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Belgrade**Tara Bulut**Faculty of Philosophy,
University of Belgrade**THE MINI IPIP-6: SHORT, VALID, AND
RELIABLE MEASURE OF THE SIX-FACTOR
PERSONALITY STRUCTURE**

The focus of the present research was the validation of the Serbian version of Mini IPIP-6 personality inventory. It is a 24-item self-report questionnaire which measures six broad personality traits: Extraversion, Neuroticism, Agreeableness, Conscientiousness, Openness to Experience and Honesty–Humility. We examined the scales' reliability, latent structure and the relations of personality measures with Perceived Infectability (physical health) and Disintegration (mental health) in a sample of 218 undergraduate students (82% females; $M_{age} = 23.7$, $SD = 7.11$). The data showed that Mini IPIP-6 scales have adequate reliabilities (all α s $>.70$). Furthermore, the factor structure was completely in accordance with the expectations: all items loaded on their respectable factors. Finally, personality traits predicted physical and mental health in a theoretically expected manner: higher Neuroticism and lower Extraversion and Conscientiousness independently predicted physical health while higher Neuroticism and lower Honesty–Humility and Agreeableness had a contribution in the prediction of mental health. The study findings corroborated the reliability and validity of the Mini IPIP-6. Combined with the fact that it is a very short personality measure, the results speak in favor of using the inventory in empirical research. Still, it was important to consider the limitations of the instrument, such as narrowed psychological content of the scales.

Keywords: Mini IPIP-6, six-factor personality structure, reliability, validity, physical and mental health

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Without a doubt, lexical paradigm has been a very prominent conceptual and methodological framework in personality research. Its core is the lexical hypothesis which states that the words describing individual differences which are frequently expressed in human behavior will be coded in human language (Goldberg, 1981). Thus, lexical approach is based on finding personality descriptors in lexicons, extracting them from dictionaries and acquiring empirical data of the variance of these descriptors in some population. By applying a statistic method which reveals the grouping of personality descriptors (usually some form of factor analysis) their latent structure can be shown. This is the pathway of emergence of structural models of personality based on the psycholexical approach.

The solutions of the structural models obtained in this fashion are not equivocal, because the result depends on the type of analyzed data. The solution which probably had the greatest impact on psychological theory and practice is a five-factor structure. It is known as Big Five (John, Naumann, & Soto, 2008) or a Five Factor Model (Costa & McCrae, 2008), depending on the specific operationalization (these models are very similar, but not completely identical in regards to the descriptors of personality traits). These five traits are labeled as Neuroticism (emotional instability, tendency to feel negative emotions), Extraversion (enjoyment in social interaction, gregariousness, activity), Agreeableness (cooperation, avoiding argues, empathy), Conscientiousness (orderliness, long-term planning, prudence), and Openness to Experience (creativity, openness to ideas, inquisitiveness). Numerous studies have been performed using this personality framework, which confirmed their predictive validity (e.g. Paunonen & Ashton, 2001). Five-factor structure has been frequently explored by psychologists in Serbia as well (e.g. Čolović, Mitrović, & Smederevac, 2005; Knežević, Džamonja-Ignjatović, & Đurić-Jočić, 2004).

Recent personality research based on the lexical hypothesis indicated that personality can be most optimally described by six personality traits (Saucier, 2009). These are broad and comprehensive personality factors which are commonly labeled as Honesty–Humility, Emotionality (or Neuroticism), Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. These traits are found in various languages including German (Ashton, Lee, Marcus, & De Vries, 2007), French, Dutch, Hungarian, Italian, Korean, Polish (Ashton et al., 2004), Greek (Lee & Ashton, 2009), English (Lee & Ashton, 2008), Croatian (Lee, Ashton, & de Vries, 2005) and Serbian language (Smederevac, Mitrović, Oljača, & Čolović, 2012). These data suggest that the six-factor personality has high replicability across different languages, which could indicate inter-cultural stability as well. The largest difference between five and six-factor structure is the emergence of Honesty–Humility factor in the latter. However, it should be noted that there are some more subtle differences between the models. For example, in the most prominent operationalization of the six-factor structure – HEXACO personality model (Ashton & Lee, 2007), there are certain differences regarding the six-factor Emotionality and Agreeableness factors in comparison to their counterparts from the five-structure model. Irritability and hostility, traits which loaded Neuroticism

in the Big Five structure are on the negative pole of the Agreeableness in the HEXACO model; on the other hand, markers of sentimentality, empathy and attachment to other persons, which are located on the Big Five Agreeableness domain, saturate the positive pole of Emotionality dimension in the HEXACO model (de Vries, Lee, & Ashton, 2008).

Finally, lexical research of personality sometimes results in a seven-factor solution (Almagor, Tellegen, & Waller, 1995). This structure is usually obtained when evaluative descriptors of personality are included in the study (like good, competent, or unworthy, bad, etc). Five factors from this solution are quite similar to Big Five/Five Factor personality traits, while two additional dimensions reflect positive and negative evaluation of one's own personality attributes, labeled as Positive and Negative Valence (Waller, 1999). Seven-factor solution was replicated in endogenous psycholexical research in Serbia as well (Smederevac, Mitrović, & Čolović, 2007).

Six-factor structure and its measurement

The six-factor personality structure has been increasingly used in the empirical research over the past fifteen years. The existence of Honesty–Humility trait makes it especially suitable for the exploration of morally-relevant personality characteristics and behavior, like psychopathy or antisocial behavior (Mededović, 2011; Mededović & Petrović, 2015). However, the existing data show that six-factor personality model is successful in predicting various psychological criteria. Findings showed that this personality model can predict various outcomes, such as sexual behavior (Strouts, Brase, & Dillon, in press), risk taking (Weller & Tikir, 2011), well-being (Aghababaei & Arji, 2014), academic achievement (de Vries, de Vries, & Born, 2011), political ideology (Jonason, 2014), criminal behavior (Mededović, 2017), etc. All these findings suggest that the six-factor personality model is a powerful analytical framework which can help social scientists to better understand and predict human behavior.

Currently, the most prominent operationalization of the six-factor structure is HEXACO personality model (Ashton & Lee, 2007). Various self and peer-report inventories are developed for its measurement. Some of them are larger instruments intended to capture not only the six broad domains, but narrower subordinate traits as well. The largest version contains 200 items (Lee & Ashton, 2004), while the shorter version has 100 items (Lee & Ashton, in press). The authors made further effort to shorten the questionnaire even more, which resulted in a 60-item version (Ashton & Lee, 2009). However, these instruments are still too large when there are time or item-related constraints in research (Ziegler, Kemper, & Krueger, 2014). Furthermore, short scales are beneficial to use in the studies with high sample sizes (Gosling, Rentfrow, & Swann Jr. 2003), cross-cultural (Rammstedt & John, 2007), on-line and longitudinal research (Konstabel, Lönnqvist, Walkowitz, Konstabel, & Verkasalo, 2012; Sandy, Gos-

ling, & Koelkebeck, 2014). This is why two very short forms of the six-factor structure are developed. The first one is based on the HEXACO model and it has 24 items, four for every broad personality trait (de Vries, 2013). The advantage of this instrument is the comprehensiveness of personality scales. However these measures have low reliabilities. The second one is a hybrid model: the scales for the measurement of Big Five/Five Factor structure have been made first, and the scale for Honesty–Humility trait is developed afterwards (Sibley et al., 2011). This inventory is based on the International Personality Item Pool² (IPIP: Goldberg, 1999; Goldberg et al., 2006), and that is the reason why it is labeled as Mini IPIP-6. Its scales have good reliabilities, temporal stability, and appropriate factor structure (Milojev, Osborne, Greaves, Barlow, & Sibley, 2013). Furthermore, the validity of the Mini IPIP-6 scales are demonstrated as well, because meaningful relations between personality and religiosity, political affiliation, attitudes about the environment (Sibley et al., 2011), and the resilience regarding natural disasters (Milojev, Osborne, & Sibley, 2014) have been found.

Goals of the present research

Empirical research is often constrained in time or space for the measures to be administered. If a researcher is not interested in measuring narrow personality traits, then short questionnaires represent the best solution in the exploration of personality. This is the reason why we wanted to explore internal validity, reliability, and predictive ability of Mini IPIP-6 Personality Inventory. Reliability was evaluated by calculating α coefficients of internal consistency. Internal validity was estimated by examination of the latent structure of the inventory. Finally, the predictive ability was tested by exploring the predictive power of Mini IPIP-6 scales in regard to physical and mental health. Examining physical and mental health is very important, since these are the key concepts in epidemiological research: finding health correlates may improve prevention of illness, thus enhancing longevity and life quality of individuals.

Method

Sample and procedure

The sample consisted of 218 undergraduate students attending the University of Belgrade, of which 33% were psychology students, who received additional

² IPIP measures have several advantages which make them especially suitable for administration: 1. they are free of cost; 2. items can be easily accessible via internet; 3. the pool is consisted of a vast number of items (over 3000 currently); 4. scoring keys are also provided; 5. items can be used in any combination that fits the user - including the order of items, rewording, interspersing with other items etc. (Goldberg et al., 2006). All of these characteristics make IPIP a major source of items for personality measurement and its usage is constantly increasing. The IPIP measures translated to the Serbian language can be found on this webpage: <http://www.ipiptesting.ml/>

points on a psychology course they were enrolled in at the time. Because of this, the majority of participants were women (82%). Mean age of the participants was 23.7 years ($SD = 7.11$). Instruments were administered via an online study, using the Survey Gizmo platform. Duration of data gathering was approximately 15 minutes per participant.

Instruments

Mini IPIP-6 (Sibley et al., 2011). Mini IPIP-6 measures six personality traits, each operationalized with 4 items: Honesty–Humility, Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness. The inventory items are short, straightforward, and easy for understanding (see original work and Table 2 in the Results section).

Perceived Infectability scale from the Perceived Vulnerability to Disease Questionnaire (Duncan, Schaller, & Park, 2009). This is a 6-item self-report scale that explores the susceptibility to various illnesses with the emphasis on infectious diseases (item example: “In general, I am very susceptible to colds, flu and other infectious diseases.”).

DELTA 10 inventory (Knežević, Opačić, Kutlešić, & Savić, 2005). This is an inventory intended to operationalize Disintegration, a trait which depicts various pro-psychotic experiences that can be used as indicators of psychological dysfunctions. The scale has 10 items which measure General Executive Dysfunction, Perceptual Distortions, Increased Awareness, Depression, Paranoia, Mania, Social Anhedonia, Flattened Affect, Somatoform Dysregulation, and Magical Thinking (item example: “It happens that I am ready to speak something and then say something completely different”). The total score on the inventory was used in the analyses. High comprehensiveness of Disintegration makes it suitable for the operationalization of the mental health problems. Furthermore, Disintegration could be understood as model of schizotypy, a psychoses-proneness trait which is considered a valid measure of mental health in general (Goulding & Odehn, 2009).

Results

Descriptive statistics and the reliabilities of the analyzed measures

In order to estimate the reliability of the Mini IPIP-6 scales, we calculated the Cronbach’s α coefficients for each scale. The results of this analysis are shown in Table 1, in parentheses. It can be seen that all personality measures have high coefficients of internal consistency: all α s are $> .70$.

Table 1
Descriptive statistics and the reliabilities of the used scales

	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	α
Honesty–Humility	2.71	0.79	0.25	-0.39	.74
Neuroticism	3.04	0.81	0.09	-0.53	.76
Extraversion	3.29	0.83	-0.33	-0.17	.78
Agreeableness	4.19	0.62	-1.24	3.50	.78
Conscientiousness	3.53	0.88	-0.30	-0.70	.80
Openness	4.01	0.74	-0.82	0.74	.74
Perceived Infectability	2.54	0.86	0.46	-0.29	.91
Disintegration	2.11	0.60	0.53	-0.23	.79

Table 1 also shows that the distribution of some personality scales tend to deviate from the normal one. This is especially true for Agreeableness, which has a negatively asymmetric, leptokurtic distribution.

Latent structure of the Mini IPIP-6 items

In order to explore the latent structure of the personality scales, we conducted the principal component analysis (PCA) on the Mini IPIP-6 items. The confirmatory factor analysis (CFA) is appropriate for this research goal, as well. However, our sample size is quite small according to several recommendations for the optimal sample size which is necessary for CFA (Cattell, 1978; Comrey & Lee, 1992), so we think that the exploratory analysis is a better solution in these circumstances. The PCA was performed on the items which were all recoded to reflect the higher score on the trait (thus, matrix did not have negative loadings). Both Guttman–Kaiser criterion and the parallel analysis converged to the six-factor solution. The components were rotated to the promax position afterwards. The pattern matrix of the items loadings is shown in Table 2. Since the aim of the research was to evaluate the psychometric properties of the Serbian Mini IPIP-6 scale, the items are shown in Serbian language.

Table 2
Pattern matrix of the Mini IPIP-6 items

	C	E	O	A	N	H
Random eigenvalues (derived from parallel analysis)	1.66	1.55	1.46	1.39	1.33	1.27
Empirical eigenvalues	4.14	3.03	2.44	2.16	1.80	1.36
% of explained total variance	17.24	12.60	10.15	8.99	7.52	5.65
Stvari su mi često u neredu.	.88					
Često zaboravim da vratim stvari na svoje mesto.	.83					
Volim organizovanost i red.	.80					
Svoje poslove uvek završavam na vreme.	.66					
Kad sam u društvu, više volim da se držim po strani.		.80				
Ne pričam puno.		.77				
Pričam sa puno različitih ljudi na skupovima ili zabavama.		.76				
Na zabavama sam obično u centru pažnje		.68				
Teško mi je da razumem apstraktne ideje.			.76			
Ne bih rekao da sam maštovita osoba.			.76			
Ne zanimaju me apstraktne stvari i ideje.			.73			
Imam bujnu maštu.			.68			
Nije me briga šta se desava sa drugim ljudima.				.90		
Ne zanimaju me problemi drugih ljudi.				.82		
Važno mi je kako se drugi ljudi osećaju.				.79		
Mogu da razumem emocije drugih ljudi.			.32	.44		
Raspoloženje mi se često menja.					.81	
Lako se uznemirim.					.80	
Retko se osećam tužno.					.73	
Veći deo vremena sam opušten i spokojan.					.69	
Zaslužujem više stvari u životu.						.80
Mislim da mi pripada više stvari nego što zaista dobijam.						.77
Voleo bih da posedujem skupe i luksuzne stvari.						.71
Voleo bih da me ljudi vide kako vozim neki skupi auto.						.67

Note. All loadings < .30 are not shown in the table. C = Conscientiousness; E = Extraversion; O = Openness; A = Agreeableness; N = Neuroticism; H = Honesty-Humility.

As it can be seen from the Table 2, the factor structure completely fits to the expected one: all the items loaded to their respectable components. In fact, there is only one secondary loading higher than .30 – one item of the Agreeableness trait loaded to Openness component.

Correlations between personality scales

Since the PCA showed that six factors indeed optimally explain the variance of the personality items, we analyzed their relations. Pearson correlations coefficients are calculated as a measure of bivariate relations between the variables. The results of this analysis are shown in Table 3.

Table 3
Correlations between the Mini IPIP-6 scales

	1	2	3	4	5	6
1. Honesty–Humility	/					
2. Neuroticism	.18**	/				
3. Extraversion	-.04	-.23**	/			
4. Agreeableness	.29**	-.10	.29**	/		
5. Conscientiousness	-.02	-.14*	.01	.12	/	
6. Openness to Experience	-.13	.01	.19**	.24**	-.17**	/

** $p < .01$. * $p < .05$.

All effect sizes of the correlations are small, which suggests that the measures are relatively independent from one another. The highest correlations are obtained between Honesty–Humility and Agreeableness, Neuroticism and Extraversion, Agreeableness and Extraversion and Openness and Agreeableness.

Predictive abilities of the personality measures

In order to evaluate the pragmatic validity of the Mini IPIP-6 scales, we performed two regression analyses. The problems in physical (Perceived Infectability) and mental health (Disintegration) were set as criteria, while personality traits were entered as the predictors. Participants' age and sex were controlled in the regression models as well. Both regression functions were statistically significant. Contributions of the predictors and the characteristics of the regression functions are shown in Table 4.

Table 4
Personality traits as predictors of physical and mental health problems

Predictors	Perceived Infectability (physical health)			Disintegration (mental health)		
	β	<i>SE</i>	<i>r</i>	β	<i>SE</i>	<i>r</i>
Age	.01	.01	-.04	.05	.01	-.02
Sex	.09	.17	.07	-.10	.15	-.14*
Honesty–Humility	-.10	.07	-.11	-.18**	.06	-.30**
Neuroticism	.12	.07	.20**	.42**	.06	.46**
Extraversion	-.17*	.07	-.18**	-.01	.06	-.16*
Agreeableness	.01	.08	-.06	-.12	.07	-.24**
Conscientiousness	-.14*	.07	-.18**	-.06	.06	-.14*
Openness	.11	.07	.08	.00	.07	-.06
<i>F</i> (8, 210)	3.11**			7.90**		
<i>R</i> ²	.11			.30		
<i>R</i> ² _{adj}	.08			.27		

Note. β = standardized regression coefficient; *SE* = standard error; *r* = zero order correlation; *R*² = coefficient of determination; *R*²_{adj} = adjusted *R*².

** $p < .01$. * $p < .05$.

Personality traits were more successful (30%) than physical health problems (11%) in predicting mental health disturbances. The multicollinearity indicators suggest that the multicollinearity is not present in the predictors set: all Tolerance statistics are $> .70$. Three traits were related to susceptibility to physical illness: Neuroticism had positive associations, while Extraversion and Conscientiousness had negative associations with this criterion measure. However, only two latter predictors showed an independent contribution to the prediction. Neuroticism also had positive zero-order correlation with mental health problems; Honesty–Humility, Extraversion, Agreeableness and Conscientiousness negatively correlated with it. Again, only two traits retained their relations with this criterion measure in the multivariate analysis: Honesty–Humility and Neuroticism. It was interesting to note that physical and mental health problems were not associated in the present data.

Discussion

Psychometric characteristics and pragmatic validity of the Mini IPIP-6 inventory

All the findings obtained in the present research suggest that the Mini IPIP-6 is psychometrically sound inventory for the exploration of the six-factor personality structure. All the personality scales have coefficients of internal consistency higher than .70. Taking in consideration that scales consist of only four items, this is a remarkable achievement. This conclusion could be further corroborated by comparing the α s of the Mini IPIP-6 with a very similar instrument, based on the same personality taxonomy and having the same number of items: Brief HEXACO Inventory (BHI: de Vries, 2013). Reliabilities of BHI scales are ranging from .44 to .72, which is much lower compared to the ones obtained in the present research. This finding implies that the items that belong to a certain personality scale have high-enough intercorrelations. However, they do not have large correlations with other items, which resulted in an adequate latent structure of the scales. Furthermore, the correlations between six personality scales are low in effect size and their structure is similar to those obtained in previous research (e.g. Ashton & Lee, 2009; de Vries, 2013).

We also explored the relations between personality traits and health problems, and obtained results confirmed pragmatic validity of the scales. When physical health problems were analyzed, Neuroticism, low Extraversion and low Conscientiousness were the personality traits which were related to this criterion. Neuroticism and low Conscientiousness were personality traits that were marked as crucial predictors of physical health in the previous research as well (Bogg & Roberts, 2004; Goodwin & Friedman, 2006). This result suggests that frequent experiences of negative emotions followed by recklessness and impulsivity may deteriorate physical health. Extraversion is not so often considered as a predictor of the problems in physical health. However, there are data which suggest that Extraversion could be related to the self-reported physical health (Williams, D O'Brien, & Colder, 2004). It could be assumed that Extraversion is positively associated with physical health, because extraverted individuals have higher social support, which is reliably linked with physical health (Uchino, 2009).

Personality scales turned out to be associated with mental health disturbances operationalized via Disintegration construct as well. All the traits except Openness were related with this criterion on a zero-order level. Neuroticism again had positive association with the highest effect size, while other traits were negatively related to psychological dysfunctions. Only Neuroticism and low Honesty–Humility kept their relations with the criterion when other personality measures were controlled in the analysis. These results are in line with the meta-analytic evidence regarding the relations between personality and Disintegration-like traits (Knežević et al., 2016). Furthermore, high Neuroticism and low Extraver-

sion, Agreeableness and Conscientiousness are been recognized as constituents of the personality profile related to mental health problems (Lamers, Westerhof, Kovács, & Bohlmeijer, 2012). It is interesting to emphasize the relation between low Honesty–Humility and mental health disturbances, because these results are still scarce in the literature. However, this is not the first study which obtained such a relationship (Međedović, 2013). In fact, the relation between psychopathology and dishonesty can be a part of schizotypal amorality, which is the personality profile that could be related to amoral, disinhibited and antisocial behavior (Petrović, Međedović, & Kujačić, 2014).

Limitations of the Mini IPIP-6: Balancing between psychometrics and content broadness

The empirical results obtained in the present research speak in favor of psychometric characteristics of the Mini IPIP-6. However, some limitations of the instrument should be mentioned as well. The fact that the scales consisted of by four items have high reliabilities has a downside too. It is reflected in the items content: the inventory statements are very similar in their meaning (see Table 2). In fact, some of the recoded items almost replicate other items which are reflected in the opposite direction (e.g. two items of Openness to experience: “Have a vivid imagination” and “Do not have a good imagination”). Very similar psychological content results in high correlations between items (and hence high reliability). However, it narrows the broadness and of the scales which should operationalize comprehensive behavioral dispositions. In other words, the items similarity decreases the representativeness of the scales.

The broadness of the Honesty–Humility scale is especially questionable. As authors themselves state (Milojev et al., 2013), the items are taken from a Narcissism scale (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004) and the Honesty–Humility scale from HEXACO model (Ashton & Lee, 2009). However, the items taken from the HEXACO-PI-R belong only to one of four Honesty–Humility facets – Greed Avoidance. This means that both Honesty–Humility facets, which in fact are related to honesty, fair-play and reciprocal altruism, and Sincerity and Fairness, are not represented in the Mini IPIP-6 Honesty–Humility scales. This fact highly narrows the content of this scale.

Finally, it should be bared in mind that the Mini IPIP-6 operationalizes the hybrid model of the six-factor structure. This is the result of the fact that the authors firstly developed the measure of Big Five traits and added the Honesty–Humility measure afterwards (Sibley et al., 2011). This is very important because HEXACO and Big Five models are not different only because of the presence of Honesty–Humility factor: Emotionality and Agreeableness are somewhat different factors than their counterparts form Big Five model (Ashton, Lee, & de Vries, 2014). The difference in the markers of personality traits should be considered in the interpretation of the findings obtained with the Mini IPIP-6 scales: the data regarding Neuroticism,

Extraversion, Agreeableness, Conscientiousness, and Openness should be interpreted from Big Five and not HEXACO personality framework. This requires from the researcher to be familiar with sometimes subtle differences among the models. This is the reason why some authors have tried to develop a measure which is completely based on the HEXACO model, operationalizing each factor with five items, in order to achieve adequate reliability and to keep the inventory short as well (Petrović & Međedović, 2013). However, this measure is still in its infancy, and new empirical data using this scale should be obtained before it is recommended for usage.

Study limitations

A crucial limitation of the present research must be noted. It is reflected in the sample structure. There were much more female participants compared to males in the sample. This fact should not confound the factor structure of the items. However, the sample structure could elevate the scale reliabilities, since the sample is quite homogeneous. Because of this, replication of these findings is highly needed, preferably on more heterogeneous samples.

Concluding remarks

Since the constraints in time and variables number are frequent in psychological research, short scales can be very convenient in empirical studies. The data from the present research show that the Mini IPIP-6 inventory has good psychometric characteristics, which recommends this questionnaire for administration in empirical research. These findings might interest many researchers, because personality is a construct which is frequently explored in the field of individual differences. Nevertheless, scholars should bear in mind that the psychological content of the scales is quite narrow and that the results obtained with this inventory should be interpreted both from the Big Five and HEXACO personality frameworks.

References

- Aghababaei, N., & Arji, A. (2014). Well-being and the HEXACO model of personality. *Personality and Individual Differences, 56*, 139–142. doi:10.1016/j.paid.2013.08.037
- Almagor, M., Tellegen, A., & Waller, N. G. (1995). The Big Seven Model: A cross-cultural replication and further exploration of the basic dimensions of natural language trait descriptors. *Journal of Personality and Social Psychology, 69*, 300–307. doi:10.1037/0022-3514.69.2.300
- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review, 11*, 150–166. doi:10.1177/1088868306294907

- Ashton, M. C., & Lee, K. (2009). The HEXACO-60: A short measure of the major dimensions of personality. *Journal of Personality Assessment, 91*, 340–345. doi:10.1080/00223890902935878
- Ashton, M. C., Lee, K., & de Vries, R. E. (2014). The HEXACO Honesty–Humility, Agreeableness, and Emotionality factors a review of research and theory. *Personality and Social Psychology Review, 18*, 139–152. doi:10.1177/1088868314523838
- Ashton, M. C., Lee, K., Marcus, B., & De Vries, R. E. (2007). German lexical personality factors: Relations with the HEXACO model. *European Journal of Personality, 21*, 23–43. doi:10.1002/per.597
- Ashton, M. C., Lee, K., Perugini, M., Szarota, P., de Vries, R. E., Di Blas, L., . . . De Raad, B. (2004). A six-factor structure of personality-descriptive adjectives: Solutions from psycholexical studies in seven languages. *Journal of Personality and Social Psychology, 86*, 356–366. doi:10.1037/0022-3514.86.2.356
- Bogg, T., & Roberts, B. W. (2004). Conscientiousness and health-related behaviors: A meta-analysis of the leading behavioral contributors to mortality. *Psychological Bulletin, 130*, 887–919. doi:10.1037/0033-2909.130.6.887
- Campbell, W. K., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. (2004). Psychological entitlement: Interpersonal consequences and validation of a self-report measure. *Journal of Personality Assessment, 83*, 29–45. doi:10.1207/s15327752jpa8301_04
- Cattell, R. (1978). *The scientific use of factor analysis*. New York: Plenum.
- Comrey, A. L. & Lee, H. B. (1992). *A first course in factor analysis*. Hillsdale, NJ: Erlbaum Associates.
- Costa, P. T., & McCrae, R. R. (2008). The revised NEO Personality Inventory (NEO-PI-R). In G. J. Boyle, G. Matthews, D. H. Saklofske (Eds.), *The SAGE handbook of personality theory and assessment: Personality measurement and testing* (Vol. 2, pp. 179–198). London: SAGE Publications Ltd.
- Čolović, P., Mitrović, D., & Smederevac, S. (2005). Evaluacija modela Pet velikih u našoj kulturi primenom upitnika FIBI [Evaluation of Big Five model in Serbian culture by FIBI questionnaire]. *Psihologija, 38*, 55–76.
- de Vries, R. E. (2013). The 24-item brief HEXACO inventory (BHI). *Journal of Research in Personality, 47*, 871–880. doi:10.1016/j.jrp.2013.09.003
- de Vries, A., de Vries, R. E., & Born, M. P. (2011). Broad versus narrow traits: Conscientiousness and Honesty–Humility as predictors of academic criteria. *European Journal of Personality, 25*, 336–348. doi:10.1002/per.795
- De Vries, R. E., Lee, K., & Ashton, M. C. (2008). The Dutch HEXACO personality inventory: Psychometric properties, self–other agreement, and relations with psychopathy among low and high acquaintanceship dyads. *Journal of Personality Assessment, 90*, 142–151. doi:10.1080/00223890701845195
- Duncan, L. A., Schaller, M., & Park, J. H. (2009). Perceived vulnerability to disease: Development and validation of a 15-item self-report instrument. *Personality*

- ty and Individual Differences*, 47, 541–546. doi:<http://dx.doi.org/10.1016/j.paid.2009.05.001>
- Goldberg, L. R. (1981). Language and individual differences: The search for universals in lexicons. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 2, pp. 141–165). Beverly Hills, CA: Sage.
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several Five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg, The Netherlands: Tilburg University Press.
- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research in Personality*, 40, 84–96. doi:10.1016/j.jrp.2005.08.007
- Goodwin, R. D., & Friedman, H. S. (2006). Health status and the Five-factor personality traits in a nationally representative sample. *Journal of Health Psychology*, 11, 643–654. doi:10.1177/1359105306066610
- Gosling, S. D., Rentfrow, P. J., & Swann Jr., W. B. (2003). A very brief measure of the Big Five personality domains. *Journal of Research in Personality*, 37, 504–528. doi:10.1016/S0092-6566(03)00046-1.
- Goulding, A., & Odehn, N. (2009). Schizotypy and mental health in the general population: A pilot study. *Personality and Mental Health*, 3, 193–202. doi:10.1002/pmh.86
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed.). New York, NY: Guilford Press.
- Jonason, P. K. (2014). Personality and politics. *Personality and Individual Differences*, 71, 181–184. <http://dx.doi.org/10.1016/j.paid.2014.08.002>
- Knežević, G., Džamonja-Ignjatović, T., & Đurić-Jočić, D. (2004). *Petofaktorski model ličnosti* [Five Factor Model of personality]. Beograd: Centar za primenjenu psihologiju.
- Knežević, G., Lazarević, L. B., Bosnjak, M., Purić, D., Petrović, B., Teovanović, P., . . . Bodroža, B. (2016). Towards a personality model encompassing a Disintegration factor separate from the Big Five traits: A meta-analysis of the empirical evidence. *Personality and Individual Differences*, 95, 214–222. doi:10.1016/j.paid.2016.02.044
- Knežević, G., Opačić, G., Kutlešić, V., & Savić, D. (2005). *Preserving psychoticism as a basic personality trait: A proposed reconceptualization*. Paper presented at the 113th Annual Convention of American Psychological Association, Washington, USA.
- Konstabel, K., Lönnqvist, J. E., Walkowitz, G., Konstabel, K., & Verkasalo, M. (2012). The ‘Short Five’ (S5): Measuring personality traits using comprehensive

- single items. *European Journal of Personality*, 26, 13–29. doi: 10.1002/per.813
- Lamers, S. M., Westerhof, G. J., Kovács, V., & Bohlmeijer, E. T. (2012). Differential relationships in the association of the Big Five personality traits with positive mental health and psychopathology. *Journal of Research in Personality*, 46, 517–524. doi:10.1016/j.jrp.2012.05.012
- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO personality inventory. *Multivariate Behavioral Research*, 39, 329–358. doi:10.1207/s15327906mbr3902_8
- Lee, K., & Ashton, M. C. (2008). The HEXACO personality factors in the indigenous personality lexicons of English and 11 other languages. *Journal of Personality*, 76, 1002–1054. doi:10.1111/j.1467-6494.2008.00512.x
- Lee, K., & Ashton, M. C. (2009). Reanalysis of the structure of the Greek Personality Lexicon. *Journal of Cross-Cultural Psychology*, 40, 693–700. doi:10.1177/0022022109335183
- Lee, K., & Ashton, M. C. (in press). Psychometric Properties of the HEXACO-100. *Assessment*. doi:10.1177/1073191116659134
- Lee, K., Ashton, M. C., & de Vries, R. E. (2005). *Six factors in the Croatian personality lexicon*. Unpublished manuscript.
- Međedović, J. (2011). Da li je Amoralnost šesti faktor ličnosti? [Is Amorality the sixth factor of personality?]. *Zbornik instituta za kriminološka i sociološka istraživanja*, 30, 7–31.
- Međedović, J. M. (2013). Should the space of basic personality traits be extended to include the disposition toward psychotic-like experiences? *Psihologija*, 47, 169–184. doi:10.2298/PSI1402169M
- Međedović, J. (2017). The profile of a criminal offender depicted by HEXACO personality traits. *Personality and Individual Differences*, 107, 159–163. doi:10.1016/j.paid.2016.11.015
- Međedović, J. & Petrović, B. (2015). The Dark Tetrad: Structural properties and location in the personality space. *Journal of Individual Differences*, 36, 228–236. doi: 10.1027/1614-0001/a000179
- Milojev, P., Osborne, D., & Sibley, C. G. (2014). Personality resilience following a natural disaster. *Social Psychological and Personality Science*, 5, 760–768. doi:10.1177/1948550614528545
- Milojev, P., Osborne, D., Greaves, L. M., Barlow, F. K., & Sibley, C. G. (2013). The Mini-IPIP6: Tiny yet highly stable markers of Big Six personality. *Journal of Research in Personality*, 47, 936–944. doi:10.1016/j.jrp.2013.09.004
- Paunonen, S. V., & Ashton, M. C. (2001). Big five factors and facets and the prediction of behavior. *Journal of Personality and Social Psychology*, 81, 524–539. <http://dx.doi.org/10.1037/0022-3514.81.3.524>
- Petrović, B., & Međedović, J. (2013). *The HEXACO-30 as a short measure of personality*. Paper presented at the Scientific-professional conference Current Trends in Psychology, Novi Sad, Serbia.

- Petrović, B., Međedović, J. i Kujačić, D. (2014). Tipovi ličnosti u prostoru amorala i šizotipije: empirijska evidencija sa osuđeničkog i uzorka iz opšte populacije [Personality types in the space of amorality and schizotypy: Empirical evidence from the samples of prisoners and from general population]. *Zbornik Instituta za kriminološka i sociološka istraživanja*, 33, 7–28.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. *Journal of Research in Personality*, 41, 203–212. doi:10.1016/j.jrp.2006.02.001
- Sandy, C. J., Gosling, S. D., & Koelkebeck, T. (2014). Psychometric comparison of automated versus rational methods of scale abbreviation: An illustration using a brief measure of values. *Journal of Individual Differences*, 35, 221–235. doi:10.1027/1614-0001/a000144
- Saucier, G. (2009). What are the most important dimensions of personality? Evidence from studies of descriptors in diverse languages. *Social and Personality Psychology Compass*, 3, 620–637. doi:10.1111/j.1751-9004.2009.00188.x
- Sibley, C. G., Luyten, N., Purnomo, M., Moberly, A., Wootton, L. W., Hammond, M. D., & Robertson, A. (2011). The Mini-IPIP6: Validation and extension of a short measure of the Big Six factors of personality in New Zealand. *New Zealand Journal of Psychology*, 40, 142–159.
- Smederevac, S., Mitrović, D., & Čolović, P. (2007). The structure of the lexical personality descriptors in Serbian language. *Psihologija*, 40, 485–508.
- Smederevac, S., Mitrović, D., Oljača, M., & Čolović, P. (2012). *Treća psiholeksička studija u Srbiji: Struktura pridevskih opisa ličnosti* [Third psycholexical study in Serbia: The structure of personality adjectives]. Paper presented at the XVIII Empirijska istraživanja u psihologiji, Belgrade, Serbia.
- Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science*, 4, 236–255. doi:10.1111/j.1745-6924.2009.01122.x
- Waller, N. G. (1999). Evaluating the structure of personality. In C. R. Cloninger (Ed.), *Personality and psychopathology* (pp. 155–197). Washington, DC: American Psychiatric Press.
- Weller, J. A., & Tikir, A. (2011). Predicting domain-specific risk taking with the HEXACO personality structure. *Journal of Behavioral Decision Making*, 24, 180–201. doi:10.1002/bdm.677
- Williams, P. G., D O'Brien, C., & Colder, C. R. (2004). The effects of neuroticism and extraversion on self-assessed health and health-relevant cognition. *Personality and Individual Differences*, 37, 83–94. doi:10.1016/j.paid.2003.08.001
- Ziegler, M., Kemper, C. J., & Krueger, P. (2014). Short scales – five misunderstandings and ways to overcome them. *Journal of Individual Differences*, 35, 185–189. <http://dx.doi.org/10.1027/1614-0001/a000144>

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MINI IPIP-6: KRATKI, VALIDNI I POUZDANI INSTRUMENT ZA MERENJE ŠESTOFAKTORSKE STRUKTURE LIČNOSTI

Jedan od problema pri administraciji upitnika za ispitivanje ličnosti često je njihova dužina. U većim istraživanjima gde se zadaje veliki broj mera, broj ajtema je često ograničavajući faktor. Ovo važi i za instrumente koji operacionalizuju šestofaktorsku strukturu ličnosti. Najpoznatiji instrument koji ispituje ovu strukturu jeste HEXACO-PI-R koji ima dve verzije: od 200 i 100 ajtema. U skorije vreme su se javili pokušaji njegovog skraćivanja (brief HEXACO inventory – BHI), koji međutim, pate od niske pouzdanosti skala. Jedno rešenje za relativno kratak a pouzdan upitnik šestofaktorske strukture operacionalizovano je kroz IPIP (International Personality Item Pool) paradigmu. U pitanju je upitnik Mini IPIP-6 koji pomoću 24 ajtema operacionalizuje 6 bazičnih crta ličnosti: Poštenje-Skromnost, Ekstraverziju, Neuroticizam, Saradljivost, Savesnost i Otvorenost za iskustva. Cilj ovog istraživanja jeste da se provere metrijske karakteristike i prediktivna validnost ovog upitnika na srpskom jeziku. Evaluirana je latentna struktura upitnika, pouzdanosti skala i pragmatička validnost preko predikcije problema u fizičkom i mentalnom zdravlju.

Uzorak se sastojao od 218 ispitanika iz studentske populacije (82% ženskog pola; $AS_{starost} = 23.7$, $SD = 7.11$). Zadati su Mini IPIP-6, DELTA10, inventar koji meri Dezintegraciju kao sklonost ka problemima u mentalnom zdravlju i Skala percipirane infektivnosti koja meri probleme u fizičkom zdravlju.

Rezultati su pokazali da sve skale Mini IPIP-6 upitnika imaju zadovoljavajuće pouzdanosti: svi alfa koeficijenti su veći od .70. Korelacije između skala su relativno niske i konceptualno očekivane: Saradljivost korelira sa Poštenjem ($r = .29$, $p < .01$), Ekstraverzijom ($r = .29$, $p < .01$) i Otvorenošću ($r = .24$, $p < .01$), a Ekstraverzija sa Neuroticizmom ($r = -.23$, $p < .01$). Analiza glavnih komponenti je pokazala da šest faktora optimalno objašnjavaju variranje ajtema upitnika. Štaviše, rezultati ove analize su pokazali da svaki ajtem ima primarno zasićenje upravo na onom faktoru koji treba da operacionalizuje. Na kraju, izvršena je predikcija problema u fizičkom i mentalnom zdravlju pomoću crta ličnosti. Ključni prediktori problema u fizičkom zdravlju (11% objašnjene varijanse) su niska Savesnost ($\beta = -.14$, $p < .01$) i Ekstraverzija ($\beta = -.17$, $p < .01$), dok je Neuroticizam imao značajnu korelaciju sa ovim

kriterijumom ($r = .20, p < .01$). Najvažniji prediktori problema u mentalnom zdravlju (30% objašnjene varijanse) su Neuroticizam ($\beta = .42, p < .01$) i Poštenje-Skromnost ($\beta = -.18, p < .01$), dok su Saradljivost ($r = -.24, p < .01$) i Savesnost ($r = -.14, p < .01$) imale negativne korelacije sa ovim kriterijumom.

Podaci dobijeni u ovom istraživanju pokazuju da je Mini IPIP-6 pouzdan i validan upitnik za merenje ličnosti sa dobrom prediktivnom validnošću. Pouzdanost skala se posebno ističe kada se uzme u obzir da samo 4 ajtema operacionalizuju svaku skalu. Ograničenje ovog upitnika predstavlja sadržina njegovih ajtema: stavke su prilično sličnog sadržaja što povećava korelacije između njih, a time i pouzdanost, ali smanjuje reprezentativnost skala. Istraživači i praktičari bi trebalo da vode računa o konceptualnom statusu crta ličnosti operacionalizovanih ovim upitnikom s obzirom na to da je u pitanju hibridni model ličnosti. Generalno, rezultati istraživanja preporučuju korišćenje ovog upitnika u istraživačke svrhe.

Ključne reči: Mini IPIP-6, šestofaktorska struktura ličnosti, pouzdanost, validnost, fizičko i mentalno zdravlje