new operationalization of the Dark Triad.

**Keywords** SD3 · Dark Triad · Measurement · Bifactor

The term of the Dark Triad of personality was introduced by Paulhus and Williams (2002), who suggested to study the three socially aversive personality traits: Machiavellianism, narcissism and psychopathy. Since the only bonding element of the Dark Triad is the socially aversive character on a general level and callousness on a more specific level (Paulhus 2014),

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it is not surprising that some new traits, such as everyday sadism (Buckels et al. 2014), emerge as another dark personality. In contrast, some researchers have argued for reducing the Dark Triad into the Dark Dyad by excluding narcissism (Egan et al. 2014; Kowalski et al. 2016). Although the research on the Dark Triad is flourishing (Furnham et al. 2013; Paulhus 2014), few studies have investigated the structure of the Dark Triad and assessed it critically (Persson et al. 2017). Thus, the main objective of the current paper is an in-depth investigation of the Dark Triad's structure.

Narcissism can be characterized as significantly exaggerated self-esteem and beliefs about being special, involving constant preoccupation with ideas about unlimited success, strength, beauty or love (Emmons 1987). The most often used questionnaire to measure narcissism is the Narcissistic Personality Inventory (NPI, Raskin and Hall 1979). Contrary to Dark Triad assumptions on the socially aversive character of its elements, narcissism has adaptive facets that are generally socially accepted, e.g., narcissistic leadership abilities (Ackerman et al. 2011). Recently, Back et al. (2013), in their own process model of narcissism, described two social strategies that serve to maintain a grandiose self-enhancing admiration strategy and self-defensive rivalry strategy. Whereas narcissistic admiration leads to social potential and represents the assertive and grandiose aspects of narcissism, narcissistic rivalry leads to social conflict and represents the antagonistic and exploitative aspects of narcissism.

Machiavellian personality was first described by Christie and Geis (1970). In short, Machiavellianism involves a cold and cynical worldview, a lack of emotionality, strategic planning and manipulative behaviors (Rauthmann and Will 2011). In a comprehensive review of Machiavellian personality, Jones and Paulhus (2009) argue that individuals with this personality trait have superior impulse regulation but do not have special cognitive abilities. To measure Machiavellianism,

Christie and Geis (1970) developed five versions of the MACH questionnaire, the MACH-IV being the most widely used version (Jones and Paulhus 2009).

Psychopathy could be characterized as impulsive and thrill-seeking, in addition to having low empathy and anxiety (Paulhus and Williams 2002). The most widely used instrument to diagnose forensic psychopathy is the Psychopathy Checklist (PCL). However, Levenson et al. (1995) argued that some dimensions of psychopathy are exclusive to a clinical group; therefore, the measurement of psychopathy through PCL as a subclinical trait may not be appropriate. In response, they developed the Levenson Self-Report Psychopathy Scale (LSRP) which measures primary psychopathy, operationalized in a way that is similar to the PCL (e.g., lack of remorse, callousness, and manipulativeness) and secondary psychopathy, understood as impulsivity, intolerance of frustration, quick-temperedness and lack of long-term goals (Levenson et al. 1995).

## Short Dark Triad

Until recently, most studies measured the Dark Triad traits using independent measures. Jones and Paulhus (2014), relying on a review of the literature, developed the initial pool of 41 items that covered key aspects of each Dark Triad trait and then reduced the number of items. Finally, they proposed a measure called the Short Dark Triad (SD3) that comprised 27 items measuring Machiavellianism, narcissism and psychopathy (Jones and Paulhus 2014). Because all three traits were introduced into a single measurement instrument, the structure of the Dark Triad became a more important issue than it had been when these traits were measured using different measures originating from different models.

Jones and Paulhus (2014) tested the structural validity of their measure in two studies: in the first study, they conducted exploratory factor analysis (EFA), on the basis of which they reduced the number of items from 41 to 27. In the second study, they used exploratory structural equation modeling (ESEM), and they reported the fit indices of the model. Hu and Bentler (1999) have suggested a cutoff value for a good model fit for a comparative fit index (CFI) above .90 and for a root mean square error of approximation (RMSEA) less than .06. This suggests a good model fit for Jones and Paulhus as their values were acceptable (CFI = .93; RMSEA = .04). However, it is worth noting that the structure of narcissism alone was relatively independent from the other two traits, i.e., having only one high cross-loading onto Machiavellianism, whereas four of nine psychopathy items exhibited significant cross-loadings onto the Machiavellianism factor. Jones and Paulhus (2014) have also reported results of confirmatory factor analysis (CFA); however, the model fit indices were rather poor (CFI = .82; RMSEA = .07). To summarize, both ESEM and CFA suggest that there are problems with the SD3 structure.

To date, only two studies (Pabian et al. 2015 in English and Atari and Chegeni 2016 in Farsi) have investigated the psychometric structure of the SD3 apart from Jones and Paulhus (2014). Pabian et al. (2015) and Atari and Chegeni (2016) reported model fit indices obtained by CFA at the boundary of the acceptable model fit (CFI = .90; RMSEA = .045; CFI = .84; RMSEA = .048, respectively); however, Pabian et al. (2015) excluded five items (in which the factor loadings were weaker than .30) from the analysis to improve the model fit. Atari and Chegeni (2016) on the basis of EFA also removed seven items from the questionnaire because the original measurement model of the SD3, as proposed by Jones and Paulhus (2014), was poorly fitted to the data (CFI = .73; RMSEA = .057). Such modifications of the model suggest the continued existence of problems with the structure of SD3.

Problems with the differentiation between Dark Triad factors are reflected also in the correlations between traits reported in other studies using SD3. The published intercorrelations are as follows: (1) the highest correlations were found between Machiavellianism and psychopathy ($r$ = .62 in Pabian et al. 2015; $r$ = .52 in Jonason 2015; $r$ = .56 in Jones and Olderbak 2014), (2) moderate correlations were found between narcissism and psychopathy ($r$ = .42 in Pabian et al. 2015; $r$ = .42 in Jonason 2015; $r$ = .32 in Jones and Olderbak 2014), and (3) the lowest correlations were found between Machiavellianism and narcissism ($r$ = .44 in Pabian et al. 2015; $r$ = .27 in Jonason 2015; $r$ = .30 in Jones and Olderbak 2014). It is worth noting that these correlations are between summated scores, while those between latent variables in CFA (reported only by Pabian et al., 2015) seem to be much higher: $r$ = .86 between Machiavellianism and psychopathy, $r$ = .65 between Machiavellianism and narcissism and $r$ = .51 between narcissism and psychopathy.

Based on the correlation coefficients from independent studies, one can conclude that narcissism is quite independent from the other two Dark Triad traits, while Machiavellianism and psychopathy are highly correlated.

## Current Study

The current paper aims to investigate the factorial structure of the SD3 because there is a need to conduct same studies but on different populations in order to verify in what extent the original propositions are replicable. Replicability is the pursued goal, as the more replicable the results are, especially across different population and languages, the more confident the researchers could be with them. Current study compares the results between Polish and American population (Jones and Paulhus 2014); although some differences are expected because the measurement of different human characteristics

across different populations is very hard – if even possible. Thus, the study like this may not be able to provide all of the answers to the research questions, but it may shed some accuracies, which may be further investigated in future studies with different populations.

The external validity of SD3 was tested by inspecting the correlations with independent instruments, which were developed to measure each trait. The structural validity of the Dark Triad as measured by SD3 was tested by a comparison of a set of models: (1) the Jones and Paulhus (2014) measurement model; (2) the model modified on the basis of modification indices; (3) the measurement model proposed by Atari and Chegeni (2016); and (4) the bifactor Dark Triad model. Finally, we tested whether narcissism as measured by SD3 is unidimensional by investigating two models: (5) the unidimensional model, and (6) the unidimensional model with correlated residuals; and (7) the bifactor Machiavellianism-psychopathy (Dark Dyad) model.

## Material and Methods

**Participants and Procedure** Similarly to Jones and Paulhus (2014), we gathered our data via Internet platform. The sample comprised 1012 Polish participants between 17 and 35 years of age. In the overall sample, there were 202 male ($M = 22.28$; $SD = 3.26$) and 810 female participants ($M = 22.38$; $SD = 3.49$). All of the participants were informed that the study was anonymous; however, every participant had an opportunity to provide his or her e-mail address in order to participate in a lottery to win a book as a reward for participating in the study.

**Measures** To assess the Dark Triad traits we used the Polish version of SD3 (Jones and Paulhus 2014) prepared by authors of this paper. We contacted the authors of the original scale from which we obtained the measure. During the translation we followed a standard two-step procedure, i.e., the questionnaire was translated into the Polish, verified and corrected, and was back-translated an sent to the authors, who did not reported any modifications for consideration. Participants indicate their agreement with each statement using five-point Likert type scale. Reliability of SD3 was assessed by using the McDonald's ω coefficient (1999), which is interpreted in the same manner as other reliability estimates. We estimated the following reliability coefficients for narcissism, Machiavellianism and psychopathy, which are: $\omega = .74$ [95%CI = .71-.76], $\omega = .74$ [95%CI = .72-.77] and $\omega = .67$ [95%CI = .64-.70] respectively. These estimated reliability coefficients are acceptable and comparable with estimates obtained by Jones and Paulhus (2014); in current study, only the estimate for psychopathy is lower and not included within the confidence interval.

Additionally each of the Dark Triad traits were assessed independently by other instruments. To assess Machiavellianism we used the MACH-IV (Christie and Geis 1970) which comprise 20 items measuring cynical worldview, manipulative tactics and amorality. Participants rate their agreement using seven-point Likert type. The reliability of cynical worldview, manipulative tactics and amorality are as follows: $\omega = .62$ [95%CI = .58-.66], $\omega = .71$ [95%CI = .68-.74] and $\omega = .22$ [95%CI = .12-.31], respectively. The reliability estimates of cynical worldview and manipulative tactics were acceptable while for amorality scale was unacceptably low and therefore this scale was excluded from further analyses.

Narcissism was assessed using two measures: Narcissistic Personality Inventory (NPI; Raskin and Hall 1979; Polish adaptation: Bazińska and Drat-Ruszczak 2000) and Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013; Polish adaptation: Rogoza et al. 2016c). The Polish version of NPI use four-point Likert type scale. Reliability estimates are following: admiration ($\omega = .86$ [95%CI = .85-.88]), leadership ($\omega = .89$ [95%CI = .88-.90]), vanity ($\omega = .81$ [95%CI = .79-.83]) and self-sufficiency ($\omega = .77$ [95%CI = .74-.79]). Thus all of the distinguished scales characterize good reliability. Within NARQ, two narcissistic dimensions are measured in reliable manner: self-enhancing admiration ($\omega = .85$ [95%CI = .84-.87]) and self-protecting rivalry ($\omega = .83$ [95%CI = .81-.84]).

Primary and secondary psychopathy was assessed using Levenson's Self-Report Psychopathy Scale (LSRP; Levenson et al. 1995). Participants response their agreement using four-point Likert type scale. The reliability estimates of primary ($\omega = .86$ [95%CI = .84-.88]) and secondary psychopathy ($\omega = .61$ [95%CI = .56-.65]) were good and acceptable respectively.

## Results

### External Validity of the Short Dark Triad

The intercorrelation between the summated scores of SD3 is as follows: narcissism and psychopathy $r = .28$ ($p < .01$), narcissism and Machiavellianism $r = .25$ ($p < .01$), and psychopathy and Machiavellianism $r = .57$ ($p < .01$). To assess the external validity of the measurement of narcissism, Machiavellianism and psychopathy measured with the SD3, we correlated them with independent Dark Triad measures. The results are presented in Table 1.

The SD3 narcissism scale was most strongly correlated (.56 and more) with traits distinguished in the NPI, while the correlations between traits measured by LSRP (psychopathy) and those measured by MACH (Machiavellianism) were relatively low (.34 and lower). The correlation of narcissism as

**Table 1** Correlations between Dark Triad measured by SD3 and independent measures

| Scale | SD3 Narcissism | SD3 Psychopathy | SD3 Machiavellianism |
| --- | --- | --- | --- |
| NPI Admiration | **.71*** | .36* | .34* |
| NPI Leadership | **.75*** | .35* | .32* |
| NPI Vanity | **.57*** | .20* | .18* |
| NPI Self-sufficiency | **.56*** | .18* | .21* |
| NARQ Admiration | **.73*** | .25* | .25* |
| NARQ Rivalry | **.24*** | .47* | .57* |
| LSRP Primary psychopathy | .34* | **.58*** | .67* |
| LSRP Secondary psychopathy | −.05 | **.50*** | .31* |
| MACH Manipulative tactics | .16* | .43* | **.55*** |
| MACH Cynical worldview | .11* | .37* | **.50*** |

*Note.* SD3 = Short Dark Triad; NARQ = Narcissistic Admiration and Rivalry Questionnaire; NPI = Narcissistic Personality Inventory; LSRP = Levenson Self-Report Psychopathy Scale; MACH = MACH-IV questionnaire; bold – expected highest correlations

$*p < .01$

measured by SD3 with the two dimensions of narcissism as measured by NARQ demonstrated that although the assertive, dominant and grandiose aspects of narcissism were well tapped by SD3 (as expressed in the high correlations with NPI scales and with the admiration dimension), the antagonistic, aggressive, and exploitative aspects of narcissism were not sufficiently covered (as expressed in a small correlation with the rivalry dimension). The rivalry dimension, instead of correlating with narcissism, correlated with both psychopathy and Machiavellianism. The Machiavellianism scale according to SD3 had the highest correlations (.50 and more) with MACH-IV scales, reflecting manipulative tactics and cynical worldview, but it was also highly correlated with primary psychopathy measured by the LSRP (.67). Despite the fact that the psychopathy scale of the SD3 was most strongly correlated with secondary psychopathy, it is worth noting that the correlation between Machiavellianism measured by SD3 and primary psychopathy measured by LSRP (.67) was greater than the correlation of Machiavellianism with psychopathy itself (.58). Additionally, the correlations between psychopathy as measured by SD3 and one facet of Machiavellianism as measured by MACH (Manipulative tactics) were relatively high (.43). Narcissism as measured by SD3 correlated mostly with other scales measuring different aspects of narcissism, while Machiavellianism and psychopathy as measured by SD3 were strongly correlating with each other, as measured by independent instruments.

## Structural Validity of the Short Dark Triad

To assess the structural validity of the SD3, we performed a series of confirmatory factor analyses. To evaluate whether the model fit the data, we followed Hu and Bentler's (1999) recommendations.

The first model resembled the model proposed by Jones and Paulhus (2014) without any modifications. In the second model, we purposefully modified the CFA model and tested the data-based model of SD3. In the third model, we tested the EFA-based proposition of Atari and Chegeni (2016). Because Machiavellianism and psychopathy highly correlated with themselves in the all models, we used the bifactor solution, since this allows the separation of general and domain-specific factors, also known as grouping factors (Reise et al. 2010). In bifactor CFA/ESEM, the bifactor is meant to account for the commonality between items, while grouping factors represent unique variance (Chen et al. 2006). If the grouping factor loadings are stronger than the bifactor, the superiority of grouping factors can be assumed (Reise et al. 2010). Finally, we tested the unidimensional structure of narcissism independently from psychopathy and Machiavellianism, which were tested by using bi-CFA.

Since the response scale of SD3 comprises five options, we treated the data as ordinal; therefore, we performed CFA on polychoric correlation matrices and chose the WLSMV estimator. A summarized table presenting model fit indicators of competing models is presented in Table 2.

First model was poorly fitted to the data, which confirmed our expectations with the difficulties of replication of the SD3 structure. In the second model, we performed a sequence of modifications to the model and used the CFA for exploratory purposes to improve the fit. After being modified in this way, the model obtained acceptable model fit indices. In the third model, we deleted seven items according to Atari and Chegeni (2016), which resulted in poor fit to the data. In all models, the correlation between psychopathy and Machiavellianism was very high ($r = .91$ in the first, $r = .93$ in the second and $r = .90$ in the third model).

In the fourth model, the bifactor was introduced to test the relationship between the Dark Triad traits; however, this

**Table 2** Model fit indices for competing models

| | $\chi^2_{(df)}$ | $p$ | CFI | RMSEA[90%CI] |
|---|---|---|---|---|
| Model 1: CFA of SD3 measurement model | $2273.98_{(321)}$ | .001 | .81 | .078[.075-.081] |
| Model 2: The modified model | $1156.41_{(243)}$ | .001 | .90 | .061[.057-.064] |
| Model 3: Atari and Chegeni (2016) model | $1185.13_{(167)}$ | .001 | .83 | .078[.073-.082] |
| Model 4: Bifactor Dark Triad model | $1798.17_{(303)}$ | .001 | .85 | .070[.067-.073] |
| Model 5: Unidimensional narcissism model | $263.14_{(27)}$ | .001 | .90 | .093[.083-.103] |
| Model 6: Unidimensional narcissism model with correlated residuals | $149.68_{(25)}$ | .001 | .95 | .070[.060-.081] |
| Model 7: Bifactor Dark Dyad model | $695.32_{(117)}$ | .001 | .93 | .070[.065-.075] |

model was nonetheless poorly fitted to the data. The bifactor was loaded stronger than Machiavellianism and psychopathy, but the factor loadings on narcissism were higher than on bifactor, suggesting its independence; thus, we decided to test the structure of narcissism independently from that of Machiavellianism and psychopathy.

In the fifth model, the unidimensional model of narcissism was at the boundary of acceptable model fit as suggested by CFI, whereas the value of RMSEA suggested that the model was not well specified. Thus, in the sixth model, we investigated modification indices and identified two pairs of items that shared residual variance. After incorporating these two correlations, the model (presented at Fig. 1) was well fitted to the data; thus, it partially confirmed the unidimensional structure of narcissism as measured by SD3. All of correlated items concerned grandiosity and were based on the NPI; one pair of items, namely, item 5 coded reversely and item 11, concerned grandiosity, and the second pair of items, namely, items 17 and 23 (both coded reversely), concerned shyness.

In the seventh and last of the tested models, we assessed the structure of Machiavellianism and psychopathy as the separate Dark Dyad model. The bifactor CFA with standardized loadings on the Dark Dyad (Model 7) has been presented in Fig. 2.

The bifactor was loaded more strongly than Machiavellianism and psychopathy; however, some items (items no. 1, 10 and 19) loaded more strongly on Machiavellianism than on the bifactor. Similarly, three items (items no. 9, 21 and 24) loaded more strongly on psychopathy than on the bifactor. Thus, one can conclude that although Machiavellianism and psychopathy as measured by SD3 merged into the more general Dark Dyad, in each trait a specific facet can nonetheless still be measured, namely, sensation-seeking for psychopathy and Machiavellian tactics for Machiavellianism.

## Discussion

Current paper is amongst very first papers examining the structure of the SD3 into other language than English (Atari and Chegeni 2016); and simultaneously is not the first which

encounters problems with the questionnaire structure (Pabian et al. 2015). Because we studied only one population in one language, our results should not be interpreted as prejudging, and future work should aim to replicate our results within other languages and in different populations.

In the current study we investigated the structural validity of the Polish adaptation of the SD3. The scales from SD3 could be generally deemed externally valid because they correlated mostly with relevant independent measures. It is worth noting that the narcissistic rivalry (which is an antagonistic and aggressive aspect of narcissism) weakly correlated with narcissism as measured by SD3 and strongly with Machiavellianism and psychopathy, whereas narcissistic admiration and NPI scales, which represent the assertive and grandiose aspect of narcissism, were strongly related with narcissism as measured by SD3. It can be concluded that narcissism as measured by SD3 is similar to narcissism as measured by NPI; thus, similarly to the NPI, the SD3 misses the antagonistic and aggressive aspect of narcissism.

As we expected from the literature review, we found a very high correlation between Machiavellianism and psychopathy, which supports the hypothesis that these traits as measured by SD3 are not sufficiently differentiated, i.e., although they correlate with relevant scales most strongly, they also correlate strongly with each other. Pabian et al. (2015) also found a very high correlation between Machiavellianism and psychopathy in their CFA, but instead of searching for the potential source of this correlation, they implemented the sequence of the modifications of the CFA model to achieve good fit indices. Atari and Chegeni (2016) in assessment of the structure of SD3 also found difficulties with the replication of the original measurement model of SD3, but similarly to Pabian et al. (2015) – they simply deleted seven items and obtained good model fit indices. Such an approach to analysis ignores the underlying theory problems, rather than attempting to solve them (Browne 2001). To emphasize this conclusion, we used CFA for exploratory purposes and tested the model with a series of modifications. Such interference resulted in good model fit; however, the correlation between Machiavellianism and psychopathy was still very high. One could conclude that although previous studies achieved good model fit indices

**Fig. 1** Unidimensional model of narcissism
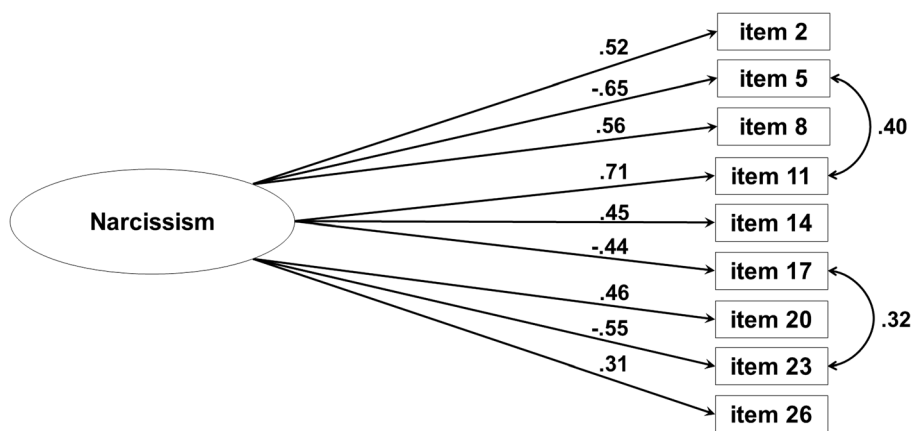


(Atari and Chegeni 2016; Pabian et al. 2015), the abbreviated propositions are data-based and are not replicable; thus, in the light of these results, the structure of SD3 has been challenged.

As in the assessment of the external validity of SD3, in our investigation of the structural validity, we tested different CFA models and found a very high correlation between Machiavellianism and psychopathy, which emphasize the difficulty of differentiating between the two. This result is in line with the literature, e.g., Egan et al. (2014). Moreover, narcissism has been the least correlated with other dark traits in most studies (e.g., Jonason 2015). All of this evidence suggests that narcissism is the least nested in the Dark Triad. To examine this problem, we introduced the bifactor accounting for observed commonalities between Dark Triad traits.

First, we examined the model with a Dark Triad bifactor and three grouping factors (narcissism, Machiavellianism, and psychopathy). The results from this model also suggested that

narcissism is rather the autonomous member and the one least related to Machiavellianism and psychopathy. Second, we tested the structural validity of SD3 as divided into narcissism and the Dark Dyad (Machiavellianism and psychopathy).

In the narcissism model, we confirmed that SD3 measures narcissism as a unidimensional construct; however, its structure is not flawless. All of the four items that were correlated within the model originated from the NPI, and as according to Ackerman et al. (2011), they all measured a single aspect of narcissism, namely, grandiose exhibitionism (which was expressed in the correlations added to the model). Among other items from SD3, two more were also based on NPI items (one item for leadership/authority and one for entitlement/ exploitativeness), while the remaining three items also concern grandiosity are unique for SD3. Thus, the majority of the items within SD3 concerns only one aspect of narcissism (all correlated items as well as the items unique for SD3), i.e.,

**Fig. 2** The bifactor Dark Dyad model
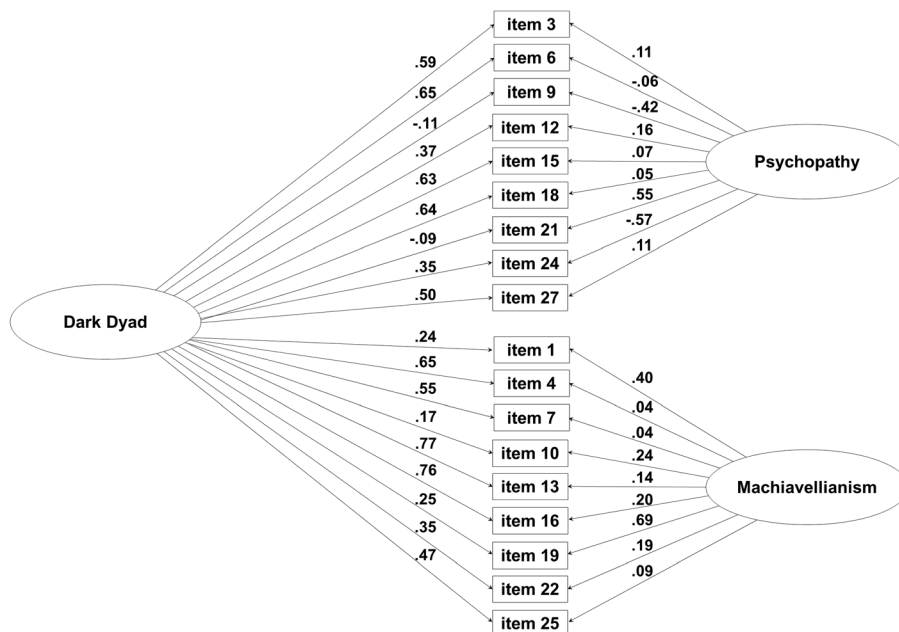
grandiosity, and only two items try to capture all other aspects of narcissism, which makes the SD3 only a narrow measure of narcissistic grandiosity.

Because narcissism as measured by SD3 was strongly based on the NPI, it has also inherited its limitations, and alternative methods of narcissism assessment may provide better insight. Differentiation of these two facets of narcissism as measured by NARQ disentangled some of existing apparent paradoxes concerning narcissism and many psychological constructs, e.g., relationships with self-esteem, impulsivity, personality traits and basic values (Rogoza et al. 2016a, b); thus, the incorporation of this model into Dark Triad research may shed new light on its structure. The assertive and grandiose aspects of narcissism are not strongly associated with the Dark Triad – which was expressed in both correlational analyses (i.e., the low correlations of the rivalry dimension with narcissism as measured by SD3 and the simultaneously high correlation of this dimension with both Machiavellianism and psychopathy) and in structural assessment (i.e., the exclusion of narcissism from the Dark Triad model). Thus, in further research that could be conducted on the structure of the Dark Triad, one option may be to replace the items of SD3 with those measuring the antagonistic and exploitative aspects of narcissism.

In the Dark Dyad model, most of the items were loading only the bifactor, but some of them composed facets specific to Machiavellianism and psychopathy. The result was that the psychopathy core facet concerned sensation-seeking, while the Machiavellianism core facet concerned Machiavellian tactics. Jones and Paulhus (2009), in their review on Machiavellian personality, noted that skillfulness in manipulative tactics may come from superior impulse regulation ability. Similarly, Hare and Neumann (2008), in their review on psychopathy, noted that impulsivity is one of the core constructs associated with psychopathy. Our results support the interpretation that Machiavellianism and psychopathy could be differentiated by the sensation-seeking that is driven by impulsivity and the Machiavellian tactics that are driven by impulse regulation. In summary, Machiavellianism and psychopathy are on opposite sides of the dimension of impulse regulation ability.

In summary, on the basis of the assessment of the external and structural validity, the Dark Triad as measured by SD3 comprises two main constructs: narcissistic grandiosity, which is missing in its measurement the antagonistic and exploitative aspects of narcissism, and the Dark Dyad, which can be differentiated on a conceptual level by its distinct impulse regulation dimension. Obtained results suggests that the differentiation between Machiavellianism and psychopathy as they are currently measured is hard, if even possible, and using short measures like SD3 (Jones and Paulhus 2014) might additionally hinder this distinction.

## References

Ackerman, R.A., Witt, E.A., Donnellan, M.B., Trzesniewski, K.H., Robins, R.W., & Kashy, D.A. (2011). What does the narcissistic personality inventory really measure? *Assessment, 18*, 67–87. doi:10.1177/1073191110382845.

Atari, M., & Chegeni, R. (2016). Assessment of dark personalities in Iran: Psychometric evaluation of the Farsi translation of the Short Dark Triad (SD3-F). *Personality and Individual Differences, 102*, 111–117. doi:10.1016/j.paid.2016.06.070.

Back, M.D., Küfner, A.C.P., Dufner, M., Gerlach, T.M., Rauthmann, J.F., & Denissen, J.J.A. (2013). Narcissistic admiration and rivalry: disentangling the bright and dark sides of narcissism. *Journal of Personality and Social Psychology, 105*, 1013–1037. doi:10.1037/a0034431.

Bazińska, R., & Drat-Ruszczak, K. (2000). Struktura narcyzmu w polskiej adaptacji kwestionariusza NPI Raskina i Halla [Structure of the narcissism in Polish adaptation of Raskin and Hall questionnaire]. *Czasopismo Psychologiczne, 6*, 171–187.

Browne, M. W. (2001). On Overview of Analytic Rotation in Exploratory Factor Analysis. *Multivariate Behavioral Research, 36*, 111–150. doi:10.1207/S15327906MBR3601_05.

Buckels, E. E., Trapnell, P. D., & Paulhus, D. L. (2014). Trolls just want to have fun. *Personality and Individual Differences, 67*, 97–102. doi:10.1016/j.paid.2014.01.016.

Chen, F. F., West, S. G., & Sousa, K. H. (2006). A comparison of bifactor and second-order models of quality-of-life. *Multivariate Behavioral Research, 41*, 189–225. doi:10.1207/s15327906mbr4102_5.

Christie, R., & Geis, F. (1970). *Studies in Machiavellianism*. New York: Academic Press.

Egan, V., Chan, S., & Shorter, G. W. (2014). The Dark Triad, happiness and subjective well-being. *Personality and Individual Differences, 67*, 17–22. doi:10.1016/j.paid.2014.01.004.

Emmons, R. A. (1987). Narcissism: Theory and measurement. *Journal of Personality and Social Psychology, 52*, 11–17. doi:10.1037//0022-3514.52.1.11.

Furnham, A., Richards, S. C., & Paulhus, D. L. (2013). The Dark Triad of personality: A 10-year review. *Social and Personality Compass, 7*, 199–216. doi:10.1111/spc3.12018.

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as clinical and empirical construct. *Annual Review of Clinical Psychology, 4*, 217–246. doi:10.1146/annurev.clinpsy.3.022806.091452.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. doi:10.1080/10705519909540118.

Jonason, P. K. (2015). How "dark" personality traits and perceptions come together to predict racism in Australia. *Personality and Individual Differences, 72*, 47–51. doi:10.1016/j.paid.2014.08.030.

Jones, D. N., & Olderbak, S. G. (2014). The Associations Among Dark Personalities and Sexual Tactics Across Different Scenarios. *Journal of Interpersonal Violence, 29*, 1050–1070. doi:10.1177/0886260513506053.

Jones, D. N., & Paulhus, D. L. (2009). Machiavellianism. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of Individual Differences in Social Behavior* (pp. 93–108). New York: Guilford.

Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment, 21*, 28–41. doi:10.1177/1073191113514105.

Kowalski, C. M., Vernon, P. A., & Schermer, J. A. (2016). The General Factor of Personality: The relationship between the Big One and the Dark Triad. *Personality and Individual Differences, 88*, 256–260. doi:10.1016/j.paid.2015.09.028.

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*, 151–158. doi:10.1177/1073191113514105.

McDonald, R. P. (1999). *Test theory: A unified treatment*. Mahwah: Lawrence Erlbaum Associates.

Pabian, S., De Backer, C. J. S., & Vandebosch, H. (2015). Dark Triad personality traits and adolescent cyber-aggression. *Personality and Individual Differences, 75*, 41–46. doi:10.1016/j.paid.2014.11.015.

Paulhus, D. L. (2014). Toward a taxonomy of dark personalities. *Current Issues in Psychological Science, 23*, 421–426. doi:10.1177/0963721414547737.

Paulhus, D. L., & Williams, K. M. (2002). The Dark Triad of personality: narcissism, Machiavellianism, and psychopathy. *Journal of Research in Personality, 36*, 556–563. doi:10.1016/S0092-6566(02)00505-6.

Persson, B. N., Kajonius, P. J., & Garcia, D. (2017). Revisiting the structure of the Short Dark Triad. *Assessment*. Advance online publication. doi:10.1177/1073191117701192.

Raskin, R., & Hall, C. S. (1979). The Narcissistic Personality Inventory. *Psychological Reports, 45*, 590. doi:10.2466/pr0.1979.45.2.590.

Rauthmann, J. F., & Will, T. (2011). Proposing a multidimensional Machiavellianism conceptualization. *Social Behavior and Personality, 39*, 391–404. doi:10.2224/sbp.2011.39.3.391.

Reise, S. P., Moore, T. M., & Haviland, M. G. (2010). Bifactor models and rotations: Exploring the extent to which multidimensional data yield univocal scale scores. *Journal of Personality Assessment, 92*, 544–559. doi:10.1080/00223891.2010.496477.

Rogoza, R., Żemojtel-Piotrowska, M., Rogoza, M., Piotrowski, J., & Wyszyńska, P. (2016a). Narcissistic admiration and rivalry in the context of personality metatraits. *Personality and Individual Differences, 102*, 180–185. doi:10.1016/j.paid.2016.07.003.

Rogoza, R., Wyszyńska, P., Maćkiewicz, M., & Cieciuch, J. (2016b). Differentiation of the two narcissistic faces in their relations to personality traits and basic values. *Personality and Individual Differences, 95*, 85–88. doi:10.1016/j.paid.2016.02.038.

Rogoza, R., Rogoza, M., & Wyszyńska, P. (2016c). Polska adaptacja modelu narcystycznego podziwu i rywalizacji [Polish adaptation of the Narcissistic Admiration and Rivalry Concept]. *Polskie Forum Psychologiczne, 21*, 410–431. doi:10.14656/PFP20160306.