THE FIVE-FACTOR NONVERBAL PERSONALITY QUESTIONNAIRE IN THE CZECH CONTEXT

Martina HŘEBÍČKOVÁ

Institute of Psychology, Academy of Sciences of the Czech Republic
Veveří 97, 602 00 Brno, Czech Republic
E-mail: martina@psu.cas.cz

Abstract: This study reports on the psychometric properties of the Five-Factor Nonverbal Personality Questionnaire (FF-NPQ) in a sample of 1,112 people. The FF-NPQ is a non-verbal measure of the Big Five personality dimensions (Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness to Experience). The presented psychometric measures include scale internal consistencies, intercorrelations, and convergences with two verbal Big Five measures. Gender and age differences are reported. Furthermore, the ability to predict other psychological constructs such as well-being is addressed.

Key words: nonverbal personality measurement, Five-Factor Model, The Five-Factor Nonverbal Personality Questionnaire, FF-NPQ

INTRODUCTION

There has recently been an increasing interest in the application of the Five-Factor Model to research as well as clinical and applied settings. The interest is also reflected in the need for reliable instruments measuring the individual-differences dimensions.

The instruments can be classified into two major groups. Methods in the first group use adjectives in the self-rating scales. Examples of the first group's measures are e.g., Goldberg's Big Five adjective markers (Goldberg, 1990, 1992) and

its reduced version (Saucier, 1994), the Revised Interpersonal Adjective Scales-Big Five (IAS-R-B5; Trapnell, Wiggins, 1990), the 23 Bipolar Big Five questionnaire (23BB5; Duijsens, Diekstra, 1995), the Short Adjective Checklist to measure the Big Five (SACBIF; Perugini, Leone, 1996)' and the Czech Big Five Markers (CBFM; Hřebíčková, Urbánek, Čermák, 2000).

The second group includes scales whose items are formulated as short sentences. Internationally, the Revised NEO Personality Inventory and NEO-Five-Factor Inventory (NEO-PI-R, NEO-FFI; Costa, McCrae, 1992) are the most widely validated instruments for assessing the Five-Factor Model. In Europe, two other five-factor based inventories were created: in The Netherlands, the Five-Factor Personality Inventory (FFPI; Hendriks, 1997), and in Italy, the Big Five Questionnaire (BFQ; Caprara et al., 1993).

There are also measures that cannot be classified into either of the above two

groups. John, Donahue, and Kentle's (1991) Big Five Inventory (BFI) contains a short-phrase-item format that is more concrete than single adjective items but is of a lower complexity than the sentence format used by NEO questionnaires. Goldberg (2001) had the same goal when constructing the International Personality Item Pool (IPIP).

Paunonen and co-workers (Paunonen, Ashton, Jackson, 2001) constructed a measure of the Big Five personality factors in a fashion entirely different from those mentioned above. They developed an instrument that does not make use of verbal items but includes cartoon-like pictures, in which a person shows specific kinds of behavior in specific situations. Paunonen and Jackson (1979) initially developed a non-verbal item pool for a person-perception study that aimed to represent the traits of Murray's system of needs. From this item pool a subset of items was selected to form the Nonverbal Personality Questionnaire (NPQ). Subsequently, with a few exceptions, items were selected from the NPQ to form the shorter FF-NPQ that measures each of the Big Five factors (for more detail about the construction strategy of the NPQ and FF-NPQ see Paunonen et al., 1990, 2001).

In several studies, the Five-Factor Nonverbal Personality Questionnaire scales (FF-NPQ) have shown quite satisfactory psychometric properties in terms of their internal consistency reliabilities, convergent and discriminant validity correlations, and factor structure. Those properties have been found to be quite consistent across seven different countries (Paunonen et al., 2000; Paunonen, Ashton, 2002).

The purpose of this article is to describe the psychometric properties of the Five-Factor Nonverbal Personality Questionnaire (FF-NPQ) in a sample of Czech respondents. The data reported here include structural validity, scale internal consistencies, intercorrelations, convergences with two verbal measures of the Big Five factors, discriminant validity, and ability to predict other psychological constructs such as well-being. In addition to the basic psychometric properties of the FF-NPQ, the age and gender differences previously found in the verbal Big Five measures were estimated.

Until recently the age and gender differences were only examined in the verbal measures of the Big Five. McCrae and Terraciano confirmed in self-reports and observer-ratings that Neuroticism, Extraversion, and Openness to Experience decline while Agreeableness and Conscientiousness increase with age. Women reported themselves and were rated by others to be higher in Neuroticism and Agreeableness in comparison with men (McCrae, Terraciano and 79 members of Personality Profiles of Cultures, 2005).

In numerous studies, the connection between subjective well-being and Big Five personality traits was documented. In their meta-analysis of trait measures associated with subjective well-being, DeNeve and Cooper (1998) showed that Extraversion and Neuroticism are the strongest Big Five predictors of life satisfaction. Therefore, the method measuring life satisfaction was used as another validity criterion. It was expected that the same association between life satisfaction and personality traits found in verbal Big Five measures would be found in the nonverbal Big Five measure.

METHOD

Respondents and Procedure

The FF-NPQ was administered to 1,112 subjects (408 males, 704 females). Mean

age of the sample was 27.57 years (range 15-81 years, SD = 13.44). The participants represented a wide range of educational, cultural and social backgrounds. Data were collected with the help of psychology students who were paid for their work. The students were requested to ask their relatives, partners, friends, and acquaintances to take part in a psychological study designed to investigate relations among various personality questionnaires. Subjects were not paid for their participation and all testing materials were filled in at home.

Instruments

The Five-Factor Nonverbal Personality Questionnaire (FF-NPQ) contains 60 nonverbal items that measure, with 12 items each, the Big Five personality factors of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Respondents are asked to estimate "the likelihood that you would engage in the type of behavior shown" using a seven-point Likert rating scale.

The NEO Personality Inventory (NEO-PI-R; Costa, McCrae, 1992; Hřebíčková, 2002, 2004). The NEO-PI-R is a 240-item measure of the five basic personality factors. Each factor is represented by six eight-item facet scales. Items are answered on a five-point Likert scale from strongly disagree to strongly agree.

The NEO Five-Factor Personality Inventory (NEO-FFI) is a shortened version of the NEO Personality Inventory (NEO-PI-R) and includes many of its better aspects as regards psychometric features. The NEO-FFI comprises 60 self-report items, 12 items for each of the personality domains. For the present sample, alpha reliabilities for NEO-PI-R and NEO-FFI (in parentheses) were .89 (.83) for Extraver-

sion, .87 (.68) for Agreeableness, .91 (.83) for Conscientiousness, .92 (.85) for Neuroticism and .89 (.70) for Openness to Experience.

Czech Big Five Markers (CBFM) by Hřebíčková, Urbánek, and Čermák (2000) contains 60 bipolar rating scales (12 for each of the 5 factors) that were selected from two sources. The first source was a representative taxonomy of Czech personality-descriptive adjectives (Hřebíčková, 1995; 1997). The second source was an analysis of a comprehensive sample of 171 bipolar adjective rating scales translated into Czech (Big Five markers) previously used by several American authors (Hřebíčková, Ostendorf, 1996). From these two sources three experts selected 60 bipolar adjective rating scales representing the Big Five in the Czech language. For the present sample, alpha reliabilities were .91 for Extraversion, .86 for Agreeableness, .92 for Conscientiousness, .91 for Emotional Stability and .82 for Openness to Experience/Intellect. .

Satisfaction with life was. assessed by means of a five-item inventory developed by Diener and co-workers in the form of *the Satisfaction With Life Scale (SWLS;* Diener et al., 1985). Examples of the items in this inventory are: *In most ways my life is close to my ideal, and I am satisfied with my life.* The SWLS was measured on a scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Cronbach's alpha for the scale was .80.

RESULTS

Structural Validity

An explanatory principal components analysis with five components rotated by Varimax was undertaken on the item inter-

Table 1. Internal consistency reliabilities and interscale correlations for FF-NPQ scales for the Czech sample

FF-NPQ scale	Internal consistency reliabilities				FF-NPQ scale				
					E	A	C	N	O
	Cz	Can	Int	M					
Extraversion	0.82	0.81	0.75	0.79	1				
Agreeableness	0.76	0.82	0.72	0.77	-0.19	1			
Conscientiousness	0.69	0.79	0.71	0.73	0.09	0.31	1		
Neuroticism	0.76	0.75	0.64	0.72	0.15	-0.16	0.17	1	
Openness	0.80	0.82	0.77	0.80	0.14	0.42	0.48	0.01	1
M	0.76	0.80	0.72						

Note: Cz = Czech, N = 1,113 subjects. Can = Canadian (N = 304) from Paunonen et al., 2001; Int = international samples from seven countries (Canada, England, Finland, Germany, Norway, Poland, Russia, N = 701 university students; from Paunonen et al., 2000).

correlations. The first ten eigenvalues in the sample were 6.52, 5.73, 3.54, 2.82, 1.98, 1.78, 1.51, 1.47, 1.32, 1.29. The percentage of total variance explained by the five factors was 34.32%. In the Czech sample, 52 of 60 items had loadings greater than or equal to .30 on the correct FF-NPQ factor. Eight of the Czech items did not load on the expected factor. The discrepancies were due to six items expected to measure Conscientiousness (3, 8, 18, 33, 48, 58), one item from the Agreeableness scale (57), and one from the Neuroticism scale (29)[1].

Reliability

Table 1 gives the internal consistencies for the five scales of the FF-NPQ in the Czech Republic, in Canada, and in an International sample that consisted of

Canada, England, Finland, Germany, Norway, Poland, and Russia. None of the scales showed an alpha lower than .60. The mean alpha reliability of the FF-NPQ scales was highest in the Canadian sample (.80), followed by the Czech sample (.76) and the International sample (.72). The lowest reliabilities were found in the International sample (.64 for Neuroticism) and in the Czech sample (.69 for Conscientiousness). The most reliable scales in the FF-NPQ are Openness and Extraversion (mean reliability = .80, .79), while Neuroticism and Conscientiousness showed the lowest mean reliability in the three samples (.72, .73).

Correlations among the FF-NPQ scales for the Czech sample are also shown in Table 1. These correlations were generally low, the highest being .48. The largest correlations involved the Openness to Experience, Agreeableness, and Conscientiousness scales.

[1] The table with Varimax-rotated factor structure is available in the author.

Descriptive Statistics

Descriptive statistics are reported in Table 2. Separate statistics were calculated for gender and age (below and above 25 years old). MANOVAs on the FF-NPQ scales showed significant effects for gender and age group for four of the five scales. Men described themselves as more extraverted, less agreeable, less conscientious, and less neurotic than women, younger people described themselves as more extraverted and neurotic, and as less agreeable and conscientious in comparison with older respondents. Analyses showed no evidence of age x gender interactions for any of the five scales, indicating that gender differences are consistent across younger and older samples.

Convergent Validity

In order to assess convergent validity, scale scores of the FF-NPQ were correlated with scores of NEO inventories (NEO-FFI, NEO-PI-R) and Czech Big Five Markers (CBFM). Table 3 reports the correlation between the FF-NPQ scales and the other Big Five measures. Recall

that the NEO-FFI and NEO-PI-R are translated instruments and CBFM was originally developed in the Czech language. Participants completed the NEO-PI-R (full version with 240 items), but the 60 items representing the short version (NEO-FFI) were also selected, to allow comparison with relevant Canadian data. Convergent correlations of the FF-NPQ scales with NEO-FFI scales from the Canadian normative sample are given in parenthesis.

Evidence of convergent validity was found for all five FF-NPQ scales, with each factor correlating with the corresponding factor from other Big Five measures. A secondary correlation of .32 was found between FF-NPQ Extraversion and NEO-PI-R Openness to Experience. Across all five factors and all instruments the mean of the convergent validity correlations was .44. The FF-NPQ/NEO-PI-R showed the strongest convergence (mean r = .49), followed by the FF-NPQ/NEO-FFI (mean r = .46). The lowest convergence was found between the FF-NPQ/CBFM (mean r = .38). The mean validities across instruments ranged from .60 (Extraversion) to .30 (Conscientiousness).

With regard to the correlations of the FF-NPQ with NEO-PI-R facets, results

Table 2. Descriptive Statistics for FF-NPQ Scales

		E		A		C		Ne		O	
		M	SD	M	SD	M	SD	M	SD	M	SD
Males	Young	47.07	12.12	55.79	9.80	45.31	9.95	37.39	9.76	52.15	12.90
	Adult	42.38	12.18	59.89	9.44	48.00	10.02	34.86	10.54	55.61	11.07
Females	Young	44.50	11.64	61.34	11.21	48.95	9.57	45.35	10.30	55.21	12.09
	Adult	38.11	12.35	64.05	10.62	50.54	9.31	43.04	10.63	55.41	12.14
ANOVA	Gender	F = 19.50**		F = 52.44**		F = 24.80**		F = 146.03**			
ANOVA	Age	F = 51.18**		F = 25.82**		F = 11.97**		F = 13.10**			

Males: Young N = 142, adults N = 266. *Females:* Young N = 347, adults N = 357.
* p < .01, ** p < .001

provide evidence of convergent validity for twenty one of the thirty facets, which had their highest correlation (.31 with the expected FF-NPQ scale. A convergent validity with values ranging from .30 to .52 was observed for FF-NPQ Extraversion. In particular, Excitement seeking (E5) was shown to relate strongly to Extraversion in FF-NPQ. In addition, FF-NPQ Extraversion correlated negatively with two Agreeableness facets (A2, A5) and with one Neuroticism and one Openness facet (N5, O4). Higher convergent correlations (.38 to .48) were found for the FF-NPQ Neuroticism scale. Among NEO-PI-R Neuroticism facets N5 Impulsiveness appeared to be peripheral to FF-NPQ Neuroticism, being more highly correlated with Extraversion than with the expected factor. Convergent values for Openness to Experience suggest that Fantasy (O1) and Values (O6) are relatively marginal to the definition of FF-NPQ Openness, which is conceived in terms of Openness to Aesthetics (O2) and Openness to Ideas (O5).

As mentioned above, two Agreeableness facets correlated significantly with FF-NPQ Extraversion. Straightforwardness was located between Extraversion (-.30) and Agreeableness (.34), and Tender-Mindedness (A6) was unrelated to the FF-NPQ scales. The strongest relation involving FF-NPQ Agreeableness was that with the facet of Altruism (A3). With regard to the FF-NPQ Conscientiousness scale, convergent validity was only partially supported, with higher levels of Order (C2) and Achievement Striving (C4) being related to the Conscientiousness FF-NPQ scale. Other Conscientiousness facets did not correlate significantly ($\geq$ 0.30) with any FF-NPQ scales.

Correlation between the Satisfaction With Life Scale and the FF-NPQ is shown in the last line of Table 3. Higher scores on SWLS were associated with lower Neuroticism and higher Agreeableness; no correlations were found with other Big Five dimensions as measured by the FF-NPQ.

Table 3. Significant correlation between FF-NPQ and NEO-FFI, NEO-PI-R domains and facets, Czech Big Five Markers and Satisfaction With Life Scale

FF-NPQ		E	A	C	N	O
NEO-FFI	E	.53 (.53)				
	A		.44 (.59)			
	C			.32 (.50)		
	N				.49 (.55)	
	O					.53 (.45)
NEO-PI-R	E	.60				
	A		.44			
	C			.35		
	N				.53	
	O	.32				.53

Table continues

Table 3 (continued)

FF-NPQ		E	A	C	N	O
E1	Warmth	**.32**				
E2	Gregariousness	**.46**				
E3	Assertiveness	**.43**				
E4	Activity	**.30**				
E5	Excitement Seeking	**.52**				
E6	Positive Emotions	**.39**				
A1	Trust		**.31**			
A2	Straightforwardness	**-.30**	**.34**			
A3	Altruism		**.38**			
A4	Compliance		**.34**			
A5	Modesty	**-.31**	*.13*			
A6	Tender-Mindedness		*.26*			
C1	Competence			*.22*		
C2	Order			**.33**		
C3	Dutifulness			*.29*		
C4	Achievement Striving			**.31**		
C5	Self-Discipline			*.22*		
C6	Deliberation			*.19*		
N1	Anxiety				**.46**	
N2	Angry Hostility				**.38**	
N3	Depression				**.44**	
N4	Self-Consciousness				**.39**	
N5	Impulsiveness	**.34**			*.28*	
N6	Vulnerability				**.48**	
O1	Fantasy					*.27*
O2	Aesthetics					**.53**
O3	Feelings					**.35**
O4	Actions	**.31**				**.30**
O5	Ideas					**.43**
O6	Values					*.22*

Table 3 (continued)

FF-NPQ		E	A	C	N	O
CBFM	E	**.45**				
	A		**.39**			
	C			**.30**		
	E.ST				**-.43**	
	I/O					**.34**
SWLS		.09	.13	.01	-.20	.04

Note: The highest values are given in bold. Canadian data from Paunonen et al. (2001), FF-NPQ x NEO-PI-R (NEO-FFI) N = 1,108, FF-NPQ x CBFM N = 1,105, FF-NPQ x SWLS N = 573. Correlations given in bold are significant at p < .01.

DISCUSSION

With regard to internal-consistency reliability, the present results indicate that four scales of the FF-NPQ fulfilled the .70 level criterion recommended by Nunnally (1978) for an alpha coefficient. The Conscientiousness scale fell slightly below this level. Furthermore, the results of other analyses show the problems related to this scale. If the factor structure of the pictures that measure Conscientiousness is considered, it is apparent that five of them do not load higher than .30 on the expected factor but rather on the Agreeableness factor. In three cases (3, 33, 48) the pictorial items involve not only the actor with whom the respondent should identify, but also another person. In these cases, the pictured situation, which aimed to measure the trait of orderliness, could have been interpreted by the respondents as helpfulness to others. Furthermore, when compared with other FF-NPQ scales, the values of the convergent validity scale of Conscientiousness are the lowest. As Paunonen and Ashton (2002) pointed out, the nonverbal items are not culture-free. Content specificity of the

pictures may explain why some of the FF-NPQ scales showed lower levels of reliability and validity in some non-Western samples.

On the other hand, the highest reliability is shown by the scale of Extraversion. Funder (1999) demonstrated that highly visible traits (e.g., outgoing and sociable, which are characteristic of Extraversion) tend to be more directly observable and are thus more easily pictured. With regard to pictures expressing Extraversion, the respondents can more easily recognize the behavior presented. Less visible traits (e.g., thoughtful or anxious, which are characteristic of Openness to Experience and Neuroticism, respectively) are not directly observable by others; thus it is more difficult to present such characteristics, and the respondents can have more problems in recognizing them. The Extraversion scale showed the highest convergent validity with all corresponding scales of the verbal methods used, specifically the NEO-PI-R, NEO-FFI, and CBFM.

The Extraversion scale of FF-NPQ correlates more than .30 with all the corresponding facets of the NEO-PI-R. The highest correlation of Extraversion FF-

NPQ was with the facet of NEO-PI-R E5 Excitement Seeking, and hence it is possible to predict a connection with Zuckerman's concept of sensation seeking (Zuckerman, 1979). FF-NPQ Extraversion correlates with the Neuroticism facet of N5 Impulsiveness (which expresses the tendency to yield to temptation). The results of the AB5C taxonomy of Czech personality-relevant adjectives support the finding that impulsivity in the sense of succumbing to temptation is not part of Neuroticism, but of Extraversion (Hřebíčková, Ostendorf, 2005). The correlation between the FF-NPQ Extraversion scale and the O4 Openness to Actions facet of Openness to Experience suggests that Extraversion as assessed in this non-verbal questionnaire is connected with preference for novelty and variety over routine and familiarity. The Extraversion of FF-NPQ also correlates negatively with two facets of Agreeableness in NEO-PI-R (A2 Straightforwardness and A5 Modesty). The locations of traits in the space between Extraversion and Agreeableness was repeatedly measured and validated. McCrae and Costa (1989) found that the Wiggins's interpersonal circumplex is defined by two dimensions of Big Five, namely Extraversion and Agreeableness. In the case of the FF-NPQ, Extraversion also includes the elements of Neuroticism, Openness, and Agreeableness. McCrae at al. (2005b), who found similar results, supposed that extraverted people from Europe and the Americas have entered a post-materialist era in which a number of other traits, including imagination, tolerance, impulsiveness, and sense of competence, are encouraged.

The Agreeableness scale correlates highly with the NEO-PI-R facet Altruism (A3) and correlation higher than .30 was also found for three Agreeableness facets. Correspondence of the two facets Modesty (A5) and A6 (Tender-Mindedness) with the Agreeableness scale was not confirmed.

The correlations of Neuroticism facets from NEO-PI-R with the relevant scale in FF-NPQ show relatively context-wide definition of this factor in the FF-NPQ. Except for the N5 Impulsiveness facet that correlates with FF-NPQ Extraversion, all the other NEO-PI-R Neuroticism facets correlated more than .30 with the related scale in FF-NPQ.

Openness to Experience is represented in the FF-NPQ as a wide and deep appreciation for the arts and beauty that is reflected in the relatively high correlation with the O2 Openness to Aesthetics facet of the NEO-PI-R. The FF-NPQ Openness scale also includes intellectual curiosity and openness to new and unconventional ideas (as seen in the correlation with O5 Openness to Ideas). However, the detection of the characteristics of Openness to Fantasy (O1) and Openness to Values (O6) in the FF-NPQ was not confirmed. In both cases, these facets involve characteristics that cannot be detected directly and thus their non-verbal presentation is difficult. The analysis of various national versions of the NEO-PI-R also points out the insufficient psychometric properties of the Openness to Values facet. Except in its Czech version, the facet O6 Values has the lowest reliability of all the facets in other NEO-PI-R versions in different languages such as German, Korean, Icelandic, French, Japanese, Estonian, Russian, and Chinese (Hřebíčková, 2004).

Recent findings suggest that age differences in personality traits measured by NEO-PI-R have a general pattern. The use of self-report measures and observer ratings shows in many countries that Neuroticism, Extraversion, and Openness to Experience decline with age, whereas Agree-

ableness and Conscientiousness increase (McCrae, Terraciano et al., 2005a). Data from the Czech version of the FF-NPQ confirm previous research on age differences obtained from verbal measures for four personality traits except Openness to Experience. Gender differences in FF-NPQ show that women rate themselves higher than men on Neuroticism and Agreeableness. The same pattern was found in the verbal measures across 49 cultures in self- and observer ratings using the NEO-PI-R (McCrae et al., 2005a) and in the Canadian normative FF-NPQ sample (Paunonen et al., 2001). Gender differences vary by facets within the Extraversion and Openness domains in the NEO-PI-R. Women are typically higher on warmth and gregariousness but lower on assertiveness and excitement seeking in comparison with men. This corresponds to the ambiguity of results gained from nonverbal tests. In the Canadian normative sample that comprised data from undergraduate students no gender differences in Extraversion were detected. In the Czech sample, men scored higher in Extraversion than women, which is in agreement with the relationship of Extraversion in FF-NPQ to Excitement Seeking in NEO-PI-R. Similarly, there are facets in Openness to Experience where men and women score differently. In particular, men are higher than women in Openness to Ideas and lower in Openness to Aesthetics and Feelings. In the FF-NPQ Openness scale no gender differences were found in the Czech sample, while in the Canadian normative sample a higher level of Openness was found in women. This finding relates to the connection of the FF-NPQ Openness scale with Openness to Aesthetics in the NEO-PI-R. In both the Czech and the Canadian samples, women rate themselves as more conscientious in comparison with men.

Big Five measures are often used to predict various psychological constructs. Paunonen and co-workers (Paunonen, Ashton, Jackson, 2001) tested the connections of FF-NPQ with 14 behavioral criteria (such as alcohol consumption, appointment lateness). The partial goal of this study was to test the possible connections of FF-NPQ with subjective well-being. Until recently, only the relation of subjective well-being to the verbal measures of the Big Five was examined. Early work by Costa and McCrae (1980) showed that happiness was associated with greater Extraversion and lower Neuroticism. In addition, McCrae and Costa (1991) suggest that Agreeableness and Conscientiousness should facilitate more positive experiences in social and achievement situations, which then increases subjective well-being. De Neve and Cooper (1998) provide evidence consistent with McCrae and Costa's suggestions: Extraversion, Neuroticism and Conscientiousness are the strongest Big Five predictors of happiness and life satisfaction. Presented research using a nonverbal measure of five personality factors shows no connection of well-being with personality characteristics.

CONCLUSIONS

The results suggest that the psychometric properties of the Five-Factor Nonverbal Personality Questionnaire (FF-NPQ) in the Czech sample are comparable to those observed in other countries. FF-NPQ has satisfactory internal consistency. Similar trends in age and gender differences found in verbal measures were also shown in the non-verbal method researched in the study. The convergence validity of FF-NPQ is problematic because of the rather low correlations with other Big Five measures. However, the verbal methods used in our

research do not represent an ideal criterion for validization of a nonverbal test.

The non-verbal Big Five measure might be used in personality assessment of immigrants or of other people that encounter difficulties in text-understanding. To prove that FF-NPQ can be a good alternative to verbal measures, it is necessary to show a similar pattern of correlations with many external criteria, as in the case of verbal methods. Future research can examine the extent to which the FF-NPQ can be used as an alternative Big Five measure.

Received March 27, 2008

REFERENCES

CAPRARA, G.V., BARBARANELLI, C., BORGOGNI, L., PERUGINI, M., 1993, "The Big-Five Questionnaire": A new questionnaire to assess the Five-Factor Model. *Personality and Individual Differences*, 15, 281-288.

COSTA, P.T., McCRAE, R.R., 1980, Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38, 668-678.

COSTA, P.T., McCRAE, R.R.,1992, *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

DeNEVE, K., COOPER, H., 1998, The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124, 197-229.

DIENER, E., EMMONS, R., LARSEN, R., GRIFFIN, S., 1985, The satisfaction with life scale. *Journal of Personality Assessment*, 49, 1105-1117.

DUIJSENS, I.J., DIEKSTRA, F.W., 1995, The 23BB5: A new Bipolar Big Five Questionnaire. *Personality and Individual Differences*, 19, 753-755.

FUNDER, D.C., 1999, *Personality judgement: A realistic approach to person perception*. San Diego: Academic Press.

GOLDBERG, L.R., 1990, An alternative "description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology*, 59, 1216-1229.

GOLDBERG, L.R., 1992, The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4, 26-42.

GOLDBERG, L.R., 2001, International Personality Item Pool. A scientific collaboratory for the development of advanced measures of personality traits and other individual differences (http://ipip.ori.org/); January 2008.

HENDRIKS, A.A.J., 1997, *The construction of the Five-Factor Personality Inventory (FFPI)*. Groningen: University of Groningen.

HŘEBÍČKOVÁ, M., 1995, *Osobnostní deskriptory: Přídavná jména pro popis osobnosti* [Personality descriptors: Adjectives for personality description]. Brno: Psychologický ústav AV ČR.

HŘEBÍČKOVÁ, M., 1997, *Jazyk a osobnost: Pětifaktorová struktura popisu osobnosti* [Language and personality: Five-Factor structure of personality description]. Brno: Vydavatelství Masarykovy univerzity a Psychologický ústav AV ČR.

HŘEBÍČKOVÁ, M., 2002, Vnitřní konzistence české verze NEO osobnostního inventáře (NEO-PI-R) [Internal consistency of the Czech version of the NEO Personality Inventory (NEO-PI-R)]. *Československá Psychologie*, 46, 6, 521-535.

HŘEBÍČKOVÁ, M., 2004, *NEO osobnostní inventář (podle NEO-PI-R P.T. Costy a R.R. McCraee)* [NEO Personality Inventory (according to NEO-PI-R by P.T. Costa and R.R. McCrae)]. Praha: Testcentrum.

HŘEBÍČKOVÁ, M., OSTENDORF, F., 1996, Obecné dimenze popisu osobnosti v češtině a němčině [General dimensions of personality description in the Czech and German languages]. *Československá Psychologie*, 40, 4, 392-405.

HŘEBÍČKOVÁ, M., URBÁNEK, T., ČERMÁK, I., 2000, Inventář přídavných jmen pro posouzení pěti obecných dimenzí osobnosti [Inventory of adjectives for assessment of five general personality dimensions]. *Československá Psychologie*, 44, 4, 317-329.

HŘEBÍČKOVÁ, M., OSTENDORF, F., 2005, Spojení dimenzionálního pětifaktorového modelu s kruhovým uspořádáním rysů: Zkrácený pětifaktorový kruh (AB5C) [Connection of the dimensional five-factor model with circumplex configuration of traits: Abridged big five dimensional circumplex (AB5C)]. *Československá Psychologie*, 49, 4, 302-322.

JOHN, O.P., DONAHUE, E.M., KENTLE, R.L., 1991, The Big Five Inventory - Versions 4a and 54. Unpublished manuscript. University of California, Berkeley.

McCRAE, R.R., COSTA, P.T., 1989, The structure of interpersonal traits: Wiggin's circumplex and the five-factor model. *Journal of Personality and Social Psychology*, 56, 586-595.

McCRAE, R.R., COSTA, P.T., 1991, Adding Liebe und Arbeit: The Full Five-Factor Model and

Well-Being. *Personality and Social Psychology Bulletin*, 17, 227-232.

McCRAE, R.R., TERRACCIANO, A., KHOURY, B., NANSUBUGA, F., KNEŽEVIĆ, G., DJURIC JOCIC, D., AHN, H.-A., AHN, C.-K., DE FRUYT, F., GÜLGÖZ, S., RUCH, W., GHAYUR, M.A., AVIA, M.D., SÁNCHEZ-BERNARDOS, M.L., ROSSIER, J., DAHOUROU, D., FISCHER, R., SHAKESPEARE-FINCH, J., YIK, M., SMITH, P.B., ANGLEITNER, A., OSTENDORF, F., HALIM, M.S., HŘEBÍČKOVÁ, M., MARTIN, T.A., SEKOWSKI, A., KLINKOSZ, W., PRENTICE, G., McRORIE, M., FLORES-MENDOZA, C., SHIMONAKA, Y., GAKUIN, B., NAKAZATO, K., MASTOR, K.A., EHSAN, S.D., BARBARANELLI, C., ALCALAY, L., SIMONETTI, F., PRAMILA, V.S., FALZON, R., LAURI, M.A., BORG CUNEN, M.A., SCICLUNA CALLEJA, S., DE LIMA, M.P., BRATKO, D., MARUŠIĆ, I., ALLIK, J., REALO, A., ABDEL-KHALEK, A.M., ALANSARI, B.M., DEL PILAR, G.E.H., OJEDOKUN, A.O., MUNYAE, M., BUDZINSKI, L., OISHI, S., DIENER, E., CHITT-CHARAT, A., WANG, L., BEER, A., HUMRICHOUSE, J., MORTENSEN, E.L., JENSEN, H.H., JÓNSSON, F.H., FICKOVÁ, E., ADAMOVOVÁ, L., RUS, V.S., PODOBNIK, N., ZUPANČIČ, A., DIAZ-LOVING, R., LEIBOVICH, N.B., SCHMIDT, V., REÁTEGUI, N., BRUNNER-SCIARRA, M., AYEARST, L.E., TROBST, K.K., MATSUMOTO, D., NEUBAUER, A., PORRATA, J., ROLLAND, J.-P., PETOT, J.-M., CAMART, N., 2005a, Universal features of personality traits from the observer's perspective: Data from 50 cultures. *Journal of Personality and Social Psychology*, 88, 547-561.

McCRAE, R.R., TERRACCIANO, A., LEIBO-VICH, N.B., SCHMIDT, V., SHAKESPEARE-FINCH, J., NEUBAUER, A., DE FRUYT, F., MUNYAE, M., FLORES-MENDOZA, C., DAHOUROU, D., AYEARST, L.E., TROBST, K.K., ALCALAY, L., SIMONETTI, F., BRATKO, D., MARUŠIĆ, I., HŘEBÍČKOVÁ, M., MORTENSEN, L.K., JENSEN, H.H., ALLIK, J., REALO, A., SINESHAW, T., ROLLAND, J.-P., PETOT, J.M., CAMART, N., ANGLEITNER, A., OSTENDORF, F., YIK, M., JÓNSSON, F.H., PRAMILA, V.S., HALIM, M.S., JAYA, A., SHAHRIAR SHAHIDI, S., BARBARANELLI, C., SHIMONAKA, Y., GAKUIN, B., ABDEL-KHALEK, A.M., ALANSARI, B.M., KHOURY, B., MASTOR, K.A., OJEDOKUN, A.O., PRENTICE, G., McRORIE, M., WANG, L.,

REÁTEGUI, N., BRUNNER-SCIARRA, M., DEL PILAR, G.E.H., SEKOWSKI, A., KLINKOSZ, W., DE LIMA, M.P., PORRATA, J., MARTIN, T.A., FICKOVÁ, E., ADAMOVOVÁ, L., RUS, V.L., PODOBNIK, N., ZUPANČIĆ, A., AHN, H.-N., AHN, C.-K., AVIA, M.D., SÁNCHEZ-BERNARDOS, M.L., RUCH, W., ROSSIER, R., CHITT-CHARAT, N., GÜLGÖZ, S., NANSUBUGA, F., SMITH, P.B., MATSUMOTO, D., DIENER, E., BEER, A., HUMRICHOUSE, J., BUDZINSKI, L., OISHI, S., KNEŽEVIĆ, G., DJURIC JOCIC, D., 2005b, Personality profiles of cultures: Aggregate personality traits. *Journal of Personality and Social Psychology*, 89, 407-425.

NUNNALLY, J., 1978, *Psychometric theory*. New York: McGraw Hill.

PAUNONEN, S.V., JACKSON, D.N., 1979, Nonverbal trait inference. *Journal of Personality and Social Psychology*, 81, 524-539.

PAUNONEN, S.V., JACKSON, D.N., KEINONEN, M., 1990, The structured nonverbal assessment of personality. *Journal of Personality*, 58, 481-502.

PAUNONEN, S.V., ASHTON, M.C., JACKSON, D.A., 2001, Nonverbal assessment of the Big-Five personality factors. *European Journal of Personality*, 15, 3-18.

PAUNONEN, S.V., ASHTON, M.C., 2002, The nonverbal assessment of personality: The NPQ and the FF-NPQ. In: B. De Raad, M. Perugini (Eds.), *Big five assessment*. Göttingen: Hogrefe & Huber, 171-194.

PAUNONEN, S.V., ZEIDNER, M., ENGVIK, H.A., OOSTERVELD, P., MALIPHANT, R., 2000, The nonverbal assessment of personality in five cultures. *Journal of Cross-Cultural Psychology*, 31, 2, 220-239.

PERUGINI, M., LEONE, L., 1996, Construction and validation of a Short Adjective Checklist to measure Big Five (SACBIF). *European Journal of Psychological Assessment*, 12, 33-42.

SAUCIER, G., 1994, Mini-markers: A brief versions of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment*, 63, 506-516.

TRAPNELL, P.D., WIGGINS, J.S., 1990, Extension of the interpersonal adjective scales to include the big five dimensions of personality. *Journal of Personality and Social Psychology*, 59, 781-790.

ZUCKERMAN, M., 1979, *Sensation seeking: Beyond the optimal level of arousal*. Hillsdale, NJ: Erlbaum.

THE FIVE-FACTOR NONVERBAL PERSONALITY QUESTIONNAIRE V ČESKÉM KONTEXTU

M. Hřebíčková

Souhrn: Studie obsahuje psychometrické charakteristiky the Five-Factor Nonverbal Personality Questionnaire (FF-NPQ) odvozené z posouzení 1112 respondentů. FF-NPQ je neverbální metoda určená k měření pěti dimenzí osobnosti *(extraverze, přívětivost, svědomitost, neuroticismus, otevřenost vůči zkušenosti).* Prezentované psychometrické charakteristiky obsahují vnitřní konzistenci škál, interkorelace škál a jejich korelace s dvěmi verbálními metodami určenými k měření Big Five. Zkoumány jsou rovněž rodové odlišnosti a míra pěti charakteristik osobnosti u starších a mladších respondentů. Za použití FF-NPQ je také ověřována možnost predikovat další psychologické konstrukty jako je např. subjektivně prožívaný pocit osobní pohody (well-being).