Preliminary psychometric investigation of Serbian Mindful Attention and Awareness scale (MAAS) and potential role of Mindful Attention and Awareness in behavioral regulation among students

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Abstract

Introduction: Recent studies about Mindful Attention and Awareness elucidated its potential role in affective difficulties and behavioral regulation, but authors call for further investigation of potential underlying mechanisms.

Research goal: The current study was conducted in order to examine the preliminary psychometric properties of Serbian Mindful Attention and Awareness scale, its relationship with positive psychological constructs, along with its mediating role in the relationships of Depressiveness as a trait, with behavioral Activation, and Avoidance.

Method: A cross-sectional research was conducted on a sample of 504 students of different levels and courses of education in the Serbian speaking area.

Results: Serbian version of Mindful Attention and Awareness scale demonstrated high reliability (α=0.83) and a single factor solution that was found to be the most adequate. Significant correlations with theoretically related positive psychological constructs such as Gratitude (r=0.12, p<0.001), Self-compassion (r=0.46, p<0.001) and its components such

Self-kindness (r=0.21, p<0.001), Over identification (r=-0.47, p<0.001) and Mindfulness (r= 0.29, p<0.001) were found. It was also the case for distress components such as Depressiveness (r=-0.41, p<0.001), Anxiety (r=-0.46, p<0.001) and Stress (r=-0.50, p<0.001), as well as for Behavioral activation for depression (r=0.46, p<0.001) and its components Activation (r=0.34, p<0.001) and Avoidance (r=-0.35, p<0.001). Additionally it was found that *Mindful Attention and Awareness* significantly mediates the relationship between *Depressiveness* and *Activation* as well as in the case of *Depressiveness* and *Avoidance*.

Conclusion: Along with the study limitations, mindfulness enhancing effect was discussed in accordance to its potentially mitigating effects on unpleasant automatic states and regulation of behavior patterns, so that it might contribute to the development of value guided behaviors.

Key words: Mindful Attention and Awareness; Depressiveness; Behavioral activation; Avoidance

Introduction

Due to the rise in popularity of cultivated mindfulness programs and their implications in psychological health, there is a growing interest in understanding mindfulness mechanisms in terms of a dispositional trait. Defined most commonly as a "state of being attentive and aware of what is taking place in the present moment" [1], the state-trait of mindfulness implies a tendency of our attention system toward open and receptive [2,3] non-judgmental and non-biased focus or awareness toward intrinsic events that are happening in the present moment [1]. For instance Brown, Ryan, & Creswell [4] reported that individuals with higher trait reported higher states of mindfulness on a day-to-day basis. It therefore represents an open and barren focus of observing stimuli "as they are" with present-centered attention-awareness being its foundational element [1]. Results from neurological [5,6], studies concerning individual differences [1,7,8], and preliminary genetic studies [9,4,10] support the notion that it

exists independently from learned or practiced mindfulness [11]. Previous studies support the notion that Mindful attention and awareness is most accurately conceptualized as an unidimensional construct [12,13,14,15,16] except among Malayan student population where a three factor solution was found to be most adequate [17]. Mindful Attention and Awareness might have significant implications in the context of perceiving the challenging situations in academic context such as deadlines, competitive peers, financial constraints and processing negative outcomes. It might have a crucial role in adapting to a new environment so that for example, students might perceive states such as anhedonia, hopelessness, low positive affect [18,19] in an unbiased manner [5]. These states are common for the depressiveness trait, as well as subsequent problematic avoidance behaviors [20] and are found to be particularly common amongst adolescents and students [19]. Individuals with high Mindful attention and awareness might perceive fear eliciting stimuli as less threatening, but also have reduced craving toward motivationally salient pleasant stimuli which in turn might provide a non-biased assessments [5] and a quicker return to the state of calmness after being exposed to a consecutive stressful stimuli [21]. The construct was found to be related with positive psychological constructs such as Gratitude [22,23,24,25] or a "generalized tendency to recognize and respond with gratefulness to the role of other people's benevolence in the positive experiences and outcomes that one obtains" [26], and Self-compassion [22].

From a theoretical point of view Self-compassion has been considered as a conceptually close construct. Defined by Neff [27] as the state of "…being kind and understanding toward oneself in instances of pain or failure rather than being harshly self critical; perceiving one's experience as part of the larger human experience rather than seeing them as isolating; and holding painful thoughts and feelings in mindful awareness rather than over-identifying with them" Self compassion is recognized both, as a conceptually overlapping construct as well as an phenomena that might occur after Mindful attention and

awareness state. As a state of kindness towards self, it might emerge from mindful attention and awareness as a result of an individual being attentive toward its inner feelings and thoughts of suffering [27]. Self-compassion was therefore recognized, along with measures of distress, as a significant correlate [28, 29, 30] and an important convergent measure [13,31] of Mindful attention and awareness, and its conceptually similar constructs [32].

Mindful attention and awareness and Behavioral activation

Brown and Ryan [1] (2003) described the state of mindfulness as being "pre-reflexive", that is to say "operating on, rather than within a" automatic behavior, thought, emotion or other contents of consciousness [1,16]. It allows individual not to get easily absorbed and intertwined with its previously conditioned responses, by enhancing awareness of one's current impression or negative emotions that is to view one's mental landscape, and to evaluate behavioral options. Therefore the role of mindfulness might be exceptionally important when it comes to the establishment of the enjoyable, fulfilling activities [1] by an individual and well-being enhancement [33]. These value-sustained, goal-driven, proactive behavioral exposure sequences, are more commonly known as a construct of behavioral activation for depression (in contrast to behavioral avoidance) and it has been found that its components correlate with Mindful attention and awareness [34]. Mindful Attention and Awareness might contribute to the establishment of constructive behavioral sequences [1] and that while it can serve as a potential protective factor [35] it might also lead to a potential counter conditioning of behavior [36]. In other words the individual might potentially perceive the negative experiences in an open manner and orient towards finding solution throughout the fulfilling actions. The possible crucial mechanism that would explain this "transformational" effect of mindfulness and is named "re-perceiving" [37]. In this study behavioral activation is conceptualized as an outcome, and as an increase of engagement in a value guided behaviors

as opposed to a avoidance behaviors. In another words, as an inclination toward scheduling a pleasant activities that might be in line with the individuals values [38, 39]. Significant correlations between Mindful attention and awareness and Behavioral activation components have been documented by several authors [34, 40]. The state of heightened mindfulness can contribute to the development of an adaptive behavioral response [39, 40]. Therefore the proposition that attention to the immediate environment might play an important role in assessing the causes and effects of a problematic behavior and thus, provide important insights for generating a more constructive behavioral alternative [41] and prevent experiential avoidance is theoretically sound. Whilst there are important theoretical ideas about this process, there aren't enough evidences that support this claim, which constitutes a research gap. It is therefore important to understand how Mindful Attention and Awareness might relate to the value-sustained, goal-driven, proactive behavioral exposure sequence, more commonly known as a behavioral activation in contrast to behavioral avoidance.

Research goals. There has been particular interest in examination of the psychometric characteristics of Mindful Attention and Awareness scale and Behavioral activation for depression in different cultures [41,42,44,45] and to investigate the potential mechanisms of how Mindful attention and awareness might influence the distress levels among adolescents [46]. Therefore the goals of this study are a) **to examine construct validity** of Mindful attention and awareness construct by conducting confirmatory factor analysis; to test the reliability analyses of most adequate solution, and to b) **test the convergent validity** of Mindful Attention and Awareness by examining its correlations with positive psychological constructs and distress measures. In the case of Behavioral activation for depression previous research reported the problematic cross-loading of item no.1 [47] so the closer examination will be conducted.   Lastly considering the propositions of Martel and Kanter [41] two theoretical important predictive models were examined by assessing c) **the significance**

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of indirect mediation effect of Mindful Attention and Awareness in a relationship between Depressiveness with Activation and Avoidance behavior. It is important to note that behavioral programs such as Activation and Avoidance schedule might vary depending on the contexts [41], that it is not presumed that Activation and Avoidance are inversely related, and that they can be based on mutually non-exclusive domains (e.g. activation might be based on value guided public form of behavior investing being creative, investing effort and organizing exam preparation, whilst individual might also be ruminating about the forthcoming exams as an private avoidance coping strategy e.g. "I spent a lot of time thinking over and over about my problems.").

Method

A cross-sectional study was conducted on 507 students. 3 cases were excluded due to the missing values, resulting in a total of 504 participants (N female=405; N male=99) aged from 18 to 53 (mean 22.07 years old, SD=4.66)[1] from numerous levels of studies (Undergraduate – bachelor level of studies 85.5%, Graduate – master level of studies 8.9%, Postgraduate – integrated level of studies 2.8%, Postgraduate – doctoral level of studies 2.6% and Postgraduate – specialization course level of studies 0.2%) courses, faculties (Table 1).

Table 1

Percentages of participants from different Faculties

Courses	Percentage of participants	Faculty
Psychology and	38%	Faculty of philosophy, Novi Sad; Faculty of business

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[1] It is important to note that a significant gender and age imbalance might limit the conclusions, which is carefully taken in consideration in Conclusion (pg. 13).

psychotherapy courses		and legal studies, Novi Sad
Teaching courses	11%	Faculty of education, Sombor
Pedagogy	11%	Faculty of philosophy, Novi Sad
Data and computer science	6%	Faculty of sciences, Novi Sad; Faculty of Technical Sciences
Security and crime science	3%	Faculty of business and legal studies, Novi Sad
Others (History, Biology, Healthcare studies, Agriculture, Serbian Literature and Language, Theology…)	31%	Faculty of philosophy, Novi Sad; Faculty of sciences, Novi Sad; Faculty of Medicine, Novi Sad; Faculty of Technical Sciences, Novi Sad; Faculty of Orthodox Theology, Belgrade…

Both of The Mindful Attention Awareness and Behavioral Activation for Depression scales were professionally translated. After providing the written consent, the students proceeded to fill the questionnaires in paper or online forms both lasting approximately 20 min. The students were assured of total anonymity. The present study was approved by the Ethics committee of the Union University, Faculty of business and legal studies.

Sample and procedures

Sample, confirmatory factor, correlation and assumption analyses were conducted using IBM 25.0 SPSS, JASP 0.14. and AMOS 21. version. Descriptive statistics and frequency analyses were performed to obtain the sample data. Crombach´s alpha was used to express the reliability of the measures. Pearson Product- moment Correlation was performed to examine

the relationships between Mindful Attention and Awareness and Behavioral activation/avoidance as well as with distress and positive psychological measures in order to evaluate the linearity assumption. Evans's criteria [48] were used for interpreting the size effect of correlation coefficients as well as p-value less than 0.05 for statistical significance. The normality assumption was tested by Shapiro-Wilk Test and Normality P-P plot, with consulting the scatter-plot deviations for homoscedasticity assesement and Cook-distance measures. Andrew Hayses PROCESS version 3.3. was used to asses two simple hypothetical models with no covariates included. Sobel test was additionally performed in order to test the significance of the indirect paths. Bootstrap analysis was conducted on 5.000 samples as a re-sampling method with Bias corrected 95% confidence intervals (CIs) in order to generate lower-level confidence interval and upper level confidence interval for cross-checking the values of Sobel test report in order to minimize the possibility of Type I error. The effect size was expressed as the percent mediation parameter (PM) in accordance to MacKinnon's [49] suggestions.

Instruments

The Serbian Mindfulness Attention and Awareness Scale[2] was used in order to assess the attentive, nonjudgmental observation of internal experiences and external stimuli [1]. MAAS is comprised of 15 items (e.g. "I find it difficult to stay focused on what's happening to the present"; "I do jobs or tasks automatically, without being aware of what I'm doing") with responses ranging on a 6 level scale "Almost always" to " Almost never". High reliability reported in earlier studies [50] has been also confirmed for a version used in this study (α

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[2] In order to avoid confusion, it is important to note that the scale that was used in this research is not the version of a scale that can be found on *Repository of psychological instruments in Serbian* on OSF. by Lazić, Lazarević, Žeželj & Purić (2020).

=0.83), whilst the existing literature supports the psychometric properties of the aforementioned scale [1, 51].

Distress measures were obtained by using DASS-21 [52]. Serbian translated version (DASS-21-SER), widely used for both in clinical and non-clinical student population [52, 53]. This scale encompasses loss of self-esteem and incentive, low perceived probability of attaining life goals, low positive mood and self-deprecation along with other indicators typical for depressiveness [52]. The instrument was validated in several studies conducted on undergraduate and graduate students [53,54,55].

Behavioral activation for depression scale-short form (BADS-SF) [56] was used in order to assess the value and goal-driven behavioral patterns (Activation) and Avoidance-ruminative (Avoidance scale). The scale is comprised of 9 items and the responses are ranged on a 6 level scale "Not at all" to "Completely" relevant for the acts of individual in the last week. Both sub-scales, with the exclusion of the problematic Item no. 1 [47] (in accordance to suggestion of previous authors since it "cross-loaded" on both factors scores) demonstrated satisfying reliability (Activation; α =0.78 and; Avoidance α =0.71). BADS-SF was also reported to be reliable and valid instrument by other authors [57]. BADS-SF scale also demonstrated adequate two factor fit in a community sample [47].

The Gratitude Questionnaire was used in order to assess the "generalized tendency to recognize and respond with gratefulness to the role of other people's benevolence in the positive experiences and outcomes that one obtains" [58]. This scale is comprised of 6 items and the responses are ranged on a 7 level scale (1-Strongly disagree…7-Strongly agree). The Gratitude Questionnaire was developed by McCullough, Emmons & Tsang [59]. After the initial moderate reliability (α =0.64) and due to the low and insignificant factor saturation (b=0.034, p>0.05) item number 6 ("Long amounts of time can go by before I feel grateful to something or someone.") was excluded. Subsequently, the reliability level improved (α

=0.74). Five item solution is retained for further analysis. This is similar to the findings of other authors [60, 61]. It was validated in several cultures on student samples [61, 62, 63].

In order to assess the levels of Self-compassion and its components, the Self-compassion Scale by Neff [27] (2003) was used. The scale contains 26 items comprising of 6 dimensions Self-kindness, Self-criticism, Isolation, Common humanity, Mindfulness and Over-identification, and it demonstrated high reliability (α =0.88). Preliminary research that was conducted on students demonstrated significant relations with theoretically and conceptually inverse constructs such as Depressiveness (r=-0.55), Anxiousness (r=-0.48), Self-criticism (r=-0.48), High standards (r=-0.38) and Negative generalization (r=-0.67) [64].

Results (Confirmatory factor analysis and Correlations)

When it comes to the Mindful Attention and Awareness an uni-dimensional structure was found to be the most adequate, with the initial fit indexes being in the domain of acceptable and good ($\chi^2(90) = 270.47$, p < 0.001,CFI = .91, RMSEA = 0.06; 90% CI [0.05, 0.07]; CMIN/DF< 3.0; GFI >0.90). These values are in line with the recommendations of the previous authors (Comparative Fit Index [CFI] ≥ .90, which indicate a "reasonable" fit of the model [65,66,67,68]; GFI in values of >.90 as "good" [69]; and Root-Mean Square Error of Approximation [RMSEA], which values ≤ .05 indicate close model fit and between .05 and .08 indicate an acceptable fit [66,70,71]. The obtained parameters are close to the parameters reported by previous authors [12, 13]. After recalculating the covariances were drawn, in accordance to the modification indices, the indexes showed improvement in the overall model fit ($\chi^2(87) = 177.10$, p < 0.001, CFI = 0.95, RMSEA = 0.04; 90% CI [0.05, 0.07]; CMIN/DF< 3.0; GFI >0.95). Item loadings did not cross the lower threshold of 0.03 [73]. The Mindful Attention Awareness Scale (MAAS) for measuring Mindful Attention and Awareness and Depressiveness scale (DASS-21-SER) demonstrated very high reliability (α=0.83; α=0.87) whilst Behavior Activation factor score (BADS-SF) and Avoidance factor

score demonstrated high reliability (α=0.78; α=0.71). The results of correlation analysis indicate that Mindful Attention and Awareness constitutes a significant very weak to moderate relations with all of the theoretically relevant constructs (Gratitude (r=0.12, p<0.001), Self-compassion (r=0.46, p<0.001), Self-kindness (r=0.21, p<0.001), Self-criticism (r=-0.37, p<0.001), Isolation (r=-0.45, p<0.001), Common humanity (r=0.11, p<0.050), Mindfulness (r=0.29, p<0.001), Over-identification (r=-0.47, p<0.001), Depressiveness (r=-0.41, p<0.001), Anxiousness (r=-0.46, p<0.001), Stress (r=-0.50, p<0.001), Avoidance (r=-0.50, p<0.001), Activation (r=0.34, p<0.001), Behavioral activation for depression (r=0.46, p<0.001). Depressiveness was found to form a moderate inverse relationship with Activation (r=-0.40, p<0.001) and moderate positive relationship with Avoidance (r=0.53, p<0.001) which indicates the acceptable level of linearity between the variables. Since there are indications that various internal events and state and traits might contribute to the state of mindfulness [74, 75, 76], and that mindful state theoretically might contribute to the change of affective and behavior patterns and how we react to the internal events [77, 78] it has been ascribed the role of a mediator.

Mediation model with Activation as an outcome

The Shapiro-Wilk test indicated the violation of of normality assumption (p<0.050). Residuals of the Activation variable were not normally distributed, so that the power of results interpretation is reduced [79]. Since the linearity assumption as the most important one was met, and that the normality assumption is rarely met in practice [79] it will be proceeded with further analysis, but the data will be analyzed with caution. The P-Plot didn't indicate residual deviations from the line whilst the maximum Cook´s distance was not above the the critical value. Scatter plot indicated that some of the outliers fell outside the critical point and deviated from the rectangular shape. Therefore the bootstrapped confidence intervals will be taken in the careful consideration [79] suggestion.
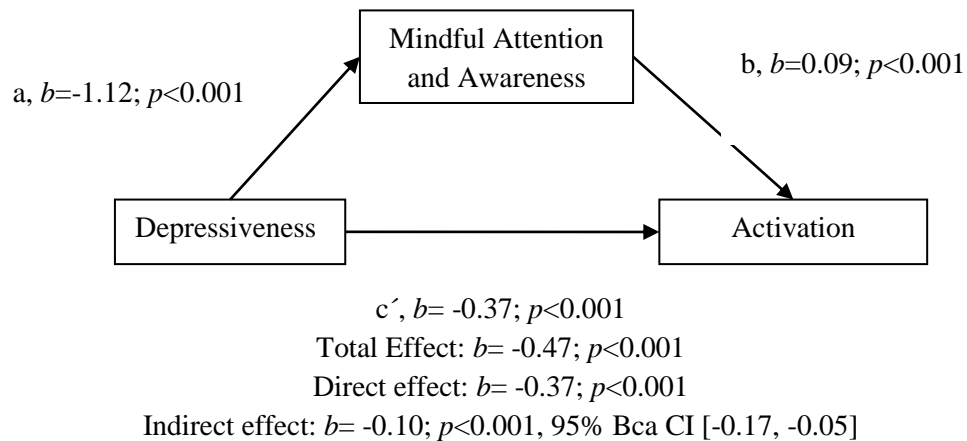
a, *b*=-1.12; *p*<0.001

Mindful Attention and Awareness

b, *b*=0.09; *p*<0.001

Depressiveness

Activation

c´, *b*= -0.37; *p*<0.001
Total Effect: *b*= -0.47; *p*<0.001
Direct effect: *b*= -0.37; *p*<0.001
Indirect effect: *b*= -0.10; *p*<0.001, 95% Bca CI [-0.17, -0.05]

Figure 1.1. Model of Mindful Attention and Awareness in the relationship between Depressiveness and Behavioral Activation (*b*- unstandardized betta coefficients, *p*-significance levels of paths a,b and c'; BCa, CI correction intervals and bootstraped confidence intervals in bootstrap resampling method).

The results displayed on a **Figure 1.1.** indicate a significant indirect effect of Mindful Attention and Awareness in a relationship between Depressiveness and Behavioral Activation *b*=-0.10, *p*<0.01, 95% BCa CI [-0.17,-0.05]. The mediator could account for a small proportion *PM*=0.21 of the total effect.

Mediation model with Avoidance as an outcome

The Shapiro-Wilk test indicated the violation of the normality assumption (*p*<0.001). Residuals of the Avoidance variable were not normally distributed, so that the power of results interpretation is reduced [79]. Since the linearity assumption as the most important one was met, and that the normality assumption is rarely met in practice [79] it will be proceeded with further analysis, but the data will be analyzed with caution. The P-Plot didn't indicate residual deviations from the line whilst the maximum Cook´s distance was not above the the critical value. Scatter plot indicated that four of the outliers fell outside the critical point and deviated from the rectangular shape. The results of the model will be evaluated with careful consideration of the bootstrapped confidence intervals in accordance to Hayes & Little's [79] suggestion.
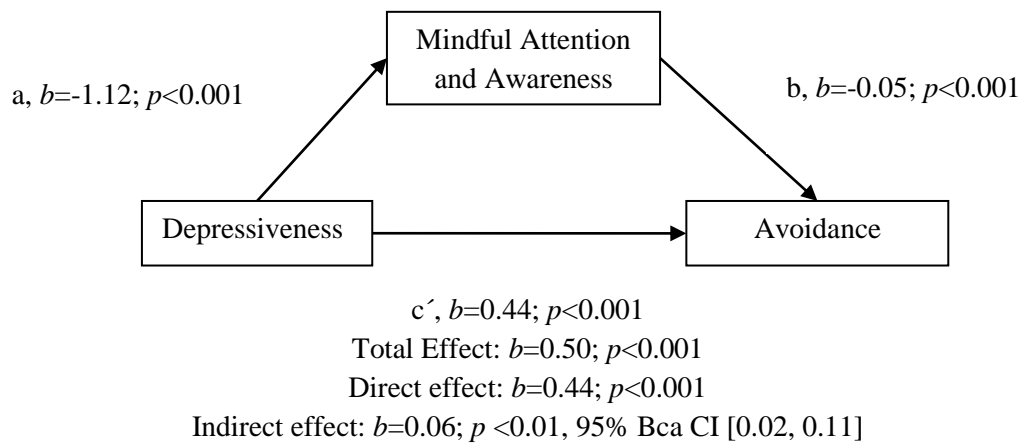
Figure 1.2. Model of Mindful Attention and Awareness in a relationship between Depressiveness and Avoidance (*b*- unstandardized betta coefficients, *p*-significance levels of paths a,b and c'; BCa, CI correction intervals and bootstraped confidence intervals in bootstrap resampling method).

The results displayed on a **Figure 1.2.** indicate a significant indirect effect of Mindful Attention and Awareness in a relationship between Depressiveness and Avoidance $b=0.06$, $p<0.001$, 95% Bca CI [-0.02, -0.11]. The mediator could account for a very small proportion $PM=0.11$ of the total effect.

Conclusion

The goals of this study were to examine to adapt and to examine the preliminary psychometric properties of Mindful Attention and Awareness scale, to examine its relations with positive psychological constructs and measures of distress variables as well as to test its mediation role in the relationship between Depressiveness and Activation and Avoidance behaviors among students. Two simple predictive models were tested in order to provide data in terms of the potential mechanisms of Mindful Attention and Awareness and its potential mediation effect in the relationship between depressiveness and Activation/Avoidance constructs. Activation sub-scale proved to be more reliable with the exclusion of the problematic Item no.1 ("There were certain things I needed to do that I didn't do") so it is not recommended to be included in the future studies [47]. It is important to note that whilst

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MAAS and Activation/Avoidance (BADS-SF) measures were shown to be mostly reliable and that they relate in the theoretically sound framework. In align with the results of the most foreign authors it was found that Mindful attention and awareness scale demonstrated adequate unidimensional structure and was found to form conceptually significant relationship   with all of the tested positive psychological constructs and distress measures.

Befitting the proposition of Martel & Kanter's [47] results of the first model (Behavioral activations as an outcome) indicate that Mindful Attention and Awareness might be an important aspect of a proactive goal-directed behavior in a way, for example, that openly receptive and non-judgmental observation might help individual to *clarify* its values and goals [37]. By resorting toward the open and nonjudgmental observation, without getting absorbed in depressive state, individual might effectively invoke and identify personal priorities and strengths, even before displaying a manifested action. Individual therefore might in the wake of negative labeling of the self, others and the world (common for depressive states) identify and reflect personal qualities more effectively and rediscover growth-driven ideas in spite of having negative automatic thoughts, which is supported by the earlier research [1, 37]. Since it was found that the Mindful Attention and Awareness negatively predicts avoidance, in this case, hypothetically it might be possible that individual doesn't get overwhelmed by the depressive rumination and conditioned automatic responses triggered by the aversive stimuli [37].

Future research might examine the possibility of additional interfering effects. Mindful Attention and Awareness in some cases might elicit *positive states* (such as joy, contentment, savoring the moment, acceptance etc.) of the individual [80,81] so that they might lead him toward generating more approach based behaviors. Also, considering the large unexplained variance percentages of mediator effects in both models, it is also advised for future authors to examine the additional effects of other possibly interfering individual (skills,

IQ, executive functions and other personality traits) and environmental (peer and mentor encouragement, socio-economic status, rewards etc.) variables in order to provide the better understanding about this issue. Whilst the principal finding of the mediation role of Mindful Attention and Awareness corresponds to the most prominent theories of behavioral regulation, several limitations of this study merit further consideration. Due to the nature of the study design (cross-sectional) results cannot be interpreted in terms of causal manner nor temporal stability, but in the terms of predictive relationships. It is possible that heightened Activation might amplify the non-judgmental insight, and therefore ameliorate depressiveness among students. The "act-before-you-think" approach therefore might pose a risk in committing "reverse causality error" in interpreting the results of both models. Another reason for consideration is the fact that the variable of practiced mindfulness was not controlled, so the etiology of the effect should be taken with caution.

There is also a notable gender imbalance of the sample (405 females (80,4%) and 99 males (19.6%), and age 18-53) which limits the generalization of the results. Considering this there is a possibility that mediation results might've been different in a more balanced sample. Also, since the clinical sample was not included and that depressiveness was defined as a trait/state, it is not possible to generalize aforementioned results in the cases of structured and clinical relevant difficulties such as depression and related states.

In conclusion, the present study contributed to the understanding of Mindful Attention and Awareness effects in behavioral Activation and Avoidance among students. Considering the dominant process theories about its effects in behavior regulation, results of the tested models offer preliminary support that Mindful Attention and Awareness might be an useful tool in measuring how the Mindful attention might contribute to goal-driven and value sustained behavior. Although these findings might have important implications in understanding which factors might contribute to the development of proactive behavior, and

possibly the fulfilled life of college students, additional psychometric examinations of Mindful Attention Awareness scale, inclusion of additional variables and longitudinal research are necessary for further conclusions.

Conflict of interest statement: The Authors declare that there are no conflicts of interest regarding the publication of this paper.

Preliminarna psihometrijska provera Srpske skale pune svesnosti i pažnje (MAAS) i potencijalna uloga pune svesnosti i pažnje u regulaciji ponašanja kod studenata.

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Sažetak

Uvod: Savremene studije o Punoj svesnosti i pažnji ukazuju na njenu potencijalnu ulogu u afektivnim poteškoćama i regulaciji ponašanja, ali autori pozivaju na potrebu za dodatnim istraživanjima potencijalno značajnih mehanizama njenog uticaja.

Cilj istraživanja: Istraživanje u nastavku ima za cilj proveru preliminarnih psihometrijskih karakteristika Srpske verzije skale Pune svesnosti i pažnje[3]

Metod: Transverzalno istraživanje je sprovedeno na uzorku od 504 studenata sa različitih nivoa i pravaca studija iz srpskog govornog područja.

Rezultati: Srpska verzija skale Pune svesnosti i pažnje je demonstrirala visoki nivo pouzdanosti ($\alpha=0.83$) i jednofaktorska konceptualizacija konstrukta se pokazala kao najadekvatnija. Značajne korelacije su utvrđene sa teorijski bliskim konstruktima iz pozitivne psihologije poput Zahvalnosti (r=0.12, p<0.001), Samosaosećanja (r=0.46, p<0.001) i njenih

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[3] Prevod termina: Prevod: Lazić, Lazarević, Žeželj i Purić (2020) Skala pune svesnosti i pažnje [Mindful Attention Awareness Scale]. *Repository of psychological instruments in Serbian*, OSF.

komponenti Briga o sebi[3] (r=0.21, p<0.001), Snažno poistovećivanje [4] (r=-0.47, p<0.001) i Puna svesnost (r= 0.29, p<0.001). Ovo je takođe bio slučaj sa komponentama distresa poput depresivnosti (r=-0.41, p<0.001), anksioznosti (r=-0.46, p<0.001) i stresa (r=-0.50, p<0.001), kao i u slučaju Bihejvioralne aktivacije za depresivnost (r=0.46, p<0.001) i njenih komponenti Aktivacije (r=0.34, p<0.001) i Izbegavanja (r=-0.35, p<0.001). Ustanovljeno je da Puna svesnost i pažnja ostvaruje značajan medijacioni efekat u odnosu Depresivnosti i Aktivacije, kao i u odnosu Depresivnosti sa Izbegavanjem.

Zaključak: Pored napomena o nedostacima istraživanja u zaključku je opisan potencijalno značajan efekat Pune svesnosti i pažnje po pitanju ublažavanja neprijatnih automatskih stanja i regulacije šablona ponašanja tako da doprinosi nastanku ponašanja koja su zasnovana na ličnim vrednostima.

Ključne reči: Puna svesnost i pažnja; Depresivnost; Bihejvioralna aktivacija; Izbegavanje

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[4] Prevod termina: Sretenović i Branković (2020)

Literature

1. Brown K, Ryan R. The benefits of being present: Mindfulness and its role in psychological well-being. J Pers Soc Psychol. 2003;84(4):822-848.
2. Deikman. The observing self. Boston: Beacon Press; 1982.
3. Martin J. Mindfulness: A Proposed Common Factor. J Psychoth Integration publication discontinued. 1997;7(4):291-312.
4. Brown K, Ryan R, Creswell J. Mindfulness: Theoretical Foundations and Evidence for its Salutary Effects. Psych Inq. 2007;18(4):211-237.
5. Brown K, Goodman R, Inzlicht M. Mindful Attention and Awareness and the attenuation of neural responses to emotional stimuli. Soc Cogn Affect Neurosci. 2013;8(1):93–9.
6. Shaurya Prakash R, De Leon A, Klatt M, Malarkey W, Patterson B. Mindfulness disposition and default-mode network connectivity in older adults. Soc Cogn Affect Neurosci. 2012;8(1):112-117.
7. Kiken L, Garland E, Bluth K, Palsson O, Gaylord S. From a state to a trait: Trajectories of state mindfulness in meditation during intervention predict changes in trait mindfulness. Pers Individ Dif. 2015;81:41-46.
8. Hicks A, Phillips K, Siwik C, Salmon P, Litvan I, Jablonski M et al. The role of dispositional mindfulness in a stress-health pathway among Parkinson's disease patients and caregiving partners. Qual Life Res. 2019;28(10):2705-2716.
9. Way, B. M., Creswell, J. D., Eisenberger, N. I., & Lieberman, M. D. (2006). Associations between Mindful Attention and Awareness and genetic variation of M-AOA. Unpublished raw data, University of California, Los Angeles.
10. Siebelink N, Asherson P, Antonova E, Bögels S, Speckens A, Buitelaar J et al. Genetic and environmental aetiologies of associations between dispositional mindfulness and ADHD traits: a population-based twin study. Eur Child Adolesc Psychiatry. 2019;28(9):1241-1251.
11. Rau H, Williams P. Mindful Attention and Awareness: A critical review of construct validation research. Pers Individ Dif. 2016;93:32–43.
12. Ruiz F, Suárez-Falcón J, Riaño-Hernández D. Psychometric properties of the Mindful Attention Awareness Scale in Colombian undergraduates. Sum Psicológ. 2016;23(1):18-24.
13. González-Blanch C, Medrano LA, O'Sullivan S, Bell I, Nicholas J, Chambers R, et al. Psychometric Properties of the mindful attention awareness scale (Maas) in a first-episode psychosis sample. Psychol Assess. 2022;34(2):188–96.
14. Mantzios M, Wilson JC, Giannou K. Self-Compassion Scale--greek version. PsycTESTS Dataset. 2015;
15. MacKillop J, Anderson EJ. Further psychometric validation of the Mindful Attention Awareness Scale (Maas). J Psychopathol Behav Assess. 2007;29(4):289–93.
16. Simor P, Petke Z, Köteles F. Measuring pre-reflexive consciousness: The Hungarian validation of the Mindful Attention Awareness Scale (MAAS). Learn Percept. 2013;5(Supplement 2):17-29.

17. Zainal N, Nor-Aziyan P, Subramaniam P. Psychometric Properties of the Malay-translated Mindfulness, Attention and Awareness Scale (MAAS) in a Group of Nursing Students in Malaysia. Malay J Psychiat. 2015;

18. Knežević M, Đoković D, Ignjatović-Ristić D, Đoković J, Jović J. Simptomi depresije kod studenata medicine . Serbian Journal of Experimental and Clinical Research. 2013;14(1):19–22.

19. Jovanović, V., Žuljević, D. & Brdaric, D. (2011). Skala depresivnosti, anksioznosti i stresa (DASS-21) - Struktura negativnog afekta kod adolescenata [The Depression Anxiety and Stress Scale (DASS-21): The structure of the negative affect in adolescents]. *Engrami*. 33. 19-28.

20. Nurmi J-E, Aunola K, Salmela-Aro K, Lindroos M. The role of success expectation and task-avoidance in academic performance and satisfaction: Three studies on antecedents, consequences and correlates. Contemporary Educational Psychology. 2003;28(1):59–90.

21. Kadziolka MJ, Di Pierdomenico E-A, Miller CJ. Trait-like mindfulness promotes healthy self-regulation of stress. Mindfulness. 2015;7(1):236–45.

22. Voci A, Veneziani CA, Fuochi G. Relating mindfulness, Heartfulness, and psychological well-being: The role of self-compassion and gratitude. Mindfulness. 2018;10(2):339–51.

23. Loo JM, Tsai J-S, Raylu N, Oei TP. Gratitude, hope, mindfulness and personal-growth initiative: Buffers or risk factors for problem gambling? PLoS ONE. 2014;9(2).

24. Sawyer KB, Thoroughgood CN, Stillwell EE, Duffy MK, Scott KL, Adair EA. Being present and thankful: A multi-study investigation of mindfulness, gratitude, and employee helping behavior. J Appl Psychol. 2021;

25. Anand P, Bakhshi A, Gupta R, Bali M. Gratitude and quality of life among adolescents: The mediating role of mindfulness. Trends in Psychology. 2021;29(4):706–18.

26. Emmons RA, McCullough ME. Gratitude adjectives checklist. PsycTESTS Dataset. 2003;

27. Neff KD. Self-Compassion Scale. PsycTESTS Dataset. 2003;

28. Sünbül ZA, Malkoç A. A Mindful Pathway to Flourishing: Mediating Effects of Self-Compassion and Valued Living in College Students. Eur J Educ Stud. 2018;174–85.

29. Newsome S, Waldo M, Gruszka C. Mindfulness group work: Preventing stress and increasing self-compassion among helping professionals in training. The Journal for Specialists in Group Work. 2012;37(4):297–311.

30. Shin H-S, Black DS, Shonkoff ET, Riggs NR, Pentz MA. Associations among dispositional mindfulness, self-compassion, and executive function proficiency in early adolescents. Mindfulness. 2016;7(6):1377–84.

31. Garcia-Campayo J, Navarro-Gil M, Andrés E, Montero-Marin J, López-Artal L, Demarzo MM. Validation of the Spanish versions of the long (26 items) and short (12 items) forms of the self-compassion scale (SCS). Health and Quality of Life Outcomes. 2014;12(1):4.

32. Svendsen JL, Schanche E, Osnes B, Vøllestad J, Visted E, Dundas I, et al. Is dispositional self-compassion associated with psychophysiological flexibility beyond mindfulness? An exploratory pilot study. Frontiers in Psychology. 2020;11.

33. Parto M, Besharat MA. Mindfulness, psychological well-being and psychological distress in adolescents: Assessing the mediating variables and mechanisms of autonomy and self-regulation. Procedia Soc Behav Sci. 2011;30:578–82.

34. Teismann T, Ertle A, Furka N, Willutzki U, Hoyer J. The German version of the behavioral activation for Depression Scale (BADS): A Psychometric and Clinical Investigation. Clinical Psychology & Psychotherapy. 2015;23(3):217–25.

35. Jermann F, Billieux J, Larøi F, d'Argembeau A, Bondolfi G, Zermatten A, et al. Mindful Attention Awareness Scale (MAAS): Psychometric properties of the French translation and exploration of its relations with emotion regulation strategies. Psychological Assessment. 2009;21(4):506–14.

36. Schuman-Olivier Z, Trombka M, Lovas DA, Brewer JA, Vago DR, Gawande R, Dunne JP, Lazar SW, Loucks EB, Fulwiler C. Mindfulness and Behavior Change. Harv Rev Psychiatry. 2020 Nov/Dec;28(6):371-394. doi: 10.1097/HRP.0000000000000277. PMID: 33156156; PMCID: PMC7647439.

37. Shapiro S, Carlson L, Astin J, Freeman B. Mechanisms of Mindfulness. J Clin Psychol. 2006;62(3):373–86.

38. Lejuez CW, Hopko DR, Hopko SD. A brief behavioral activation treatment for depression. Behavior Modification. 2001;25(2):255–86.

39. Kanter JW, Manos RC, Bowe WM, Baruch DE, Busch AM, Rusch LC. What is Behavioral Activation?a Review of the empirical literature. Clinical Psychology Review. 2010;30(6):608–20.

40. Takagaki K, Ito M, Takebayashi Y, Nakajima S, Horikoshi M. Roles of trait mindfulness in behavioral activation mechanism for patients with major depressive disorder. Frontiers in Psychology. 2020;11.

41. Martell C, Kanter J. Behavioral Activation in the Context of "Third Wave" Therapies. Acceptance and Mindfulness in Cognitive Behavior Therapy: Understanding and Applying the New Therapies. John Wiley & Sons Inc; 2012.

42. Özyeşil Z. Mindfulness and Psychological Needs: A Cross-Cultural Comparison. Elementary Education Online. 2012;11(1):151–60.

43. Barajas S, Garra L. Mindfulness and psychopathology: Adaptation of the Mindful Attention Awareness Scale (Maas) in a Spanish sample. Clínica y Salud. 2014;25(1):49–56.

44. Johnson CJ, Wiebe JS, Morera OF. The Spanish version of the Mindful Attention Awareness Scale (Maas): Measurement invariance and Psychometric Properties. Mindfulness. 2013;5(5):552–65.

45. Li M, Ding C, Kanter J, Zeng Q, Yang D. Further evaluation of the psychometric properties of the behavioral activation for depression scale. I J Psych Psych Ther. 2014;14:45–57.

46. Ma Y, Fang S. Adolescents' mindfulness and psychological distress: The mediating role of Emotion Regulation. Frontiers in Psychology. 2019;10.

47. Wagener A, Van der Linden M, Blairy S. Psychometric Properties of the French translation of the behavioral activation for depression scale–short form (bads-SF) in non-clinical adults. Comprehensive Psychiatry. 2015;56:252–7.

48. Evans JD. Straightforward statistics for the Behavioral Sciences. Pacific Grove, Calif: Brooks/Cole; 1996.

49. MacKinnon S. Interdisciplinary Health Conference. In: Mediation in health research: A statistics workshop using SPSS . Dalhousie : Crossroads; 2015.

50. Tomlinson ER, Yousaf O, Vittersø AD, Jones L. Dispositional Mindfulness and psychological health: A systematic review. Mindfulness. 2017;9(1):23–43.

51. MacKillop J, Anderson EJ. Further psychometric validation of the Mindful Attention Awareness Scale (Maas). J Psychopathol Behav Assess. 2007;29(4):289–93.

52. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck Depression and anxiety inventories. Behaviour Research and Therapy. 1995;33(3):335–43.

53. Jovanovic V, Gavrilov-Jerkovic V, Zuljevic D, Brdaric D. Psychometric evaluation of the Depression Anxiety Stress Scales-21 (DASS-21) in a Serbian student sample. Psihologija. 2014;47(1):93–112.

54. Alfonsson S, Wallin E, Maathz P. Factor structure and validity of the depression, anxiety and stress scale-21 in Swedish translation. Journal of Psychiatric and Mental Health Nursing. 2017;24(2-3):154–62.

55. Lee B, Kim YE. Validity of the depression, anxiety, and stress scale (DASS-21) in a sample of Korean university students. Current Psychology. 2020;

56. Kanter J, Mulick P, Busch A, Berlin K, Martel C. Behavioral Activation for Depression Scale (BADS) (Long and Short Form) . Measurement Instrument Database for the Social Science; 2012.

57. Manos RC, Kanter JW, Luo W. The behavioral activation for depression scale–short form: Development and validation. Behavior Therapy. 2011;42(4):726–39.

58. Emmons RA, McCullough ME. Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life. Journal of Personality and Social Psychology. 2003;84(2):377–89.

59. McCullough ME, Emmons RA, Tsang J-A. Gratitude questionnaire-6. PsycTESTS Dataset. 2002;

60. Langer ÁI, Ulloa VG, Aguilar-Parra JM, Araya-Véliz C, Brito G. Validation of a Spanish translation of the Gratitude Questionnaire (GQ-6) with a Chilean sample of adults and high schoolers. Health and Quality of Life Outcomes. 2016;14(1).

61. Chen LH, Chen M-Y, Kee YH, Tsai Y-M. Validation of the gratitude questionnaire (GQ) in Taiwanese undergraduate students. J Happiness Stud. 2008;10(6):655–64.

62. Valdez JP, Chu SK. Examining the psychometric validity of the five-item Gratitude questionnaire: An item response theory approach. J Psychoeduc Assess. 2018;38(4):529–36.

63. Garg N, Katiyar N, Mehak. Gratitude questionnaire (GQ-6)—exploring psychometric properties in India. Journal of Religion and Health. 2021;60(5):3716–31.

64. Session for Clinical Psychology, Author. The role of Self-compassion in affect regulation Zlatibor, Serbia: Serbian Psychological Society; 2019 p. 84.

65. Bentler PM. Comparative fit indexes in structural models. Psychological Bulletin. 1990;107(2):238–46.

66. Brown TA. Confirmatory factor analysis for applied research. New York: Guilford Press; 2015.

67. Kline RB. Principles and practice of structural equation modeling. New York: The Guilford Press; 2016.

68. Schumacker R, Lomax R. A beginner's guide to structural equation modeling. Lawrence Erlbaum Associates; 1996.

69. Simon D, Kriston L, Loh A, Spies C, Scheibler F, Wills C, et al. Confirmatory factor analysis and recommendations for improvement of the autonomy-preference-index (API). Health Expectations. 2010;

70. Browne MW, Cudeck R. Alternative ways of assessing model fit. Sociological Methods & Research. 1992;21(2):230–58.

71. Hu L, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Struct Equ Modeling. 1999;6(1):1–55.

72. Ruiz FJ, Suárez-Falcón JC, Riaño-Hernández D. Psychometric Properties of the mindful attention awareness scale in Colombian undergraduates. Suma Psicológica. 2016;23(1):18–24.

73. Anderson JC, Gerbing DW. Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin. 1988;103(3):411–23.

74. Parada-Fernández P, Herrero-Fernández D, Oliva-Macías M, Rohwer H. Stressful life events and hopelessness in adults: The mediating role of mentalization and emotional dysregulation. Braz J Psychiatry. 2021;43(4):385–92.

75. Tarman GZ, Sari BA. The mediating role of mindfulness on Social Anxiety and Procrastination. Int J Ment Health Addict. 2021;

76. Fino E, Martoni M, Russo PM. Specific mindfulness traits protect against negative effects of trait anxiety on medical student wellbeing during high-pressure periods. Advances in Health Sciences Education. 2021;26(3):1095–111.

77. Ito D, Watanabe A, Osawa K. Mindful attention awareness and cognitive defusion are indirectly associated with less PTSD-like symptoms via reduced maladaptive posttraumatic cognitions and avoidance coping. Current Psychology. 2021;

78. Schuman-Olivier Z, Trombka M, Lovas D, Brewer J, Vago D, Gawande R, et al. Mindfulness and Behavior Change. Harvard Review of Psychiatry. 2020;28(6):371–94.

79. Hayes AF, Little D. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. New York, NY: The Guilford Press; 2018.

80. Bajaj B, Gupta R, Pande N. Self-esteem mediates the relationship between mindfulness and well-being. Personality and Individual Differences. 2016;94:96–100.

81. Garland EL, Farb NA, R. Goldin P, Fredrickson BL. Mindfulness broadens awareness and builds eudaimonic meaning: A process model of mindful positive emotion regulation. Psychological Inquiry. 2015;26(4):293–314.