PRIMENJENA PSIHOLOGIJA

No3, 2024

Contents

Primenjena psihologija
Vol. 17, No. 3, pp. 307–330, 2024

Originalni naučni članak

Relations of self-discrepancies with depression and anxiety in adolescents: The role of parents' and peers' expectations

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ABSTRACT

This research aimed to explore relations between self-discrepancies, particularly in the actual and ought self, on one side, and depression and social anxiety on the other. The inconsistency in findings in existing studies is speculated to arise from variations in the definition of the ought self, which represents expectations of significant others about who we should be, with the term significant others not being defined. The results of research conducted on 543 high school students showed that all discrepancies are positively correlated with depression and social anxiety, and negatively with two dimensions of self-esteem: self-competence and self-liking. The findings indicate that all self-discrepancies serve as significant predictors of depression, with the discrepancy in the actual-ideal self and the actual-ought self by parents demonstrating a stronger predictive power than the discrepancy between the actual and ought self by peers. With regards to social anxiety, the discrepancy between actual and ought self by peers is a more influential determinant than the discrepancy between the actual and ought self by parents. It was also found that the discrepancy between the actual and ideal self is more significant than the expected discrepancy in the actual and ought self by peers in the prediction of social anxiety. Data on self-competence showed it was a mediating variable in the correlation between discrepancy in actual-ought self by parents, as well as actual and ideal self, and depression. Finally, self-liking appeared

to be a mediating variable in the correlation between the actual-ideal discrepancy and social anxiety.

Keywords: Self-discrepancy Theory, depression, social anxiety, self-competence, self-liking

UDK: 159.97:159.922.8
DOI: 10.19090/pp.v17i3.2495
Received: 27.09.2023.
Revised: 23.03.2024.
Accepted: 16.04.2024.

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Introduction

Higgins' self-discrepancy theory (1987) associates discrepancies in self-concept with psychological consequences, primarily with depression and social anxiety. The key concepts of the theory involve different aspects of the self that may be in discrepancy: the actual self represents how we see ourselves, the ideal self encompasses everything we aspire to be, and the ought self relates to expectations of significant others about who we should be, with the term significant others not being defined. In the late 20th century, numerous studies on non-clinical populations attempted to establish a connection between self-discrepancies and psychological consequences. The main result indicated a clear correlation between actual-ideal self-discrepancy and depression (Boldero & Francis, 2000; Bruch et al., 2000; Fairbrother & Moretti, 1998; Gramzow et al., 2000; Higgins et al., 1985; 1986; 1987; Kinderman & Bentall, 1996; Philippot et al., 2018; Phillips et al., 2007; Phillips & Silvae, 2010; Scott & O'Hara, 1993; Stamać Ožanić, 2007; Stevens et al., 2014; Straumann & Higgins 1987, 1988; Strauman 1989, 1990, 1992, 1996). A higher discrepancy leads to an increased likelihood of experiencing negative emotions, subsequently influencing self-evaluation. Conversely, individuals with a closely aligned actual and ideal self will encounter positive emotions, fostering positive re-evaluation and optimistic environmental interpretation, thereby promoting a stable and congruent self-image.

Findings regarding social anxiety do not support Higgins´ assumption that anxious individuals exhibit a greater discrepancy between ought and actual selves compared to depressed or normal individuals (Bruch et al., 2000; Gramzow, et al., 2000; Phillips, et al., 2007; Phillips & Silvae, 2010; Scott & O'Hara, 1993; Stevens, et al., 2014; Weilage & Hope, 1999). Some studies also fail to confirm the predictive role of both actual-ideal discrepancy for depression and actual-ought discrepancy for social anxiety (Manzoni & Lotar, 2011; Ozgul, et al., 2003; Tangeny, et al., 1998).

Despite the mixed findings, numerous studies indicate a link between anxiety and self-image discrepancies (e.g., Fairbrother & Moretti, 1998; Francis,

et al., 2006; Higgins, 1987; Higgins, et al., 1985; 1986; 1987; Kinderman & Bentall, 1996; Philippot, et al., 2018; Strauman & Higgins, 1988; Strauman, 1996). Moreover, important variations have been observed in defining the significant other against whom the ought-self is rated – parent, peer, or not defined.

Incorporating the evaluative aspect of self-concept as a research variable helps find out what is happening with self-esteem when there is a discrepancy in self-concept. We utilized two components of self-esteem: self-liking and self-competence, introduced by Tafarodi and Swann (2001). We hypothesized that, although in both situations of actual-ought discrepancy (parent or peer) self-esteem is decreased, different components of self-esteem are affected differently. Self-competence represents a general sense of one's effectiveness, efficacy, and control. Individuals experience higher self-competence when they achieve their goals, thereby proving their abilities and competence. Actual-ought discrepancy when the significant other is a parent could be more associated with reduced self-esteem in terms of one's competence and thus lead to reduced self-competence, which is related to performance and perceived ability. When the significant other is the peer group, the actual-ought discrepancy could be more related to reduced self-liking, which is related to appearance, character, social identity, etc. We hypothesized the mediating role of self-competence in the relationship between the actual-ought discrepancy by parents and depression and the mediating role of self-liking in the relationship between the actual-ought discrepancy by peers and social anxiety.

The research problem centres around defining whether depression and social anxiety are higher when the actual self is not aligned with one's aspirations, peer expectations, and expectations of parents, and whether it relates to dimensions of self-esteem.

Firstly, according to aforementioned assumptions and theory, we believe that discrepancies in self-concept (actual-ideal, actual-ought by parents and actual-ought by peers) are significant predictors of depressive (H1) and anxiety (H2) symptoms, discrepancies in actual-ideal and actual-ought self by parents are better predictors of depressive symptoms than discrepancy in

actual-ought self by peers (H3), and discrepancy in actual-ought self by peers is better predictor of social anxiety than discrepancy in actual-ideal and actual-ought self by parents (H4).

We also hypothesized that self-esteem (specifically self-competence) is a mediating variable in the relationship between the variables of discrepancy in self-concept (actual-ideal, and actual-ought self by parents) and depressive symptoms, and that the mediating effect is partial (H5); that self-esteem (specifically self-liking) is a mediating variable in the relationship between the variable of discrepancy in the actual-ought self by peers and social anxiety, and that the mediating effect is partial (H6).

Method

Sample

A total of 543 high school students from Zagreb and Zagreb County participated in this study, following the principal's approval for surveying a particular class. A convenient sample of schools was utilized, and respondents provided written consent for study participation. The study has been approved by the Ethics Committee (Department of Psychology, the Faculty of Humanities and Social Sciences, Zagreb).

Instruments

The instruments used included the modified Self Concept Questionnaire – Conventional Version (SCQCV) (Watson, 2001), The Beck Depression Inventory Second Edition (BDI-II) (Beck et al., 1996), Self-Liking/Self Competence Scale (SLCS-R) (Tafarodi & Swann, 2001), and Liebowitz Social Anxiety Scale (LSAS-SR) (Liebowitz, 1987). Approval for all questionnaires was obtained while BDI-II was acquired from Naklada Slap (2011).

Self Concept Questionnaire – Conventional Version (SCQCV)

The Self Concept Questionnaire – Conventional Version (SCQCV) comprises 28 items (adjectives) for which the participant assesses on a 7-point scale (from 1 - never/almost never true to 7 - always/almost always true) how

well they correspond to their ideal, actual, and ought self. The Croatian translation was used for the first time in 2006 (Stamać Ožanić, 2007). The test-retest reliability for the original version was 0.76 (Babel, 2005), and 0.84 for the translated version. The SCQCV modification refers to the way of completing the questionnaire and defining the significant other - all students completed two versions of the ought-self assessment, one from the standpoint of the parent and one from the perspective of peers.

The Beck Depression Inventory Second Edition (BDI-II)

The Beck Depression Inventory Second Edition (BDI-II) consists of 21 questions with respondents providing self-assessed answers on a scale of 0 to 3, diagnosing mild, moderate, or severe depression. The reliability is 0.89 (Jokić-Begić, et al., 2014).

The Self-Liking/Self-Competence Scale Revised (SLCS-R)

The Self-Liking/Self-Competence Scale Revised (SLCS-R; Tafarodi & Swann, 2001) comprises 16 items assessed on a Likert-type scale. Two subscales measure two dimensions of self-esteem: self-liking, and self-competence, each with 8 items. The Cronbach's alpha coefficient for the Croatian version of the scale indicated high reliability, with values of 0.79 for the self-competence subscale, 0.85 for the self-liking subscale, and 0.88 for the overall self-esteem score (Jelić, 2008).

Liebowitz Social Anxiety Scale (LSAS-SR)

Liebowitz Social Anxiety Scale (LSAS-SR) was translated and validated in preliminary research, for the purpose of this research (Stamać Ožanić, 2020). The reliability coefficients for all scales were high: 0.96 (total score), 0.92 (total fear), 0.89 (fear of social interaction), 0.81 (fear of performance), 0.92 (total avoidance), 0.89 (avoidance of social interaction), and 0.83 (avoidance of performance).

Procedure

The researcher visited each class, explained the purpose of the study, collected written consent forms, and distributed questionnaires. Each respondent had to fill out modified SCQCV (Watson, 2001), BDI-II (Beck et al., 1996), Liebowitz Social Anxiety Scale -LSAS-SR (Liebowitz, 1987), and SLCS-R (Tafarodi & Swann, 2001) in the specified order.

To ensure anonymity, the only personal information collected from participants was gender and age. Participants who scored high on BDI-II and/or LSAS-SR and requested feedback about their scores were informed that their scores might indicate high symptoms of depression or anxiety at the time of testing and were given information on where to seek advice and help. Following ethical standards, for any other participants with higher scores who did not contact us within a month after the end of the research, the school psychologists were only informed which classes they were in.

Data analysis

Data were analysed using descriptive statistics, Pearson`s correlation coefficients, stepwise regression, and mediation analyses as specified by Hayes (2013).

Results

Descriptive statistics

Our results indicate that 17.5% of participants can be classified as mildly depressed, 13.6% as moderately depressed, and 6.8% have symptoms of severe depression (Beck et al., 2011). 19% had generalized social anxiety at the time of measurement (Rytwinski et al., 2001).

Results for actual-ideal discrepancy, actual-ought discrepancy (peers), and self-liking were normally distributed. Actual-ought discrepancy (parents), self-competence, depression, and social anxiety deviated significantly from a normal distribution, mostly being positively asymmetric or leptokurtic. However,

parametric statistics were used because it is appropriate when a bimodal or u-distribution is not obtained (Petz, 2004) when a large sample size is used, subsamples are of equal or similar size, and finally when skewness and kurtosis do not exceed the value of 3 (Kline, 2010).

Hypothesis testing

Table 1

Descriptive statistics and Pearson's correlation coefficients

	2.	3.	4.	5.	6.	7.	*M*	*SD*	*Skew.*	*Kurt.*
1. A-I D	.72**	.60**	-.45**	-.42**	.45**	.31**	40.5	15.89	0.173	0.133
2. A-O D (parents)		.62**	-.41**	-.36**	.45**	.24**	46.3	15.26	0.222	0.568
3. A-O D (peers)			-.27**	-.32**	.39**	.27**	43.4	14.61	0.501	0.938
4. SC				.67**	-.54**	-.47**	33.1	5.40	0.211	0.264
5. SL					-.65**	-.52**	35.1	7.32	-0.266	-0.552
6. BDI-II						.51**	12.7	9.66	1.248	1.783
7. LSAS-SR							41.2	23.43	0.684	0.145

Note. A-I D – Actual-ideal discrepancy; A-O D (parents) – Actual-ought discrepancy (parents); A-O D (peers) – Actual-ought discrepancy (peers); SC – Self-competence; SL – Self-liking; *M* – mean; *SD* – standard deviation; *Skew.* – Skewness; *Kurt.* – Kurtosis; ** $p < .01$.

First, a preliminary correlation analysis was conducted for regression and mediation models (Table 1). As expected, a positive correlation of discrepancies in self-concept with depressive and social anxiety symptoms was found, as well as a negative correlation with dimensions of self-esteem. The correlation between actual-ideal discrepancy and actual-ought discrepancy (parents) was not found to be significantly higher with self-competence than with self-liking ($z = .61$; $p > .05$; $z = 0.96$; $p > .05$). However, a significantly higher correlation of these discrepancies was found with depression than with social anxiety ($z =$

4.66; p < .01; z = 5.91; p < .01). Additionally, the correlation between these discrepancies and self-competence was significantly higher than with actual-ought discrepancy (peers) (z = -3.42; p < .01; z =-2.61; p < .01), but no such difference was found for correlation with depression (z = 1.20; p > .05; z = 1.20; p > .05).

No higher correlation between actual-ought discrepancy (peers) and self-liking compared to self-competence was found (z = -0.09; p >.05). Unexpectedly, a higher correlation between actual-ought discrepancy (peers) and depression compared to social anxiety was found (z = 2.20; p < .01). Contrary to expectations, the correlation of actual-ought discrepancy (peers) with social anxiety and self-liking did not show higher level compared to actual-ideal discrepancy and actual-ought discrepancy (parents) and the correlation of self-liking with actual-ideal discrepancy is significantly higher (z = 1.91; p < .05) than with actual-ought discrepancy (peers).

Stepwise regression with discrepancies as predictors, and with BDI-II scores as the criterion, explained 24.1% variance, and all three predictors significantly contributed (H1): discrepancies from ideal (β=.218; p <.01) and parental (β=.215; p < .01) requests played a pivotal role in depression, confirming our hypothesis, and were stronger predictors compared to actual-ought (peers) discrepancy (β = .122; p < .01) (H2).

When checking if self-discrepancies are significant determinants of social anxiety, using LSAS-SR as a criterion, we explained a total of 10.7% of the variance and actual-ought discrepancy (parents) was excluded due to lack of statistical significance so our hypothesis wasn't confirmed (H3). As anticipated, the actual-ought discrepancy (peers) (β = .138; p < .01) emerged as a stronger predictor compared to the discrepancy in the actual-ought discrepancy (parents), but surprisingly, the actual-ideal discrepancy (β = .224; p < .01) emerged as even more powerful (H4).

To check the mediating role of the two dimensions of self-esteem in the relationship between discrepancy of self-concepts and depression and social

anxiety, we first checked if the two dimensions of self-esteem can be predicted through discrepancies. We predicted 21.8% of the variance of self-competence and, as expected based on the theory, only actual-ideal discrepancy (β = -.325; $p < .01$) and actual-ought discrepancy (parents) (β = -.174; $p < .01$) were significant predictors. We predicted 18.3% of variance of self-liking and, as supposed by theory, only actual-ideal discrepancy (β = -.355; $p < .01$) and actual-ought discrepancy (peers) (β = -.107; $p < .05$) were significant predictors.

The basic conditions for mediation were met. Expected significant predictions of criteria (BDI-II and LSAS-SR) and mediators (two dimensions of self-esteem) through predictors (discrepancies in self-concepts) were obtained, as described above. Also, significant predictions of criteria (BDI-II and LSAS-SR) through mediators (two dimensions of self-esteem) and a drop in the predictive power of the predictor after the introduction of the mediator can be seen in Table 2. As expected, actual-ought discrepancy by peers did not prove to be a significant predictor of self-competence, and the one by parents was not a significant predictor of self-liking. That aligns with the prediction that self-competence would be a mediating variable in the relationship between the discrepancies in self-concepts (actual-ideal and actual-ought discrepancy (parents)) and depression, as well as self-liking being a mediating variable in the relationship between the actual-ought discrepancy (peers) and social anxiety (Table 2). The only overlooked result was a prediction of self-liking through the actual-ideal discrepancy. It is possible that with a low actual-ideal discrepancy, when we are aligned with our ideals, we simultaneously like ourselves more, that is, we have higher self-liking.

Table 2

Self-competence/self-liking mediation in the relationship between self-concept discrepancies and depression/social anxiety

IV (x)	Actual-ought discrepancy (parents)				Actual-ought discrepancy (peers)				Actual-ideal discrepancy			
	EF	*SE*	*Boot*	*ES*	*EF*	*SE*	*Boot*	*ES*	*EF*	*SE*	*Boot*	*ES*
BDI-II (criterion) and self-competence (mediator)												
C	.14**	.04			.08*	.04			.13**	.04		
C'	.09*	.04			.09**	.03			.05	.03		
A	-.07*	.02			.02	.02			-.12**	.02		
B	-.73**	.08			-.73**	.08			-.73**	.08		
AB	.05*	.02	.02–.09	.06	-.01	.02	-.04–.01		.09**	.00	.02–.05	.11
LSAS-SR (criterion) and self-liking (mediator)												
C	-.03	.12			.23*	.10			.35**	.12		
C'	-.09	.09			.17	.09			.13	.10		
A	-.04	.03			-.04	.03			-.14**	.03		
B	-1.51**	.14			-1.51**	.14			-1.51**	.14		
AB	.06	.05	-.03–.16		.06	.04	-.01–.15		.22**	.05	.13–.32	.10

Note. IV (x) – independent variable, EF – unstandardized regression coefficient, SE – standard error, Boot – bootstrapping 95 % with 10,000 bootstrapping samples, ES – effect size (standardized direct effect X to Y), C – total effect of the independent variable, C' – direct effect of the independent variable, A – effect of the independent variable (x) on mediator (m), B – effect of mediator (m) on criterion (y), AB – indirect effect of the independent variable X on dependent variable Y via mediator M. ** $p < .01$, * $p < .05$.

The regression coefficient for depression is R=0.609 and predicts 37.8% of variance. As we expected, self-competence significantly mediates the relationship between actual-ought discrepancy (parents) and actual-ideal discrepancy with depression, and there is no significant mediation of the relationship between discrepancy based on peers and depression (H5). For the relationship between actual-ought discrepancy (parents) and depression, the mediating role of self-competence is partial (EF=.05, SE=.02, BootCI95=[.02-.09],

ES=.06) due to the sustained significance of the independent variable. For the relationship between actual-ideal discrepancy and depression, the mediating role of self-competence is complete (EF=.09, SE=.00, BootCI95=[.02-.05], ES=.11) since the independent variable loses significance after mediator inclusion.

The regression coefficient for social anxiety is R=0.536 and predicts a 28.7% of variance. We discovered complete mediation of self-liking in the relationship between actual-ideal discrepancy and social anxiety (EF=.22, SE=.05, BootCI95=[.13-.32], ES=.10), contrary to the hypothesis but in line with prior explanations (H6). As we expected, we did not find a significant mediating role of self-liking in the relationship between actual-ought discrepancy (parents) and social anxiety, but neither did we find the expected mediating role of self-liking in the relationship between actual-ought discrepancy (peers) and social anxiety. The direct effect of the independent variable in this model with self-liking as a moderator could not be conclusively determined (p =.053), although actual-ought discrepancy (peers) is a significant predictor of social anxiety based on regression analysis. Also, there is no mediating role of self-liking (indirect effect).

Due to the marginal predictive significance of actual-ought (peers) discrepancy for social anxiety via self-liking on the sample of girls (p =.06) and considering the assumptions related to differences in relationships between girls and boys, separate analyses were conducted by gender.

A separate mediation analysis on girls reveals a significant mediation of self-liking in the relationship between actual-ought discrepancy (peers) and social anxiety (EF=.11, SE=.04, BootCI95=[.03-.30], ES=.06).

Discussion

Our study aimed to explore the relationship of self-image discrepancies with depression and social anxiety (Higgins, 1987). By considering different dimensions of self-esteem, we conducted our research on high school students who are still dependant on parents but quite influenced by peers.

The levels of depression and social anxiety in our sample indicated that respondents were not predominantly depressive (Beck et al., 2011) and experienced average levels of anxiety (Rytwinski et al., 2009). This aligns with

the typical occurrence of social anxiety during adolescence, marked by increased importance of social interactions (Rapee & Spence, 2004). Our findings echoed those of other surveys (Dodig-Ćurković et al., 2013; Poljak & Begić, 2016; Rudan & Tomac, 2009; Thapar et al., 2010).

Notably, the highest discrepancy was found in the actual-ought self by parents, followed by peers. Adolescents, undergoing a phase of identity-seeking and striving for independence, often experience substantial disagreements with their parents (Laursen, Coy & Collins, 2017). Friends gain greater significance during this period, overshadowing the influence of parents (Erikson, 1968). Consequently, the actual-ought discrepancy by parents tends to be higher than by peers, reflecting the increased importance of peer opinions during adolescence, overshadowing the influence of parents, who may feel distant both physically and emotionally. Parents are typically the primary objects of attachment during childhood (Hinde & Lorenz, 1996), but in this period of life, friends became more relevant. Finally, the lowest actual-ideal discrepancy could have its roots in the importance of self-focus (Arnett, 2006a) in this period of life, i.e. adolescents are insecure about acceptance by friends and peer groups, but they may have an even more important orientation towards themselves, their identity, and what they want to become (their ideal self).

Correlations between all discrepancies and depression are similar (not significantly different one from another) and mostly very large (Funder & Ozer, 2019). Similarly, the correlations with social anxiety are statistically equal and fall into the category of medium-sized correlations. However, all three correlations with depression are significantly higher than with social anxiety. Individuals dealing with depression may struggle to fit into their social environment and might have a more pronounced actual-ought discrepancy by peers. In contrast, those with social anxiety might not experience as many discrepancies in their self-images,potentially because social anxiety is focused on the social aspect of life. Alignment with their parents' (ought self by parents) or peers (ought self by peers) and own desires (ideal selves) might still be intact, although they have high social anxiety. Some other studies (e.g., Bošković & Novković, 2011) showed social anxiety and actual-ideal discrepancy are not correlated at all. On the other

hand, results for actual-ought peer discrepancy prompt the question of whether it might have been more insightful to evaluate the connection based on one's best friend rather than a peer group. It's possible that lacking a best friend or actual-ought discrepancy of someone perceived as a best friend could amplify social anxiety and confirm our hypotheses. Drawing from Sullivan's theory (1953, by Klarin et al., 2014), intimate and friendly bonds between two individuals not only influence empathy, interest assessment, expectations, and emotional isolation but also self-image, although the specific aspect of self-image wasn't outlined.

The stepwise regression approach affirmed the anticipated higher predictive value of actual-ideal discrepancy and of actual-ought discrepancy (parents) for depression in comparison to actual-ought discrepancy (peers). It also demonstrated significant predictive power of actual-ought discrepancy (peers) for social anxiety albeit explaining less variance than actual-ideal discrepancy. This suggests that social anxiety might be higher in individuals dissatisfied with personal ideals and public presentation, making actual-ought discrepancy by peers less significant for some individuals. Higgins et al. (1985) suggest that the link between discrepancies and social anxiety depends on the importance of the significant other in one's self-image assessment. Additionally, this can be explained with other theories like the tetrapartite model of the self: individual, relational, public, and collective aspects of identity (Cheek & Cheek, 2020).

As expected, actual-ought discrepancy by parents significantly determined self-competence, and by peers significantly determined self-liking. Self-competence, as a construct, pertains to the perception of one's own competence in terms of abilities. Given that actual-ought discrepancy (parents) addresses the perception of not meeting the parents' expectations, it is understandable that this construct strongly predicts self-competence. Parents are highly influential for adolescents in terms of achievement, academic success, and future career choices. If adolescents fail to meet their parents' expectations (often tied to educational success and career aspirations), it's possible for them to experience reduced self-competence. For example, Yu et al. (2019) showed

that parental warmth promotes adolescent self-competence. Self-liking is socially conditioned and linked to appearance, character, social identity, and similar constructs (Tafarodi & Swan, 1995). Thus, it's logical that actual-ought discrepancy (peers) strongly predicts this aspect of self-esteem. Adolescents follow their peers and strive to fit in, so they conform to the expected appearance and behaviour, aligning with their peers' desires. Adolescents compare themselves with their peers and, based on this, they evaluate and enhance some aspects of self (Suls et al., 2002). Consequently, if they adapt to peer expectations of appearance, character, and social identity, they are more likely to have higher self-competence and like themselves more.

As expected, and as the regression analysis showed, actual-ought discrepancy (peers) is not a predictor of self-competence, and actual-ought discrepancy (parents) is not a predictor of self-liking. The predictive nature of actual-ideal discrepancy for self-liking was not hypothesized, but it is understandable that such a discrepancy would determine self-competence. It's likely that our ideal self assumes that we are competent and capable, just as it assumes that we like ourselves, i.e., that we are satisfied with our appearance, character, and social identity. One's social environment sets standards and ideals of beauty, peer acceptance (Younis, 1982), and social identity are crucial during adolescence in forming one's personality.

The mediation in the relationship between actual-ought discrepancy (parents) and depression through self-competence was partial, as expected, while in the case of actual-ideal discrepancy and depression through self-competence, it was complete. In other words, individuals with actual-ideal discrepancy or actual-ought discrepancy (parents) are less aligned with standards perceived as their own and their parents`, and therefore could have lower self-esteem. Since personal norms and ideals, as well as parental expectations and standards, are more aligned with one's competence and success in various fields, and self-competence is a dimension related to the perception of one's ability, purposefulness, and efficacy (Tafarodi & Swan, 1995), it is understandable that actual-ought (parents) and actual-ideal discrepancies are associated with the perception of own competence. Thus, as expected, the

discrepancy in these self-perceptions is linked to reduced self-competence, which further relates to poorer mood or depression. In this study and many earlier research studies (e.g., Manzoni & Lotar, 2011), self-competence is clearly linked to depression. Tafarodi and Swan (1995), also discuss the connection between self-competence and depression, noting that individuals with higher scores on this construct view themselves as effective, capable, and goal-oriented, while those with lower self-competence scores exhibit reduced motivation and a higher risk of developing depression and anxiety.

The assumed mediating effect of self-liking in the relationship between actual-ought discrepancy (peers) and social anxiety was not found. As expected, there was no statistically significant mediation in the relationship between actual-ought discrepancy (parents) and social anxiety, but statistically significant and complete mediation of self-liking was observed in the relationship between actual-ideal discrepancy and social anxiety. Although this was not hypothesized in the fundamental research hypotheses, we clarified earlier that this discrepancy can have predictive value for self-liking. On the other hand, self-liking, which is related to social anxiety, can serve as a mediator in the relationship between actual-ideal discrepancy and social anxiety. In other words, if we are aligned with our ideals, we like ourselves more (positive self-concept), and the fact that we like ourselves more can leads us to believe that others like us more as well, resulting in lower social anxiety.

The absence of self-liking as a mediator questions the appropriateness of assuming a substantial connection between social anxiety and actual-ought discrepancy (peers). Consideration of actual-ought discrepancy by close friends might provide additional insights, as research generally focuses on interactions within peer groups rather than close friendships. Studies generally indicate that socially anxious individuals have significantly fewer friends with whom they frequently socialize (Eng et al., 2001; Wittchen et al., 2000) and generally struggle with forming close relationships (Komadina et al., 2013). Medved and Keresteš's (2011) research on adolescents suggests that for girls, the predictor of loneliness is the absence of social support (e.g., from family), while for boys, sociometric status or peer groups are crucial. Furthermore, overall popularity (Putarek &

Keresteš, 2012 and 2016) significantly predicts loneliness which could be important in this context for both depression and social anxiety.

Some authors (e.g., Laursen & Williams, 1997) mention that cliques are more important in early adolescence, which was not covered in our study. Close friends become more important later. Also, Gabriel and Gardner (1999) showed that girls define themselves interdependently through close friendships, while boys do it more through groups (peers, sports, etc.). Mediation analysis by gender showed discrepancy with peer expectations is a determinant of social anxiety through mediation with self-liking, but only in the girls' sample.

This study, despite some limitations in sample size and self-assessment methods, contributes to understanding self-discrepancy theory through a variety of dimensions, especially concerning significant others, and additional mediation through dimensions of self-esteem. In practical terms, the study emphasizes the importance of self-discrepancy in emotional problems, potentially altering the focus of counselling and psychotherapeutic support for social anxiety and depression. It also recommends measuring two-dimensional self-esteem as a useful practice.

Conflict of interest

We have no conflicts of interest to disclose.

Izjava o dostupnosti podataka

Data used in this paper are available upon a reasonable request.

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Primenjena psihologija
Vol. 17, No. 3, pp. 331–359, 2024

Research Article

What Can Network Analysis Tell Us About the Intolerance of Uncertainty?

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ABSTRACT

In this study, we explored the network structure of intolerance of uncertainty (IU) using a community sample. We tested the interplay of emotions, behaviors, and beliefs about uncertainty (as measured by the Serbian Intolerance of Uncertainty-11 Scale) and evaluated whether our results would align with those obtained by the Italian researchers, considering the use of somewhat different versions of the scale in somewhat different cultural settings. The walktrap community detection algorithm yielded two communities referring to 1) Inhibitory anxiety and 2) Prospective anxiety. Thus, our findings suggest that IU can be decomposed into these two aspects regardless of which approach is used – network approach or factor analysis. The three most central nodes referred to perceiving uncertainty as upsetting and intolerable and believing one must avoid all the uncertainty. Two central nodes belonged to the Prospective anxiety community, and the third one belonged to the Inhibitory anxiety community and indicated reduced overall quality of life due to uncertainty. The roles of these three constituents in understanding the nature of IU are discussed further in the paper.

Keywords: intolerance of uncertainty, intolerance of uncertainty scale, network analysis, community detection, vulnerability, anxiety

UDK: 159.923.072
DOI: 10.19090/pp.v17i3.2519
Received: 19.12.2023.
Revised: 11.04.2024.
Accepted: 07.05.2024.

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Introduction

Intolerance of uncertainty (IU) is a trait-like risk factor for mood and anxiety disorders (Carleton, 2016). With a growing number of studies focused on understanding the nature of IU, the definition of the construct has evolved. According to the most recent definition, IU represents "an individual's dispositional incapacity to endure the aversive response triggered by the perceived absence of the salient key, or sufficient information, and sustained by the associated perception of uncertainty" (Carleton, 2016, p. 31). The origin of IU can be traced back to the time when a Canadian research group proposed that IU is an important concept for understanding uncontrollable worry and generalized anxiety disorder (GAD; Dugas et al., 1998; Freeston et al., 1994). This idea led to the development of the 27-item Intolerance of Uncertainty Scale (IUS) which was supposed to measure „cognitive, emotional and behavioral reactions to uncertainty in everyday life situations" (Freeston et al., 1994, p. 792). However, later studies implicated that IU is not only related to GAD but instead, that it is a transdiagnostic factor in nature. Although the definition of IU has been elusive, researchers have kept the IUS as a measure of IU, and all definitions/conceptual understanding of the construct rely on study findings that included the IUS and its consecutive, shorter version, the IUS-12.

Even though the IUS has been in use for quite a long time, factor analytical studies revealed its unstable latent structure. According to Birrell et al.'s review (2011), the latent structure of the IUS varied between two factors (i.e., Bottesi et al., 2015; Sexton & Dugas, 2009), four factors (Berenbaum et al., 2008; Buhr & Dugas, 2002; Norton, 2005), and five factors (Freeston et al., 1994). However, Birrell and colleagues (2011) concluded that two factors overlapped across these studies. In other words, regardless of the total number of extracted factors, the two factors seemed to replicate – one that can be described as a desire for predictability and the other capturing an inability to act when faced with uncertainty. Carleton and colleagues (Carleton et al., 2007) also recognized psychometric flaws of the IUS, which led to a refinement of the scale and development of the IUS-12. The IUS-12 still stands as a gold standard for measuring IU (McEvoy et al., 2019), has two factors named prospective IU and

inhibitory IU (Bottesi et al., 2015; Carleton et al., 2007; Helsen et al., 2013; Kretzman & Gauer, 2020), and has been translated into several languages (e.g., Serbian, Italian, Brazilian Portuguese, Greek, Dutch). Prospective IU reflects a tendency towards proactive information-seeking with the aim of reducing uncertainty. However, this can easily turn into seeking excessive amounts of information before being able to make a decision in an ambiguous situation. At the same time, the prospective IU is also likely to manifest itself in impulsive decision-making (Sankar et al., 2017). Inhibitory IU manifests as "uncertainty paralysis" (Berenbaum et al., 2008) or the inability to act in uncertain situations. Given that some people perceive the uncertainty as threatening, the inhibitory IU seems to reflect a physiological "freeze" response (Birrell et al., 2011; Mihić et al., 2015). Based on the definitions of the two factors, one can also understand prospective IU as a dysfunctional approach coping strategy and inhibitory IU as an avoidance coping strategy in uncertain situations (Birrell et al., 2011). A recent meta-analysis supported this idea by showing that the IU was related to different aspects of emotion dysregulation (Sahib et al., 2023).

McEvoy and Mahoney's study findings (2011) supported the two factors by showing that prospective IU partially mediated the relationship between neuroticism and symptoms of GAD and obsessive-compulsive disorder, while inhibitory IU significantly mediated the relationship between neuroticism and symptoms of social anxiety, panic disorder, and depression. In addition, Carleton and colleagues (2010) have also found that inhibitory IU is uniquely related to the symptoms of social anxiety. However, creating the IUS-12 has not solved all conceptual problems of IU. Several recent studies gave support for a bifactor model of the IUS-12, with a general IU factor explaining most of the shared item variance and indicating that perhaps we should consider using the total IUS-12 score only (Hale et al., 2016; Hernández-Posadas et al., 2023; Lauriola et al., 2016; Saulnier et al., 2019; Shihata et al., 2018). Yet, one should be aware that bifactor models tend to overfit (or better fit) data compared with models with correlated factors even when the bifactor model does not reflect the true latent structure (Eid et al., 2018; Watts et al., 2019). In conclusion, one should bear in mind the shortcomings of different models when making conclusions about the

nature of the IU and consider different approaches in addition to the factor analytical perspective to further validate the structure of IU.

Another way to address the nature of IU is by using the network approach. In the latent variable framework, a shared variance of observed variables is assumed to reflect a latent construct, whereas in the network framework, it is assumed to reflect a causal network. In other words, according to the network approach, items do not cluster together because they are all indicators of the same latent factor (i.e., IU). Instead, the construct (i.e., IU) is assumed to emerge from a dynamic interplay of beliefs, emotions, and behaviors that these items are describing (Borsboom & Cramer, 2013). For example, in an ambiguous situation, a person can believe that the uncertainty is unbearable, which can trigger an aversive emotional response that can further cause a behavioral tendency to collect information to reduce the uncertainty. This interconnectedness of cognition, emotion, and behavior forms a network representing the IU itself. Thus, the latent variables and network framework propose contrasting data-generating mechanisms, which lead to different substantive interpretations of the statistical models. However, it is worth noting that these divergent hypothesized causal processes do not necessarily translate into different statistical data structures (van Bork et al., 2021). Network analysis can be used to test the overall network structure, providing information on how the items are related to one another. Additionally, it can provide insights into the importance of different items (i.e., *nodes*) within the network, a feature often referred to as node centrality (Boccaletti et al., 2006). The most central item (i.e., *node*), when estimated using the strength centrality index, is the one that is most connected to all other items in the network. In a practical sense, a belief, emotion, or behavior that is central to the network may represent a reasonable treatment target (e.g., Borsboom & Cramer, 2013; Fried et al., 2016). It is assumed that by focusing on what is central in the network we can destabilize the network and substantially reduce the IU.

Thus, the network approach not only offers an opportunity to understand the nature of a construct, but also might have very important practical implications. In addition to centrality, network analysis enables us to

detect groups of nodes (i.e., *communities*) that are more densely connected to each other than to the rest of the elements within the network (Fortunato, 2010). By telling us which nodes tend to cluster together, the community detection algorithms within network analysis provide additional insights into the structure of the construct of interest, and can even serve as a psychometric tool for determining the number of dimensions of a psychological instrument (Golino & Epskamp, 2017).

An Italian group of researchers was the first to rely on the network approach while trying to provide new insights into the nature of IU by exploring the internal structure of the Intolerance of Uncertainty Scale-Revised (IUS-R; Bottesi et al., 2020). The IUS-R is an Italian translation of the IUS-12 but with slightly modified language to make the items more understandable for the adolescent population. They used a sample of undergraduates and a sample of older participants from the community to test two networks. Bottesi and colleagues (2020) found that there were no differences in network structures in these two samples. Also, they found that the irrational belief that one cannot stand unpredictable outcomes and the belief that things should be organized in advance were the most central nodes in both samples, leading them to assume that those are the two essential components for the development of dysfunctional levels of IU (Bottesi et al., 2020). They also detected three communities (in both samples) labeled: negative beliefs about uncertainty, behavioral reactions to uncertainty, and emotional reactions to uncertainty (Bottesi et al., 2020). The detected communities seem to reflect one of the first definitions of IU, such as the one proposed by Freeston and colleagues (1994).

In the current study, we aimed to replicate study findings presented by Bottesi and colleagues (2020) using a general community sample. Specifically, we aimed to explore the structure of IU from the network perspective, using the Serbian IUS-11 (Mihić et al., 2014) and following, to a certain extent, the procedure applied by Bottesi and colleagues (2020). This seems to be important especially because the Serbian IUS-11 differs in three items from the IUS-12 (Carleton et al., 2007) and IUS-R (Bottesi et al., 2019, 2023). Precisely, item #11 (*A small unforeseen event can spoil everything, even with the best of planning.*),

item #18 (*I always want to know what the future has in store for me*.), and item #21 (*I should be able to organize everything in advance*.) are not part of IUS-11 but can be found in IUS-12. Also, IUS-11 contains items #3 (*Uncertainty makes my life intolerable*.) and #5 (*My mind can't be relaxed if I don't know what will happen tomorrow*.) from IUS-27 that are not part of IUS-12. Despite the differences, IUS-11 consists of two factors, prospective IU and inhibitory IU, and seems to be an equivalent measure of the IUS-12 in the Serbian language context (Mihić et al., 2014; Volarov et al., 2021). Thus, it is reasonable to expect that the network structure of the IUS-11 will resemble the network structure of the IUS-R (Bottesi et al., 2020). The current study could advance the existing knowledge about the nature of IU by replicating a network structure of the construct in a different cultural setting using a slightly different measure from the original study. Finally, it is important to mention that we explored network structure using the entire sample, while the Italian group of authors split their sample into a subsample of undergraduates and a subsample of people from the community (Bottesi et al., 2020). Our decision was based on the results from the Italian study in which the authors did not find any differences between the two tested networks (Bottesi et al., 2020).

Method

Sample and Procedure

The sample consisted of 3096 participants from the general population (M_{age}= 26.81, *SD* = 7.87, 66.2% women). Data were collected in January 2021 within the project that examined mental health during the COVID-19 pandemic. Sixty percent of participants had higher education, 39.5% had a high school degree, and 0.5% had elementary education. In terms of employment, 35.8% of study participants had fixed-term employment, 15.8% had permanent contracts, 13.2% were unemployed, 34.9% were students, and 0.2% were retired. Eighty-two percent of participants reported they did not seek help in the past (before the pandemic) from a mental health professional. The survey link was shared via social network sites (i.e., Facebook and Instagram). The only inclusion criterion

was that participants are +18 years old. All participants answered survey questions voluntarily without receiving any compensation for their participation. The study was approved by the institutional review board at the Faculty of Philosophy, University of Novi Sad, Serbia.

Instruments

Intolerance of Uncertainty Scale – 11 (IUS-11)

Intolerance of Uncertainty Scale – 11 (IUS-11; Mihić et al., 2014) is a Serbian version of the instrument used for measuring IU. The IUS-11 consists of eleven items with a 5-point response choice and has excellent reliability (α = .93).

Data Analytic Plan

Network estimation

For network estimation, *bootnet* (Epskamp et al., 2018, version 1.5) and *qgraph* (Epskamp et al., 2012, version 1.9.2) R-packages were used. The network structure was estimated using the *ggmModselect* algorithm. The *ggmModSelect* is an iterative method that selects an optimal unregularized Gaussian graphical model (GGM; Lauritzen, 1996) by minimizing the Bayesian Information Criterion (for more details on ggmModSelect, see: http://psychosystems.org/qgraph_1.5). We opted for an unregularized estimator as regularization was deemed unnecessary and may even lead to increased estimation errors when the sample size is large compared to the number of nodes (for details, see Isvoranu & Epskamp, 2021; Williams & Rast, 2020). Spearman correlations were specified as a correlation method when estimating the network structure because the data did not meet the assumption of multivariate normality (a table with descriptive statistics of the IUS-11 items, such as *M, SD,* skewness, and kurtosis is in Supplement A). Thus, the nodes in the resulting network represent the items of IUS-11, while the edges represent partial (Spearman) correlations between pairs of nodes (Epskamp et al., 2018). The network was visualized using the Fruchterman–Reingold algorithm (Fruchterman & Reingold, 1991), which places nodes with the strongest (or most) connections into the center of the graph.

Centrality and predictability indices

To assess the importance of each node for the network, strength centrality indices were computed. Strength indices show how well each node is directly connected to all other nodes within the network (Epskamp et al., 2018) and were shown to be highly replicable (e.g., Isvoranu & Epskamp, 2021). In addition to centrality, predictability indices were computed. Predictability in the form of R^2 quantifies how well each node is predicted by all its neighboring nodes (Haslbeck & Waldorp, 2018), and is computed using the R-package *qgraph*.

Accuracy and stability

Accuracy and stability were assessed in order to assess the replicability and robustness of the estimated network, as recommended by Borsboom (2018; 2021). For this purpose, the R-package *bootnet* (Epskamp et al., 2018, version 1.5) was used (for more details on methods for assessing accuracy and stability, see Epskamp & Fried, 2018).

Community detection

To detect communities within the network, meaning groups of nodes with strong internal links and weaker links with other communities (Fortunato, 2010), *spinglass* and *walktrap*, from the *igraph* package (Cs´ardi & Nepusz, 2006, version 1.2.6) in R were used. We also used a bootstrapped version of the method (Exploratory Graph Analysis – EGA from the *EGAnet package*, version 2.0.5; Golino & Christensen, 2024) to assess the stability of solutions obtained by spinglass and walktrap. Namely, we calculated community (dimension) stability (i.e., a proportion of bootstrapped samples in which communities exactly replicate) and node (item) stability statistics (i.e., a proportion of bootstrapped samples in which item replicates as a part of specific communities; Golino et al., 2022). Finally, we compared different communities-related solutions by calculating the total entropy fit index (TEFI; Golino et al., 2021). Community detection provided us with the opportunity to gain insight into how the IUS network is structured.

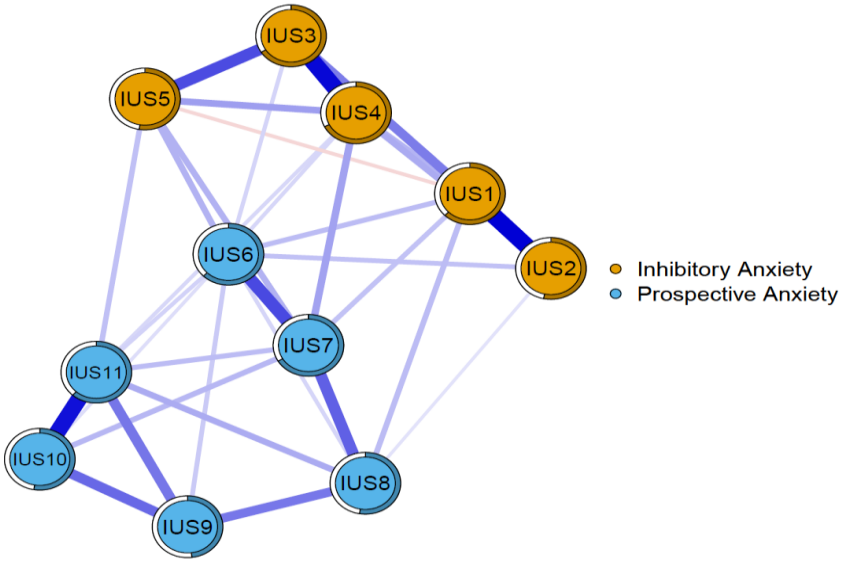
Results

Network estimation and local network properties

In the first step, unregularized partial correlation networks were constructed (Figure 1). The network had a density of .618 (34/55 edges), with a mean weight of 0.092. As shown by the network visualization, most edges were positive (indicated by blue lines), and only one was negative (indicated by a red line). The connections between the nodes were of variable strength, as shown by the variability in lines' thickness and saturation (the greater the magnitude of strength, the thicker and more saturated the line).

Figure 1

Network of unregularized partial correlations between nodes (items) of the IUS-11



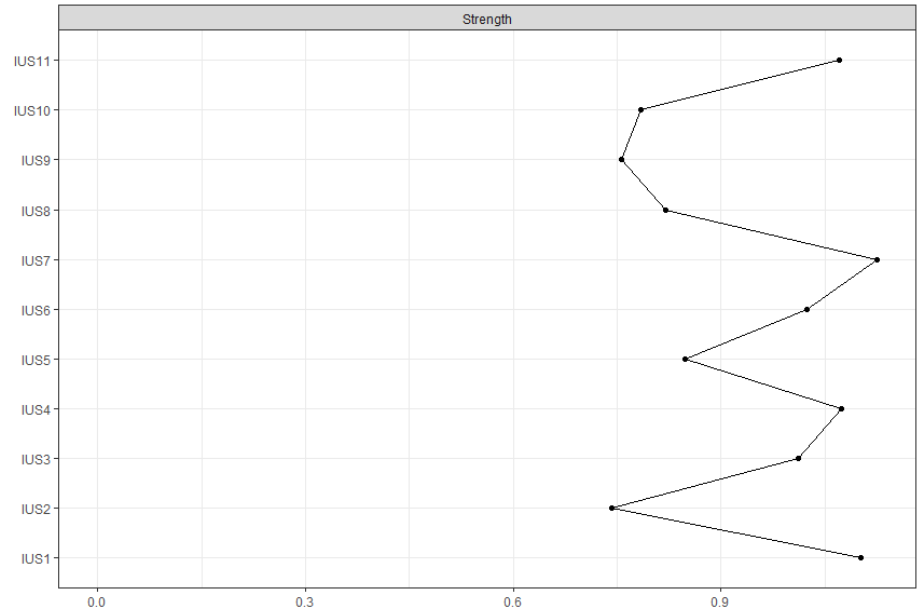
Inhibitory Anxiety	Prospective Anxiety
• IUS1: Uncertainty makes life intolerable	• IUS6: My mind can't be relaxed if I don't know what will happen tomorrow.
• IUS2: Uncertainty keeps me from living a full life.	• IUS7: Unforeseen events upset me greatly.
• IUS3: When it's time to act, uncertainty paralyzes me.	• IUS8: It frustrates me not having all the information I need.
• IUS4: When I am uncertain, I can't function very well.	• IUS9: One should always look ahead so as to avoid surprises.
• IUS5: The smallest doubt can stop me from acting.	• IUS10: I can't stand being taken by surprise.
	• IUS11: I must get away from all uncertain situations.

Centrality and predictability

Figure 2 shows the centrality indices for the IUS network. Items *#7* (*Unforeseen events upset me greatly*), *#1* (*Uncertainty makes life intolerable*), and *#11* (*I must get away from all uncertain situations*) seemingly showed the greatest strength, meaning the strongest direct links with all other nodes. Items *#2* (*Uncertainty keeps me from living a full life*), *#9* (*One should always look ahead to avoid surprises*), #10 (*I can't stand being taken by surprise*), and *#8* (*It frustrates me not having all the information I need*), on the other hand, seemed to be the least strong, respectively.

Figure 2

Strength Indices (Standardized z-scores)



The predictability indices ranged from .480 to .676 (for details, see Supplement B), with average network predictability being estimated at .588 (*SD* = .070). In other words, on average, 58.8% of a node's variance is explained by its direct neighbors in the network.

Accuracy and stability

The correlation stability coefficient, used for quantifying the stability of strength indices, was judged as excellent (CSstrength = 0.75). In other words, the order of nodes would remain similar even if we dropped 75% of our sample (for details about the CS coefficient, see Epskamp et al., 2018). Thus, the strength ranking values can be interpreted with confidence.

Bootstrapped confidence intervals (Figure 1, Supplement C), computed to assess the edge-weight accuracy, were relatively wide, suggesting that many edges do not differ from one another. However, the difference test showed that even though most edges did not differ from one another, some edges were still statistically stronger than others. Specifically, edges *#1-#2* (*Uncertainty makes life intolerable - Uncertainty keeps me from living a full life*), *#3-#4* (*When it's time to act, uncertainty paralyzes me - When I am uncertain, I can't function very well*), and *#10-#11*(*I can't stand being taken by surprise - I must get away from all uncertain situations*) were identified as statistically stronger than all other edges (for details, see Figure 2, Supplement C).

The nonparametric bootstrapped difference-test in the R package bootnet, using the differenceTest function, revealed that items *#7*, *#1*, and *#11* (previously mentioned as seemingly having the greatest strength) do not significantly differ from one another in terms of strength. These three items are not different from items *#3* and *#4* either. On the other hand, nodes *#2*, *#8*, *#9*, and *#10* were significantly less strong than all other nodes (for node difference test, see Figure 3, Supplement C).

Community detection

To test whether separate communities could be identified within the network, we first used the spinglass algorithm. As the spinglass algorithm does not necessarily produce identical solutions every time it is run, we run it 1001 times (for details, see Fried, 2016). We then computed the proportion of different solutions and the median number of communities. Our initial idea was to set a seed (using a set.seed() function) that reproduces the median number

of communities before running spinglass and to report the obtained final solution.

Out of 1001 spinglass re-runs, two communities were identified 21 times (2.09%), three communities 500 times (49.95%), and four communities 480 times (47.95%). Of note, not all three-community solutions and four-community solutions were identical. Namely, the most frequent three-community solution emerged 475/500 times, while the most frequent four-community solution emerged 313/480 times. Bootstrap EGA with a spinglass algorithm for community detection provided the same results: two communities emerged in 7.9% of re-runs, three communities in 45.82%, and four communities 46.28% with three communities being a median solution. The first community comprised items #1 and #2, which both seem to capture decreased quality of life due to uncertainty. The second community consisted of items #3, #4, and #5, which all seem to capture acute behavioral inhibition due to uncertainty. The third community comprised items #6, #7, #8, #9, #10, #11, capturing prospective anxiety. The stabilities of these three communities was as follows: .84, .99, and .42. The average stabilities of nodes was .84, .99, and 78, respectively.

As the solutions obtained using the spinglass algorithm were not entirely consistent, communities were also assessed via walktrap, a more deterministic algorithm (Fried, 2016). Walktrap yielded a two-community solution, thus conflicting with the spinglass results. Walktrap, with and without bootstrapping, suggested two communities. The first community contained nodes (items) #1 to #5, and the second community included nodes (items) #6 to #11 and as such, these communities reflected the two-factor solution of the IUS-11. Both communities had satisfactory stability (.94 and .68, respectively). Additionally, the average stability of nodes was also satisfactory with stability values of .99 and .87. Considering that detected communities were stable and consistent with what we know so far about the structure of the IUS-11, as well as that this solution with two communities was not substantially different from three communities found by spinglass, we decided to accept the solution with two communities as the best one. This decision was also supported by TEFI,

which was lower for the walktrap two-community solution (TEFI = -6.28) than for the spinglass three-community solution (TEFI = -4.68).

Discussion

The present study aimed to explore the structure of IU from the network approach, relying to a fair extent on the study conducted by Bottesi and colleagues (2020). As opposed to the study conducted by the Italian researchers, we used the Serbian IUS-11 as a measure of IU, and we used the sample as a whole to test the network structure of IU. Our decision not to divide our sample into subsamples of undergraduates and participants from the community was based on the findings from the original study. Namely, the Italian authors did not find differences in the network structure of IU when they compared undergraduate students with other community members (Bottesi et al., 2020).

According to the strength indices, nodes (items) #1, #7, and #11 appeared as the most central in the network. The first one was related to reduced quality of life due to experiencing uncertainty, the second resembled emotional reactions to uncertainty (*feeling upset*), and the third resembled avoidance as a strategy for dealing with the unpleasantness that uncertainty brings. However, the difference test for node strength revealed that these three nodes did not differ in strength from nodes #3 and #4 which capture inhibition under uncertain circumstances. This potentially tells us that the four aspects of the construct (behavior, emotion, and beliefs related to uncertainty as well as overgeneralized implications of experienced uncertainty) are interconnected and possibly equally relevant. The lack of one node that is unequivocally central implies that the activation of the entire network could start from any of these. These findings suggest that different aspects of IU might be important for understanding the development of IU in a non-clinical sample. They also imply that maladaptive responses to uncertainty may have different forms and may appear in different aspects of human functioning, which could be of particular importance if we are interested in those with heightened levels of this trait (i.e., the vulnerable ones). This can also be understood from the Cognitive-behavioral

theoretical perspective (i.e., Beck, 1976; Ellis, 2004). According to this theory, holding negative (irrational) beliefs about uncertainty (such as *"I must get away from all uncertain situations"*) may trigger both negative emotions (i.e., unpleasantness, frustration) and behavioral responses (i.e., inhibition) when faced with uncertainty. Alternatively, those who associate aversive emotional reactions to uncertainty might use different behavioral strategies, such as avoidance, to cope with these emotions.

Items that we detected as the most central were different from those found to be central in Bottesi et al.'s study (2020). While the item *"I can't stand being taken by surprise"* was one of the two most central items in both of their samples, this item appeared as one of the least strong in our sample. In addition, another central item that the Italians found (*I should be able to organize everything in advance*) is not included in the Serbian IUS-11 scale. While it seems that the most central items from Bottesi et al.'s study reflect the desire for predictability, the content of central items in our study describes the essential parts of IU – that the uncertainty is upsetting, intolerable, inhibiting, and thus should be avoided, which corresponds to a description of IU provided by Freeston et al. (1994).

Community analysis, performed by using a spinglass, walktrap, and bootstrapping version of the community detection algorithms suggested that the network was best described via two communities. These two communities were comparable with the two-factor structure of the IUS-11 (Mihić et al., 2014), and were thus labeled as Inhibitory anxiety and Prospective anxiety. Central items from our study and results of the community detection can be linked to the conclusion from Birrell and colleagues' study (2011). Precisely, after comparing different factor analytical studies that explored the structure of the IUS, they noticed that two factors that were related to "unacceptability and avoidance of uncertainty, and uncertainty leading to the inability to act" (Birrell et al., 2011, p. 1204) were stable and consistent across the studies even when the total number of extracted factors differed. To conclude, it seems that no matter whether we are using the factor analytical approach or the network approach to investigate the structure of IU, mostly the same defining characteristics

emerge. Our findings are somehow comparable to those detected by Bottesi et al.'s study (2020) given that the community they labeled as Behavioral reactions to uncertainty contained all items from the Inhibitory anxiety factor of the IUS-R. It is interesting that, on the one hand, item #11 (*I must get away from all uncertain situations*) is a part of Prospective anxiety community in this study, as well as part of the factor with the same name in the factor analytical studies of IUS-11 (Mihić et al., 2014) and IUS-12 (Carleton et al., 2007), and on the other hand, part of the Inhibitory anxiety factor of the IUS-R (Bottesi et al., 2019) and part of the community that replicates this factor (Bottesi et al., 2020).

At the same time, items from the Prospective anxiety subscale formed two communities in an Italian study, and one community in our study. This difficulty in replicating the Prospective anxiety community (or dimension, if we think of factor analytic studies) is not new. Commenting on the differences between factor solutions of the IU scales, Bottesi and colleagues (2019) suggested that perhaps the problem with the Prospective anxiety subscale comes from the fact that it contains items that tap two different components of IU (emotional reactions to uncertainty and desire for predictability) that should be treated independently. This is reflected in their communities labeled as Emotional reactions to uncertainty and Negative beliefs about uncertainty. Overall, the detected differences between the studies do not seem to be substantial and do not impede the understanding of the internal structure of IU but possibly are a consequence of cultural and language specifics of translated instruments. Some differences between the structure of communities detected in our study versus an Italian study might be a consequence of differences in versions of IUS that were used (e.g., three items from the Prospective anxiety of the IUS-R are not part of the IUS-11).[1]

[1] We noticed that the algorithm for estimating communities has changed and it produces different results than its previous versions (the latest version of the algorithm gave us a different number of communities compared to the results that we initially obtained with an older version of the algorithm). We believe it is important to emphasize this because changes in the algorithm limit the direct comparison of our findings with the findings of the Italian authors.

We should also comment on the solution with three communities that emerged when spinglass was used. This solution was not substantially different from the two community solution given that the Prospective anxiety community was entirely replicated, while two items (#1 and #2) from the Inhibitory anxiety community formed a separate community representing reduced quality of life due to uncertainty. Identifying the decreased quality of life due to uncertainty as a separate community implies that cognitive, emotional, and behavioral reactions to uncertainty are somewhat distinct from the general impression that uncertainty negatively impacts one's quality of life. Knowing that uncertainty is an inevitable part of our everyday functioning and cannot ever be fully avoided, it does not surprise that holding irrational beliefs about uncertainty and attempting to reduce it or avoid it entirely could negatively impact one's perception of the overall quality of life. Also, it could be that these two items formed a separate community because this particular aspect of IU potentially differentiates those whose overall psychosocial functioning is affected by IU, from those who manage to adapt to uncertainty better. It is possible that it was difficult to replicate this community because only two items are related to an overall functionality within the IUS-11. If we take into account the importance of the functionality of an individual in the context of clinical assessment, adding more items related to the impact of uncertainty on people's lives in a broader sense is worth considering. At the same time, a lack of a separate reduced quality of life community in the Italian study is unsurprising as the Italian IUS-R contains only one item related to the perceived effect of uncertainty on the quality of life. Specifically, IUS-R includes only item #2 but not item #1 of IUS-11, and a single item cannot form a community.

Limitations and Recommendations for Future Research

Based on our findings, it seems that all aspects of IU should be considered if we truly want to understand the conceptual nature of this construct and the risk that IU imposes on those highly intolerant to uncertainty. Moreover, it would be of great importance to investigate whether focusing interventions on one of the central nodes from one community would trigger

the cascade of changes across the entire network (Bottesi et al., 2020; van Bork et al., 2021) or it would be necessary to target simultaneously all processes (emotions, beliefs, and behavior; which is more in line with Hayes at al.'s [2015] notion). It should be noted that, although a network such as the one estimated for this paper can provide insights into the possible causal relations between different elements of IU (i.e., every edge suggests a possible causal link), the limitation of the present study is that it relied on cross-sectional data, thus limiting our ability to draw conclusions about the direction of causal relations. To obtain such information, thereby obtaining insight into possible developmental pathways of IU, directed networks are needed (Borsboom & Cramer, 2013). Moreover, some authors disagree that centrality measures can be used as a proxy for treatment targets (Dablander & Hinne, 2019), especially when it is debatable whether there is causal influence among different indicators in real life. Thus, interventions tailored to the results of network analysis should be empirically evaluated further.

The predictability analysis revealed that over 40% of the variance of the IUS-11 network could not be explained by the interrelationships between the items. Therefore, future studies should aim to include other trait constructs with a status of vulnerability factors and contextual factors that could possibly explain additional variance of IU. In addition, it would be interesting to test whether different exogenous factors explain different components (i.e., communities) of IU. Next, future studies should aim to use a longitudinal design to test directed networks of IU (in both vulnerable and non-vulnerable individuals) in the presence of stressful events and/or in situations when people are facing uncertainty related to important life events. Finally, this research field could benefit from a comparison of the network structure of IU and its dynamic between men and women, as well as between individuals from the community sample who are low on trait IU to those who are high on IU but currently without any diagnosis, and those with ongoing psychopathology.

Other limitations of our study are related to the sampling procedure and sample structure and should be kept in mind when extrapolating findings to the general population. First, considering that the data were collected online via

social media networks (e.g., Facebook and Instagram), the pool of potential study participants was restricted to users of these networks. Next, more than half of the sample was composed of participants with higher education and such sample structure does not adequately represent the general population in Serbia, and neither does the predominance of women in the sample. Also, participants in our study were on average younger than the general population in Serbia. The fact that the data were collected in the context of the COVID-19 pandemic should not be ignored. Although IUS-11 measures IU as a general tendency, it is likely that the pandemic-related uncertainties altered scale scores for some participants. However, despite these limitations, our results are consistent with research findings from earlier studies that offered us insights into the structure of the IU from the factor analytic perspective, thus they seem to be credible.

Conflict of Interest

The authors do not have any interests that would potentially influence the research.

Data availability statement

The data and R code used in this study are available in an OSF repository on the following link: https://osf.io/6xwrj/?view_only=b8b75a814a314dfd9e3a8a0f01fbb735

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Supplementary materials

Supplement A

Table 1

Means, standard deviations, skewness and kurtosis values of the IUS-11 items

	M	*SD*	Skewness	Kurtosis
Item 1	2.77	1.28	.211	-1.019
Item 2	3.04	1.40	.029	-1.281
Item 3	2.14	1.23	.847	-.344
Item 4	2.57	1.36	.556	-.877
Item 5	2.12	1.16	.880	-.083
Item 6	2.33	1.29	.673	-.670
Item 7	2.66	1.27	.402	-.902
Item 8	3.03	1.31	.024	-1.166
Item 9	2.97	1.28	.070	-1.076
Item 10	2.34	1.25	.661	-.562
Item 11	2.31	1.23	.669	-.534

Supplement B

Table 1

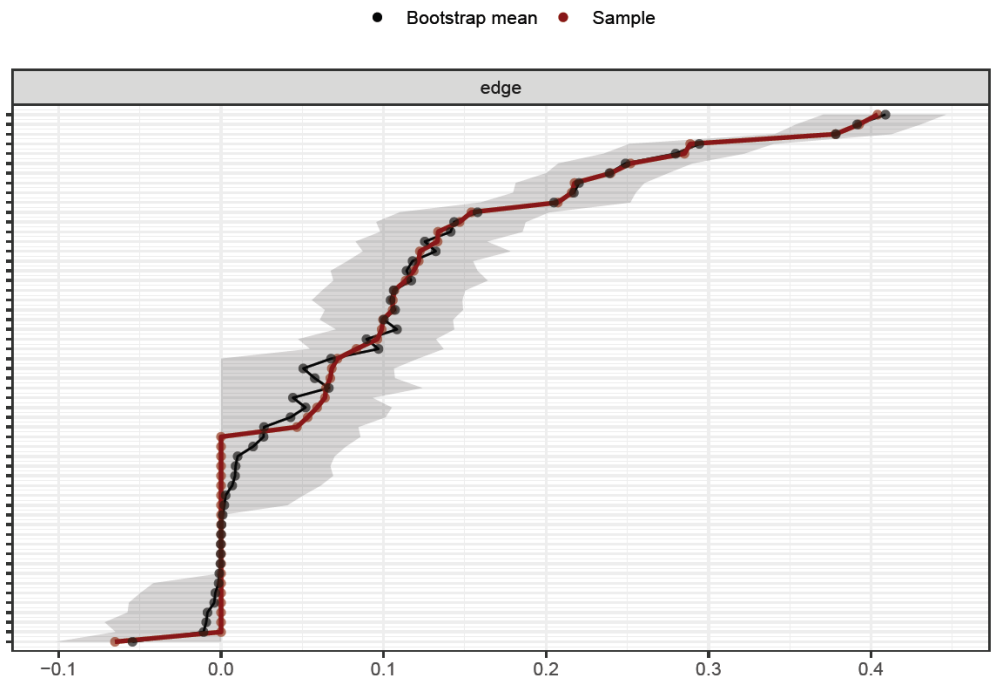
Predictability Indices (R^2)

	R^2
IUS1	.626
IUS2	.534
IUS3	.661
IUS4	.676
IUS5	.527
IUS6	.625
IUS7	.665
IUS8	.527
IUS9	.480
IUS10	.527
IUS11	.617

Supplement C

Figure 1

Nonparametric 95% Bootstrapped Confidence Intervals of the Estimated Edges



Primenjena psihologija
Vol. 17, No. 3, pp. 361–384, 2024

Originalni naučni članak

Validacija skale percipiranog narcisoidnog roditeljstva

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SAŽETAK

Termin narcisoidno roditeljstvo opisuje odnos roditelja i djeteta u kome dominiraju potrebe roditelja, uz zanemarivanje potreba djeteta i sputavanje razvoja njegove autonomije. Dijete je sredstvo zadovoljenja potreba i ciljeva roditelja bez obzira na njegove autentične želje i emocije. Za potrebe istraživanja ovog fenomena je konstruisana *Skala percipiranog narcisoidnog roditeljstva*, sa paralelnim formama za majku i oca. Skala obuhvata indikatore psihička kontrola, uslovno vrijednovanje, postavljanje visokih standarda i roditeljsko favorizovanje. Uzorak se sastojao od 230 mladih, starosti od 18 do 30 godina (M = 22, SD = 3.00), većinom ženskog pola (83.91%). Njih 36.52% izvještava da se do sada obraćalo za psihološku pomoć. Eksplorativna faktorska analiza skale percepcije majčinog i očevog ponašanja pokazuje da je u oba slučaja optimalno rješenje jednofaktorsko kada se isključe stavke koje se odnose na percipirano roditeljsko favorizovanje. I skala percepcije majke (ω = .98) i skala percepcije oca (ω = .97) ispoljavaju visok stepen interne konzistentnosti. Grupa mladih koja je bila uključena u psihološko savjetovanje ili terapiju postiže značajno više skorove na obje forme skale u odnosu na mlade koji nikada nisu tražili stručnu pomoć, što je nalaz u prilog konvergentne validnosti skale. Konstruisana skala ima optimalne metrijske karakteristike i preporučuje se njeno korišćenje prilikom identifikovanja ovog obrasca roditeljstva u praksi. Ograničenja su retrospektivna priroda tvrdnji i nužnost uvida u problematičnost ponašanja roditelja.

Ključne reči: narcisoidno roditeljstvo, uslovna vrijednost, visoki standardi, psihološka kontrola, konstrukcija skale

UDK: 159.938:2-457
DOI: 10.19090/pp.v17i3.2516
Primljeno: 08.12.2023.
Primljena korekcija: 15.03.2024.
Prihvaćeno za štampu: 20.05.2024.

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Uvod

Termin "narcisoidno roditeljstvo" odnosi se na oblik odnosa između roditelja i djeteta čija je osnovna odlika korišćenje djeteta u svrhu zadovoljenja potreba roditelja uz zanemarivanje djetetovih potreba i autonomije (Donaldson-Pressman & Pressman, 1997). Može se posmatrati kao inverzija pozitivnih oblika roditeljstva u kojima fokus ostaje na djetetu kao zavisnom i manje kompetentnom članu dijade, a čija se autonomija postepeno ohrabruje (Robey & Ford Sori, 2011). Narcisoidan odnos roditelja prema djetetu podrazumijeva visok stepen psihičke kontrole, nametanje visokih standarda i ciljeva koji su usmjereni ka zadovoljenju potreba roditelja, a ne djeteta, uslovnu vrijednost (engl. *conditional regard*) djeteta u očima roditelja u zavisnosti od toga u kojoj mjeri zadovoljava njihova očekivanja, kao i otvoreno roditeljsko favorizovanje u zavisnosti od toga koje dijete se u većoj mjeri konformira roditeljskim očekivanjima (Donaldson-Pressman & Pressman, 1997; Miller, 1990).

Ovi oblici roditeljskog ponašanja mogu otežati razvoj stabilnog osjećaja samopoštovanja i autonomije, te dovesti do razvoja interpersonalnog stila ponašanja usmjerenog na ispunjenje potreba i očekivanja drugih kako bi se zadobila njihova ljubav, kontinuirane zavisnosti od odobravanja roditelja i prihvatanja visokog stepena roditeljske kontrole i intruzivnosti čak i u odraslom dobu (Gibson, 2022; Miller, 1990). Roditelji koji ispoljavaju narcisoidne oblike ponašanja prema djeci mogu istovremeno biti psihički i fizički nasilni (Mahooney, Rickspoone & Hull, 2016). Međutim, Donaldson-Presman i Presman (Donaldson-Pressman & Pressman, 1997) navode da nasilje nije ključna odlika narcisoidnog roditeljstva, te koriste termin prikriveno narcisoidnog (engl. *covert narcissism*) porodičnog sistema prilikom analize slučajeva u kojima se dijete tretira kao dio roditeljskog grandioznog selfa uz sputavanje njegove autonomije, ali otvoreno fizičko ili verbalno nasilje nisu prisutni.

I drugi autori analiziraju obrasce roditeljstva koji su po svojim karakteristikama izrazito slični narcisoidnom roditeljstvu. Gibsonova (Gibson, 2022) u svojim radovima analizira tip emocionalno nezrelog roditelja usmjerenog na postignuće, a Forvardova i Bak (Forward & Buck, 2002) tip psihološki

kontrolišućeg toksičnog roditelja. Ipak, ove analize su prvenstveno deskriptivne, zasnovane na analizi pojedinačnih slučajeva iz kliničke prakse, i u njima se pojam narcisoidnog roditeljstva i srodni pojmovi ne definišu unutar šireg teorijskog okvira. Donaldson-Presman i Presman (Donaldson-Pressman & Pressman,1997) tumače ovaj fenomen u okviru teorije porodičnog sistema. Narcisoidno roditeljstvo definišu kao inverzni porodični sistem u kome je fokus na potrebama roditelja umjesto na potrebama djeteta, te u kome je prisutna snažna preokupacija reputacijom i održavanjem slike "savršene" i visoko uspješne porodice. Psihoanalitički orijentisani autori poput Gardnerove (Gardner, 2004) ili Leme (Lemma, 2009) narcisoidno roditeljstvo tumače kao malignu identifikaciju, oblik patološke simbioze u kojoj nema jasne diferencijacije selfa roditelja i djeteta. U takvom odnosu dolazi do otežanog razvoja autonomije djeteta i građenja neautentičnog selfa, koji je usmjeren na zadovoljenje potreba i očekivanja roditelja kako bi se očuvala njihova ljubav, uz nejasnu svijest o sopstvenim potrebama i emocijama (Gardner, 2004).

I pored identifikovanja konstrukta kao klinički značajnog i nastojanja da se on teorijski definiše, opaža se nedostatak psiholoških instrumenata namijenjenih mjerenju percepcije narcisoidnog roditeljstva. Dio istraživanja primjenjuje instrumente koji obuhvataju neke aspekte narcisoidnog roditeljstva, poput uslovne vrijednosti (Curran, Hill & Williams, 2017) ili visoke psihološke kontrole (Kerbs & El-Alayli, 2016), ali istraživači i terapeuti na raspolaganju nemaju instrument koji bi obuhvatio sve ili većinu indikatora narcisoidnog roditeljstva. Studije narcisoidnog roditeljstva i njegovih posljedica prvenstveno koriste različite kvalitativne metode, kao što je produbljeni klinički intervju (npr. Monk, 2001), analiza iskaza u grupama psihološke podrške (Lyons et al, 2023) ili analiza slučajeva iz psihoterapijske prakse (Gardner, 2004; Miller, 1990). Ovo istraživanje predstavlja pokušaj konstruisanja instrumenta koji bi se odnosio na percepciju ključnih aspekata narcisoidnog roditeljstva.

Kao osnovni indikatori narcisoidnog ponašanja roditelja izdvojeni su: 1) visoka i razvojno neprimjerena psihička kontrola nad djetetom, 2) visoki standardi, uključujući visoka očekivanja i postavljanje ciljeva koji služe zadovoljenju narcisoidnih potreba roditelja, kao i konstantan kriticizam 3)

uslovno vrijednovanje djeteta, tj. ponašanje roditelja prema djetetu varira od prihvatanja do odbacivanja u zavisnosti od toga da li su očekivanja roditelja ispunjena, 4) roditeljsko favorizovanje, u smislu davanja više pažnje braći/sestrama u zavisnosti od toga koje dijete je "uspješnije" u roditeljskim očima, kao i podsticanje međusobnog takmičenja za naklonost (ispitanicima koji nemaju braću i sestre je napomenuto da ne odgovaraju na ovu grupu pitanja).

Indikatori su izdvojeni analizom radova autora koji su proučavali narcisoidno roditeljstvo kroz terapijski rad sa klijentima (prvenstveno Donaldson-Pressman & Pressman, 1997 i Miller, 1990), kao i na osnovu sadržaja srodnih upitnika, poput subskala perfekcionističkog, kontrolišućeg i narcisoidnog roditeljstva iz skale Šefilda i saradnika (Sheffild et al, 2006), koja identifikuje različite vrste iskustava u primarnoj porodici na osnovu kojih dolazi do toksične frustracije emocionalnih potreba. Dodatan izvor potencijalnih stavki bio je sadržaj iskaza ispitanika fokus grupa koje su se bavile percepcijom i iskustvima u odnosu sa narcisoidnim roditeljima u ranijem istraživanju autora (Borović, 2023).

Predmet istraživanja je analiza metrijskih karakteristika konstruisane skale percipiranog narcisoidnog roditeljstva.

Ciljevi istraživanja su bili: 1) utvrditi faktorsku strukturu konstruisane skale, 2) ispitati da li konstruisana skala ima zadovoljavajuću pouzdanost, 3) testirati značajnosti razlika skorova mladih koji su bili uključeni u psihološko savjetovanje ili terapiju, odnosno potražili su stručnu pomoć, u odnosu na grupu mladih koji nikada nisu potražili stručnu pomoć, uz pretpostavku da će prva grupa mladih percipirati roditelje na znatno negativniji način; postojanje značajnih razlika je tumačeno kao značajan argument u prilog konvergentne validnosti skale.

Metod

Uzorak

Uzorak istraživanja je činilo 230 ispitanika i po svojim karakteristikama je prigodan. Ispitanici su ispitani uživo na predavanjima u okviru fakultetske

nastave i putem anonimnog onlajn upitnika; uzorak istraživanja čine mladi, studenti Univerziteta u Istočnom Sarajevu, Univerziteta u Banjoj Luci, Univerziteta u Sarajevu, kao i osobe ispitane putem saradnje sa psihoterapeutima u privatnoj praksi. Ispitanici nisu dobili bilo kakav oblik naknade za svoje učešće, te im je napomenuto da imaju pravo da odbiju ili povuku svoje učešće u bilo kom trenutku. Budući da su ispitanici dobrovoljno učestvovali u istraživanju, dobrovoljačka pristrasnost je mogla uticati na rezultate, u smislu izraženije percepcije roditeljskog ponašanja kao negativnog. Učesnici su kratko informisani o predmetu istraživanja od strane samog istraživača prilikom ispitivanja uživo, odnosno putem kratkog teksta prilikom davanja odgovora na onlajn verziji upitnika. Takođe, ispitanicima je napomenuto da ne odgovaraju na pitanja o onom roditelju koji nije bio prisutan za vrijeme njihovog odrastanja, kao i na pitanja koja se odnose na odnos roditelja prema braći i sestrama ukoliko su jedino dijete u porodici. Petnaest ispitanika nije popunilo skalu percipiranog narcisoidnog roditeljstva oca i njihovi podaci su isključeni prilikom faktorske analize date verzije. Šest ispitanika nije odgovorilo na pitanja koja se odnose na ponašanje roditelja prema braći i sestrama, te su njihovi podaci isključeni iz cjelokupne dalje obrade podataka.

Većinu uzorka čine ispitanici ženskog pola (83.91%). Starost ispitanika se kreće u rasponu od 18 do 30 godina (M=22, SD=3). Ukupno 68.26% ispitanika živi na području Bosne i Hercegovine, a njih 30.87% na području Republike Srbije. Većina ispitanika su studenti (77.39%), njih 16.96% navodi da istovremeno radi i studira, 2.61% da je zaposleno, a 2.61% da nije zaposleno i nije u procesu školovanja. Na pitanje o bračnom statusu roditelja, 64.78% ispitanika navodi da su njihovi roditelji u braku, 16.52% da su razvedeni, 8.70% da su jedan ili oba roditelja preminula, a 3.48% da su njihovi roditelji u kohabitaciji. Većina ispitanika, njih 46.96%, navodi da trenutno nisu u romantičnom odnosu, njih 40.00% da su trenutno u romantičnom odnosu, 6.52% je u braku, a 6.52% kohabitira sa partnerom.

Većina ispitanika, 63.04%, navodi da nikada nisu bili uključeni u psihološko savjetovanje ili psihoterapiju u ulozi klijenta. Njih 26.52% navodi da su u ranijem periodu bili uključeni u tretman, ali trenutno ne, a 10% da su

trenutno uključeni u savjetovanje ili psihoterapiju. Ispitanicima je postavljeno pitanje otvorenog tipa o razlozima odlaska na psihoterapiju. Odgovori su grupisani u četiri kategorije: 1) anksioznost, poput paničnih napada, generalizovanog anksioznog poremećaja, ispitne anksioznosti, fobija (18.26% od ukupnog broja ispitanika), 2) depresivnost, poput depresivne epizode, dijagnostikovanog rekurentnog depresivnog poremećaja, nedostatka energije, poremećenog sna i apetita (9.13%), 3) nezadovoljavajući socijalni odnosi, pri čemu se misli na probleme u komunikaciji u odnosu sa prijateljima, partnerom, roditeljima, braćom/sestrama (8.26%), 4) negativni životni događaji, uključujući smrt u porodici, razvod braka, dijagnostikovan PTSP, itd. (5.65%). Neki od ispitanika su navodili višestruke teškoće.

Instrumenti

Skala percipiranog narcisoidnog roditeljstva

Skala percipiranog narcisoidnog roditeljstva, koja se sastoji od 33 stavke i dvije forme koje se odnose na percepciju majke i oca (ukupno 66 stavki). Obuhvata indikatore: roditeljska kontrola - 10 stavki ("*Majka je donosila većinu odluka umjesto mene* "), osjećaj uslovne vrijednosti - 8 stavki ("*Osjećao sam se prihvaćeno od strane majke samo ako bih ispunila ono što je očekivala od mene*"), visoki standardi - 9 stavki ("*Očekivala je da u svemu budem najbolji/lja*") i roditeljsko favorizovanje- 6 stavki ("*Osjećao sam se kao da smo ja i brat/sestra morali da se takmičimo za majčinu ljubav i pažnju*"). Ispitanici na petostepenoj skali Likertovog tipa označavaju u kojoj mjeri stavke opisuju tipično ponašanje roditelja za vrijeme njihovog odrastanja (od 1 - *uopšte se ne odnosi na majku/oca* do 5 - *u potpunosti opisuje moju majku/oca)*.

Upitnik o sociodemografskim karakteristikama

Upitnik o sociodemografskim karakteristikama obuhvata pitanja o polu i starosti, mjestu stanovanja, obrazovnom i radnom statusu, bračnom statusu roditelja, broju braće i sestara, romantičnom statusa ispitanika, da li su ikada bili uključeni u proces savjetovanja ili psihoterapije, koji su bili razlozi traženja stručne pomoći.

Rezultati

Faktorska struktura skale percipiranog narcisoidnog roditeljstva ispitana je eksplorativnom faktorskom analizom. Sprovedene su odvojene analize za verzije koje se odnose na percepciju majčinog i očevog ponašanja.

U slučaju skale percipiranog narcisoidnog roditeljstva majke, vrijednost Kajzer-Mejer-Oklinovog parametra uzoračke adekvatnosti (*KMO* = .95) i Bartletov test sferičnosti ($\chi^2(528) = 6768.28$, $p < .01$) pokazuju da je matrica korelacija faktorabilna. Veličina uzorka je dovoljna za sprovođenje faktorske analize, u skladu sa kriterijumom da bi razmjer varijabli i ispitanika trebao da bude veći od 1:5 (Pallant, 2007). Mardijin test pokazuje da podaci prikupljeni na verziji skale koja se odnosi na percepciju majke ne zadovoljavaju pretpostavku o multivarijantnoj normalnosti (Sk = 15238.34, $p < .01$, Ku = 15472.31, $p < .01$), kao i u slučaju verzije skale koja se odnosi na percepciju oca (Sk = 19099.00, $p < .01$, Ku = 19405.59, $p < .01$). Stoga je u oba slučaja provjera dimenzionalnosti izvršena metodom glavnih osa (engl. *principal axis factoring)* koji je manje osjetljiv na narušavanje ove pretpostavke, u programu JASP (Version 0.14.1; JASP Team, 2020). Budući da narcisoidno roditeljstvo uključuje niz povezanih ponašanja, koja proističu iz viđenja djeteta kao dijela roditeljskog selfa (Miller, 1990; McBride, 2008), primjenjena je oblimin rotacija koja dozvoljava interkorelacije faktora. U inicijalnom rješenju, karakteristični korijeni četiri faktora prelaze kritičnu granicu prema Gutman-Kajzerovom kriterijumu (Tabela 1).

Tabela 1

Inicijalno izdvojeni faktori skale percipiranog narcisoidnog roditeljstva majke i vrijednosti paralelne analize

	Inicijalno rješenje				
Faktor	EV	% varijanse	Kum. %	Rotirane sume kvadriranih opterećenja	PCA
1	19.31	.58	.58	9.96	1.85
2	1.91	.05	.62	6.02	1.73
3	1.13	.02	.65	4.47	1.64
4	1.05	.02	.67	1.64	1.56

Napomena. EV = karakteristični korijen; % varijanse = Procenat objašnjene varijanse; Kum. % = Kumulativni procenat objašnjene varijanse; PCA = simulirani karakteristični korijen metodom glavnih komponenata.

Četiri faktora obuhvataju 67% komunaliteta. Samo su vrijednosti karakterističnih korijena prva dva faktora više od vrijednosti simuliranih korijena dobijenih paralelnom analizom. Budući da se metod paralelne analize preporučuje prilikom donošenja odluke o zadržanim faktorima (Timmerman & Lorenzo-Seva, 2011), ponovo je sprovedena faktorska analiza sa dva zadržana faktora. U Tabeli 2 prikazana je matrica sklopa izdvojenih faktora.

Tabela 2

Matrica sklopa skale percipirane narcisoidnosti majke

	Stavke	Faktor 1	Faktor 2	Unikvitet
1.	je kontrolisala moj život do te mjere da nisam imao/la prava na izbor.	.84	-.08	.38
2.	je donosila većinu odluka umjesto mene.	.73	-.02	.48

3.	mi nije dozvoljavala da imam svoju privatnost za vrijeme odrastanja.	.78	.04	.35
4.	je očekivala da živim svoj život tako da ispunim ciljeve koje ona nije ostvarila.	.80	-.09	.45
5.	mi je stvarala osjećaj krivice svaki put kada bih postupio suprotno njenim željama i očekivanjima.	.85	-.01	.28
6.	mi nije dopuštala da imam mišljenje suprotno njenom.	.86	-.03	.29
7.	je imala nerealistično visoka očekivanja od mene.	.90	-.12	.31
8.	je očekivala da u svemu budem najbolji/lja.	.77	-.13	.53
9.	je uvijek kritikovala sve što uradim.	.73	.11	.35
10.	je zahtijevala da sve uradim savršeno.	.70	.03	.48
11.	ništa što uradim joj nikada nije bilo dovoljno dobro.	.71	.16	.33
12.	bi nalazila mane svemu što uradim.	.70	.16	.34
13.	je obraćala više pažnje na mene nakon što bih postigao neki uspjeh.	.65	.17	.41
14.	osjećao/la sam se prihvaćeno samo ako bih ispunio/la ono što je očekivala od mene.	.78	.07	.32
15.	je bila topla prema meni samo ako bi moje ponašanje odgovaralo njenoj predstavi idealnog djeteta.	.80	.03	.32
16.	me je kritkovala i bila hladna prema meni čim bi moje ponašanje odstupilo od toga kakav/va treba da budem.	.80	.05	.32
17.	se ponašala jako hladno prema meni kada je mislila da će moje ponašanje negativno uticati na to kako je drugi vide.	.80	.05	.30
18.	da bih dobio njeno odobravanje morao sam da budem ono što je ona željela bez obzira na svoje potrebe.	.85	.06	.20
19.	se ponašala mnogo toplije prema meni nego inače kada je željela da ostavi dobar utisak pred drugima.	.73	.16	.29
20.	je mnogo više hvalila ono što brat/sestra urade nego ja.	.03	.79	.34

21.	pružala je mom bratu/sestri mnogo više podrške nego meni.	.03	.86	.22
22.	je uvijek bila na strani brata/sestre umjesto na mojoj.	-.01	.85	.28
23.	me je uvijek krivila za greške mog brata/sestre.	.15	.68	.38
24.	osjećao sam se kao da ja i brat/sestra moramo da se borimo za majčinu pažnju.	.29	.52	.44
25.	se ljutila kada sam imao mišljenje koje se ne poklapa sa njenim.	.71	.10	.39
26.	me je pritiskala da donesem životne odluke koje je smatrala najboljim za mene.	.85	-.08	.35
27.	nije ozbiljno shvatala moje mišljenje.	.74	.12	.33
28.	se uplitala u moja prijateljstva i romantične veze.	.72	-.03	.51
29.	je vršila pritisak na mene da budem što uspješniji/ja.	.87	-.20	.42
30.	stalno je poredila moja postignuća sa onima drugih vršnjaka.	.72	.01	.47
31.	od nje sam rijetko dobijao pohvalu za ono što uradim.	0.54	.31	.39
32.	me je ignorisala kada ne bih postupio onako kako je željela.	0.80	.07	.28
33.	dobijao sam mnogo više pažnje od nje u odnosu na braću/sestre.	0.31	-.07	.93

Dva faktora obuhvataju 62% komunaliteta pri čemu prvi faktor samostalno obuhvata 51% komunaliteta, a drugi 11%. Unikvitet svih stavki je ispod .60, sa izuzetkom stavke "*Dobijao sam mnogo više pažnje od nje u odnosu na braću/sestre* "(.93). Ona pripada indikatoru roditeljsko favorizovanje, ali opisuje odnos u kome roditelji ispoljavaju više topline prema osobi u odnosu na braću/sestre, za razliku od ostalih koje se odnose na veći stepen topline prema braći/sestrama, pa je izbačena iz dalje analize.

Drugi faktor korespondira sa indikatorom roditeljskog favorizovanja, jer je njime visoko zasićeno pet stavki (20-24) koje se odnose na percipirani veći

stepen bliskosti, topline i podrške roditelja usmjeren prema braći/sestrama nego što je pružen samoj osobi ("*Majka je uvijek bila na strani brata/sestre umjesto na mojoj*", "*Majka je mnogo više hvalila ono što brat/sestra urade nego ja*"). Prvi faktor obuhvata stavke indikatora uslovna vrijednost, kontrola i visoki standardi. Prvi faktor nije visoko zasićen stavkama koje čine drugi faktor, i obrnuto. Korelacija između dva faktora je visoka i pozitivna ($r = .64, p < .00$).

Na osnovu rezultata može se pretpostaviti da su favorizovanje i narcisoidno ponašanje dva povezana, ali u suštini odvojena fenomena. U relevantnoj literaturi (npr. Donaldson-Pressman & Pressman, 1997; Golomb, 1995) se kao osnovna karakteristika narcisoidnog roditeljstva navodi tretiranje djeteta kao ekstenzije roditeljskog selfa i snažan pritisak ka ponašanju koje će zadovoljiti potrebe roditelja, čak i po cijenu žrtvovanja djetetovih potreba i selfa. Roditeljsko favorizovanje neće biti prisutno u porodicama sa jednim djetetom, ali se i u porodicama sa više djece može javiti iz razloga koji nisu povezani sa narcisoidnošću roditelja. Osnovna odlika favorizovanja u narcisoidnim porodicama jeste davanje više pažnje i ljubavi djetetu koje zadovoljava očekivanja roditelja u većoj mjeri (McBride, 2008), pa se stoga može posmatrati kao jedna od dimenzija visoko uslovne prirode ljubavi i poštovanja prema djetetu, koja je već obuhvaćena stavkama indikatora uslovna vrijednosti. Formuliasne stavke takođe ne obuhvataju dinamiku smjenjivanja favorizovane djece u porodici. Stoga je odlučeno da se iz dalje obrade podataka izbaci pet stavki drugog faktora i da se skala tretira kao jednofaktorska, sa zadržanih 27 stavki. Ponovljena eksplorativna faktorska analiza na 27 zadržanih stavki izdvojila je jedan faktor koji obuhvata 62% komunaliteta stavki. Faktor je tretiran kao jednodimenzionalna mjera percipiranog narcisoidnog roditeljstva majke.

U slučaju verzije skale percipiranog narcisoidnog roditeljstva oca, vrijednost Kajzer-Mejer-Oklinovog parametra uzoračke adekvatnosti (*KMO* = .94) i Bartletov test sferičnosti ($\chi^2(528) = 5891.25$, $p < .01$) ukazuju da je matrica korelacija faktorabilna. Takođe je primjenjena analiza glavnih osa sa oblimin rotacijom (Tabela 3).

Tabela 3

Inicijalno izdvojeni faktori skale percipiranog narcisoidnog roditeljstva oca i vrijednosti paralelne analize

	Inicijalno rješenje				
Faktor	EV	% varijanse	Kum. %	Rotirane sume kvadriranih opterećenja	PCA
1	16.76	.50	.50	6.66	1.88
2	2.34	.06	.56	4.90	1.75
3	1.66	.04	.60	3.80	1.68
4	1.52	.04	.64	3.46	1.57
5	1.22	.03	.67	3.17	1.51

Napomena. EV = karakteristični korijen; % varijanse = Procenat objašnjene varijanse; Kum. % = Kumulativni procenat objašnjene varijanse; PCA = simulirani karakteristični korijen metodom glavnih komponenata.

Pet izdvojenih faktora obuhvataju 67% zajedničke varijanse. Međutim, samo vrijednosti korijena prva dva faktora prevazilaze vrijednosti nasumičnih korijena generisanih paralelnom analizom. Faktorska analiza je ponovljena, sa zadržana dva faktora. U Tabeli 4 prikazana je izdvojena matrica sklopa.

Tabela 4

Matrica sklopa skale percipirane narcisoidnosti oca

	Stavke	Faktor 1	Faktor 2	Unikvitet
1.	je kontrolisao moj život do te mjere da nisam imao/la prava na izbor.	.79	-0.12	.47
2.	je donosio većinu odluka umjesto mene.	.72	-0.13	.54
3.	mi nije dozvoljavao da imam svoju privatnost za vrijeme odrastanja.	.65	-.07	.63
4.	je očekivao da živim svoj život tako da ispunim ciljeve koje ona nije ostvarila.	.64	.05	.56
5.	mi je stvarao osjećaj krivice svaki put kada bih postupio suprotno njegovim željama i očekivanjima.	.83	-.04	.34
6.	mi nije dopuštao da imam mišljenje suprotno njegovom.	.76	.05	.38
7.	je imao nerealistično visoka očekivanja od mene.	.74	.08	.38
8.	je očekivao da u svemu budem najbolji/lja.	.59	.09	.53
9.	je uvijek kritikovao sve što uradim.	.57	.23	.47
10.	je zahtijevao da sve uradim savršeno.	.62	.20	.44
11.	ništa što uradim mu nikada nije bilo dovoljno dobro.	.67	.16	.41
12.	bi nalazio mane svemu što uradim.	.55	.25	.48
13.	je obraćao više pažnje na mene nakon što bih postigao neki uspjeh.	.66	.11	.47
14.	osjećao/la sam se prihvaćeno samo ako bih ispunio/la ono što je očekivao od mene.	.69	.16	.37
15.	je bio topao prema meni samo ako bi moje ponašanje odgovaralo njegovoj predstavi idealnog djeteta.	.74	.05	.41

16.	me je kritikovao i bio hladan prema meni čim bi moje ponašanje odstupilo od toga kakav/va treba da budem.	.86	-.05	.30
17.	se ponašao jako hladno prema meni kada je mislio da će moje ponašanje negativno uticati na to kako ga drugi vide.	.81	-.04	.38
18.	da bih dobio njegovo odobravanje morao sam da budem ono što je on željeo bez obzira na svoje potrebe.	.91	-.06	.24
19.	se ponašao mnogo toplije prema meni nego inače kada je želio da ostavi dobar utisak pred drugima.	.75	.08	.37
20.	je mnogo više hvalio ono što brat/sestra urade nego ja.	.10	.78	.29
21.	pružao je mom bratu/sestri mnogo više podrške nego meni.	-.02	.86	.29
22.	je uvijek bio na strani brata/sestre umjesto na mojoj.	-.03	.84	.32
23.	me je uvijek krivio za greške mog brata/sestre.	.07	.75	.37
24.	osjećao sam se kao da ja i brat/sestra moramo da se borimo za očevu pažnju.	.15	.56	.57
25.	se ljutio kada sam imao mišljenje koje se ne poklapa sa njegovim.	.67	.12	.45
26.	me je pritiskao da donesem životne odluke koje je smatrao najboljim za mene.	.81	-.08	.41
27.	nije ozbiljno shvatao moje mišljenje.	.59	.07	.60
28.	se uplitao u moja prijateljstva i romantične veze.	.70	-.20	.63
29.	je vršio pritisak na mene da budem što uspješniji/ja.	.79	-.07	.43
30.	stalno je poredio moja postignuća sa onima drugih vršnjaka.	.73	.04	.43

31.	od njega sam rijetko dobijao pohvalu za ono što uradim.	.48	.32	.50
32.	me je ignorisao kada ne bih postupio onako kako je želio.	.79	.03	.36
33.	dobijao sam mnogo više pažnje od njega u odnosu na braću/sestre.	.45	-.09	.83

Dva faktora obuhvataju 55% komunaliteta (prvi faktor 49%, drugi 6%), i koreliraju značajno pozitivno ($r = .57$, $p < .00$). Prema sadržaju, faktori se poklapaju sa onima u formi skale koja se odnosi na percepciju majke. Drugi faktor, kojim su visoko zasićene stavke 20-24, korespondira indikatoru roditeljskog favorizovanja, te je stoga izbačen iz konačne verzije skale iz već opisanih razloga. Sledeće stavke imaju visok unikvitet (iznad .60): "*Dobijao sam mnogo više pažnje od njega u odnosu na braću i sestre*", "*Uplitao se u moja prijateljstva i romantične veze* ", "*Nije ozbiljno shvatao moje mišljenje* ", "*Nije mi dozvoljao da imam privatnost za vrijeme odrastanja* ". Stoga je ponovo sprovedena faktorska analiza sa 24 zadržane stavke, na osnovu koje je identifikovan jedan faktor koji obuhvata 57% zajedničke varijanse.

Pouzdanost skala je testirana računanjem alfa krombah koeficijenta. U slučaju skale percipiranog narcisoidnog roditeljstva majke, koeficijent iznosi α = .97, a u slučaju skale percipiranog narcisoidnog roditeljstva oca α = .96. Vrijednosti MekDonaldovog omega koeficijenta takođe ukazuju na visoku pouzdanost obje forme skale (ω = .98 u slučaju verzije koja se odnosi na majku i ω = .97 u verziji skale koja se odnosi na oca). Obje forme skale pokazuju izuzetno visoku konzistentnost i internu homogenost, što je u skladu i sa prirodom konstrukta; tačnije, percipira se da roditelj ispoljava ili nijedno od navedenih ponašanja ili većinu navedenih ponašanja, odnosno u uzorku su rijetki slučajevi roditelja koji ispoljavaju samo neka od opisanih ponašanja. Takođe su izračunati deskriptivni pokazatelji (Tabela 5.)

Tabela 5

Deskriptivne vrijednosti skale percipiranog narcisoidnog roditeljstva

	Minimum	Maksimum	M	SD	Sk	Ku	Šapiro-Vilk test
percipirano narcisoidno roditeljstvo majke	27.00	136.00	57.91	30.38	.96	-.28	.86*
percipirano narcisoidno roditeljstvo oca	11.00	111.00	47.69	25.27	.95	-.21	.87*

*$p < .01$

Rezultati Šapiro-Vilk testova pokazuju da vrijednosti skale percipiranog narcisoidnog roditeljstva oca i majke odstupaju od oblika normalne krive. Obje distribucije pokazuju tendenciju ka pozitivnoj asimetričnosti.

Takođe je izvršeno poređenje skorova na skalama percipiranog narcisoidnog ponašanja majke i oca dvije grupe ispitanika. Prvu grupu činili su ispitanici koji nikada nisu bili uključeni u savjetodavni ili terapijski proces (63.04%), a drugoj grupi su priključeni ispitanici koji su ranije ili su trenutno uključeni u savjetodavni ili terapijski proces (36.52%). Budući da je Levenov test jednakosti varijanse bio statistički značajan i za narcisoidno ponašanje majke ($F = 21.33$, $p < .00$) i za narcisoidno ponašanje oca ($F = 6.40$, $p < .01$), primjenjen je Velčov t-test koji ne zahtijeva da varijanse poređenih grupa budu jednake. Nejednakost varijanse između dvije grupe ispitanika je očekivana, jer se može pretpostaviti da će u grupi ispitanika koji su samostalno tražili psihološku stručnu pomoć porodične teškoće i disfunkcionalnosti biti češće. Rezultati t-testa su prikazani u Tabeli 6.

Tabela 6

Razlike u percipiranoj narcisoidnosti roditelja

	t	df	p	nikada nisam bio uključen u terapiju/savjetovanje (M)	ranije ili trenutno uključen u terapiju/savjetovanje (M)
percipirana narcisoidnost majke	-4.34	134	.00	57.14	78.08
percipirana narcisoidnost oca	-5.64	212	.00	52.46	75.16

Razlike između obje grupe su statistički značajne, i na dimenziji percipirane narcisoidnosti majke ($t(134) = -4.34$, $p < .00$, d = .63) i na dimenziji percipirane narcisoidnosti oca ($t(212) = -5.64$, $p < .00$, d = .78). Na obje dimenzije ispitanici koji su ranije ili su trenutno u terapijskom procesu postižu značajno više skorove u odnosu na one ispitanike koji nikada nisu potražili psihološku stručnu pomoć. Vrijednosti Koenovog d-indeksa pokazuju da je veličina efekta umjerena u slučaju obje dimenzije. Na osnovu navedenih rezultata može se pretpostaviti da je porodična disfunkcionalnost, manifestovana u odnosu sa narcisoidnim roditeljem, češća u grupi ispitanika koji su potražili psihološku stručnu pomoć usljed različitih emocionalnih teškoća.

Diskusija

Osnovni cilj istraživanja bila je provjera metrijskih karakteristika novokonstruisane skale percipiranog narcisoidnog roditeljstva. Element zajednički opisima narcisoidnog roditeljstva je korišćenje djeteta za zadovoljenje potreba roditelja uz nedostatak senzitivnosti za njegove potrebe i autonomiju ili čak njihovo aktivno sputavanje, kao i uslovno vrijednovanje djeteta, tj. ljubav i toplina se pružaju samo dok ponašanje djeteta ispunjava očekivanja i potrebe

roditelja (Donaldson-Pressman & Pressman, 1997; Miller, 1990; Gibson, 2022). Konstruisana skala je kao osnovne indikatore narcisoidnog roditeljstva uključila psihološku kontrolu, visoke standarde, uslovnu vrijednost i roditeljsko favorizovanje. Indikatori su izdvojeni na osnovu analize dostupne literature i na osnovu sadržaja sličnih skala, u prvom redu adaptacije *Jangovog inventara roditeljstva* Šefilda i saradnika (Sheffield et al, 2006).

Eksplorativne faktorske analize verzija skale koje se odnose na percepciju majke i oca ukazale su na optimalnost dvofaktorskog rješenja. Prvim faktorom su zasićene stavke koje se odnose na psihološku kontrolu, uslovnu vrijednost i visoke standarde, a drugim one koje se odnose na roditeljsko favorizovanje. I pored pozitivne korelacije dva faktora, u daljoj analizi je zadržan samo prvi faktor koji se odnosi na globalnu percepciju narcisoidnog roditeljstva. Roditeljsko favorizovanje, iako je inicijalno izdvojeno kao indikator, nije zadržano u konačnoj verziji skale. Ovaj oblik ponašanja se može javiti i u porodicama u kojima roditelji ne ispoljavaju narcisoidno ponašanje, tj. biti uzrokovan drugim faktorima. Ukoliko je favoritizam prisutan u porodici u kojoj roditelji ispoljavaju narcisoidne oblike ponašanja, on se može shvatiti kao specifična manifestacija dubljeg problema uslovnog vrednovanja djeteta, kondicionalne prirode ljubavi i poštovanja roditelja prema djetetu. Ono dijete koje u većoj mjeri ispunjava roditeljska očekivanja i potrebe se favorizuje u odnosu na braću/sestre, ali se ponašanje roditelja i izbor porodičnog favorita ("zlatnog djeteta") može promijeniti ukoliko dođe do neuspjeha ili suprotstavljanja djece roditeljskim zahtijevima. Stavke koje se odnose na percepciju favorizovanja braće i sestara ne opisuju ovu dinamiku. Ona je u većoj mjeri obuhvaćena stavkama indikatora uslovna vrijednost, koje se odnose na generalnu nesigurnost u pogledu roditeljske ljubavi, potrebu da se ona zadobije ispunjavanjem očekivanja i strah od gubitka ljubavi ukoliko dođe do neuspjeha.

Iz verzije skale koja se odnosi na percepciju oca su usljed niskog komunaliteta isključene dodatne tri stavke, koje su zadržane u verziji skale koja se odnosi na majku: "*Uplitao se u moja prijateljstva i romantične veze*", "*Nije ozbiljno shvatao moje mišljenje, nije mi dozvoljavao da imam privatnost za vrijeme odrastanja*". Moguće je da se narcisoidne tendencije ispoljavaju na nešto

drugačiji način u slučaju majke i očeva, u zavisnosti od roditeljskih uloga i raspodjele dužnosti unutar porodice. Budući da su majke tradicionalno više uključene u emotivni i socijalni život djece u odnosu na oca (Mihić & Petrović, 2009), opravdano je očekivati da će se narcisoidno roditeljstvo ispoljavati i u ovim domenima. Sa druge strane, narcisoidno roditeljstvo oca, koji je tradicionalno u većoj mjeri usmjeren na spoljašnja postignuća i obrazovanje djeteta, kao i emocionalno distanciran (ibid, 2009), bi se moglo manifestovati u ovom domenu, ali ne nužno i u emotivnom i socijalnom u vidu uplitanja u prijateljstva, romantični život, lične stavove djeteta, itd. Ipak, ovo su pitanja koja je neophodno podrobnije istražiti u budućim studijama.

Verzije skale koja se odnosi na majku i na oca pokazale su izrazito visok stepen interne konzistentnosti i homogenosti. Rezultati pokazuju da grupa mladih koja je bila uključena ili su trenutno uključeni u savjetovanje ili terapiju ima značajno više skorove i na percepciji narcisoidnog roditeljstva majke i oca u odnosu na grupu mladih koja nikada nije bila uključena u savjetovanje ili terapiju. Značajan procenat ispitanika iz prve grupe navodi da su ih teškoće povezane sa anksioznošću, depresivnošću, lošim socijalnim odnosima i stresnim životnim događajima podstakle na traženje stručne pomoći. Iako navedeni rezultati predstavljaju argument u korist konvergentne validnosti skale i upućuju na povezanosti narcisoidnog roditeljstva sa širokim spektrom kasnijih psiholoških problema, mogućnost generalizacije zaključaka je ograničena. Podaci o emocionalnim teškoćama su se zasnivali na pitanju o traženju psihološke stručne pomoći i pitanju otvorenog tipa u kome se od ispitanika tražilo da navedu razloge koji su ih podstakli na ovakav postupak. Moguće je i da ispitanici koji nisu tražili stručnu pomoć ispoljavaju niz emocionalnih teškoća i da su one povezane sa disfunkcionalnim porodičnim odnosima.

Neophodno je istaći i ograničenja konstruisane skale. Stavke se odnose na retrospektivnu percepciju roditeljskog ponašanja za vrijeme odrastanja, a na koju mogu uticati i aktuelni faktori poput kvaliteta trenutnog odnosa sa roditeljima, psihičkog stanja osobe, itd. Takođe, u mnogim slučajevima narcisoidno ponašanje roditelja se normalizuje, predstavlja se kao usmjereno ka dobrobiti i uspjehu djeteta, što skupa sa visokim stepenom kontrole i zavisnošću

od roditelja dovodi do toga da se ono ne problematizuje, već opravdava u očima djeteta ili mladih (Donaldson-Pressman & Pressman, 1997; Forward & Buck, 2002). Stavke mjere percepciju ponašanja roditelja kao problematičnog i štetnog na osnovu samoiskaza ispitanika, pa je stoga skala potencijalno najkorisnija u identifikovanju porodičnih teškoća mladih koji su već počeli da preispituju svoj odnos sa roditeljem ili nastoje da se osamostale. Moguće je da skala ne bi bila adekvatna u identifikovanju slučajeva u kojima se osoba i dalje nalazi u simbiotskom odnosu sa roditeljem i opravdava njegovo ponašanje. Ipak, ovo su ograničenja zajednička većini psiholoških mjera koje se zasnivaju na samoiskazima. Još jedno ograničenje studije jeste polna neuravnoteženost uzorka, koji pretežno čine ženski ispitanici. Ovo ograničenje je značajno ako se uzme u obzir da neki autori (npr. McBride, 2008) napominju da posljedice narcisoidnog roditeljstva mogu biti izraženije u slučaju djeteta istog pola kao i roditelj, budući da ugrožava razvojni proces zdrave identifikacije sa roditeljem istog pola. Malobrojnost ispitanika muškog pola otežava potencijalno testiranje ovih pretpostavki.

Zaključak

Rezultati ukazuju na to da konstruisana Skala percipiranog narcisoidnog roditeljstva ima zadovoljavajuću konstruktnu validnost i pouzdanost. Rezultati faktorske analize upućuju na jednofaktorsku strukturu kojom su obuhvaćeni indikatori uslovna vrijednost, psihološka kontrola i visoki standardi. Korišćenjem skale u narednim istraživanjima, naročito onima u kojima se istovremeno mjere i druge vrste disfunkcionalnog/toksičnog roditeljstva, narcisoidno roditeljstvo bi se preciznije profilisalo i razgraničilo u odnosu na druge oblike porodične disfunkcionalnosti. U savjetodavnoj praksi, skala može biti koristan polazan korak u uočavanju problematičnih ponašanja u okviru primarne porodice i njihovog redefinisanja sa ciljem podsticanja svijesti klijenta o povezanosti njegovih aktuelnih teškoća i porodične istorije, kao i uvjerenja koja je internalizovao na osnovu ponašanja i poruka roditelja.

Sukob interesa

Nemamo sukoba interesa za prijavljivanje.

Izjava o dostupnosti podataka

Podaci su dostupni na lični zahtev kontaktiranjem autora rada.

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Validation of perceived narcissistic parenting scale

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ABSTRACT

Narcissistic parenting describes a parent-child relationship in which the needs of the parents are a priority while children's needs and autonomy are neglected or prohibited. The child is used as a means of satisfying parental needs and goals with no regard to its authentic needs and emotions. Despite the significant number of research studies there is a lack of validated instruments for measuring the perception of this parenting type. In this research a preliminary version of the Perceived narcissistic parenting scale was constructed, with parallel forms for mother and father. The initial scale consisted of 33 items, that describe the following indicators of narcissistic parenting: psychological control, conditional regard, high standards, and parental favoritism. The sample of the research consisted of 230 youth, aged 18 to 30 (M = 22, SD = 3.00), 83.91% female. More than third of participants (36.52%) report that they sought professional psychological help in their lives. Exploratory factor analysis of mother and father scale form shows that one-factor solution is optimal in both cases, once the items about perceived parental favoritism are removed. Both mother (ω = .98) and father (ω = .97) versions of the scale show high internal consistency. Participants who were or are currently involved in psychological counselling achieve significantly higher scores on both forms compared to participants who never sought psychological help, which is a potential sign of good convergent validity. The constructed scale has satisfying psychometric characteristics. Scale limitations include the retrospective nature of items and the need for participants to be aware of the problematic nature of parental behavior.

Keywords: narcissistic parenting, conditional regard, high standards, psychological control, scale construction

Primenjena psihologija
Vol. 17, No. 3, pp. 385–406, 2024

Research Article

The Relationship between Neuroticism, Nightmare Characteristics and Suffering in respect to PTSD Psychopathology

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ABSTRACT

Introduction: The role of neuroticism in the relationship between nightmare characteristics (e.g., frequency and replicativity), and nightmare-related suffering, i.e., nightmare-related distress and impairment after awaking, is still to be explored.

Methods: In a sample of 346 soldiers (mean age 33.95 years, 13.9% females) who experienced at least one traumatic event (47.0% having a formal clinical diagnosis of PTSD), we tested the contributions of neuroticisms and PTSD symptomatology in predicting nightmare characteristics, as well as their moderating effects on the relationship between variables reflecting nightmare characteristics and suffering.

Results: Results showed no significant effect of neuroticism on nightmare frequency and replicativity beyond PTSD symptomatology, while its contribution to nightmare-related suffering was only partially explained by PTSD symptomatology. However, in the subsample of soldiers with PTSD diagnosis, neuroticism showed no significant effects beyond PTSD symptom severity and replicativity. Furthermore, no moderating effects of neuroticism or PTSD symptom severity on the relationship between nightmare characteristics and nightmare-related suffering in traumatized soldiers were found.

Discussion: These results confirm the predictive role of neuroticism on PTSD symptom severity and nightmare-related suffering but not nightmare frequency and replicativity. Furthermore, neuroticism and PTSD symptom severity did not contribute to higher vulnerability to nightmare suffering, in traumatized people who experience frequent and replicative nightmares.

Ključne reči: neuroticism, nightmare characteristics, suffering, PTSD

UDK: 159.97.072
DOI: 10.19090/pp.v17i3.2505
Received: 19.10.2023.
Revised: 20.05.2024.
Accepted: 31.05.2024.

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Introduction

Nightmares are "extended, extremely dysphoric" dreams that "usually involve efforts to avoid threats to survival, security, or physical integrity" (APA, 2013). Both physical symptoms (such as sweating and shortness of breath) and unpleasant emotions (mainly fear, but also anger, shame, or sadness) can occur during nightmares, after awakening, and later during dream recollection. Some classifications distinguish nightmares from anxiety dreams and bad dreams by adding "a direct awakening from dream" as a criterion (APA, 2013). Nightmares characteristics (e.g., nightmare frequency) are differentiated from nightmare suffering, i.e., waking distress and impairment associated with nightmares (Belicki, 1992). The differentiation between idiopathic and post-traumatic nightmares is also commonly found in the literature (Gieselmann et al., 2019). While the former deal with imaginative content, the latter depict topics related to traumatic events. More specifically, Schreuder and colleagues (2001) defined three types of post-traumatic dreams: a) replicative dreams (post-traumatic reenactments), which the affected persons describe as a realistic repetition of the original traumatic event; b) mixed dreams, which repeat parts of the traumatic experience, but also include deviations; and c) non-replicative dreams referring only symbolically to the original traumatic event.

Studies done in different countries reported nightmare prevalence between 3.5 and 8.3% in the general population (Munezawa et al., 2011; Sandman et al., 2013; Schredl, 2010). Nightmares are well-known correlates of different mental health problems and disorders, with a prevalence of 27.7% in psychiatric outpatients (e.g., mood disorders, personality disorders, psychotic disorders) without PTSD (Swart et al., 2013). In contrast, with incidences between 40 and 71%, nightmares are particularly prominent in representative samples diagnosed with PTSD (Wittmann et al., 2007). Finally, growing empirical evidence suggests that it is the replicativeness of nightmare content that is linked specifically to post-traumatic psychopathology (Davis et al., 2007; De Dassel et al., 2017; Freese et al., 2018; Gorzka et al., 2019; Mellman et al., 2001; Wittmann et al., 2010).

Nightmare distress is usually defined as an impact of the nightmare on an individual during the dream itself (i.e., nightmare sleeping distress) and/or after wakening and recalling either the imagery or the affective experience of the nightmare (nightmare waking distress). In addition, nightmare impairment is defined as a degree of impairment that nightmares cause in different areas of a person's life, such as work, relationships, or leisure activities. Nightmare distress in comparison with nightmare frequency could be even more substantially and indiscriminately associated with psychopathology in general (Böckermann et al., 2014; Levin & Fireman, 2002; Levin & Nielsen, 2007; Roberts & Lennings, 2006).

Neuroticism as a predictor of nightmare experience

One of the well-established nightmare correlates has been the dispositional tendency to react with unpleasant emotions, i.e., trait neuroticism (Levin & Nielsen, 2009). Although the majority of studies have revealed positive correlations between neuroticism or neuroticism-like characteristics, such as trait anxiety, and nightmare frequency (e.g., Abdel-Khalek, 2016; Levin & Fireman, 2002; Schredl et al., 2003), the absence of correlation has been reported as well (Chivers & Blagrove, 1999; Wood & Bootzin, 1990). Miró and Martínez (2005) argued that these results' inconsistencies might be explained by the complex relationship between nightmares, anxiety traits, and trauma-related psychopathology. It seems that rather than implying a direct link, neuroticism (and trait anxiety) might be a risk factor for the experience of psychiatric symptoms (e.g., anxiety-related psychopathology) and general stress, which in turn predict nightmare frequency (Köthe & Piotrowsky, 2001; Schredl, 2003). A positive correlation between neuroticism and PTSD symptomatology was found in both cross-sectional (e.g., Cox et al., 2004; Steele et al., 2017) and prospective studies (e.g., Breslau & Schultz, 2013; Lawrence & Fauerbach, 2003). When it comes to underlying mechanisms, it might be that neuroticism increases emotionality, rehearsal, and centrality of trauma memories, which then may lead to the increase of PTSD symptomatology (Ogle et al., 2017), as well as content-overlap with PTSD arousal symptoms explains a significant amount of variance in the obtained relations (Engelhard et al., 2003).

The relationship between neuroticism and nightmare replicativity has been rarely investigated. Levin and Nielsen (2007) assumed that post-traumatic nightmares and/or those that reoccur and reflect real events would be strongly linked with neuroticism and higher emotional reactivity. Indeed, Schredl and Goeritz (2019) showed that reoccurring nightmares related to a waking-life event were associated with higher neuroticism in a large community sample.

On the other hand, a positive association between nightmare distress and neuroticism has been well established (e.g., Blagrove et al., 2004; Levin & Fireman 2002; Köthe & Piotrowsky, 2001; Roberts & Lennings, 2006).

Relationship between nightmare characteristics and suffering: neuroticism's moderation role

Previous studies indicated a moderate positive (e.g., Belicki, 1992; Böckermann et al., 2014), yet a complex relationship between nightmare frequency and nightmare distress. However, the relationship between nightmare replicativeness and suffering has been rarely investigated, with previous results indicating a positive correlation between recurring nightmares that relate to a waking-life event and nightmare distress (Schredl & Goeritz, 2019).

In their etiological model of nightmare disorders, Levin and Nielsen (2009, 2007a, 2007b) suggested that vulnerable people, e.g., those with PTSD symptomatology or primed for selective emotional reactivity (e.g., high neuroticism), who experience more frequent and/or replicative nightmares, are thus more prone to experience nightmare distress. Belicki (1992) suggests that nightmare-related suffering is influenced by a persons' preoccupation with their sleeping experience after awakening, their dysfunctional evaluations and beliefs about nightmares, and the extent of waking emotional burden. At the same time, neuroticism is linked to a threat attention bias and indirectly linked to PTSD through avoidant coping and social support (Lawrence & Fauerbach, 2003).

The potential role of neuroticism in the relationship between nightmare characteristics and suffering has so far been tested in one study by Schredl and

Goeritz (2019) who found neuroticism adds to nightmare distress beyond nightmare frequency and more than other Big 5 personality traits, although they did not control for trauma psychopathology in their study.

Theoretical rationale

This study aims at extending our knowledge of neuroticism and (post-traumatic) nightmares in a sample of traumatized war veterans. First, in a two-step model we wanted to test neuroticism as a predictor of nightmare variable and the PTSD symptom severity's potential in explaining the variance in these relationships. Results of previous studies suggest that neuroticism is linked to PTSD symptomatology (e.g., Breslau & Schultz, 2013; Cox et al., 2004) and more related to nightmare suffering (distress and impairment) than nightmare frequency, while stress-/anxiety-related psychopathology is linked to both (Miró & Martínez, 2005; Levin et al., 2011). To the best of our knowledge, none of the previous studies investigated the relationship between neuroticism and nightmare replicativity in traumatized samples. However based on results showing that nightmare replicativity may be a core feature of PTSD (e.g., De Dassel et al., 2017), one may expect that replicativity is also more closely related to PTSD psychopathology than neuroticism. Thus, we assumed that the impact of neuroticism on nightmare frequency and replicativity would be fully explained by PTSD psychopathology (Köthe & Piotrowsky, 2001; Schredl, 2003), while there would still be significant direct links between neuroticism and nightmare distress and impairment (Köthe & Pietrowsky, 2001; Miró & Martínez, 2005).

The second model was theoretically grounded on 1) a well-established positive correlation between nightmare frequency and nightmare distress (Böckermann, 2014) and emerging data on positive association between nightmare replicativity and nightmare distress (Schredl & Goeritz, 2019) and 2) the assumptions that neuroticism and PTSD psychopathology may be both predictors and moderators (Levin & Nielsen's, 2009, 2007a, 2007b) in the relationships between nightmare characteristics and nightmare suffering (models 2a and 2b).

Method

Participants

Participants were 346 patients (13.9% females[1]) admitted to a hospital-based inpatient or outpatient treatment program for veterans with psychological trauma at the Centre for Mental Health (Department VIb), Bundeswehr Hospital Hamburg, Germany. All patients were referred for additional assessment on the assumption of the existence of PTSD symptomatology. Mean age was 33.95 years (*SD* = 9.55, range 17.00 – 65.00) with males being significantly older than females (34.49 (Sd = 9.59) versus 30.56 (Sd = 8.63), χ^2 (1) = 6.04, p = .01). When it comes to education level, 19.70% of participants had a university degree, 11.60% had A levels, and 68.70% finished middle and secondary school (one missing value). The vast majority of soldiers (97.1%) received at least one ICD-10-F-diagnosis. Mean number of ICD-10 F-diagnoses was 1.50 (SD = 0.74, Range = 0 – 4) and no gender differences were found (χ^2 (1) = .88, *ns*)[2]. PTSD was diagnosed in 158 patients (47.0%), and no differences between men and women were found (χ^2 (1) = .001, *ns*).

Procedure

The study was approved by the IRB of International Psychoanalytic University Berlin. This research comprises a retrospective post hoc analysis of cross-sectional data acquired between 01/01/2014 and 31/12/2016 during routine clinical intake assessments of the Centre for Mental Health (Department VIb),

[1] Female soldiers represent about twelve percent of the German military (www.bundeswehr.de, data from 22.3.2019), which makes the gender disproportion in this study expected and representative.

[2] Most frequently, diagnoses from clusters F1 (i.e., mental and behavioral disorders due to psychoactive substance use, 18.80%), F3 (i.e., mood (affective) disorders, 39.90%), F4 (i.e., neurotic, stress-related, and somatoform disorders,76.90%) and F6 (i.e., disorders of adult personality and behavior, 10.1%) were present (numbers refer to cases with at least one diagnoses from the respective cluster).

Bundeswehr Hospital Hamburg, Germany. Research data represents the standard clinical diagnostic assessment battery of the Bundeswehr Hospital Hamburg. Participants completed questionnaires upon admission to the program and the treating psychiatric staff conducted clinical interviews with them. The clinical observations of multidisciplinary teams, including psychiatrists, psychologists, physiotherapists, and occupational therapists, in conjunction with psychometric results and clinical interviews, contributed to the final ICD-10 diagnosis (World Health Organization, 2004).

Measures

NEO Five-Factor-Inventory (NEO-FFI)

Neuroticism was assessed by the NEO Five-Factor-Inventory (NEO-FFI; Borkenau & Ostendorf, 2008). This inventory contains 60 items that build five personality traits scales: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Cronbach's alpha in previous studies was α = .87 (Borkenau & Ostendorf, 2008).

Hamburg Nightmare Questionnaire (HNQ)

Nightmare characteristics were assessed by applying the Hamburg Nightmare Questionnaire (HNQ, Gorzka, et al. 2019), a German self-report measure on nightmare characteristics in military personnel. It encompasses 30 questions/items divided into four sections. The first two sections deal with socio-demographics and general information on nightmares, i.e., frequency of nightmares in general and percentages of replicative, mixed, and non-replicative nightmares out of total nightmare frequency. In section 3, 17 Likert-type items form five scales on specific nightmare characteristics: replicativity, emotional involvement, dream recall, reorientation after awakening, and psychophysiological involvement. This study focused on nightmare frequency and replicativity and nightmare suffering, i.e., distress- and impairment-related scales, i.e., emotional and psychophysiological involvement, and impairment. The replicativity scale differentiates people by the amount of realistic and symbolic references in their nightmares. Emotional and psychophysiological involvements

represent emotional and psychophysiological aspects of nightmare-related distress. The first one measures fear, agony, and helplessness during a nightmare and after awakening, while the second refers to the experiences of sweat production, palpitations, and breathlessness after awakening. Finally, an Impairment scale can be derived from the seven items of section 4 of the HNQ, which assesses subjectively perceived impairment due to nightmares in the social, professional, family, physical, mental, and psychological contexts. Cronbach's alphas for the HNQ scales in this study were in the range of .70 - .95.

Posttraumatic Diagnostic Scale (PDS)

Trauma exposure was measured using the German version of the Posttraumatic Diagnostic Scale (PDS; Foa, 1995; Steil & Ehlers, 2000), which assesses Criterion A from the DSM-IV PTSD diagnostic criteria. The questionnaire asks which out of a list of eleven potentially traumatizing event types the respondent has experienced and allows participants to add any other traumatic event type not listed. Participants answered yes or no to each item.

Impact of Event Scale-Revised (IES-R)

Post-traumatic stress (PTSD) symptom severity was measured using the German version of the Impact of Event Scale-Revised (IES-R; Maercker & Schützwohl, 1998). The IES-R consists of 22 items assessing the severity of the three symptom clusters of PTSD corresponding with the DSM–IV PTSD diagnosis: intrusion, avoidance, and hyperarousal, related to a specific traumatic event. The global IES score was chosen for the current study as a general marker of self-reported PTSD symptomatology. Cronbach's alpha in this study was α = .91.

Data Analysis

Basic statistics were conducted in IBM SPSS Statistics (version 23.0). Descriptive statistics illustrate demographics, psychopathology, nightmare characteristics, and neuroticism. Correlations were calculated by Pearson's

coefficient and gender differences by the Kruskal-Wallis test due to the disproportion of males and females.

Hypothesized models (Models 1, 2a, and 2b) were tested by Path analysis in IBM AMOS Graphics (version 26.0). Several indices were used to assess the models, besides χ^2: 1) the Root Mean Squared Error of Approximation (RMSEA; conventional criteria are good fit: ≤ .05, adequate fit: ≤ .08), 2) the Comparative Fit Index (CFI; adequate fit: ≥ .95) and 3) the Tucker-Lewis Index (TLI; adequate fit: > .95) (Hu & Bentler, 1999). Due to the high intercorrelations between nightmare distress, i.e., emotional (EMO) and psychophysiological (PHY) involvements and impairment variables, nightmare-related suffering (NRS) was introduced as a latent variable. Intercorrelations between variables in models were allowed, which was not the case for residuals (Prado et al., 2010).

Model 1: The first two-step model tested neuroticism (N) as a predictor of nightmare frequency (NMF), replicativity (REP), and NRS in the first step, and the role of PTSD symptom severity in the second step. The bootstrapping process was used to test the mediating effects of PTSD symptom severity (i.e., indirect effects of neuroticism).

Models 2a and 2b: The moderation effects of neuroticism and PTSD symptom severity in the relationship between NMF and NRS, as well as nightmare REP and NRS were tested. Moderation effects were estimated following Hayes (2017). All predictor variables were mean-centered to control for the multicollinearity and calculate interaction scores.

Results

Descriptive statistics and linear correlations between neuroticism and nightmare characteristics

All participants reported having at least one traumatic event (Median = 4, Range 1 - 11) and no differences between men and women in respect to the number of traumatic events were found (χ^2 (1) = 0.30, *ns*). Those who were diagnosed with post-traumatic stress disorder had higher scores on self-

reported PTSD symptom severity (Mean = 65.52 (SD = 22.25) vs. Mean = 47.82 (SD = 28.37), $\chi^2(1) = 33.84$, $p < .001$).

In Table 1, descriptive statistics of nightmare characteristics, self-reported PTSD symptom severity (PTSD), and neuroticism (N), as well as their associations with age and gender, are given. No gender differences were found in neither of the variables; thus, all further analyses are done in the cohort sample. Older soldiers had slightly higher scores on replicativity (REP), emotional (EMO) and psychophysiological involvement (PHY), impairment (IMP), and PTSD symptom severity. Linear correlations between neuroticism and nightmare characteristics before and after controlling for PTSD are as well reported in Table 1. Low positive correlations were found between N and NMF and REP, while N was moderately associated with distress- and impairment-related scales, as well as PTSD. After controlling for PTSD, only correlations with EMO and IMP remained significant but small. Since moderate-to-high correlations were found between the nightmare-related distress (NRD) and impairment variables, the following models included a latent variable named nightmare-related suffering (NRS), represented by NRD variables (emotional and psychophysiological involvement) and impairment.

Table 1

Descriptive Statistics and Cross-correlations of Nightmare variables and Associations with Gender, Age and Neuroticism before and after controlling for PTSD symptom severity

	Descriptives		Gender	Age (r)	Corr. with N		Corr.			
	Mean	SD	$\chi^2(1)$[a]		r	Partial r[b]	REP	EMO	PHY	IMP	PTSD
NMF	9.59	9.00	0.00	<.01	.14*	-.01	.305**	.473**	.356**	.476**	.31**
REP	3.46	1.10	0.05	.15**	.22**	<-.01	/	.522**	.347**	.472**	.48**
EMO	3.25	1.20	0.18	.13*	.40**	.17*		/	.573**	.723**	.62**
PHY	3.07	1.05	0.89	.19**	.22**	.03			/	.531**	.43**
IMP	2.39	1.10	3.09	.13*	.35**	.11*				/	.60**
PTSD	56.49	27.00	0.93	.11*	.46**	/					/
N	61.44	9.91	0.40	<.01	/	/					

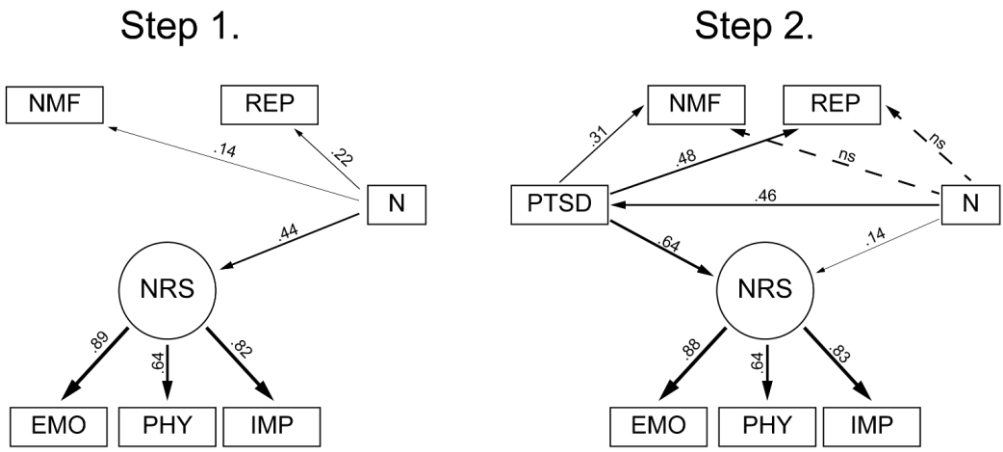
Note. * p < .05; ** p < .01; a = Kruskal-Wallis test; b = after controlling for PTSD symptom severity; NMF = Monthly nightmare frequency; N = Neuroticism; REP = replicativity; EMO = Emotional involvement; PHY = Psychophysiological involvement; IMP = Impairment; PTSD = PTSD symptom severity.

Neuroticism as a predictor (Model 1)

Model 1 failed to be rejected showing a perfect fit in both first ($\chi^2(6) = 4.98$, *ns*) and the second step, when PTSD was included as a mediator ($\chi^2(8) = 6.01$, *ns*) (Figure 1). Although N showed direct effects on NMF ($\beta = .14$, $p = .035$, 95% CI [.01, .22]) and REP ($\beta = .14$, $p = .006$, 95% CI [.13, .33]) in the first step of the model, after including PTSD, only indirect effects on these nightmare characteristics were significant: $\beta = .14$, $p = .005$, 95% CI [.10, .20] and $\beta = .22$, $p = .006$, 95% CI [.18, .29]. On the other hand, N showed both direct ($\beta = .14$, $p = .013$, 95% CI [.06, .21]) and indirect effects ($\beta = .29$, $p = .006$, 95% CI [.24, .36]) on NRS after including PTSD. Finally, the effects of PTSD on nightmare characteristics were moderate to high (Cohen, 1988).

Figure 1

Two-step Model 1 testing neuroticism as a predictor of nightmare experience (Step 1) and PTSD symptom severity as a mediator (Step 2)



Note. N = Neuroticism; REP = replicativity; EMO = Emotional involvement; PHY = Psychophysiological involvement; IMP = Impairment; NRS = nightmare-related suffering; PTSD = PTSD symptom severity; The width of the line is proportional to the strength of the association; Nonsignificant paths are indicated with dotted lines.

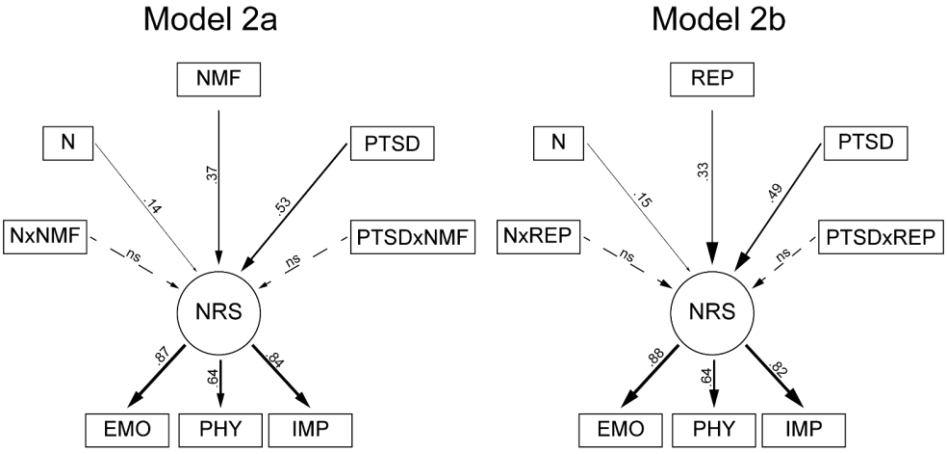
Neuroticism as a moderator of the relationships of nightmare frequency and replicativity with nightmare suffering

Model 2a (Figure 2) which tested the moderation effects of N and PTSD on the relationships between NMF and NRS showed an acceptable fit (χ^2 (12) = 37.35, p < .001, TLI = .94, CFI = .97, RMSEA = .07). Regression weights indicated no moderation effects on NRS, in addition to direct effects of N (β = .14, p = .012, 95% CI [.08, .21]), NMF (β = .37, p = .018, 95% CI [.29, .42]) and PTSD symptom severity (β = .53, p = .007, 95% CI [.45, .59]).

In Model 2b, neuroticism's and PTSD's moderation effects on the relationships between REP and NRS were tested. The model showed a good fit (χ^2 (12) = 28.84, p = .004, TLI = .96, CFI = .98, RMSEA = .06). Again, no significant moderation effect on NRS was found, in addition to direct effects of N (β = .15, p = .011, 95% CI [.07, .22]), REP (β = .33, p = .012, 95% CI [.24, .41]) and PTSD (β = .49, p = .007, 95% CI [.40, .58]).

Figure 2

Models 2a and 2b testing neuroticism and PTSD symptom severity as moderators of the relationships of nightmare frequency with nightmare suffering (Model 2a) and replicativity with nightmare suffering (2b)



Note. N = Neuroticism; REP = replicativity; EMO = Emotional involvement; PHY = Psychophysiological involvement; IMP = Impairment; NRS = nightmare-related suffering; PTSD = PTSD symptom severity; The width of the line is proportional to the strength of the association; Nonsignificant paths are indicated with dotted lines.

Post hoc control analyses

In order to test the potential effects of PTSD diagnostic status on our results, we repeated the main analyses (Models 1, 2a, and 2b) separately for participants with (n = 158) and without PTSD diagnosis (n = 178). In Model 1, after

controlling for PTSD symptom severity (step 2) there was no direct effect of neuroticism on nightmare suffering (*β* = .09, *ns*) in the subsample with PTSD diagnosis (Model 1, step 2). Findings were not affected in Model 2a, while in Model 2b in the subsample with PTSD diagnosis, N showed no direct effect on suffering (*β* = .09, *ns*).

Discussion

This study aimed to test the predictive and moderating role of neuroticism in the relationship between nightmare characteristics and suffering, in respect to PTSD. First, we examined linear correlations between neuroticism and nightmare characteristics. As we hypothesized based on previous findings (e.g., Köthe & Piotrowsky, 2001; Miró & Martínez, 2005), neuroticism is more strongly correlated with suffering-variables, i.e., emotional involvement and impairment, then with nightmare frequency and replicativity. After controlling for PTSD, only the correlations with emotional involvement and impairment remained significant but rather small.

Interestingly, in contrast with psychological aspects of distress (i.e., emotional involvement and impairment), psychophysiological involvement, which refers to somatic state anxiety-like symptoms related to the nightmare, did not correlate with neuroticism after controlling for PTSD. It could be that cognitive-emotional evaluations of nightmare distress, i.e., emotional involvement and impairment, as subjective experience are connected to the individual tendency toward emotional distress beyond psychopathology. In contrast, the somatic distress and physiological reactions may represent a significant source of shared variance with PTSD symptomatology. Still, this is not in line with previous research showing a positive correlation between neuroticism and physiological and psychosomatic reactions, although there is the assumption that it is not that persons with higher neuroticism are more prone to physiological experiences but that their reporting is biased by neuroticism-related styles of perceiving (Costa & McCrae, 1987). In addition, previous research (Schneider, 2004) suggests neuroticism being related to

physiological distress only in the presence of appraisals of threat, which perhaps can't be applied to retrospective accounts in a sample of soldiers.

Findings in Model 1 seem to support our hypothesis: neuroticism's relationships with nightmare frequency and replicativity were fully explained by PTSD, while it showed both indirect and direct, although rather small, effects on the latent variable nightmare-related suffering. These results are in line with the stances that neuroticism is a risk factor for the experience of trauma-related psychopathology (Breslau & Schultz, 2013), which in turn is associated with higher nightmare frequency (Köthe & Piotrowsky, 2001; Schredl, 2003) and replicativity. Contrarily, neuroticism did contribute to nightmare-related suffering beyond the effects of PTSD. These results are comparable to those from the majority of studies measuring anxiety-related symptomatology (Roberts & Lennings, 2006; Miró & Martínez, 2005). However, results of the post hoc analyses in the subsample of veterans with PTSD diagnosis show no direct effect of N on NRS. This finding might be due to the smaller sample size, but it may also indicate that, when criteria for PTSD diagnosis are met, the symptom severity becomes the only significant predictor of nightmare variables. Future studies should, thus, further test Levin and Nielsen's (2007) model suggesting the contribution of both neuroticism and PTSD psychopathology to nightmare-related suffering in both PTSD and non-PTSD samples.

To the best of our knowledge, no study investigated the moderation effects of neuroticism on the relationships between NMF and NRS, as well as between REP and NRS. We found no evidence of interaction effects on the connections between nightmare characteristics and nightmare-related suffering regardless of PTSD symptom severity (Models 2a and 2b, Fig. 2). These results suggest that although both neuroticism, PTSD and nightmare characteristics contributed to the nightmare-related suffering, they did not amplify each other's connections. However, post hoc analyses show no direct effect of N on NRS, beyond PTSD symptom severity and REP in the subsample with PTSD diagnosis, indicating the main role of trauma-related symptomatology and dream content in predicting waking distress.

This study is not without limitations, which need to be considered for any interpretation of the results. First, the study's cross-sectional nature limits

the interpretation of the relationships between variables to the level of statistical causality. Furthermore, there are indications of Model 1's overfitting, which could be the result of its complexity; however, it can be an indicator of potential limitations in the generalizability of these models to other datasets. Finally, the results were obtained in a sample of traumatized soldiers; thus, the generalizability of data to traumatized civilian populations should be investigated.

Despite these limitations, this study extends our knowledge on the relationship between neuroticism, nightmare characteristics, and trauma-related psychopathology in a sample of traumatized soldiers. Results indicate that neuroticism did not contribute to the nightmare frequency and replicativity beyond the PTSD. On the other hand, neuroticism predicts nightmare-related suffering beyond the PTSD symptomatology in traumatized veterans without a clinical diagnosis of PTSD, while it seems that in veterans with PTSD diagnosis, the nightmare-related experience is mainly explained by trauma-psychopathology. Moreover, neuroticism did not seem to make traumatized soldiers who experience frequent or replicative nightmares more prone to waking suffering. This study emphasizes the importance of nightmare experiences and encourages future research attempts to better understand the nightmare consequences in everyday life. The results on the association between neuroticism and nightmare suffering might be informative for the military selection process, as well as for nightmare and PTSD treatment. Future studies are needed to investigate these findings' generalizability to traumatized civilian samples.

Conflict of Interest

The authors have no conflicts of interest to declare.

Data availability statement

Due to regulations regarding data obtained in military settings we cannot deposit our data in an openly accessible format. However, the data file will be shared by corresponding authors in case of individual requests.

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Primenjena psihologija
Vol. 17, No. 3, pp. 407–432, 2024

Research Article

Teachers' basic psychological needs, (de)motivating styles and professional well-being

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ABSTRACT

In this study we adopt the lens of self-determination theory to examine the interplay between teachers' basic psychological needs, behaviors, and well-being. We investigate teachers' classroom behavior in the form of their (de)motivating styles as mediators between their need satisfaction/frustration and levels of their emotional exhaustion and job satisfaction. A total of 365 Croatian teachers completed an online survey filling out the Situations-in-School Questionnaire, Basic psychological need satisfaction and frustration scale, Short index of job satisfaction and Emotional exhaustion scale. In line with the bright pathway, results showed that teachers with higher need satisfaction used more autonomy-supportive and structuring motivating styles and were more satisfied with their job. Teachers who used autonomy-supportive style were also more satisfied with their job, and this style partially mediated the relationship between need satisfaction and job satisfaction. In line with the dark pathway, teachers whose basic needs were more frustrated used more controlling and chaotic demotivating styles and reported higher levels of emotional exhaustion. Control and chaos as demotivating styles were not significant mediators between need frustration and emotional exhaustion, while teachers who used higher levels of the chaotic style reported lower levels of emotional exhaustion.

Keywords: basic psychological needs, circumplex model, (de)motivating styles, teacher well-being

UDK: 159.913:371.213
DOI: 10.19090/pp.v17i3.2521
Received: 24.12.2023.
Revised: 31.05.2024.
Accepted: 24.06.2024.

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Introduction

Teachers' well-being is crucial both for the quality of their work and the outcomes of their students (Hascher & Waber, 2021). In Klussman et al.'s (2008) heuristic model, teachers' personal characteristics and behaviors, together with their environment, represent key determinants of their professional well-being. However, studies investigating the role of specific teacher classroom behaviors are relatively scarce, or largely situated either in the Western educational context, or focus solely on physical education teachers. In this study, we extend the available literature by adopting the lens of self-determination theory (Ryan & Deci, 2017) and investigating teachers' classroom behavior in the form of their (de)motivating styles as mediators between their basic psychological need satisfaction/frustration and levels of their emotional exhaustion and job satisfaction. In line with the proposition about the bright and dark pathways (Haerens et al., 2015; Jang et al., 2016), and Klussman et al.'s (2008) model, we posit that teachers' basic needs satisfaction will be associated with higher use of motivating styles of autonomy support and structure which will in turn be associated with higher levels of job satisfaction. On the other hand, we expect teachers' need frustration to be associated with higher use of demotivating styles of control and chaos which will in turn be associated with higher levels of emotional exhaustion (see Figure 1). Although the main tenants of self-determination theory seem to be universal (see Ryan et al., 2022 for a synthesis of meta-analytical research), it can be beneficial to test the assumed relationships in different cultural and educational contexts (Deci & Ryan, 2000), which we do in this study conducted in a central and eastern European country.

Teacher Well-being and Basic Psychological Need Satisfaction/Frustration

To accurately capture the complexity of teacher well-being, research needs to focus on both the positive aspects, such as job satisfaction, and negative aspects, such as emotional exhaustion (Hascher & Waber, 2021). Teachers' job satisfaction can be described as their general positive or negative

evaluation of their job (Weiss, 2002). Higher levels of teachers' job satisfaction have been linked to better physical and mental health, lower intention to leave the profession, and higher quality of work (Harrison et al., 2023; Toropova et al., 2021). On the other hand, teachers who feel worn-out and drained show high levels of emotional exhaustion, a feeling that is considered to be a key aspect of burnout (Maslach & Leiter, 2017). Teachers' emotional exhaustion has been linked to their poorer mental health (Schonfeld & Bianchi, 2016), higher levels of attrition (Madigan & Kim, 2021), and lower quality job performance (Klusmann et al., 2008). Studies also show that teachers with higher levels of job satisfaction and lower levels of emotional exhaustion have students who are more engaged, motivated and have better academic outcomes (see Hascher & Waber, 2021 for review). Given these important implications, it is not surprising that researchers are examining factors that can contribute to teachers' well-being.

In their attempt to organize research investigating determinants of teacher professional well-being, Klusmann et al. (2008) emphasize the role of individual teacher characteristics tied to their motivation. Confirming this proposition, studies found higher levels of job satisfaction among intrinsically motivated teachers (Shah et al., 2012) and teachers with higher levels of engagement (Klusmann et al., 2008). Self-determination theory (Ryan & Deci, 2017) describes conditions under which people will be more motivated and have higher well-being. Specifically, both the theory and numerous studies show that basic psychological needs for autonomy, competence, and relatedness need to be met for people to flourish and have high well-being (see Ryan et al., 2022 for a meta-analysis).

Studies focusing on teachers have shown that when teachers can volitionally choose what to do and how to do it (need for autonomy), when they feel they are able to successfully do what is being asked of them (need for competence) and when they have close relationships with their students and other colleagues (need for relatedness) their basic needs are being satisfied (Vansteenkiste et al., 2020), which creates space for both their personal and professional well-being (Chen et al., 2015; Korthagen & Evelein, 2016). On the

other hand, when teachers feel controlled and compelled to do things in proscribed ways (need for autonomy), when they don't feel that they can successfully perform tasks put before them (need for competence), and have low-quality or lack of relationships with students and colleagues (need for relatedness), their needs are being frustrated which has been linked to poorer functioning and higher levels of burnout (Collie et al., 2016). Experiences of need frustration in teachers have also been linked to anxiety and defensiveness, as well as abandoning social and work situations (Skinner & Edge, 2002).

When teachers experience top-down pressures in their work environment, this is associated with higher levels of need frustration which is, in turn, associated with teacher burnout. On the other hand, an environment that supports and satisfies teachers' needs is at the same time associated with higher levels of job satisfaction (Ryan et al., 2022). Studies have shown that having quality relationships with students and colleagues (Malinen & Savolainen, 2016) and having a principal who supports teachers' competency and autonomy (Abdulaziz Alfayez et al., 2021) are linked to higher levels of job satisfaction, as are teachers' experiences of autonomy in general (Cheon et al., 2014). Similarly, a context of control created by a principal's leadership style and school policies which pressure teachers to boost student achievement has been linked to more frustrated needs and, in turn, to higher levels of teacher burnout (Bartholomew et al., 2014; Cuevas et al., 2018; Pelletier et al., 2002). In an intensive longitudinal diary study, Aldrup et al. (2017) confirmed that teachers' needs satisfaction predicts their work enthusiasm, while their needs frustration predicts their emotional exhaustion.

Previous studies confirm that numerous different teachers' individual characteristics, including their motivation, affect both their classroom behaviors and their well-being (see Bardach et al., 2022; Hascher & Waber, 2021; Klussmann et al., 2008 for meta-analyses and reviews). However, available studies focus mostly on teacher instructional performance and classroom management skills as indicators of their classroom behaviors. In this study, we focus on behaviors teachers use to motivate their students, more specifically we focus on a relatively new model of (de)motivating teacher styles (Aelterman et al., 2019)

which describes different teacher behaviors in a more comprehensive way than the previous literature in the field.

(De)motivating Teacher Styles

Aelterman et al.'s (2019) circumplex model distinguishes between four distinct styles described by two dimensions. Autonomy support and structure are considered motivating styles, given they are aimed to support students' basic psychological needs. On the other hand, control and chaos are considered demotivating styles, given they undermine students' needs. The second dimension - directiveness - describes teacher behaviors that provide clear expectations and instructions for their students (structure and control) or which include higher levels of student independence (autonomy support and chaos). As Aelterman & Vansteenkiste (2023) describe, teachers will be autonomy-supportive when they invite students to share interests, provide suggestions, and incorporate these in their teaching. A structuring teacher helps students achieve goals, looks at mistakes as learning opportunities, and scaffolds their teaching. A controlling teacher uses a commanding communication tone to pressure students to behave and do the work in exact proscribed ways, while a chaotic teacher abandons students leaving them to their own devices.

Importantly, for teachers to use motivating styles and create a supportive environment, their own basic psychological needs must be met (Roth et al., 2007). Available research has confirmed the link between need satisfaction and the use of autonomy and structure, and need frustration and the use of control and chaos in Belgium (Aelterman et al., 2019), Italy (Moè & Katz, 2020) and China (Wang, 2023). However, more studies are needed in different cultures and educational contexts, just as more studies are needed which investigate outcomes of (de)motivating styles. Most previous studies focused on antecedents of (de)motivating styles and investigated the role of other teacher characteristics such as emotional regulation (Moè & Katz, 2021), teacher enthusiasm (Moè & Katz, 2022), intrinsic motivation (Aelterman et al., 2019; Golešić, 2022; Vermote et al., 2020), and contextual factors such as social pressures by students, colleagues, and principals (Vermote et al., 2022).

Available studies have shown numerous benefits motivating styles have for students, such as higher levels of autonomous motivation and self-regulated learning, and lower levels of amotivation and oppositional defiance (Aelterman et al., 2019). Previous research focusing only on autonomy-supportive and controlling teaching offers a plethora of evidence that the former leads to higher engagement, autonomous motivation, and better academic outcomes (Reeve & Cheon, 2021). However, studies that focus on specific outcomes for teachers themselves and focus on the whole circumplex model are very scarce.

Older research that focuses only on the effects of autonomy-supportive and controlling teaching shows that those teachers who adopt autonomy support as a motivating style are, in general, more satisfied with their work and have higher levels of personal accomplishment; while adopting a controlling style is associated with higher levels of burnout and attrition (see Reeve, 2009 for review). Similarly, in a study based on the circumplex, Moè & Katz (2020) found significant associations between autonomy support and structure and personal accomplishment, and control and chaos and teacher burnout.

Current study

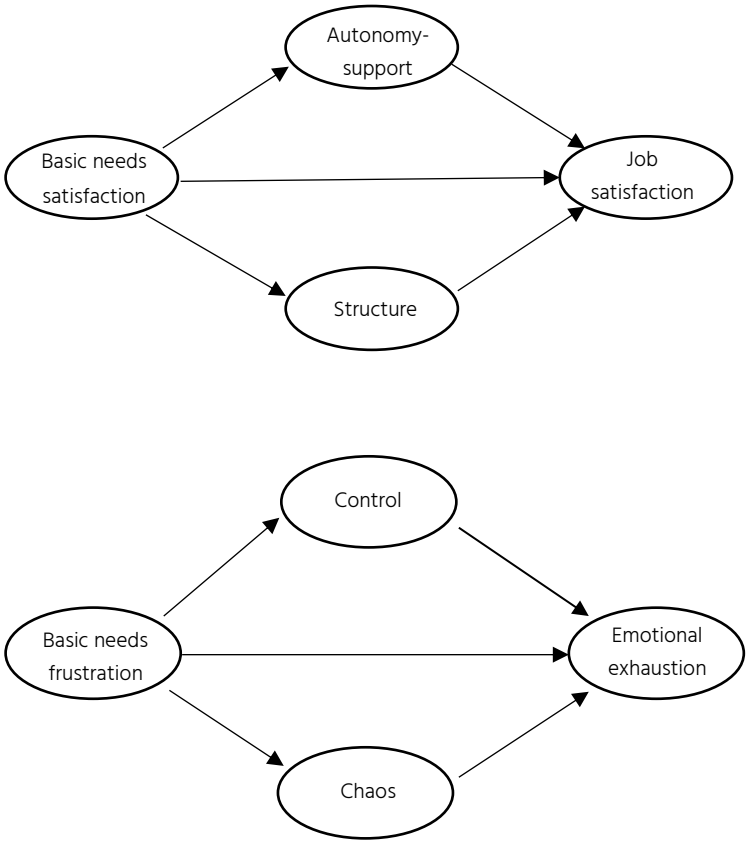
In this study, we extend previous literature by investigating the interplay between teachers' individual characteristics, teacher behaviors in the form of their (de)motivating styles, and positive and negative indicators of their well-being in a different cultural context than before. Based on theoretical expectations from the self-determination theory, the circumplex model, and previous studies in the field, we expected that teachers' need satisfaction will be positively associated with their motivating styles of autonomy support and structure, while their need frustration will be positively associated with their demotivating styles of control and chaos (H1). In addition, we expected that teachers' motivating styles of autonomy support and structure will be positively associated with job satisfaction, while demotivating styles of control and chaos will be positively associated with emotional exhaustion (H2). Based on assumptions from the bright and dark pathways, and for the sake of parsimony, we examine separate models for job satisfaction as a positive indicator of

teacher well-being, and emotional exhaustion as a negative indicator of teacher well-being.

Furthermore, based on Klusmann et al's (2008) heuristic model, which postulates that the link between teachers' characteristics and their well-being can be partially mediated by teachers' behavior in the classroom, we expected that teachers (de)motivating styles (as indicators of their classroom behaviors) will significantly mediate the above-proposed relationships between their basic psychological needs satisfaction/frustration and indicators of their well-being (H3).

Figure 1

Expected relationships and paths investigated by this study's research goals



Method

Participants and Procedure

A total of 365 teachers (91.2% women) participated in the study. They worked in elementary schools as classroom teachers (23.2%; in Croatia encompasses the first couple of years of school not differentiated by specific subjects), as subject teachers in middle schools (42.5%; in Croatia grades 5 to 8) or in high schools (34.4%; in Croatia lasts for four years, attended by students between ages of 14 to 18). Teachers had, on average, 16.3 years of working experience in education (*SD* = 10.19) and were 43.2 years old (*SD* = 10.11; range 23 to 64 years). The majority held a university degree (88.7%), while a smaller percentage had higher education (6.8%) or postgraduate qualifications (4.4%). The sample represented all Croatian counties, with the highest percentage of teachers working in the City of Zagreb (20.4%) and the lowest in Lika-Senj County (0.3%).

The data was collected using an online questionnaire designed in SurveyMonkey. The data collection period spanned from early February to early March 2023. Participants were invited to participate through direct contact with schools and various Facebook groups for teachers. Participants gave informed consent to participate in the study and took approximately 25 min to fill out the survey. After filling out the questionnaires, participants were given the opportunity to read a short text with basic information about the new circumplex model of teachers' (de)motivating styles, if they were interested. The study was conducted in line with the Helsinki Declaration for ethical research principles.

Instruments

The Situations-in-School Questionnaire

The Situations-in-School Questionnaire (Aelterman et al., 2019) consists of 15 vignettes representing teaching situations that commonly occur during classroom instruction. For each of the vignettes, participants were provided

with four ways a teacher might handle that situation. Each way corresponds to one of four (de)motivating teaching styles. Participants were asked to indicate how much each option does or does not describe the way they have acted in the past in similar situations. For example: "At a difficult point in the lesson, students begin to complain. In response, you: a) Accept their negative feelings as okay. Assure them that you are open to their input and suggestions. (*Autonomy-supportive*); b) Insist they pay attention. They must learn this material for their own good. (*Control*); c) Show and teach them a helpful strategy for how to break down the problem to solve it step-by-step. (*Structure*); d) Just ignore the whining and complaining. They need to learn to get over the obstacles themselves. (*Chaos*)."

For each of the items, participants gave answers on a 7-point scale ranging from 1 (does not describe me at all) to 7 (describes me extremely well). The results were calculated as means for each of the teaching styles, and Cronbach's alpha coefficients were .83 for Chaos and Control, .84 for Autonomy-support, and .85 for Structure.

Basic psychological need satisfaction and frustration scale

Basic psychological need satisfaction and frustration scale (Chen et al., 2015) measures satisfaction of all three basic psychological needs of autonomy, competence, and relatedness, (12 items) and similarly, basic needs frustration for the same needs (12 items). Teachers in this study indicated how well each item describes how they typically feel from 1 (not at all true for me) to 5 (very true for me) in the context of their work in school. The measure can be used to operationalize specific basic needs of autonomy, competence, and relatedness, or be used as a global assessment of need satisfaction/frustration. Following many authors in the field (Aelterman et al., 2019; Moe & Katz, 2022; Vermote et al., 2022) and for the sake of parsimony, in this study we focus on the aggregated score for need satisfaction (α = .90) and need frustration (α = .86).

Short Index of Job Satisfaction (SJIS)

Short Index of Job Satisfaction (SJIS; Judge et al., 2000) consists of 5 items (e.g. I feel fairly satisfied with my present job). The answers were given on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Reliability in this study was α = .86.

Emotional exhaustion

Emotional exhaustion (Wharton, 1993) consists of 6 items (e.g. "I feel emotionally drained from my work"). The answers were given on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Reliability was α =.86.

Data Analysis

In order to examine our hypotheses, we first calculated descriptive indicators, as well as bivariate correlations between all study variables. We further proceeded to do a mediation analyses with two parallel mediators by using PROCESS macros for SPSS (Hayes, 2008).

Results

Table 1 shows descriptive statistics and correlations between study variables. Autonomy-supportive style and structure style are significantly positively related. Basic needs satisfaction is significantly positively related to those two styles and job satisfaction. Control and chaos styles are positively related to each other, and basic needs frustration is positively related to those two styles. However, emotional exhaustion is positively related to chaos, while its correlation with control is not statistically significant. The correlation between emotional exhaustion and basic needs frustration is positive.

Table 1

Descriptive statistics and correlations between study variables (N = 365)

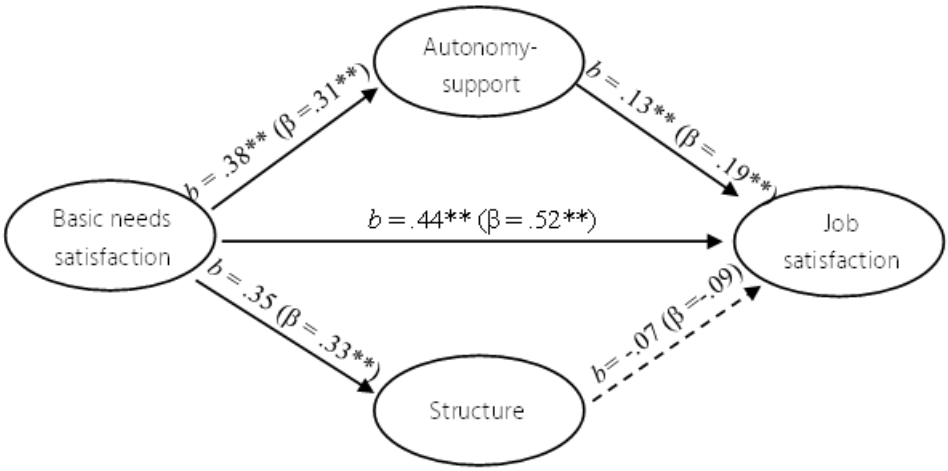
		M	*SD*	Range	1	2	3	4	5	6	7
1.	Basic needs satisfaction	5.89	0.77	3.33-7.00							
2.	Basic needs frustration	2.26	0.85	1.00-5.33	-.70***						
3.	Autonomy-support	5.11	0.91	1.80-7.00	.31***	-.26***					
4.	Structure	5.75	0.81	1.27-7.00	.32***	-.24***	.73***				
5.	Chaos	2.24	0.81	1.00-6.40	-.26***	.34***	-.46***	-.56***			
6.	Control	3.43	0.95	1.20-6.40	-.03	.16**	-.23***	.05	.32***		
7.	Job satisfaction	4.10	0.68	1.60-5.00	.57***	-.59***	.28***	.22***	-.17**	-.09	
8.	Emotional exhaustion	2.34	0.87	1.00-4.83	-.52***	.61***	-.18**	-.16**	.12*	.06	-.73***

Note. *** $p < .001$ ** $p < .01$ * $p < .05$

In order to examine the mediating role of autonomy-supportive and structuring motivational styles in the relationship between the satisfaction of basic psychological needs and job satisfaction among teachers, we conducted a mediation analysis with two parallel mediators. Statistical significance of indirect effects was assessed using the Bootstrap technique for confidence intervals (Hayes, 2018). Figure 2 shows the obtained mediation model. In line with our expectations, higher levels of need satisfaction were associated with more reported use of both motivating styles of autonomy support and structure. However, only autonomy support was significantly associated with higher levels of job satisfaction, but not structure. Higher levels of basic needs satisfaction, in line with expectations, were linked to higher levels of job satisfaction.

Figure 2

Mediation model explaining the bright pathway



Note. Solid lines indicate statistically significant effects (** $p < .01$), while the dashed line represents a statistically non-significant association.

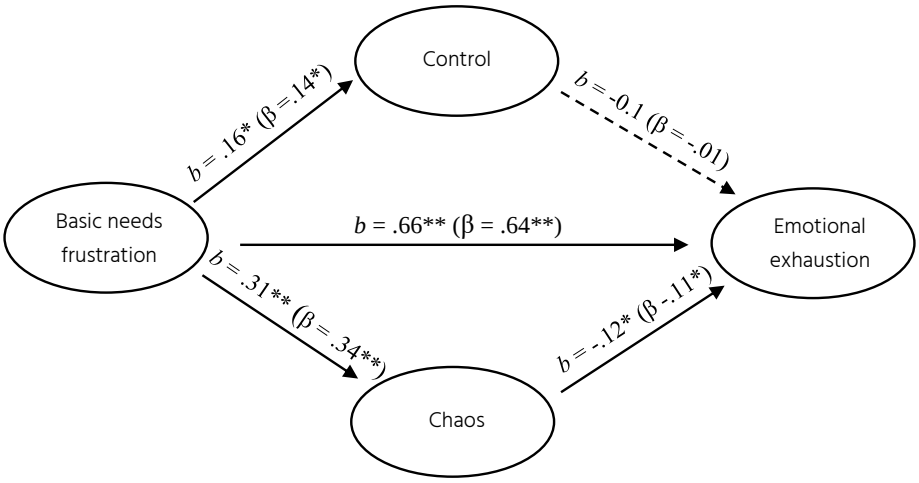
The model explained 31% of the variance in job satisfaction. While the direct effect of basic needs satisfaction on job satisfaction was statistically significant (b = 0.44, LLCI = 0.36, ULCI = 0.52), the total indirect effect was not significant (b = 0.02, LLCI = -0.01, ULCI = 0.06). Examination of specific indirect effects revealed that the autonomy-supportive style partially mediated the relationship between need satisfaction and job satisfaction (b = 0.05, LLCI = 0.01, ULCI = 0.09). The motivating style of structure was not a significant mediator (b = -0.02, LLCI = –0.08, ULCI = 0.02).[1]

[1] Given some research findings showing the importance of working experience, teaching level (e.g., elementary vs. high school) and the number of students taught (Aelterman et al., 2019) for teachers' (de)motivating styles we conducted the same analyses using the above mentioned variables as covariates. However, the statistical (non)significance of all the paths from Figures 2 and 3 remained the same.

To examine the dark pathway to teachers' professional well-being, we also conducted a mediation analysis with two parallel mediators (Figure 3). Again, in line with our expectations, basic needs frustration was associated with higher reported use of demotivating styles of control and chaos, and with higher levels of emotional exhaustion. In this model, the chaotic style showed significant, although negative, associations with emotional exhaustion, while the link between control and emotional exhaustion was not significant.

Figure 3

Mediation model explaining the dark pathway



Note. Solid lines depict statistically significant effects (*p < .05, **p < .01), while the dashed line represents a statistically non-significant association.

The model explained 37% of the variance in emotional exhaustion. While the direct effect of basic needs frustration on emotional exhaustion was statistically significant (b = 0.65, LLCI = 0.56, ULCI = 0.75), the total indirect effect was not significant (b = -0.04, LLCI = -0.08, ULCI = -0.001). Examination of specific indirect effects showed that neither control (b = -0.001, LLCI = -0.02; ULCI = 0.01) nor chaos (b = -0.04, LLCI = -0.08; ULCI = 0.00) were statistically significant mediators.[1]

Discussion

Our study investigated two models explaining a brighter and darker pathway to teachers' professional well-being. The results are partially in line with our hypotheses that teachers' (de)motivating styles will be an important mechanism explaining the link between teachers' basic needs satisfaction/frustration and positive and negative aspects of their well-being. Teachers' basic needs satisfaction was a significant predictor and explained almost a third of the job satisfaction variance. Teachers who report their basic psychological needs for autonomy, competence, and relatedness are satisfied and, at the same time report having higher job satisfaction. These results on Croatian teachers are in line with other similar studies (Collie et al., 2016; Korthagen & Evelein, 2016). In addition, also in line with our expectations, when teachers report their basic psychological needs are being met in their workplace, they also report using more autonomy support and structure as motivating styles. Similar results were obtained in studies on Italian, Belgian, and Chinese middle school and high school teachers (Aelterman et al., 2019; Moè & Katz, 2020; Vermote et al., 2022; Wang, 2023). These results are important given some critiques of the cross-cultural universality of the self-determination theory and its motivational underpinnings (Murphy-Berman & Berman, 2003). Although there seem to be differences in how much certain needs (e.g. autonomy and relatedness) are valued in individualistic vs. collectivistic cultures, SDT research continuously shows individual well-being benefits from having all three basic psychological needs satisfied (Chirkov et al., 2003; Church et al., 2013), and our findings further corroborate that.

Our results further confirmed that when teachers are autonomy-supportive, they are better off in terms of their job satisfaction. This adds to other robust findings from research focusing on autonomy-supportive teaching showing similar links (Su & Reeve, 2011), and is in line with another study focusing on the circumplex model which used feelings of teachers' personal accomplishment as an operationalization of teachers' professional well-being (Moè & Katz, 2020). Our study further extended research on the circumplex model by investigating the role of structure as a motivating style. However, not

in line with our expectations, teachers' use of the structuring style did not have a significant direct effect on their job satisfaction (although, the bivariate correlation was significant and positive). Structuring behaviors in the classroom are more closely related to instruction and teaching competencies than autonomy support. Nevertheless, there are some studies showing positive links between teacher job satisfaction and teacher job performance in the classroom (Huang et al., 2013). At the same time, structuring behaviors involve a lot of dedication to individual students and helping students in a step-by-step manner to achieve learning outcomes. Given the complexities of today's classrooms and many individual differences between students, this will often involve a lot of differentiation activities which can be quite taxing for teachers (Pozas et al., 2023). Future studies should aim to longitudinally investigate the direction of the link between teaching behaviors and job satisfaction, as well as other possible mediating and moderating variables. For example, maybe teachers feel undervalued in their structuring efforts (which might prove to be an important factor only in educational contexts where the teaching profession is undervalued by society in general, as is the case in Croatia), and that is why higher instances of using a structuring style are unrelated to job satisfaction.

Results for the dark pathway are also only partially in line with our expectations. Teacher's need frustration was a significant predictor of their emotional exhaustion and again explained about a third of the variance. Teachers who are actively unable to satisfy their needs for autonomy, competence, and relatedness at the same time report poorer well-being in terms of their higher levels of emotional exhaustion. Again, these results are in line with similar studies in other countries (Collie et al., 2016; Van den Berghe et al., 2014). Also, in line with our expectations, and other studies (Aelterman et al., 2019; Moè & Katz, 2020), our results show that teachers who reported higher levels of need frustration also reported more frequent use of demotivating styles of control and chaos. These findings are in line with theoretical assumptions that in order not to slip into inappropriate classroom behaviors, teachers need to have enough energy and capacity, which is something that need frustration diminishes (Aelterman & Vansteenkiste, 2023).

Interestingly, teachers' higher instances of using the demotivating style of chaos were a small, but significant negative predictor of their emotional exhaustion. In other words, those teachers who plan less, abandon students to their own devices, and do not direct students while teaching, report having lower levels of emotional exhaustion. This finding is not in line with the dark pathway or a study that found the theoretically assumed positive relationship between the two (Moè & Katz, 2020). However, it is in line with the theoretical explanation given by the circumplex model which states chaotic teachers are not student, but only teacher-centered (Aelterman & Vansteenkiste, 2023). Our results point to the possibility that using a more chaotic style is a possible self-serving mechanism teachers use to protect themselves when their work becomes overwhelming. Giving credence to this explanation, a longitudinal study found that over the course of an academic year, teachers adopt more frequent use of demotivating styles (Cohen et al., 2022). This could be especially problematic since the same study found that adopting more demotivating styles over time transfers over to students and their lower engagement in the classroom. Future longitudinal studies are needed, which will focus on these specific mechanisms.

Out of all four teachers' (de)motivating styles only one, autonomy support, was a significant mediator between teacher needs and professional well-being. These results are only partially in line with Klusmann et al's (2008) heuristic model. It is possible that behaviors and reactions teachers employ in the classroom to motivate their students are not an important mechanism between their motivation and professional well-being. However, before firmer conclusions about the model itself can be drawn, future studies should aim to investigate the mediating role of other motivating behaviors employed by teachers (e.g., classroom management strategies).

Study limitations, future studies, and practical implications

Our study has several methodological limitations. Firstly, we utilized self-report measures, which are susceptible to socially desirable responding. This likely resulted in lower variability in demotivating styles, potentially contributing

to the insignificance of the results. Secondly, the online methodology led to a convenient sample impeding the generalization of results. Thirdly, it is possible that more intrinsically motivated teachers were self-selected for this study. However, around 17% of our sample expressed at least some intention to leave the teaching profession, which means that we had at least some teachers from the other end of the spectrum. Future studies should try to use observational methods or other sources of data (e.g., students), as well as more representative samples (although the entire teacher population in Croatia consists of 86% women, future studies should try to attract more men to the study). Larger and more representative samples in future studies would lead to firmer and more generalized conclusions. In order to disentangle the direction of the established links longitudinal studies are needed, since cross-sectional studies like this one cannot provide causal explanations.

Regardless, our findings do provide data on the expected determinants and outcomes of teacher (de)motivating styles as defined by the circumplex model and extend previous literature. We call for future studies to investigate both the antecedents and the outcomes of (de)motivating styles and to focus both on individual teacher characteristics and on environmental factors. For example, not much is known about how class size and students' age shape these styles, or how teaching experience and teaching competences are linked to them, although some findings on higher education teachers were not especially encouraging (Huić et al.,2024). Self-determination theory emphasizes the importance of the environmental context for need satisfaction and (de)motivating styles, and only one study so far focused on these aspects (see Vermote et al., 2022), so more research is needed. In addition, future studies could benefit from adopting a fine-grained focus on differences between outcomes of satisfaction/frustration of teachers' specific needs of autonomy, competence, and relatedness, rather than just using an aggregated score as in our study. Some research, adopting a person-centered perspective, showed that the need for relatedness might be especially important for teacher well-being (Haw et al., 2023), and that job crafting behavior aimed to find social support is important for teacher well-being through their need for relatedness

more specifically (Maas et al., 2022). Lately, a new tripartite model added dormant needs to satisfied and frustrated needs (Reeve et al., 2023). Future studies linking the tripartite model and subdimensions of the circumplex model could really enrich the field with a fine-grained picture of how teachers' needs and motivating behaviors are linked.

Our results have two important practical implications. First, given the importance of teacher needs satisfaction for both their classroom behavior and their well-being found in this study, as well as other studies in the field, it is recommended that teachers' work environments be designed in ways that support their needs. This primarily means easing up on the pressures from the educational system. Although this is difficult to achieve in systems highly regulated by the government, it is possible to afford teachers greater autonomy through educational reform (Divjak & Pažur Aničić, 2019). In addition, many studies showed that principals and their leadership styles are crucial for creating space for teacher's autonomy, providing them with opportunities for continuous professional development in order for them to become more competent and creating socially rich and safe environments in schools (Bartholomew et al., 2014, Cuevas et al., 2018; Pelletier et al., 2002). In addition, creating learning communities dedicated to teaching in their schools can help teachers reach all the mentioned goals (Ryan et al., 2023). Secondly, teachers can be taught to support student motivation and use more autonomy support and structure in their classrooms (Reeve et al., 2022; Su & Reeve, 2011). Ahmadi et al. (2023) provide a classification system for teachers' behaviors recommended as motivational and grounded in self-determination theory interventions and is an excellent resource for practitioners aiming to design such interventions for teachers.

Acknowledgement

This study is partially based on Nikolina Čižić's Master Thesis *„Povezanost zadovoljenja potreba i zadovoljstva poslom kod učitelja i nastavnika: medijacijska uloga motivirajućih stilova"* [The relationship between needs satisfaction and job satisfaction among teachers: the mediating role of motivational styles] defended under the mentorship of Aleksandra Huić at the

Department of Psychology, Faculty of Humanities and Social Sciences, University of Zagreb in September 2023.

Conflict of Interest

The authors have no conflicts of interest to declare

Data availability statement

Data used in this paper are available upon a reasonable request.

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