

ORIGINAL ARTICLE

Adaptive and maladaptive correlates of the Dark Triad: associations with mental toughness and resilience

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BACKGROUND

Dark Triad traits have been associated with a range of both adaptive and maladaptive outcomes. Subclinical narcissism, in particular, is associated with self-confidence and effective coping strategies that may enhance psychological functioning. Mental toughness, encompassing cognitive, emotional, and motivational processes, is a key mechanism through which personality traits may influence resilience.

PARTICIPANTS AND PROCEDURE

The current study aimed to examine the relationships among Dark Triad traits, mental toughness, and resilience in a sample of 319 Serbian university students (28% male, 72% female; mean age = 22.23, $SD = 2.48$). Participants completed online measures of Dark Triad traits, mental toughness, and resilience via a Google Forms survey during the first half of 2025, a period of student protests and educational disruption. Mental toughness was assessed with the MTQ-18, resilience with the Resilience Scale, and Dark Triad traits with the Short Dark Triad.

RESULTS

Subclinical narcissism was positively associated with both mental toughness ($r = .32$, $p < .01$) and resilience ($r = .32$,

$p < .01$), while Machiavellianism and psychopathy showed no significant associations. Regression analyses indicated that only narcissism was significantly associated with both outcomes. Mediation analysis using bootstrapping indicated a significant indirect effect of narcissism on resilience through mental toughness ($B = 0.17$, $BootSE = 0.03$, 95% CI [0.12, 0.23]), suggesting that mental toughness may account for the association between narcissism and resilience.

CONCLUSIONS

Our findings highlight the potentially adaptive potential of subclinical narcissism. In contrast, Machiavellianism and psychopathy were not significantly associated with adaptive functioning, underscoring the differential roles of Dark Triad traits in relation to psychological outcomes. Future research should examine how these traits may interact with adaptive functioning and maladaptive outcomes.

KEY WORDS

Dark Triad; mental toughness; resilience; subclinical narcissism

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BACKGROUND

Mental toughness is a psychological construct reflecting an individual's capacity to endure and effectively cope with pressure, stress, and challenges (Clough et al., 2002). It encompasses commitment, self-control, confidence, and belief in one's abilities (Clough et al., 2002). Empirical evidence suggests that higher mental toughness is associated with favorable psychological outcomes, including reduced anxiety and depression, enhanced well-being in student populations, and greater stress resilience (Gerber et al., 2012; Papageorgiou et al., 2019a). Mental toughness also supports proactive problem-solving, sustained focus, and motivational persistence across academic, professional, and athletic domains (Papageorgiou et al., 2018; Vaughan et al., 2018).

Resilience refers to an individual's capacity for effective coping with change and adversity (Wagnild & Young, 1993). It is reflected in the ability to maintain balance under stress, persist despite obstacles, rely on personal strengths, derive meaning from experiences, and recognize one's continuity over time (Wagnild & Young, 1993). Resilient individuals adapt successfully to stressful and traumatic situations, sustaining optimal functioning even if prior performance levels are not fully restored (Allen et al., 2011). Like mental toughness, resilience is consistently associated with positive mental health outcomes and subjective well-being (Sękowski et al., 2023). Recent studies conducted in contexts of sociopolitical instability and war-related stress have further highlighted the potentially protective role of resilience and adaptive coping strategies for mental health outcomes (Kasierska et al., 2025).

Although mental toughness and resilience are closely related constructs and share substantial conceptual overlap, contemporary literature increasingly emphasizes important distinctions between them. Mental toughness is commonly conceptualized as a relatively stable dispositional characteristic involving confidence, commitment, control, and proactive engagement with challenges, whereas resilience is more frequently understood as a dynamic process of successful adaptation and recovery following adversity (Clough et al., 2002; Gucciardi & Jones, 2012; Strycharczyk & Clough, 2015). In this framework, mental toughness reflects the tendency to perceive stressors as manageable and challenges as opportunities for growth, while resilience primarily reflects adaptive adjustment after exposure to stress or adversity.

At the same time, the relationship between these constructs remains theoretically debated. Some authors conceptualize mental toughness as a component or operationalization of resilience, whereas others propose that mental toughness functions as an antecedent that facilitates resilient adaptation

(Gucciardi & Jones, 2012). Given these conceptual ambiguities, the present study does not assume strict causal or temporal ordering between the constructs. Rather, the proposed mediation model reflects a theoretically informed framework in which mental toughness may represent one psychological mechanism through which personality traits are associated with resilient functioning.

The Dark Triad, comprising narcissism, Machiavellianism, and psychopathy, represents socially aversive traits characterized by low honesty-humility, limited empathy, uncooperativeness, and interpersonal exploitation (Paulhus & Williams, 2002; Szabó et al., 2022). Narcissism involves grandiosity, exaggerated self-importance, and dominance (Papageorgiou et al., 2019b); Machiavellianism involves strategic manipulation, cynicism, and lack of empathy (Truhan et al., 2021); psychopathy is marked by emotional detachment, impulsivity, and irresponsibility (Malesza & Ostaszewski, 2016). Although dark personality traits are generally linked to maladaptive outcomes, accumulating evidence suggests that grandiose narcissism may demonstrate context-dependent adaptive correlates through self-confidence, perceived control, and challenge appraisal, whereas psychopathy and Machiavellianism demonstrate weak, negative, or negligible associations with mental toughness and resilience (Onley et al., 2013; Papageorgiou et al., 2017; Szabó et al., 2022; Vaughan et al., 2018).

Both mental toughness and resilience demonstrate substantial associations with broader personality dimensions, particularly lower neuroticism, higher extraversion, emotional stability, and conscientiousness (Liang et al., 2024; Papageorgiou et al., 2019a; Sękowski et al., 2023). Similarly, grandiose narcissism has been linked to elevated self-esteem, social assertiveness, perceived self-confidence, and low honesty-humility within the HEXACO framework (Lee & Ashton, 2005). Consequently, associations between subclinical grandiose narcissism, mental toughness, and resilience may partly reflect overlapping variance with broader personality characteristics rather than effects unique to narcissism itself. Integrating Dark Triad research with broader personality frameworks therefore remains important for interpreting adaptive functioning outcomes. Recent research has further emphasized the close conceptual relationship between aversive personality traits and low honesty-humility, while also suggesting that these constructs remain theoretically distinguishable despite substantial overlap (Stefanek et al., 2025).

The present study investigates the relationships between Dark Triad traits, mental toughness, and resilience in a student sample. Building on prior research, we hypothesized that subclinical grandiose narcissism would be positively associated with

both mental toughness and resilience, and that mental toughness would be statistically associated with resilience in a pattern consistent with a mediation model. Mental toughness was conceptualized as a potential mediator based on theoretical models suggesting that personality traits may be linked to adaptive functioning through cognitive, emotional, and motivational coping tendencies. However, given the cross-sectional nature of the present study, this mediation model should be interpreted as a theoretically informed associative framework rather than evidence of causal or temporal ordering. Narcissism has been associated with elevated self-confidence, positive self-evaluations, and active coping tendencies, which may be reflected in higher levels of mental toughness and resilience in self-report assessments. The mediating role of mental toughness has been previously suggested in related psychological contexts (Szabó et al., 2022). In contrast, subclinical psychopathy and Machiavellianism were expected to show weak or non-significant associations with mental toughness and resilience. Overall, the study examines potentially differential associations between Dark Triad traits and adaptive psychological functioning in a non-clinical student population.

PARTICIPANTS AND PROCEDURE

PARTICIPANTS

Participants were 319 university students from Serbia (28% male, 72% female; age range 19-27 years, $M = 22.23$, $SD = 2.48$). After providing informed consent, they completed online measures of Dark Triad traits, mental toughness, and resilience, followed by demographic items, via a Google Forms survey distributed through official student social media groups. The study was conducted during the first half of 2025, a period marked by highly active student protests in Serbia and a significant crisis in the educational system. Examining mental toughness and resilience in such a challenging, stressful, and dynamic context is particularly meaningful and highly relevant for understanding adaptive capacities in educational settings under sociopolitical stress.

Participation was voluntary, and data were collected in a manner that ensured participant privacy and anonymity. All procedures were conducted in accordance with the ethical principles of the 1964 Helsinki Declaration and its later amendments.

MEASURES

Mental toughness. Mental toughness was assessed using the 18-item Mental Toughness Questionnaire MTQ-18; Clough et al., 2002; Ognjanović, 2012).

The MTQ-18 is a brief instrument derived from the longer MTQ-48, which captures four interrelated components of mental toughness: challenge, commitment, control, and confidence. Although items are sampled from each of these domains, the MTQ-18 was developed as a unidimensional measure, providing a reliable global index of mental toughness while reducing respondent burden. In the current research, internal consistency was satisfactory ($\alpha = .81$).

Resilience. Resilience was assessed using the 25-item Resilience Scale (RS; Wagnild & Young, 1993; Tadić et al., 2026), a self-report instrument designed to measure positive psychological resources. Participants rated each item on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores reflecting greater resilience. The Resilience Scale captures key qualities of resilient individuals, including equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness. In the current research, internal consistency was good ($\alpha = .84$).

Short Dark Triad. Dark personality traits were assessed using the 27-item Short Dark Triad questionnaire (SD3; Jones & Paulhus, 2014; Dinić et al., 2018). The SD3 consists of three 9-item subscales measuring Machiavellianism (e.g., “I like to use clever manipulation to get my way”), subclinical narcissism (e.g., “I know that I am special because everyone keeps telling me so”), and subclinical psychopathy (e.g., “I’ll say anything to get what I want”). Items are rated on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*), and subscale scores are computed as the mean of the respective items. In the current research, the full scale demonstrated acceptable internal consistency ($\alpha = .71$), with subscale alphas of .70 for Machiavellianism, .63 for psychopathy, and .65 for subclinical narcissism.

All scales applied in the study were administered in adapted Serbian versions, sourced from the relevant domestic literature.

DATA ANALYSIS

Data analyses were conducted using SPSS Statistics 22.0. Pearson’s correlation coefficients were first examined to evaluate multicollinearity among the study variables. Linear regression analyses were then performed to investigate the associations between Dark Triad traits, mental toughness, and resilience. Additional regression analyses examined the predictive role of Dark Triad traits on mental toughness and resilience. Regression assumptions, including linearity, normality, homoscedasticity, and independence of residuals, were examined, and no substantial violations were observed. Multicollinearity diagnostics additionally indicated no evidence of problematic collinearity among predictors (all VIF values < 2.0). Independent samples *t*-tests were conducted to ex-

amine potential gender differences in mental toughness, resilience, and Dark Triad traits. No statistically significant differences between male and female participants were observed across any of the primary variables. Mediation analyses were conducted using PROCESS Macro Model 4 for SPSS (Hayes, 2018). Indirect effects were evaluated using bias-corrected bootstrapping procedures with 5,000 bootstrap samples and 95% confidence intervals (CI). Indirect effects were considered significant when the confidence interval did not include zero. All tests were two-tailed, and statistical significance was set at $p < .05$, with 95% confidence intervals (95% CI).

RESULTS

DESCRIPTIVE STATISTICS AND BIVARIATE ASSOCIATIONS

Mental toughness was strongly positively correlated with resilience ($r = .54, p = .001$). Subclinical narcissism was positively associated with both resilience ($r = .32, p = .001$) and mental toughness ($r = .32, p = .001$). In contrast, Machiavellianism showed no significant correlation with resilience ($r = .01, p = .882$) or mental toughness ($r = -.02, p = .751$), and psychopathy was also unrelated to resilience ($r = .02, p = .684$) and men-

tal toughness ($r = .01, p = .915$). Descriptive statistics, reliabilities, and all bivariate correlations are reported in Table 1.

REGRESSION OF MENTAL TOUGHNESS AND RESILIENCE ON SUBCLINICAL NARCISSISM

In the present study, regression analyses were conducted to examine the associations of Dark Triad traits with resilience and mental toughness simultaneously. The results showed that only subclinical narcissism was significantly associated with both resilience and mental toughness, whereas Machiavellianism and psychopathy were not significantly associated with either outcome (see Table 2).

MEDIATOR OF THE LINK BETWEEN SUBCLINICAL NARCISSISM AND RESILIENCE

A mediation analysis was conducted to examine whether mental toughness statistically mediated the association between subclinical narcissism and resilience (see Table 3). The total effect of narcissism on resilience was significant ($\beta = .24, p < .001$). However,

Table 1

Descriptive statistics and bivariate associations

Variables	<i>M (SD)</i>	α	1	2	3	4
1. Mental toughness	3.07 (0.55)	.81				
SD3 (Overall)	2.82 (0.43)	.71				
2. Narcissism	3.42 (0.46)	.65	.32**			
3. Machiavellianism	3.05 (0.77)	.70	-.02	.01		
4. Psychopathy	2.00 (0.66)	.63	.01	.02	.40**	
5. Resilience	3.97 (0.48)	.84	.54**	.23**	.08	.02

Note. ** $p < .01$; SD3 – Short Dark Triad.

Table 2

Regression of mental toughness and resilience on subclinical narcissism

Predictor	B	SE	β	t	p
Mental toughness					
Subclinical narcissism	0.40	0.06	.32	6.06	< .001
Model fit	$F(1, 317) = 36.75, R^2 = .10$				
Resilience					
Subclinical narcissism	0.25	0.06	.23	4.20	< .001
Model fit	$F(1, 317) = 17.60, R^2 = .05$				

Table 3*Mental toughness as a mediator between subclinical narcissism and resilience*

Path	B	SE	<i>t</i>	<i>p</i>	95% CI
N → MT	0.39	0.06	6.06	< .001	0.26, 0.51
MT → R	0.45	0.04	10.34	< .001	0.36, 0.54
N → R (direct)	0.07	0.05	1.25	.211	−0.04, 0.17
Total effect	0.24	0.06	4.20	< .001	0.13, 0.35
Indirect effect	0.17	BootSE = 0.03			0.12, 0.23

Note. N – subclinical narcissism; MT – mental toughness; R – resilience.

when mental toughness was included in the model, the direct effect of narcissism on resilience was no longer significant ($\beta = .07$, $p = .211$), whereas mental toughness was significantly associated with resilience ($\beta = .45$, $p < .001$).

The indirect effect of subclinical narcissism on resilience through mental toughness was significant (indirect effect = 0.17, BootSE = 0.03, 95% CI [0.12, 0.23]), consistent with the proposed mediation model.

DISCUSSION

This study extends previous research by identifying positive associations between subclinical narcissism, mental toughness, and resilience (Onley et al., 2013; Papageorgiou et al., 2017; Sękowski et al., 2023; Szabó et al., 2022; Vaughan et al., 2018). Students with higher narcissistic traits showed higher levels of mental toughness and resilience than their peers. Importantly, mental toughness was a significant statistical mediator of the association between narcissism and resilience. In contrast, psychopathy and Machiavellianism showed no significant associations with either mental toughness or resilience, underscoring the potentially adaptive correlates of grandiose narcissism in achievement and stress-related contexts. Moreover, the observed effect sizes were generally modest, indicating that narcissistic traits explained only a limited proportion of the variance in mental toughness and resilience. The findings should therefore be interpreted as suggesting relatively small and context-dependent associations rather than strong adaptive advantages.

The associations between subclinical narcissism, mental toughness, and resilience may be explained by characteristics frequently linked to grandiose narcissism, including elevated self-confidence, perceived control, assertiveness, and challenge appraisal, which conceptually overlap with dimensions of mental toughness and resilience (Hyatt et al., 2018; Onley et al., 2013; Papageorgiou et al., 2017). Individuals with higher grandiose narcissistic traits may also be more likely to perceive stressful situations

as motivating and as opportunities for personal growth, at least at the level of subjective appraisal and self-perception (Papageorgiou et al., 2017). In educational settings, narcissism has been associated with self-confidence and a drive for excellence, and its association with mental toughness may contribute to individual differences in academic performance (Papageorgiou et al., 2018).

Furthermore, previous literature highlights the qualitative specificity of subclinical narcissism in relation to the other Dark Triad dimensions. Subclinical narcissism may have prosocial and adaptive functions, distinguishing it from Machiavellianism and psychopathy, which are more closely linked (Vaselka et al., 2012). Consistent with this, our findings show that narcissism does not exhibit significant associations with the other two traits, further supporting the possibility that grandiose narcissism may exhibit different associations with adaptive functioning than the other Dark Triad traits (see Table 1).

Importantly, the present findings should not be interpreted as suggesting that narcissism is uniformly adaptive. The SD3 primarily captures grandiose aspects of narcissism, which may be associated with self-confidence, perceived competence, and positive self-evaluations in achievement-oriented contexts (Jones & Paulhus, 2014). However, previous research consistently demonstrates that narcissistic traits are also linked to interpersonal dysfunction, reduced empathy, antagonism, and long-term maladaptive outcomes (Morf & Rhodewalt, 2001; Paulhus & Williams, 2002). Moreover, because all constructs were assessed using self-report measures, the observed associations may partly reflect self-enhancement biases and inflated perceptions of coping effectiveness or resilience rather than objectively superior adaptation. Consequently, the present findings should be interpreted cautiously and within the specific context of subclinical grandiose narcissism in a non-clinical student sample.

In contrast, psychopathy and Machiavellianism were not significantly associated with mental toughness or resilience. Machiavellianism is characterized by cynicism, manipulateness, and a focus on short-

term gains rather than internal strength or long-term perseverance (Birkás et al., 2015). Psychopathy is marked by impulsivity, emotional detachment, and irresponsibility, often accompanied by disinhibited and dysfunctional impulsivity due to low self-discipline (Malesza & Ostaszewski, 2016). Both profiles may be less compatible with persistence, self-regulation, and adaptive coping tendencies, with psychopathy additionally being associated with risk-taking and reckless behavior that may impair long-term stress management (Papageorgiou et al., 2017). Unlike grandiose narcissism, psychopathy and Machiavellianism did not demonstrate significant associations with mental toughness or resilience in the present sample, consistent with prior research (Onley et al., 2013; Papageorgiou et al., 2017; Vaughan et al., 2018). However, these null findings should be interpreted cautiously given the relatively modest reliability coefficients, restricted variability, and characteristics of the student sample.

In the present study, mental toughness statistically mediated the association between subclinical grandiose narcissism and resilience. These findings suggest that higher levels of self-reported mental toughness may partly account for the association between grandiose narcissistic traits and resilience. This pattern is broadly consistent with previous research suggesting that characteristics associated with grandiose narcissism, such as self-confidence, perceived control, and challenge appraisal, may be linked to adaptive coping tendencies and psychological adjustment in achievement-oriented contexts (Onley et al., 2013; Papageorgiou et al., 2017; Szabó et al., 2022). However, given the cross-sectional design of the study, the observed mediation pattern should not be interpreted as evidence of causal or temporal mechanisms, and alternative directional models remain equally plausible.

From an applied perspective, the results suggest that strengthening mental toughness may represent a potential target for educational and student support interventions aimed at enhancing resilience in university populations, particularly under conditions of elevated psychosocial stress. Importantly, these findings do not imply that narcissistic traits should be cultivated; rather, they suggest that adaptive psychological resources associated with resilience can be developed independently through structured skills training, stress regulation strategies, and cognitive-emotional regulation programs.

LIMITATIONS AND CONCLUSIONS

Our findings are specific to grandiose narcissism, whereas previous research suggests that vulnerable narcissism may demonstrate different or even negative associations with mental toughness and resilience (e.g., Ng et al., 2014). Additionally, men-

tal toughness was assessed using a shortened unidimensional measure, preventing examination of the specific dimensions potentially associated with narcissistic traits, while the resilience measure primarily captured psychological aspects of resilience. The present study also did not include broader personality frameworks such as the Big Five or HEXACO dimensions, nor measures of self-esteem. Consequently, it remains unclear whether the observed associations are specific to subclinical grandiose narcissism or partly reflect broader personality characteristics such as emotional stability, self-confidence, or low honesty-humility.

Furthermore, all constructs were assessed using self-report questionnaires administered within a single session, increasing the possibility of common method variance, socially desirable responding, and self-enhancement bias. This issue may be particularly relevant when examining grandiose narcissism, as individuals with elevated narcissistic traits may be more likely to report adaptive characteristics such as resilience or coping effectiveness. Thus, the observed associations may partly reflect differences in self-perception rather than differences in adaptive functioning. Future studies would benefit from incorporating multi-method assessments and informant-report measures.

The sample was predominantly female and limited to Serbian university students recruited through convenience sampling via social media groups, which may have introduced self-selection bias and limited the representativeness of the sample. The findings are therefore specific to a relatively narrow age range and a non-clinical student population, potentially limiting broader cultural and demographic generalizability. Additionally, although the study was conducted during a period of student protests and educational instability in Serbia, no direct measures of stress exposure, psychological burden, or protest involvement were included, and the contextual relevance of these circumstances should therefore be interpreted cautiously. The relatively low levels of psychopathy in the present sample additionally limit conclusions regarding its associations. Some SD3 subscales also demonstrated relatively modest internal consistency coefficients, particularly psychopathy and narcissism, which may have attenuated observed associations and partly contributed to the weak or non-significant findings for psychopathy and Machiavellianism.

Finally, the cross-sectional design precludes conclusions regarding causality or temporal ordering among the examined variables. In sum, the present findings suggest that subclinical grandiose narcissism may demonstrate context-dependent associations with self-reported mental toughness and resilience, whereas Machiavellianism and psychopathy did not show comparable associations in this sam-

ple. Future research should further examine these relationships using longitudinal designs, broader personality frameworks, and multi-method assessments of adaptive functioning.

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