



Dispositional mindfulness as a mediator between basic psychological needs and dark triad traits

Elena Lisá^{*}, Michaela Valachová

Faculty of Social and Economic Sciences, Comenius University, Mlynské luhy 4, 821 05 Bratislava, Slovakia

ARTICLE INFO

Keywords:

Dispositional mindfulness
Dark triad
Narcissism
Machiavellianism
Psychopathy
Basic psychological needs
Satisfaction
Frustration

ABSTRACT

We analyzed the mediating effect of mindfulness on the relationship between dark personality traits (Machiavellianism, narcissism, and psychopathy) and the frustration and satisfaction of basic psychological needs. The research sample comprised 642 nonclinical working adults. The following measurement tools were used: the dark triad of personality, the Basic Psychological Need Satisfaction and Frustration Scale, and the Mindful Attention Awareness Scale. Dispositional mindfulness fully mediated the relationship between narcissism and basic psychological need frustration. The frustrated participants who were less mindful were also more narcissistic. If the participants were only more frustrated but not less mindful, they did not show a higher level of narcissism. There was a significant relationship between psychopathy and basic psychological need frustration, which was partially mediated by mindfulness (12% of the total effect). There was no relation between Machiavellianism and mindfulness. Mindfulness did not mediate the relationship between Machiavellianism and the basic psychological need frustration/satisfaction. There was no significant relationship between mindfulness and the satisfaction of basic psychological needs. The authors discussed the protective effect of dispositional mindfulness in the context of frustrated basic psychological needs and narcissism, psychopathy and the possibilities of developing dispositional mindfulness.

1. Introduction

The satisfaction of basic psychological needs (BPN) facilitates internalization and affects psychological health (Deci & Ryan, 2017) and well-being (Van der Kaap-Deeder et al., 2020), while the frustration of BPN disrupts healthy functioning at all levels of human development across diverse cultural environments, increasing aggression and risk for personality disorder (Deci & Ryan, 2000). For example, the frustration of BPN is an essential mediator between emotional regulation and the psychopathology of borderline personality disorder (Van der Kaap-Deeder et al., 2021). Several studies also highlight associations between the frustration of unmet BPN and antisocial behavior in childhood (Ryan et al., 2016).

Notably, maladaptive behavior and emotional dysregulation are characteristics of personalities with dark traits (DT; Veselka et al., 2016; Zeigler-Hill & Vonk, 2015). Reactive aggression (Jones & Paulhus, 2014) and impulsivity (Malesza & Kaczmarek, 2018) are related to narcissism, aggression–delinquency is related to psychopathy and Machiavellianism (Muris et al., 2017). Indirect relational aggression is

typical for psychopathy and Machiavellianism, not for narcissism (Heym et al., 2019). Sedikides et al. (2018) found that narcissism appeared to be a compensation and consequence of the frustration of BPN. Furthermore, the higher the DT were, the more unsatisfied the BPN (Jonason & Ferrell, 2016).

A significant protective factor against perceived frustration appears to be dispositional mindfulness (DM), a trait that supports the regulation of emotions and behavior (Vansteenkiste & Ryan, 2013). More mindful people feel less frustrated about their needs, even under adverse conditions (Schultz et al., 2015). DM is negatively related to psychopathology and positively related to better emotional regulation and cognitive abilities (Tomlinson et al., 2018). DM in working adults partially protects them from the frustration of BPN fulfillment. A self-regulatory mechanism involving DM plays a central role in diminishing the impact of stressful events under working conditions (Lomas et al., 2019). DM appears to be a partial mediator of reduced perceived frustration in unsupportive managerial environments (Schultz et al., 2015). Research shows a positive relationship between DM, well-being, and psychological health in men (Teal et al., 2019) and women

^{*} Corresponding author.

E-mail address: elena.lisa@fses.uniba.sk (E. Lisá).

<https://doi.org/10.1016/j.paid.2021.111057>

Received 3 July 2020; Received in revised form 3 April 2021; Accepted 3 June 2021

Available online 15 June 2021

0191-8869/© 2021 Elsevier Ltd. All rights reserved.

(MacDonald & Baxter, 2017). Therefore, it is important to inquire whether DM can act as a protective factor even in frustrated needs in people with DT.

Brown and Ryan (2003) identified mindfulness as a protective factor against automatized and maladaptive behavior of people high in DT. In men high in psychopathy, antisocial behavior was lower when interacting with high DM (Bronchain et al., 2019) than in men high in psychopathy but low DM. Among managers with DT and subordinates, abusive behavior was less often perceived in employees with higher mindfulness than in employees with lower mindfulness (Khan et al., 2020). Scavone (2017) found that psychopathy was unrelated to mindfulness. However, mindfulness was inversely related to Machiavellianism and positively associated with narcissism. Those studies might reflect an inverse relationship between DT and DM.

Therefore, this study aims to clarify whether MD can act in DT as a protective factor by acting in the context of BPN. This finding could help expand DT intervention possibilities because DM is understood as a stable personality trait (Rau & Williams, 2016), while BPN, as dynamic personality characteristics of satisfaction or frustration, have more intervention options. BPN can predict individual problem behaviors and psychopathology (Chen et al., 2015; Jonason & Ferrell, 2016), while DM serves as a universal factor associated with increased well-being when facing psychopathological symptoms (Tomlinson et al., 2018). The current study investigates how BPN explains increases in DT and how much DM acts as a protective factor that mediates this effect.

H: We hypothesize that dispositional mindfulness, as a protective factor, may mediate the relationship between the fulfilling of basic psychological needs and dark triad traits.

2. Methods

2.1. Participants and procedures

The convenience research sample consisted of 642 nonclinical working adult participants. The participants completed the research questionnaire from November 2019 to February 2020. The primary source of contacts for working adults was a Book of Lists 2019 (The Slovak Spectator, 2018), a list of companies in Slovakia with contacts for their Chief Executive Officers (CEOs) and Human Resources Directors (HRDs). The CEOs and HRDs were approached by e-mail and offered the research results in exchange for their participation. The company representatives interested in the results sent their employees the web link with the online questionnaire form. The researchers also sent the questionnaire to their contacts on social networks (LinkedIn and Facebook), and the questionnaire was also spread via the snowball technique. The online questionnaire started with informed consent about the nature and purpose of the research and the confidentiality of the research data. After that, sociodemographic (age and gender) and psychological questionnaires followed. The tools did not follow each other randomly but were given in a fixed order for all participants. They are presented below in that order. Participation in the research was voluntary and anonymous, and participating individuals were not compensated. Participants who completed the questionnaire were included in the data set. The inclusion criteria were having an age above 18 years and having fully completed the online questionnaire. Of the participants, 53.7% were women ($N = 345$). All the samples were on average 33.95 years old ($SD = 8.3$) with ages ranging from 18 to 69 years. The data gathering was halted when no new data were acquired. The data analysis proceeded.

2.2. Measures

2.2.1. The Basic Psychological Need

The authors (Chen et al., 2015) of The Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) state that the absence of needs satisfaction does not necessarily indicate frustration.

Nevertheless, the presence of BPN frustration indicates low need satisfaction. Based on this asymmetry, the authors developed subscales of BPN frustration/satisfaction: autonomy ($\alpha = 0.73/\alpha = 0.75$), competence ($\alpha = 0.80/\alpha = 0.84$), and relatedness ($\alpha = 0.78/\alpha = 0.74$). It is also possible to use single contrasting dimensions of need satisfaction ($\alpha = 0.87$) and need frustration ($\alpha = 0.87$) (Van der Kaap-Deeder et al., 2020), as in the case of the current study. The BPNSFS contains 24 items assessing the satisfaction and frustration of BPN in one's life in general with twelve items for each of 2 dimensions (satisfaction and frustration). The participants responded on a 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree) with gross scores ranging from 1 to 5 for both dimensions.

2.2.2. Dispositional mindfulness

DM was measured using the 15-item Mindful Attention Awareness Scale (MAAS) (Brown & Ryan, 2003). The MAAS is one of the most commonly used measurement tools for DM measurement in psychological research (Rau & Williams, 2016; Tomlinson et al., 2018). The participants rated the frequency of their experience on a 6-point Likert scale ranging from 1 (almost always) to 6 (almost never) with gross scores ranging from 1 to 6. The average of the items indicates the overall MAAS score ($\alpha = 0.83$).

2.2.3. Dark triad

The dark triad of personality (SD3) is a brief measure of traits related to DT personalities (Jones & Paulhus, 2014). Nine items measure each of the following subscales: Machiavellianism ($\alpha = 0.71$), narcissism ($\alpha = 0.75$), and psychopathy ($\alpha = 0.71$). The questionnaire consists of 27 Likert-type items with a scale ranging from 1 (completely disagree) to 5 (completely agree). The gross scores of the averaged subscale items ranged from 1 (for all traits) to 5 (for narcissism), 4.89 (for psychopathy), and 4.78 (for Machiavellianism). A recent network analysis confirmed the measure's validity (Trahair, Baran, Flakus, Kowalski, & Rogoza, 2020).

2.3. Data analysis

In mediation models, there is an independent variable that is the explanatory factor (BPN), a dependent variable that is the explained factor (DT), and the mediator (DM). Structural equation modeling (SEM) was used to verify the mediation research hypothesis. Structural models that use latent factors explicitly consider measurement errors, so their results are cleaned of these errors. If the result is statistically and factually significant, we know that only the correlations between the explanatory variables (latent factor) and not unique and random measurement errors that are modeled and quantified separately in structural models are responsible for this significance. Mathematically and statistically expressed structural models are multivariate regression analyses. The method for estimating the WLSMV (weighted least squares mean and variance adjusted) with robust correction was used. The advantage of this estimation method is that it is calculated based on a polychoric correlation matrix, thus considering the variables' ordinal nature (Bandalos, 2014; Beauducel & Herzberg, 2006; Liang & Yang, 2014). The statistical program R and the Lavaan library were used to calculate all structural models (Rosseel, 2012). The first step was to verify that each of the measurement tools (BPNSFS, MAAS, and SD3) has a factor structure and psychometric properties following theoretical expectations (in other words, whether the measurement models have good fit with the data). Subsequently, the structural mediation models were calculated.

2.3.1. Measurement models

2.3.1.1. DT. This model had acceptable fit with the data: $CFI = 0.92$, $TLI = 0.90$, $RMSEA = 0.075$, and $SRMR = 0.080$.

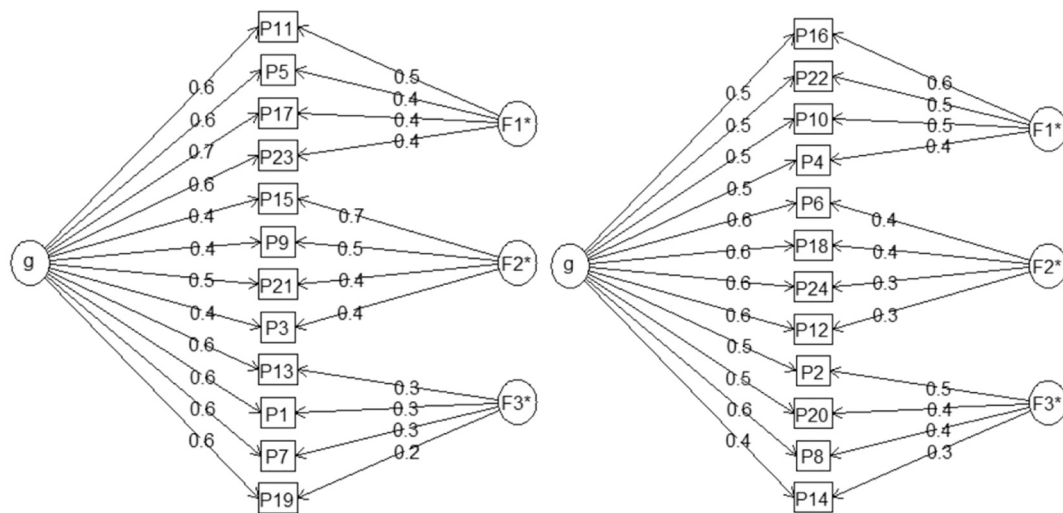


Fig. 1. Bifactor models showing two dimensions of the BPNSFS tool.

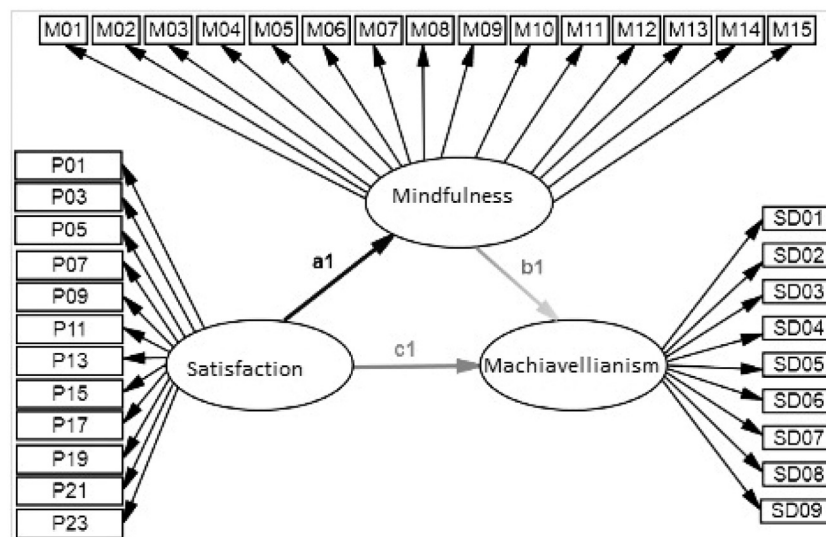


Fig. 2. Mediation model 1.

2.3.1.2. BPNSFS. The 6-factor model did not have an acceptable fit with the data: $CFI = 0.85$, $TLI = 0.84$, $RMSEA = 0.100$, and $SRMR = 0.086$. Therefore, bifactor modeling was applied. Fig. 1 shows the bifactor models for the dimensions of the BPNSFS. The total omega for the bifactor satisfaction model (Fig. 1 left) is 0.90, and the hierarchical omega is 0.73. The total omega for the bifactor frustration model (Fig. 1 right) is 0.89, and the hierarchical omega is 0.72. Both bifactor models had very good consistency with the data.

2.3.1.3. DM. This model had excellent consistency with the data: $CFI = 0.96$, $TLI = 0.96$, $RMSEA = 0.063$, and $SRMR = 0.047$.

We tested multiple mediation hypotheses, because it is necessary to test the mediation for each of the DT and BPN dimensions. We first listed the individual mediation models separately and then gradually listed all of them in one structural model. Since the explanatory factor (BPN) has two dimensions and the explained factor (DT) has three dimensions, six mediation models were tested altogether.

3. Results

There were no or small factual differences in the gender or age in the

analyzed variables. Six individual mediation models (Figs. 2–7) show all the possibilities of the mediation hypothesis. In Figs. 2 to 7, the direct effect is marked as (c), and the indirect effect is marked as (a) the relationship between mediator DM and explanatory factor BPN or (b) the relationship between mediator DM and explained factor DT. The final structural model did not test these mediation models one by one, but they were all part of a single structural model. Thus, this structural model contained all the observed and latent variables and all the structural regression relationships. Fig. 8 shows this final structural model. The model contains all the relationships from individual models. The final model had acceptable fit with the data: $CFI = 0.93$, $TLI = 0.93$, $RMSEA = 0.049$, and $SRMR = 0.079$. Fig. 9 shows significant relationships. For the sake of clarity, we list all these relationships in Table 1.

As Table 1 shows, all the total effects are statistically significant (total1–total6). Regarding the direct effects (c1–c6), 5 out of 6 relationships are statistically significant (the relationship between narcissism and frustration is not significant). In analyzing the relationship between BPN and DM (a1 and a2), we see a significant negative relationship between BPN and DM frustration. Nevertheless, the relationship between needs satisfaction and DM is not significant. If we examine the relationships between DM and DT (b1, b2, and b3),

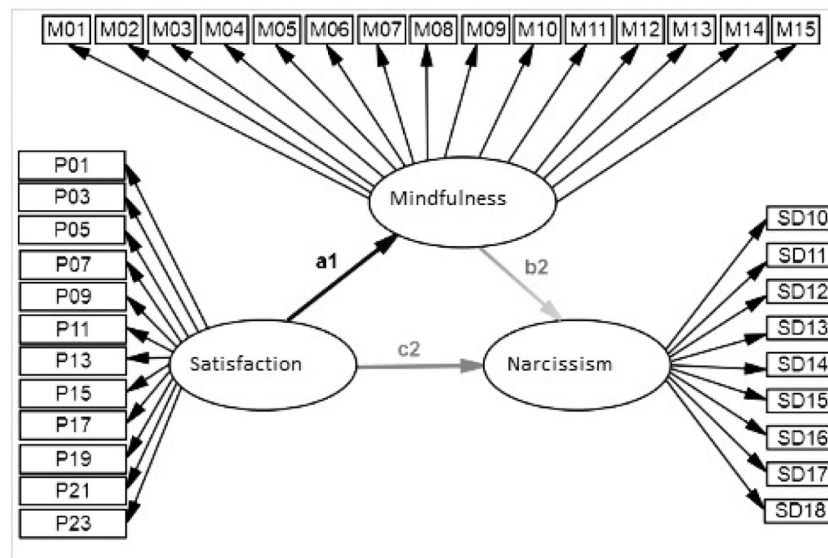


Fig. 3. Mediation model 2.

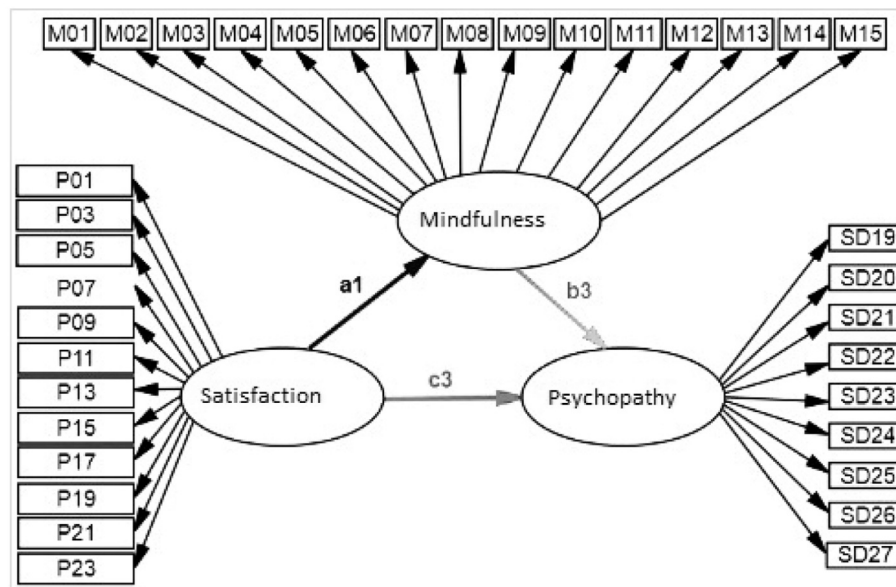


Fig. 4. Mediation model 3.

significant negative relationships are found between DM and narcissism and between DM and psychopathy. There is no significant relationship between DM and Machiavellianism.

In conclusion, if we examine which of the mediation relationships (a * b) are statistically significant, it is clear that only 2 out of 6 are statistically significant. First, DM fully mediates the relationship between BPN frustration and narcissism (since the direct relationship is not significant between BPN frustration and narcissism). Second, DM partially mediates the relationship between psychopathy and BPN frustration. Participants who are more frustrated regarding their BPN are more prone to psychopathy, but part of this effect is partially mediated by DM, namely, 12% of the total effect.

The model shows several direct effects without mediation: BPN satisfaction has significant relationships with all DT traits (but none of these relationships is mediated by DM). The model also shows one moderating effect: BPN satisfaction and DM moderate narcissism (it has no mediating effect because the relationship between BPN satisfaction

and DM is not significant).

4. Discussion

This study aimed to determine whether DM is a mediator of the relationship between BPN and DT. There are several meaningful direct relationships between DT and the satisfaction/frustration of BPN. Significant relationships between BPN satisfaction and DT are consistent with [Jonason and Ferrell \(2016\)](#). The results did not confirm the relationship between frustration and narcissism ([Sedikides et al., 2018](#)). Nevertheless, they showed a significant relationship between narcissism and BPN satisfaction ([Jonason & Ferrell, 2016](#)) and, further, the relationship between psychopathy and frustration and between Machiavellianism and BPN frustration. There is a significant negative relationship between BPN frustration and DM and no significant relationship between DM and BPN satisfaction. This trend justifies the need to measure the satisfaction and frustration of BPN separately ([Chen](#)

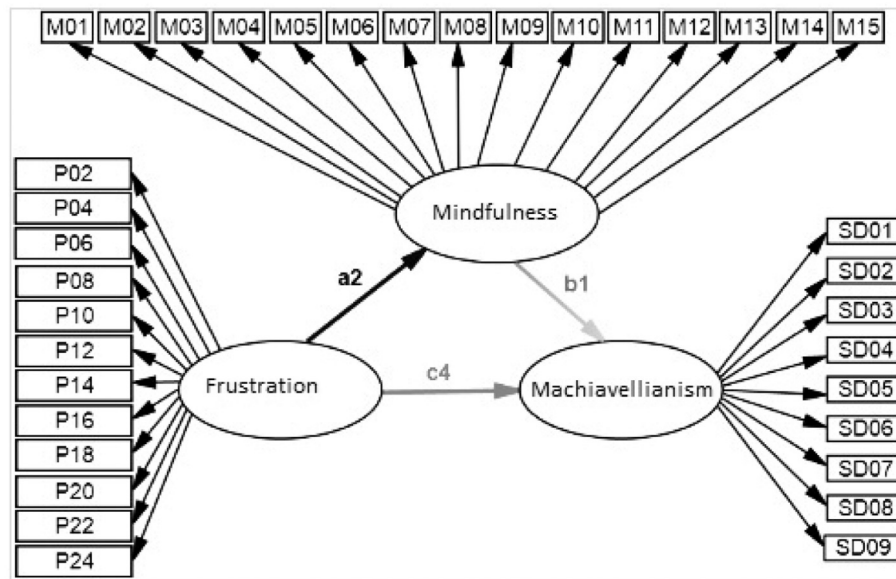


Fig. 5. Mediation model 4.

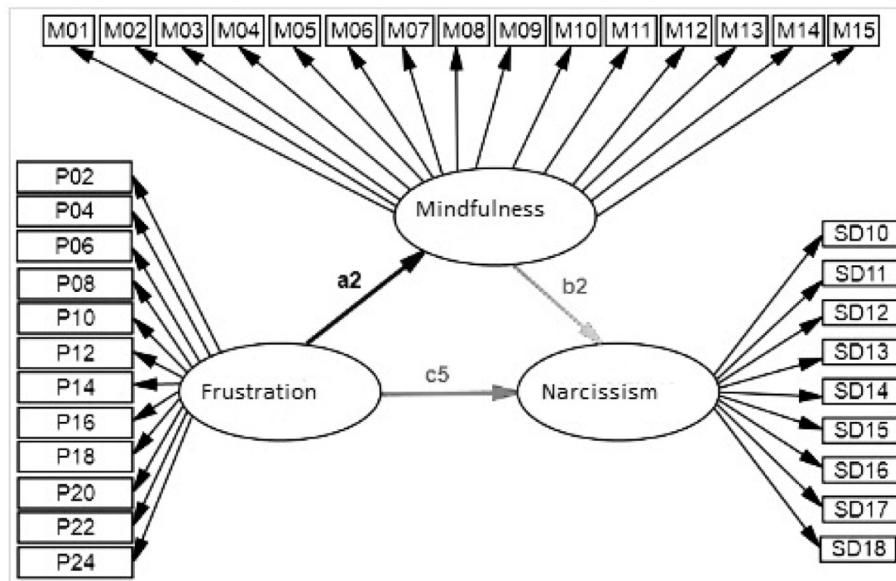


Fig. 6. Mediation model 5.

et al., 2015). In the case of feeling satisfied with BPN, the DM's effect on DT does not play any role. Thus, in mediating the relationship between BPN and DT, we can say that DM mediates DT when BPN are frustrated. This finding confirms the importance of BPN frustration in predicting individuals' problematic behavior and psychopathology (Chen et al., 2015).

The results also showed that DM strength as a mediator between BPN frustration and DT varies depending on which DT trait is involved. DM fully mediated the BPN frustration and narcissism relationship. Because of the full mediating and indirect effects, we can state that only the frustrated participants who are less mindful are simultaneously more narcissistic. If the participants are only more frustrated but not less mindful, they do not show a higher tendency toward narcissism. Thus, the results suggest that DM has substantial protective potential when facing the frustration of BPN in individuals with higher narcissism. The frustration of BPN under the action of DM significantly predicts narcissism. A higher level of DM in the case of a reduction in BPN

frustration can reduce narcissism. The relationship was fully mediated by DM, with narcissism correlating weakly with DM (Scavone, 2017). The positive association between DM and narcissism is also confirmed by the DM's identified moderating effect on narcissism when BPN were satisfied.

The more frustrated participants were more prone to psychopathy, but DM partly mediated this effect. These results are consistent with Schultz et al.'s (2015) findings that mindfulness is a significant protective factor when perceiving BPN frustration in an unsupportive managerial environment. However, since this result was only a partial mediation and to a greater extent a direct effect, we can say that independent of one another, reducing BPN frustration or increasing DM levels can have a positive effect on reducing the level of psychopathy. Bronchain et al. (2019) found that in psychopathic men with a high level of DM, antisocial behavior decreased more than in men with lower DM.

The research results did not show a link between DM and Machiavellianism. In the case of satisfaction or frustration of BPN, DM does not

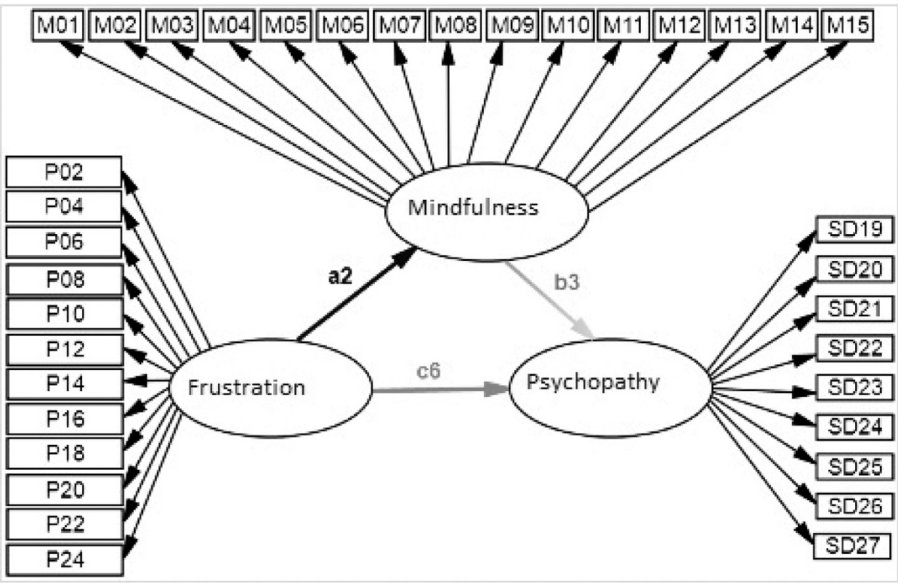


Fig. 7. Mediation model 6.

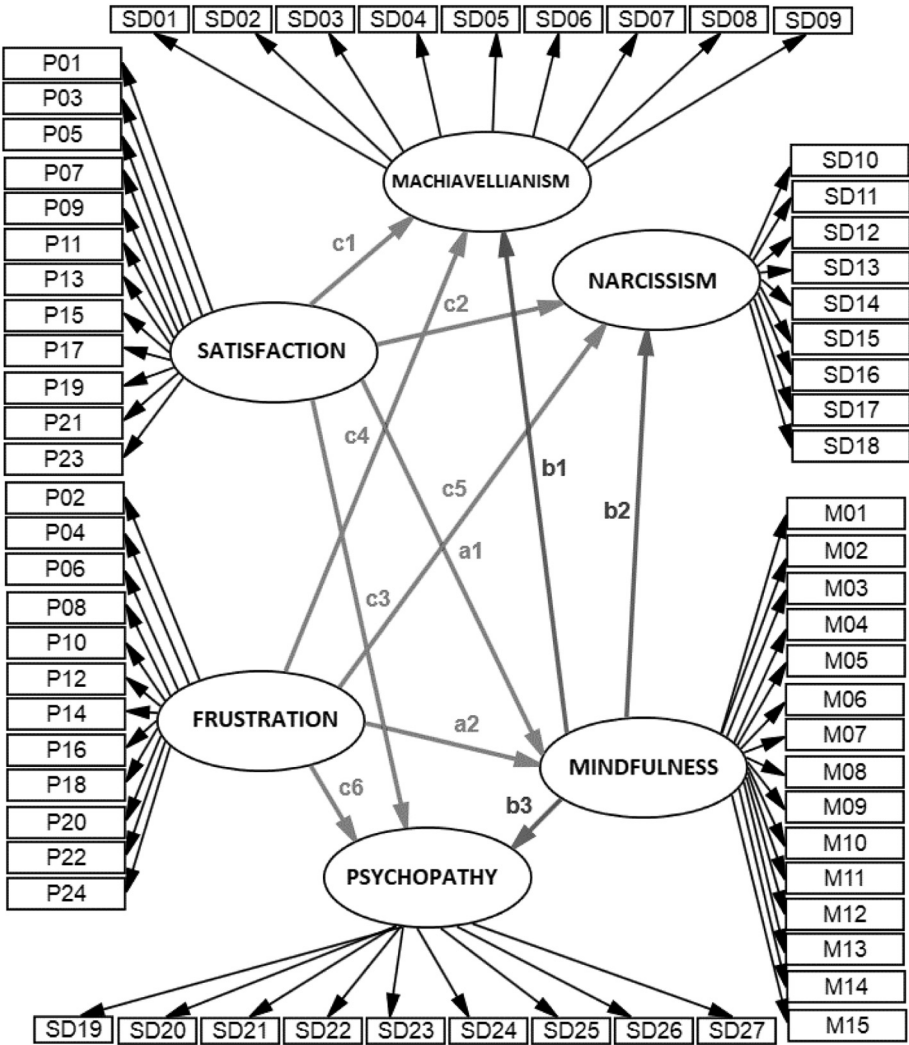


Fig. 8. Structural mediation model.

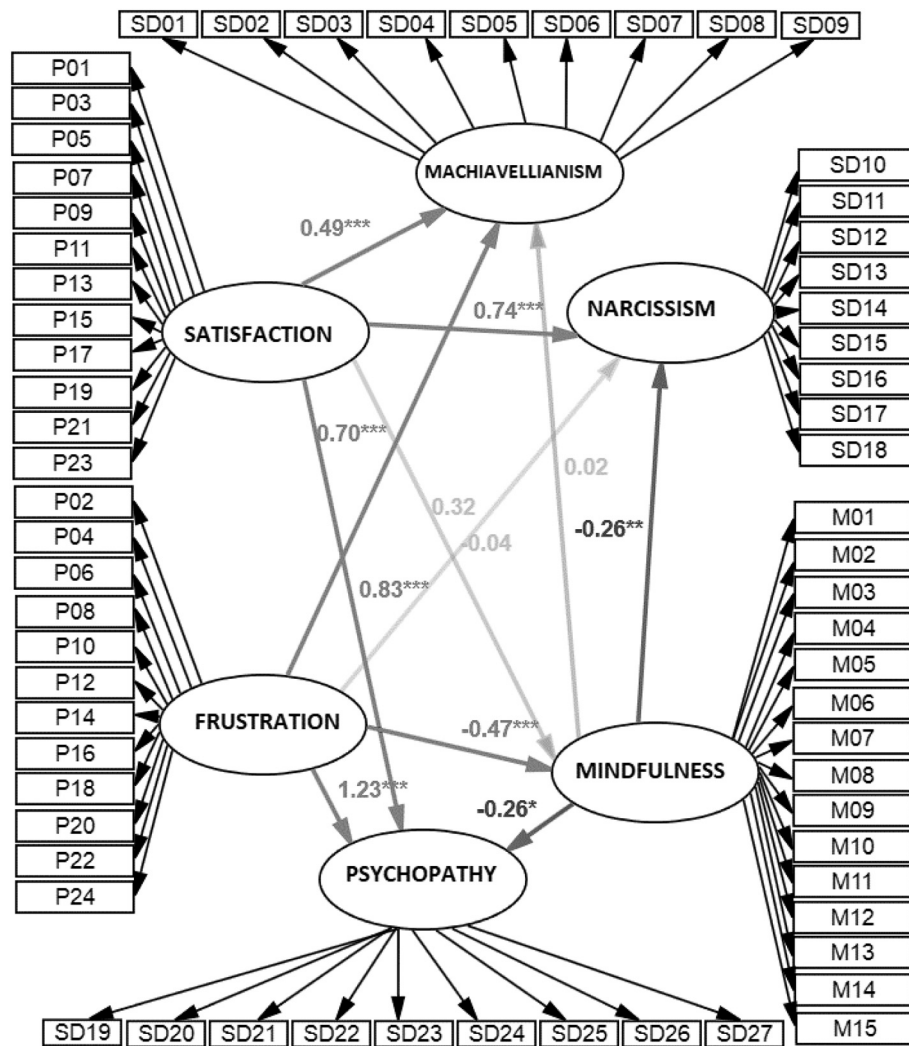


Fig. 9. The final structural model with marked statistically significant relations.

play a significant role in influencing Machiavellianism. By contrast, Krishnakumar and Robinson (2015) found that higher DM employees were lower in Machiavellianism.

An increased level of mindfulness leads to self-determined and autonomous regulation. On the other side, individuals with psychopathic and narcissistic features show dysfunctional impulsivity and weakened self-regulation (Jones & Paulhus, 2011). The behavior of personalities with DT is often more toxic and destructive, as it applies to various social life areas. The primary characteristics are insufficient regulation and problematic behavior related to impulsivity (Zeigler-Hill & Vonk, 2015). By contrast, DM is a property of the nervous system that provides individuals with healthy self-regulation, contributing to psychological well-being and mental health. In general, mindful people are more flexible in their thinking and calmer than people with DT. Mindfulness increases empathy, prosocial behavior, and well-being (Berry et al., 2018). It is appropriate to consider the potential use of mindfulness in DT intervention (Bronchain et al., 2019; Khan et al., 2020; Scavone, 2017). The current study fills this empirical gap. The study results confirm DM's protective potential in BPN frustration among people high in narcissism and psychopathy. DM appears to be a protective factor in those experiencing frustration and leads to a decreasing DT level.

DM is an innate trait that presupposes biological determination but can be trained (Brown & Ryan, 2003; Schultz et al., 2015). Within an intervention context there is a question, how can DM be developed.

Interventions the effectiveness of which has been measured by MAAS indicate several possibilities. Through meditation-based interventions, DM assessed through MAAS could be trained (Shapiro et al., 2008). For DM training, MacDonald and Baxter (2017) recommend focusing on promoting openness to emotions and cognition and recognizing that these factors do not always require action. This approach to feelings and thoughts may reduce psychopathology and probably increase the level of well-being. The development of emotional recognition, expression, emotional management and control could be a tool for improving psychological well-being through DM (Teal et al., 2019). A higher level of emotional intelligence may lead to a greater level of DM. Developing DM is about constant training, e.g., developing mindfulness-specific skills, namely, monitoring present moment experiences with an orientation toward acceptance, which may change the way people perceive and relate to others (Liang & Yang, 2014).

Further research could verify DT according to who is resistant to the frustration of BPN, and, in the context of impulsivity, then determine for whom a DM intervention could be appropriate. This type of intervention is not new in psychology and psychiatry (Deplus et al., 2016). Intervention programs for vulnerable individuals who tend to experience more frustration connected with negative manifestations such as anti-social behavior and aggression will always be justified in the future. There are known findings of mindfulness's effect on hostile behavior in a subclinical sample (Krishnakumar & Robinson, 2015) or in relation to aggressivity (Fix & Fix, 2013). Future research could also identify the

Table 1
Structural regression weights of the final structural mediation model.

Regression correlations		Estimate	SE	p	SD
M ~ F	c1	0.698	0.131	ˆ.001	1.219
N ~ F	c2	0.316	0.185	.088	0.280
Ps ~ F	c3	1.234	0.211	ˆ.001	0.978
M ~ S	c4	0.485	0.105	ˆ.000	0.928
N ~ S	c5	0.742	0.168	ˆ.001	0.719
Ps ~ S	c6	0.829	0.191	ˆ.001	0.695
DM ~ F	a1	−0.467	0.107	ˆ.001	−0.675
DM ~ S	a2	−0.042	0.086	.628	−0.066
M ~ DM	b1	0.019	0.052	.713*	0.023
N ~ DM	b2	−0.257	0.089	.004	−0.157
Ps ~ DM	b3	−0.263	0.118	.026	−0.139
Mediation correlations (indirect effects)					
M/DM/F	a1 * b1	−0.009	0.025	.721	−0.016
N/DM/F	a1 * b2	0.120	0.047	.010	0.106
Ps/DM/F	a1 * b3	0.123	0.055	.025	0.094
M/DM/S	a2 * b1	−0.001	0.003	.801	−0.002
N/DM/S	a2 * b2	0.011	0.022	.625	0.010
Ps/DM/S	a2 * b3	0.011	0.022	.616	0.009
Total effects					
M/DM/F	total1	0.689	0.124	ˆ.001	1.204
N/DM/F	total2	0.436	0.176	.013	0.386
Ps/DM/F	total3	1.400	0.199	ˆ.001	1.072
M/DM/S	total4	0.484	0.104	ˆ.001	0.926
N/DM/S	total5	0.752	0.168	ˆ.001	0.729
Ps/DM/S	total6	0.840	0.191	ˆ.001	0.704

Notes. Ps = psychopathy; M = Machiavellianism; N = narcissism; DM = dispositional mindfulness; F = BPN frustration; S = BPN satisfaction.

relationships between DT, psychological resilience, and self-regulation using new constructs such as the dark core (Moshagen et al., 2018). In longitudinal settings, researchers could also examine if DM training in a period of early age (when maladaptive behavior starts to occur) reduces impulsivity that leads to destructive behavior in later life. Young people with problem behavior, highly frustrated with BPN, could be the first indicator to whom health professionals could focusing.

There are some limitations in our work. In examining DT, participants acknowledge ethically and morally questionable behaviors. Many adults either do not admit to their behavior to protect their ego, or they deliberately deceive out of fear of potential revelation. In this case, we sought to eliminate social desirability by informing the participants about their answers' absolute anonymity. The participants received information indicating that the results would be processed for the entire group, and it would not be possible to identify the results by an individual. Furthermore, they were informed that if they were interested in the individual results, they should contact the researchers and provide their contact details. A specific limitation of the research may also be the form of the questionnaire survey of DT. According to some findings, narcissistic individuals are too unstable to be adequately measured by questionnaire methods; therefore, longitudinal research is recommended as a priority (Sedikides et al., 2018).

4.1. Conclusion

The relationship between BPN frustration and narcissism is fully mediated by DM, thus indicating DM's crucial role in acting on individuals with higher levels of narcissism and higher frustration of BPN. Because this result is an indirect effect of BPN on narcissism, DM's role as a mediator and intervention tool could be essential. The relationship between BPN frustration and psychopathy is partially mediated by DM, thus indicating an important, though not a unique, role for DM when acting on psychopathy. Increasing DM, as well as reducing BPN frustration, can be a positive predictor of reducing psychopathy. However, DM does not appear to play any role in the relationship between BPN frustration and Machiavellianism. Machiavellianism appears to be

immune to the presence of DM in the context of BPN. These results were acquired from a sample of nonclinical participants.

CRedit authorship contribution statement

Elena Lisá: Conceptualization, Methodology, Writing – original draft, Writing – review & editing, Supervision. **Michaela Valachová:** Conceptualization, Investigation, Writing – original draft, Writing – review & editing.

Declaration of competing interest

None.

References

- Bandalos, D. L. (2014). Relative performance of categorical diagonally weighted least squares and robust maximum likelihood estimation. *Structural Equation Modeling*, 21(1), 102–116.
- Beauducel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling*, 13(2), 186–203.
- Berry, D. R., Cairo, A. H., Goodman, R. J., Quaglia, J. T., Green, J. D., & Brown, K. W. (2018). Mindfulness increases prosocial responses toward ostracised strangers through empathic concern. *Journal of Experimental Psychology General*, 147(1), 93–112. <https://doi.org/10.1037/xge0000392>.
- Bronchain, J., Monié, B., Becquie, S., Chabrol, H., & Raynal, P. (2019). To better understand the link between psychopathy and antisocial behavior: Moderation by dispositional mindfulness. *Psychopathology*, 52(3), 191–197. <https://doi.org/10.1159/000499663>.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: The role of mindfulness in psychological wellbeing. *Journal of Personality and Social Psychology*, 84, 822–848.
- Chen, B., Vansteenkiste, M., Beyers, W., et al. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, 39, 216–236. <https://doi.org/10.1007/s11031-014-9450-1>.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01.
- Deci, E. L., & Ryan, R. M. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York, NY: Guilford Publications.
- Deplus, S., Billieux, J., Scharff, C., et al. (2016). A mindfulness-based group intervention for enhancing self-regulation of emotion in late childhood and adolescence: A pilot study. *International Journal of Mental Health and Addiction*, 14, 775–790. <https://doi.org/10.1007/s11469-015-9627-1>.
- Fix, R., & Fix, S. (2013). The effects of mindfulness-based treatments for aggression: A critical review. *Aggression and Violent Behavior*, 18, 219–227. <https://doi.org/10.1016/j.avb.2012.11.009>.
- Heym, N., Firth, J., Kibowski, F., Sumich, A., Egan, V., & Bloxson, C. A. J. (2019). Empathy at the heart of darkness: Empathy deficits that bind the dark triad and those that mediate indirect relational aggression. *Frontiers in Psychiatry*. <https://doi.org/10.3389/fpsy.2019.00095>, 12 March 2019.
- Jonason, P. K., & Ferrell, J. D. (2016). Looking under the hood: The psychogenic motivational foundations of the dark triad. *Personality and Individual Differences*, 94, 324–331. <https://doi.org/10.1016/j.paid.2016.01.039>.
- Jones, D. N., & Paulhus, D. L. (2011). The role of impulsivity in the dark triad of personality. *Personality and Individual Differences*, 51(5), 679–682.
- Jones, D. N., & Paulhus, D. L. (2014). Introducing the Short Dark Triad (SD3): A brief measure of dark personality traits. *Assessment*, 21(1), 28–41. <https://doi.org/10.1177/1073191113514105>.
- Khan, H., Zhiqiang, M., Siddiqui, S. H., & Khan, M. (2020). Be aware not reactive: Testing a mediated-moderation model of dark triad and perceived victimisation via self-regulatory approach. *Frontiers in Psychology*, 11, 2141. <https://doi.org/10.3389/fpsyg.2020.02141>.
- Krishnakumar, S., & Robinson, M. (2015). Maintaining an even keel: An affect-mediated model of mindfulness and hostile work behavior. *Emotion*, 15. <https://doi.org/10.1037/emo0000060>.
- Liang, X., & Yang, Y. (2014). An evaluation of WLSMV and Bayesian methods for confirmatory factor analysis with categorical indicators. *International Journal of Quantitative Research in Education*, 2(1), 17–38.
- Lomas, T., Medina, J. C., Ivtzan, I., Rupprecht, S., & Eiroaorosa, F. J. (2019). Mindfulness-based interventions in the workplace: An inclusive meta-analysis of their impact upon wellbeing. *The Journal of Positive Psychology*, 14(7), 1–16. <https://doi.org/10.1080/17439760.2018.1519588>.
- MacDonald, H. Z., & Baxter, E. E. (2017). Mediators of the relationship between dispositional mindfulness and psychological well-being in female college students. *Mindfulness*, 8, 398–407. <https://doi.org/10.1007/s12671-016-0611-z>.
- Malesza, M., & Kaczmarek, M. (2018). Grandiose narcissism versus vulnerable narcissism and impulsivity. *Personality and Individual Differences*, 126. <https://doi.org/10.1016/j.paid.2018.01.021>.

- Moshagen, M., Hilbig, B. E., & Zettler, I. (2018). The dark core of personality. *Psychological Review*, 125(5), 656–688. <https://doi.org/10.1037/rev0000111>.
- Muris, P., Merckelbach, H., Otgaar, H., & Meijer, E. (2017). The malevolent side of human nature: A meta-analysis and critical review of the literature on the dark triad (narcissism, Machiavellianism, and psychopathy). *Perspectives on Psychological Science*, 12(2), 183–204. <https://doi.org/10.1177/1745691616666070>.
- Rau, H. K., & Williams, P. (2016). Dispositional mindfulness: A critical review of construct validation research. *Personality and Individual Differences*, 93, 32–43. <https://doi.org/10.1016/j.paid.2015.09.035>.
- Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, 48(2), 1–36.
- Ryan, R. M., Deci, E. L., & Vansteenkiste, M. (2016). Autonomy and autonomy disturbances in self-development and psychopathology: Research on motivation, attachment, and clinical process. In D. Cicchetti (Ed.), *Developmental psychopathology: Theory and method* (pp. 385–438). John Wiley & Sons Inc.
- Scavone, A. (2017). Are normally-distributed dark triad traits associated with trait mindfulness in university students? (Electronic Theses and Dissertations) <https://scholar.uwindsor.ca/etd/6014>.
- Schultz, P. P., Ryan, R. M., & Niemiec, C. P. (2015). Mindfulness, work climate, and psychological need satisfaction in employee well-being. *Mindfulness*, 6, 971–985, 2015 <https://doi.org/10.1007/s12671-014-0338-7>.
- Sedikides, C., Ntoumanis, N., & Sheldon, K. M. (2018). I am the chosen one: Narcissism in the backdrop of self-determination theory. *Journal of Personality*, 87(1), 70–81. <https://doi.org/10.1111/jopy.12402>.
- Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: Effects on well-being. *Journal of Clinical Psychology*, 64(7), 840–862. <https://doi.org/10.1002/jclp.20491>.
- Teal, C., Downey, L. A., Lomas, J. E., Ford, T. C., Bunnett, E. R., & Stough, C. (2019). The role of dispositional mindfulness and emotional intelligence in adolescent males. *Mindfulness*, 10, 159–167. <https://doi.org/10.1007/s12671-018-0962-8>.
- The Slovak Spectator. (2018). *Book of lists: Kniha kontaktov 2019*. Bratislava: Ján Pallo.
- Tomlinson, E. R., Yousaf, O., Vittersø, A. D., & Jones, L. (2018). Dispositional mindfulness and psychological health: A systematic review. *Mindfulness*, 9, 23–43. <https://doi.org/10.1007/s12671-017-0762-6>.
- Trahair, C., Baran, L., Flakus, M., Kowalski, C. M., & Rogoza, R. (2020). The structure of the dark triad traits: A network analysis. *Personality and Individual Differences*, 167, Article 110265. <https://doi.org/10.1016/j.paid.2020.110265>.
- Van der Kaap-Deeder, J., Brenning, K., & Neyrinck, B. (2021). Emotion regulation and borderline personality features: The mediating role of basic psychological need frustration. *Personality and Individual Differences*, 168, Article 110365. <https://doi.org/10.1016/j.paid.2020.110365>.
- Van der Kaap-Deeder, J., Soenens, B., Ryan, R. M., & Vansteenkiste, M. (2020). *Manual of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)*. Belgium: Ghent University.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23(3), 263–280. <https://doi.org/10.1037/a0032359>.
- Veselka, L., Azizli, N., Atkinson, B., Baughman, H., & Vernon, P. (2016). Dark triad and socially maladaptive behaviours. *Personality and Individual Differences*, 101, 523. <https://doi.org/10.1016/j.paid.2016.05.335>.
- Zeigler-Hill, V., & Vonk, J. (2015). Dark personality features and emotion dysregulation. *Journal of Social and Clinical Psychology*, 34, 692–704. <https://doi.org/10.1521/jscp.2015.34.8.692>.