The General Factor of Personality: Ten Years After

Janek Musek

Abstract

According to the empirical and theoretical research in past ten years, the General Factor of Personality (GFP) was interpreted as the highest-order (most general) personality dimension, which occupies the apex of the structural hierarchy of personality traits. Thus, the GFP is the central concept in the new structural paradigm of personality (the Pyramidal Model of Personality). In the majority of the studies, the GFP was conceptualized as a general factor with substantial psychological (cognitive and behavioural) content reflecting the general social and personal adjustment or effectiveness. The alternative explanations of the GFP emphasize the role of the semantic factors, response styles and other biases. This study reviews the main results of the GFP research including the nature, the biological bases, the strength and cultural universality of GFP, its relations to intelligence and other prominent psychological variables, and its predictive power and practical importance.

Keywords: personality, General Factor of Personality (GFP), Five Factor Model, Big Five, cognitive abilities, g-factor

Introduction

The article introducing the General Factor of Personality (GFP) appeared ten years ago (Musek, 2007). The term GFP was coined for the first time in that study and it was also the first study, which has been completely focused to the construct of GFP or the "Big One". The theoretical framework of the study was the Five Factor Model (FFM), which considers five personality traits as the basic dimensions of personality (Big Five): extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N) and (intellectual) openness (O). The study was based on the hypothesis that the Big Five substantially correlate and that the correlations between the Big Five can be explained by higher-order factors including a dominant highest-order factor, which can be interpreted as a general factor in personality domain. The study was conducted on three different samples of participants using three different measures of the Big Five. The results confirmed the higher-order structure of the Big

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Five dimensions, with the GFP at the apex of the dimensional hierarchy, followed by the Digman's Big Two (Alpha and Beta factor or Stability and Plasticity) and the Big Five.

Since the introductory study, a great deal of research has been dedicated to the higher-order factors of personality, including GFP, and to the structural hierarchy of personality (Figueredo et al., 2004; Figueredo, Vásquez, Brumbach, & Schneider, 2007; Figueredo, Woodley, & Jacobs, 2016; Hirschi, 2008; Just, 2011; Loehlin & Martin, 2011; Musek, 2007, 2009, 2010, 2011, 2017; Petrides et al., 2010; Rushton & Erdle, 2010; Rushton, Bons, & Hur, 2008, Rushton et al., 2009; Rushton & Irwing, 2008, 2009a, 2009b; Schermer & Vernon, 2010; van der Linden, Bakker, & Serlie, 2011; van der Linden, Nijenhuis, & Bakker, 2010; van der Linden, Nijenhuis, Cremers, & van de Ven, 2011; van der Linden et al., 2010, 2014, 2015; Vecchione, Alessandri, Barbaranelli, & Caprara, 2011; Veselka et al., 2009a, 2009b).

In a rather short period of ten years, the research of the GFP yielded important results. According to them, the GFP is a general dimension explaining the real, substantive variance in personally and socially adapted behaviour (Lachman et al., 2008; Musek, 2007, 2010; Rocke & Lachman, 2008). It is universal (Aghababaei, 2013; Musek, 2010, 2017; Rushton, Bons & Hur, 2008; Van der Linden et al., 2015), heritable (Figueredo et al., 2004; Loehlin, 2011a, 2011b; Loehlin & Martin, 2011; Rushton et al., 2008), evolutionary based (Figueredo & Rushton, 2009; Figueredo et al., 2016; Musek, 2007; Rushton et al., 2008; Veselka et al., 2009a, 2009b), and neurophysiologically traceable (DeYoung & Gray, 2009; Musek, 2007, 2017). In the following text, I shall describe the research results of the GFP and their theoretical meaning more thoroughly. Finally, I will also introduce the rationale of the planned empirical study aimed at the further clarification of the relations between the GFP and other important psychological variables.
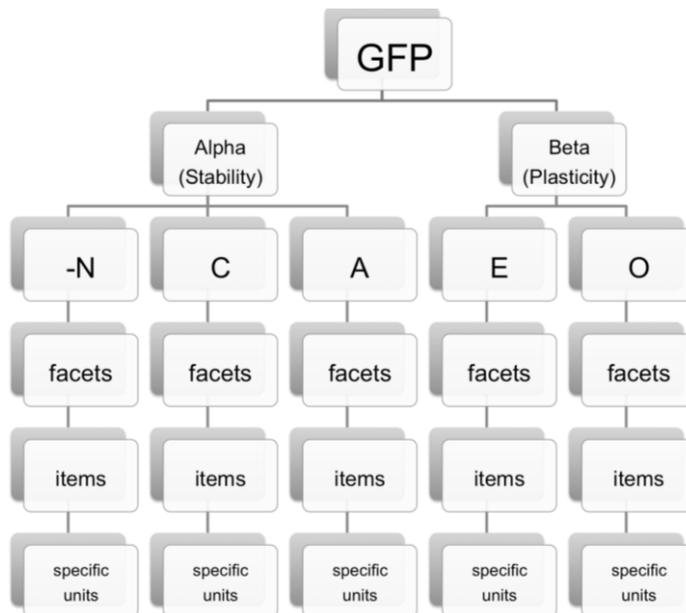
New Structural Paradigm

The GFP represents certainly one of the most researched and vividly debated topics in the personality psychology with many articles and citations in the scientific journals throughout the world. Most recently, GFP received an increasing attention already in the number of the psychological and other textbooks and readings (see, for example Buss, 2016; Chamorro-Premuzic, von Stumm, & Furnham, 2011; Musek, 2010, 2017). Since the first study, more than 300 scientific articles have been devoted to the GFP in top national and international journals including also meta-analytic studies (Rushton & Irwing, 2008; van der Linden et al., 2010) and reviews (Figueredo et al., 2016; Just, 2011; Musek, 2017; Rushton & Irwing, 2011). In the literature focused on the GFP, many important topics have been researched including:

- the meaning of the GFP in modelling personality structure,
- the interpretations and the nature of the GFP,

- the strength and cross-cultural stability of the GFP,
- the GFP relations to other important constructs in psychology,
- the measurement of the GFP,
- the explanatory and predictive power of the GFP, and
- the practical meaning and applicability of the GFP.

In the great majority of all research studies, the existence of the GFP was corroborated. The hypothesized structural hierarchy of personality data has been tested in a variety of multivariate analyses on different samples' data (see Erdle & Rushton, 2010; Hirschi, 2008; Musek, 2007, 2009, 2010, 2011, 2017; Rushton & Erdle, 2010; Rushton et al., 2008, 2009; Rushton & Irwing, 2008, 2009a, 2009b, 2011; Veselka et al., 2009b; Van der Linden, Nijenhuis, & Bakker, 2010). The research results confirmed the role of the GFP in the personality structure implying thus a revision of the prevalent structural models. Therefore, a new hierarchical structural model of personality could be formulated on the basis of the research results. Figure 1 displays the new structural paradigm, which implies several levels of generality with the GFP at the apex. This new model can be labelled the pyramidal model of personality structure emphasizing one single basic dimension of personality.

Figure 1. *Proposed Dimensional Hierarchy in the New Structural Paradigm of Personality (One-Factor or Pyramidal Model of Personality)*

It comprises six levels extending from the most specific level (specific units) to the general factor level (GFP) at the apex. (Musek, 2007, p. 1225). Note that the GFP and Alpha or Stability factor are negatively connected to the neuroticism (N), thus the negative (minus) sign. New structural paradigm definitely breaks with the theoretical position that we can find several basic dimensions in the personality domain and not a single one. For a long time, this position was almost dogmatically defended under assumption that basic personality dimensions are uncorrelated. The false belief in several independent basic dimensions of personality prevailed in personality psychology for decades. In all this time, only very few studies can be enumerated as exceptions proposing single general dimension of personality, which resembles the GFP (Figueredo et al., 2004; Hofstee, 2003; Stankov, 2005; Webb, 1915). In different structural models of personality, different number of basic personality dimensions has been postulated: 16 (Cattell, 1950, 1957), 5 (FFM; Digman, 1990; Goldberg, 1990; John, 1990; McCrae & Costa, 1987, 1998), 3 (Eysenck, 1952, 1970, 1991) and 2 (Digman, 1997; DeYoung, Peterson, & Higgins, 2001). Yet, all these so-called basic dimensions are definitely correlated including the Big Five (Becker, 1999, 2002; Block, 1995; Digman, 1997; John & Srivastava, 1999; Musek, 2007; Ostendorf & Angleitner, 1994; Saucier & Goldberg, 2003; Stankov, 2005; Wiggins & Trapnell, 1996). Consequently, one-factor model of personality emerged from the results of above-mentioned research. The GFP, the main construct of this model is based on the undeniable correlations between other very general personality dimensions including the Big Five.

The GFP and new structural paradigm of personality also fit very well the inter-culturally widespread common sense notion of personality. This notion is extremely general, yet basically mono-dimensional. Everybody knows the expressions like "he/she is basically a good person", "he is a good fellow", "she is a wicked person" and similar. All languages have many thousand words denoting traits and other characteristics of personality. The General Factor of Personality is a basic scientifically defined dimension that integrates core characteristics of the people with socially adapted and effective positive, "good" personality versus the characteristics of socially less acceptable non-pleasant, "difficult" personality. Thus, the GFP is the scientific counterpart of the common sense concept of "good" versus "difficult" personality. Consequently, it is the most general and basic dimension of personality that we know.

The Nature of GFP

According to the correlations between the Big Five, the GFP can be defined as low versus high emotional stability (inverse of neuroticism), agreeableness, conscientiousness, extraversion and intellectual openness. Thus, the psychological meaning of the GFP is quite clear at the first glance. Nevertheless, the nature of the GFP has been vividly debated in the respective scientific literature. The main question is, whether the correlations between lower personality dimensions (e.g. Big Five), which are substantial to the very essence of the GFP, reflect the genuine correlations among the respective behavioural traits or they reflect the influence of artefactual and other non-substantial factors. We can therefore roughly divide the interpretations of the GFP into two classes, the substantial and non-substantial interpretations.

The substantial or substantive interpretations of the nature of the GFP prevail in the majority of the empirical research. Thus, the GFP is interpreted as a general personality meta-trait, which is based on the substantial relationships between personality dimensions. According to these interpretations, the GFP is a dimension with a real psychological and behavioural substance that is rooted in the human evolution and has genetic and neurophysiological features (Erdle & Rushton, 2010; Hirschi, 2008; Musek, 2007, 2010, 2017; Rushton & Erdle, 2010; Rushton et al., 2008, 2009; Rushton & Irwing, 2008, 2009a, 2009b, 2011; Veselka et al., 2009a; Van der Linden, Nijenhuis, & Bakker, 2010; for the review, see Figueredo et al., 2016; Irwing, 2013; Just, 2011; Musek, 2010, 2017; Rushton & Irwing, 2011; Van der Linden, Dunkel, & Petrides, 2016).

Almost all substantive theoretical explanations consider the GFP as a complex dimension that reflects social and personal adjustment and effectiveness. Thus, the GFP encompasses socially approved behaviour and attitudes pervading all most important personality traits including the Big Two and the Big Five. The GFP represents a substantial meta-trait with a very broad influence on human behaviour (Van der Linden et al., 2016). Also, practically all authors emphasize the strong connections to the other non-cognitive psychological domains including the affect, well-being and self-esteem (Musek, 2007, 2010; Rushton & Irwing, 2011; Van der Linden et al., 2016). The majority of authors also emphasize the probable biological, genetic and evolutionary bases of the GFP (Figueredo et al., 2016; Rushton & Irwing, 2011; Van der Linden et al., 2016).

In the article, reviewing the GFP interpretations, Van der Linden et al. (2016) concluded that the conception of the GFP as a general measure of social effectiveness is the most plausible. The authors summarized their conclusions as follows: "The General Factor of Personality (GFP) is a higher-order factor causing lower-order personality traits to show consistent correlations in a socially desirable direction. The literature on the GFP reveals that there are various scientific interpretations of this construct. One interpretation is that it is a substantive factor reflecting general social

effectiveness and exerting a broad influence on behaviour. Another interpretation is that it merely reflects methodological or statistical artefacts and has no further relevance for personality research. We review the empirical literature on the nature of the GFP, its possible links to evolutionary processes, and its relation to other constructs overlapping with social effectiveness. We conclude that the substantive interpretation of the GFP is the most plausible, whereas the notion that it is a psychologically meaningless methodological artefact would be rather difficult to uphold." (Van der Linden et al., 2016, p. 98).

On the other side, the non-substantial interpretations are multiform. Some of them claim that the GFP could be a methodological, response-style or other type of artefact. For example, it was suggested that the GFP is in fact an evaluation factor resulting from the semantic meaning of the questionnaire items (Goldberg, 1993; Saucier & Goldberg, 2003). Further, it was suggested that the GFP is a mere reflection of the social desirability bias (Bäckström, 2007; Bäckström, Björklund, & Larsson, 2009; Pettersson, Turkheimer, Horn, & Menatti, 2011), halo-effect (Anusic, Schimmack, Pinkus, & Lockwood, 2009) or correlated same-signed blends of orthogonal dimensions (Ashton, Lee, Goldberg, & de Vries, 2009).

Several strong objections can be addressed to the interpretations of the GFP as a response bias or an artefact. The social desirability does not necessarily account for the variance of the GFP. If the GFP was partialized by social desirability, the correlations between the Big Five were reduced but not eliminated (Erdle & Rushton, 2011; Musek, 2010; Rushton & Erdle, 2010; Rushton et al., 2009). According to our investigation, the removing of the social desirability effects also does not fundamentally reduce the GFP variance (see Table 1). The loadings on the GFP remained practically the same after removing.

Furthermore, the social desirability itself is probably more a personality trait than a response style. It rests more on the correlations in the real behaviour than on the cognitive schemata residing in our heads (McCrae & Costa, 1983). The following conclusion is therefore very salient: "Thus, the correlations between the GFP and social desirability can perfectly fit the interpretation of GFP as a measure of social effectiveness or social efficacy. Moreover, this interpretation is in concordance with the evolutionary explanations of the GFP, as mentioned before. In any case, the association between the GFP and social desirability would be logical and expected provided the evolutionary origin of the GFP." (Musek, 2017, p. 113). Similarly, the GFP and evaluative meaning should inevitably share some variance. However, this variance is connected with the substantive components of the GFP, which have evaluative meaning (positive or negative). On the basis of the logical and empirical evidence, the validity of other non-substantial theoretical explanations is also questionable (Irwing, 2013). More detailed rebuttal of the non-substantial interpretations of the GFP can be found in Musek (2017, p. 111-120).

Table 1. *Correlations and Partial Correlations between the Big Five*
(Modified after Musek, 2017)

	E	A	C	N	O	GFPo	GFPp
E(xtraversion)	-	.269***	.248***	-.341***	.227***	.50	.59
A(greeableness)	.268***	-	.243***	-.443***	.007	.59	.48
C(onscientiousness)	.240***	.162**	-	-.300***	.099	.43	.39
N(euroticism)	-.341***	-.342***	-.238***	-	-.084	-.71	-.61
O(penness)	.225***	-.004	.096	-.080	-	.16	.21

Note. Original correlations above diagonal, correlations partialized by removing the effect of social desirability (SD) scores under diagonal; GFPo = saturations with the first factor extracted from the original Big Five correlations; GFPp = saturations with the first factor extracted from the Big Five correlations partialized (residualized) on social desirability scores.
*p<.05; **p<.01; ***p<.001.

In sum, the GFP very probably represents a basic dimension of personality, which is evolutionary based and heritable, yet also the result of socialization, child rearing strategy and education. The GFP is a measure of general personal and social adjustment, characterized by high versus low emotional stability, conscientiousness, agreeableness, extraversion and intellectual openness ("good versus difficult personality"). Thus, it can be defined as a dimension of social effectiveness, which is desired in order to reach the important goals in the life: respect, well-being, health, self-esteem, good work, partnership and family relations, success in academic and job career, effective leadership and successful stress management and coping. It is positively related to the ethical standards and morality, wisdom, emotional and social intelligence and negatively related to the "dark triad" (narcissism, macchiavellianism, psychopathy).
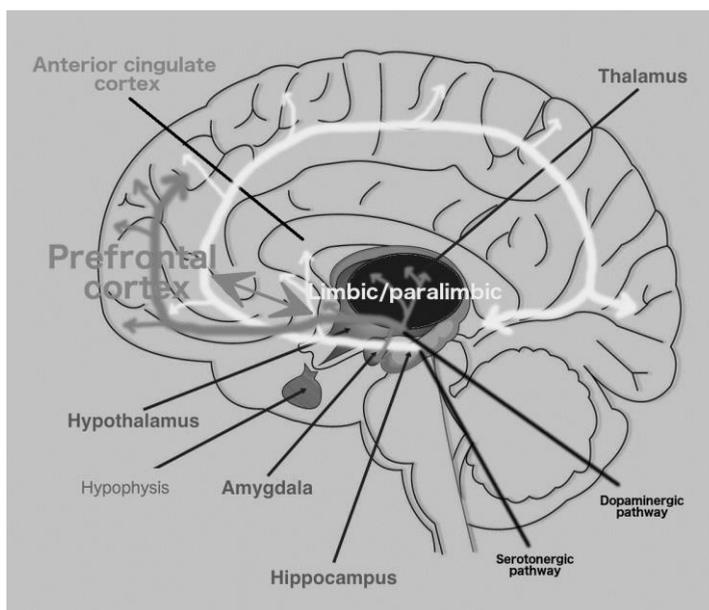
The GFP is very likely the most informative personality dimension measuring general personal and social effectiveness of human being. Better than the majority of existing measures of personality, social effectiveness and adjustment, the GFP can be therefore used for practical objectives in counselling, personnel selection, management, organizational settings, industry, prediction of job and career efficiency or successfulness, stress management and similar.

The Biological Bases of the GFP

Already in the introductory study, the GFP was linked to the biological substrates including the evolutionary, genetic and neural factors (Musek, 2007). Moreover, the GFP can be predicted from the modern theory of evolution, especially in the context of the Life History Theory and Differential K Theory (Figueredo et al., 2004, 2005, 2007, 2016; Figueredo & Rushton, 2009; Rushton, 1985, 1990). Both theoretical models predict the coevolution of personality traits, which are oriented towards the social benefits in human species. The evolutionary background of the GFP implies the genetic basis of the GFP. The GFP can be conceived as the result of

the genetic potential realized through the functioning of the neural structures and associations being involved in the processing of the Big Five correlations. Indeed, the genetic research clearly proved the heritability of GFP (Figueredo et al., 2004, 2007, 2011, 2016; Loehlin & Martin, 2011; Rushton et al., 2008; Veselka et al., 2009a). Additionally, the neuroscientific research strongly suggests that GFP should be linked with the inhibitory control (Cahn-Weiner, Malloy, Boyle, Marran, & Salloway, 2000; Hasher, Zacks, & May, 1999; Rodrigo et al., 2015; Verbruggen & Logan, 2008), the activation of prefrontal cortical structures (Rodrigo et al., 2015) and the limbic/paralimbic structures regulating the affect (Musek, 2017, p. 117). In particular, it has been suggested (Musek, 2007) that the GFP can be associated with the functioning of the central serotonergic system (Spoont, 1992; Tork, 1990) and higher levels of the functioning of ascending rostral dopaminergic system (Ashby, Isen, & Turken, 1999; Davidson, 1995; Depue & Collins, 1999; Panksepp, 1999; Pauls, Wacker, & Crost, 2005). Figure 2 depicts the cerebral structures that can be functionally involved in the processing of the behaviour characteristic for the GFP.

Figure 2. *Hypothesized Neural Structured Involved in the Processing the GFP Behaviour: Prefrontal Cortex, Inhibitory Control Instances and Affect-Regulating Limbic/Paralimbic Structures*

Prefrontal cortex is related to the conscious motivation and executive functions (including working memory, inhibition of impulses, flexible cognitive functioning) and exhibits mutual connections to the affect and motivation regulating instances in the limbic/paralimbic system (dark arrow): amygdala (fear and other stress emotions), hippocampus (memory, learning), hypothalamus (emotions, physiological needs), thalamus (integration of sensory information), anterior cingulated cortex (affect regulation, selective attention, social interactions). These structures are also involved in the functioning of two large neurotransmitter pathways, dopaminergic and serotonergic.

The evolutionary "logic" behind the emergence of the GFP was nicely explained by Rushton et al. (2008, p. 1175): "The position to be presented here grows directly out of Darwin's (1871) view that natural selection endowed modern humans with larger brains, increased levels of general and social intelligence, and a more ethical and pro-social personality than 'primeval man and his ape-like progenitors' (p. 159). Darwin wrote of increased levels of human qualities such as 'courage, sympathy, and faithfulness,' and a 'need for approval by others,' with a concomitant decrease in the frequency of 'selfish and contentious people' who 'will not cohere, and without coherence nothing can be effected' (p. 159). Darwin described how moral and inter-personal skills go hand in hand with the greater intelligence modern people possess."

The biological (evolutionary, genetic and neurophysiologic) basis renders the universality of the GFP even more plausible. Rushton et al. (2008, p. 1173) reported the genetic study of the GFP on the twin sample and found the heritability of 0.82. The authors conclude that "the twin data show GFP has an early age of onset with 50% of the variance attributable to non-additive (dominance) genetic influence and 50% to unique, non-shared environmental influence". On the neuroscientific level, it can be speculated about the possible neurophysiological correlates of the GFP. The genetic and neurophysiologic features of the GFP are almost certainly the products of the evolutionary origins of the GFP, which have been fairly demonstrated in the psychological literature (Figueredo et al., 2016).

Strength and Universality of GFP

The structural position of the GFP is very clear, yet how strong is it? The strength of the higher-order dimensions depends on the size or amount of correlations between the variables in the research model (the Big Five in the case of the GFP). According to Revelle and Wilt (2013), the correlations between the Big Five are significant but small and yield higher-order factors, which are not very representative. Yet in the majority of correlation matrices being analyzed in the GFP research, the correlations between the Big Five could be substantial. The strength of the GFP can be therefore comparable with the strength of the general factor in the cognitive ability domain (famous Spearman's g-factor). However, even this substantial level of the factor strength is based on the underestimated correlations between personality traits. It must be considered that the entire theory of the Big Five rests on the assumption of the independence of basic dimensions of personality. In the construction of the psychological instruments measuring the Big Five, numerous items that have loadings on different dimensions have been eliminated. According to this procedure, the correlations between the Big Five were artificially reduced. Consequently, we are dealing in fact with the reduced correlations of the Big Five and we could logically expect even higher correlations and stronger higher-order factors if the unfiltered data would be included into the analyses.

According to the majority of the research results, the Big Five dimensions of personality have been confirmed in different cultural contexts and seem to be very

cross-culturally stable if not universal (for a review see McCrae & Terraciano, 2008; McCrae, Terraciano et al., 2005; Saucier & Goldberg, 2003; Schmitt et al., 2007; but see also Gurven, von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013). The GFP as even more general dimension than the Big Five is therefore expected to be still more universal. Finally, the GFP is resulting from the correlations among the Big Five.

The GFP was confirmed or extracted from data in different studies performed on the samples of different cultural origin (Aghababaei, 2013; Aziz & Jackson, 2001; Boudreau, Boswell, & Judge, 1999; Cook, 2005; Eap et al., 2008; Lanyon & Goodstein, 2007; Mi Kyoung Jin, 2005; Musek, 2007; Rushton et al., 2008; Schmitt et al., 2007; Yik & Bond, 1993). The results of our own studies demonstrated a rather stable higher-order dimensional structure of personality throughout the cross-cultural data (Musek, 2010, 2017, p. 75-100). In the majority of the analyzed correlation matrices, including the aggregated data for 56 nations (Schmitt et al., 2007) and a number of additional samples from different cultural origin, the extracted first factor showed a consistent pattern of saturations with the Big Two and the Big Five personality dimensions on two subsequent levels of generality. Thus, the results confirmed the hypothesized pyramidal structure of the personality dimensions where the uppermost levels were occupied by the general factor of personality (GFO or the Big One) and the Big Two (Alpha and Beta or Stability and Plasticity). Table 2 is showing the measures indicating the relative strength of the GFP in some studies, where the data have been collected from the samples of different cultural origin. The GFP, which was extracted from the Big Five correlations in these studies, can be conceived as considerable strong and universal at the same time.

Relation to Other Prominent Constructs in Psychology

The dimensions of personality are connected to the large number of other psychological, psychosocial and demographic variables. Thus, we can logically expect several essential associations between the GFP and other domains of psychological variables. Indeed, the results of many empirical studies confirmed the substantial connections of the GFP to many other psychological domains. The GFP overlaps with a great number of important variable domains: affect and emotionality,

Table 2. *Indicators of the Strength of the 1ˢᵗ Factor Extracted from the Big Five Dimensions (Modified after Musek, 2017, p. 187-189)*

Source	OmegaH		ECV		KMO	NFE				PVR	
	3	2	3	2		oc	af	pa	ka	PC	MR
Schmitt et al., 2007 (Aggregated 56 national samples)	0.61	0.40	0.45	0.35	0.655	1	1	1	1	0.71	0.76
Ryff et al., 2007 (MIDUS II)	0.63	0.50	0.62	0.54	0.714	1	1	1	1	0.70	0.81
Musek, 2010 (Slovenian sample)	0.61	0.51	0.68	0.56	0.691	1	1	1	1	0.70	0.64
Eap et al., 2008 (Asian sample)	0.48	0.37	0.49	0.35	0.677	1	1	1	1	0.69	0.75
Eap et al., 2008 (EU sample)	0.55	0.37	0.48	0.36	0.668	1	1	1	1	0.69	0.76
Yik & Bond, 1993 (Hong Kong sample)	0.55	0.49	0.45	0.42	0.689	2	1	2	2	0.73	0.77
Lanyon & Goodstein, 2007 (Chinese sample)	0.73	0.65	0.75	0.70	0.804	1	1	1	1	0.77	0.88
Aziz & Jackson, 2001 (Pakistani sample)	0.64	0.32	0.67	0.30	0.723	1	1	1	1	0.71	0.85
Mi Kyoung Jin, 2005 (Korean sample)	0.51	0.25	0.51	0.24	0.577	2	2	2	2	0.61	0.71
Boudreau, Boswell, & Judge, 1999 US sample	0.57	0.31	0.65	0.39	0.690	2	1	2	2	0.66	0.79
Boudreau, Boswell, & Judge, 1999 EU sample	0.50	0.26	0.47	0.25	0.673	1	1	1	1	0.64	0.80
Cook, 2005 UK sample	0.71	0.66	0.67	0.65	0.812	1	1	1	1	0.82	0.92
Cook, 2005 UK sample	0.76	0.67	0.75	0.65	0.791	1	1	1	1	0.79	0.78

Note. OmegaH = McDonald omega hierarchical coefficient, 3 (1ˢᵗ subcolumn: value for 3 primary factors), 2 (2ⁿᵈ subcolumn: value for 2 primary factors); *ECV* = Explained Common Variance coefficient, 3 (1ˢᵗ subcolumn: value for 3 primary factors), 2 (2ⁿᵈ subcolumn: value for 2 primary factors); *KMO* = Kaiser-Meyer-Olkin measure of sampling adequacy; *NFE* = suggested number of factors to be extracted according to the following criteria: optimal coordinates (*oc*; 1ˢᵗ subcolumn), acceleration factor (*af*; 2ⁿᵈ subcolumn), parallel analysis test (*pa*; 3ʳᵈ subcolumn), Kaiser criterion (*ka*; 4ᵗʰ subcolumn); *PVR* = ratio of the % of variance explained by the first factor to the sum of the % of variance explained by the first and second factor (values for the PC /*PC*/ solution in the 1ˢᵗ subcolumn and for the MINRES /*MR*/ solution in the 2ⁿᵈ subcolumn).

well-being, happiness and quality of life, mental health, psychopathological dimensions, self-esteem, self-concept and self-construals, motivation, coping, burnout, social desirability, impression management, approval seeking, social and emotional intelligence, empathy, spitiruality, religiosity, wisdom, dark triad, values and ethics, decision making styles, and to some extent even - intelligence.

In the introductory study of the GFP, the very substantial correlations with affect (positive and negative), self-esteem and well-being have already been reported (Musek, 2007). In the following research literature, the substantial relations to these and other psychological variables were convincingly demonstrated (for more details, see Musek, 2017). The psychological variables related to the GFP include:

- the affect and emotionality;
- well-being, happiness and quality of life;
- mental health and psychopathology;
- self-esteem, self-concept and self-construals;
- motivation, coping and burnout;
- social desirability, impression management, approval seeking;
- social and emotional intelligence;
- prosocial behaviour, empathy, altruism;
- spitiruality and religiosity;
- wisdom;
- dark triad;
- values and ethics;
- decision making.

In the research literature, very robust correlations between the GFP and measures of emotionality, motivation, well-being and self-esteem have been found (Erdle & Rushton, 2010; Erdle, Irwing, Rushton, & Park, 2010; Lachman et al., 2008; Musek, 2007, 2008, 2009, 2010, 2017; Rocke & Lachman, 2008). Indeed, the correlations between GFP and general factor of well-being range up to .80 (Musek, 2008). Together with the general factors of motivation, emotionality and well-being it composes a very general psychological dimension covering the non-cognitive part of personality and represents the conative counterpart of the general factor of intelligence (see the next subsection). Our analyses of the MIDUS II data (Ryff et al., 2007; Ryff & Lachman, 2010), for example, yielded substantial correlations between 16 prominent non-cognitive (conative) psychological variables and their correlations with the GFP (Table 3; see also Musek, 2017, p. 205-277).

Table 3. *Means, Standard Deviations, and Correlations between Non-Cognitive (Conative) Variables*

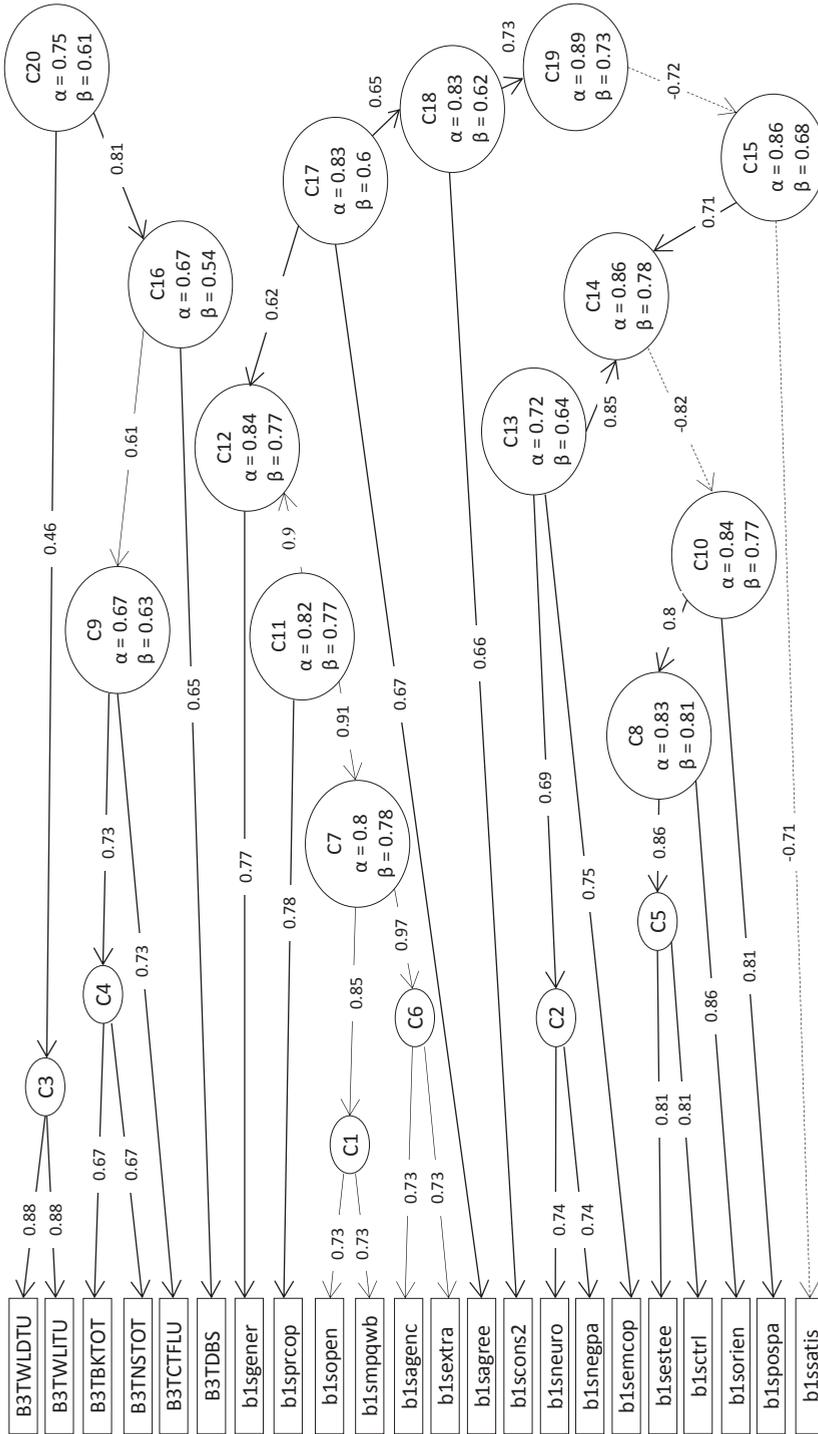| Variable	M	SD	GFP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Optimism	23.30	4.75	.45**															
2. Satisfaction with life	7.72	1.37	.29**	.36**														
3. Well-being	8.98	1.79	.53**	.49**	.31**													
4. Negative affect	1.53	0.51	-.29**	-.39**	-.37**	-.32**												
5. Positive affect	3.61	0.75	.52**	.47**	.43**	.51**	-.46**											
6. Perceived control	5.57	0.98	.45**	.59**	.39**	.49**	-.43**	.49**										
7. Self-esteem	37.92	7.32	.49**	.60**	.39**	.50**	-.52**	.57**	.66**									
8. Neuroticism	2.07	0.62	-.33**	-.47**	-.28**	-.35**	.56**	-.40**	-.40**	-.50**								
9. Extraversion	3.10	0.57	.90**	.36**	.25**	.52**	-.21**	.47**	.37**	.41**	-.20**							
10. Agreeableness	3.44	0.50	.68**	.20**	.16**	.26**	-.10**	.26**	.16**	.18**	-.12**	.50**						
11. Openness	2.91	0.54	.74**	.35**	.16**	.53**	-.15**	.34**	.38**	.39**	-.22**	.51**	.32**					
12. Conscientiousness	3.40	0.45	.46**	.27**	.24**	.25**	-.23**	.34**	.36**	.38**	-.19**	.26**	.27**	.32**				
13. Agency	2.61	0.67	.52**	.31**	.13**	.42**	-.12**	.31**	.35**	.39**	-.11**	.51**	.07**	.52**	.27**			
14. Problem focused coping	37.91	6.06	.53**	.47**	.25**	.51**	-.22**	.42**	.44**	.45**	-.26**	.39**	.31**	.50**	.40**	.39**		
15. Emotion focused coping	22.16	5.46	-.19**	-.40**	-.21**	-.25**	.38**	-.27**	-.42**	-.42**	.45**	-.08**	.00	-.20**	-.26**	-.11**	-.26**	
16. Generativity	17.05	3.84	.50**	.32**	.21**	.43**	-.11**	.33**	.31**	.34**	-.16**	.40**	.33**	.47**	.25**	.37**	.44**	-.15**

Note. *$p<.05$; **$p<.01$. M and SD are used to represent mean and standard deviation, respectively.

Two Most Dominant General Factors

Strong overlapping with numerous crucial psychological variables makes the GFP also suspect for being the representative of still wider general dimension in the entire non-cognitive domain of psychological variables. We can found very general dimensions correlating with the GFP in different fields of the variables across the non-cognitive realm of human behaviour. For example, Erdle and Rushton (2010, p. 763) confirmed the hypothesis that "the GFP and measures of BIS–BAS, self-esteem, positive and negative affect, and expectancy of reward and punishment, will load on a single factor". This is entirely in concordance with the assumption that GPF is a dimension involved in even broader general factor in the scope of non-cognitive psychological domains (Musek, 2010).

The question arises therefore, whether the GFP is a representative of still more general factor underlying the entire non-cognitive sphere of personality. Musek (2017) reported the results of two special studies that confirmed the existence of a very broad general factor, the first in the analyses of 32 psychological variables (the Comprehensive general factor of CGF), and second in the analyses of 63 variables (Super-g). Both general factors include the GFP and other dominant general factors (DGFs) representing thus the most general non-cognitive psychological dimension. The research evidence suggests low or even zero associations between non-cognitive traits including personality and cognitive abilities including intelligence. There are very few studies that examined the relations between both big domains of psychological variables. Musek (2017, p. 264-277) reported also the results of a study on 28 variables from two big domains of psychological variables: the non-cognitive or conative domain including personality, well-being, affect, self-esteem, coping and others, and the cognitive abilities domain including intelligence. The structural analysis of the involved variables clearly yielded two strong higher-order dimensions, which can be interpreted as Super-g factor in domain of non-cognitive traits and g-factor in domain of cognitive abilities. As expected, the association between both general factors was low although significant. In the data of the similar analysis of 22 variables (16 non-cognitive traits and 6 cognitive abilities), a clearly separated clusters of non-cognitive traits and cognitive abilities have been found (see Figure 3).

Figure 3. *The Hierarchical Cluster Structure of 22 Variables According to the ICLUST Algorithm (Revelle, 2015)*

Note. The variables are assigned by their original codes from MIDUS II project. For details see the text.

According to the ICLUST procedure, all 22 variables definitely split into two independent clusters, C19 and C20. C19 subsumes all non-cognitive traits from generativity (b1sgener) to life satisfaction (b1ssatis). On the next level, C19 encompasses two large sub-clusters, C15 (neuroticism /b1sneuro/ to life satisfaction /b1ssatis/) and C18 (/b1sgener/ to consciousness /b1scons2/). Provided emotional stability, affect and self-esteem as markers for C15 and the openness, extraversion and agency as psychological markers for C18, the first cluster can be interpreted as stability and the second as plasticity. Indeed, both resemble quite well the stability and plasticity factor being identified elsewhere. Stability cluster (C15 and slightly reduced C14) can be decomposed into two further sub-clusters, C10 and C13, first marked by self-esteem (b1sestee), perceived control (b1sctrl), optimism (b1sorien) and positive affect (b1spospa), and second, marked by emotion focused coping (b1semcop), neuroticism (b1sneuro) and negative affect (b1snegpa). Life satisfaction (b1ssatis) represents the third, single variable sub-cluster of C15. Plasticity cluster (C18) subsumes a larger sub-cluster C17, which splits apart to the sub-cluster C12 and consciousness (b1scons2) as a single variable sub-cluster. The core sub-cluster of plasticity is C11 with the variables problem focused coping (b1sprcop), openness (b1sopen), personal well-being (b1smpqwb), agency (b1sagenc) and extraversion (b1sextra).

Thus, the hypothesis that only two highest-order general dimensions dominate over the variables in the research model is strongly corroborated by the results of above-mentioned studies. The first general dimension pervades not only the great majority of single variables in the domain of non-cognitive traits yet also the general factors representing the most important non-cognitive sub-domains (personality, well-being, affect, coping). Similarly, the second general dimension covers all single cognitive abilities as well as both sub-domains of them (memory and executive processing). Thus, we may conclude that the variance of the most important psychological variables can be effectively explained by two latent super-dimensions, the Super-g representing the non-cognitive traits and their domain-specific GFPs (including the general factor of well-being and GFP), and the general factor of cognitive abilities, cognitive super-g, which is practically identical with the Spearman g-factor.

Predictive Power and Practical Importance of GFP

The GFP is bearing the accumulated information from all most important personality dimensions. It is not surprising therefore that GFP is among the most important predictors in various domains of our psychological experience and behaviour. Usually (but not always), the predictive power of the GFP exceeds the predictive strength of any other single predictor.

The GFP is a hypothetical predictor in relation to a wide range of the dependent variables in the mental experience, behaviour, interpersonal relations and elsewhere in the life of the individual. The possible criteria of the GFP include:

- mental and physical health,
- academic success,
- professional, job and career achievement,
- satisfaction with partnership, family life and professional life,
- satisfaction with friends, peer and overall social relations, and
- global life satisfaction and successfulness.

In the scientific research of the GFP we can find the examples of the variables and domains, where we can expect the potential predictive power of the GFP: affect and emotionality, well-being, happiness and quality of life, mental health, psychopathology, self-esteem, self-concept and self-construals, motivation, coping, burnout, social desirability, impression management, approval seeking, social and emotional intelligence, empathy, spitiruality, religiosity, wisdom, dark triad (negative correlations with GFP), values and ethics, decision making and leadership styles, maybe even intelligence. The predictive strength of the GFP is further expected in other psychological and behavioural domains, which are related to the above mentioned: healthy life style; academic and professional achievement and success; satisfaction with partnership, family life, professional life and job career; global life satisfaction and successfulness.

In the special literature, devoted to the GFP, we can trace several studies linking various aspects of social effectiveness with the GFP (for a review, see Van der Linden et al., 2016). The persons with higher GFP scores are more popular and likeable (Van der Linden et al., 2010), more humorous (Aitken Schermer, Martin, Martin, Lunskey, & Vernon, 2013), more successful in job performance (Sitser, Van der Linden, & Born, 2013; Van der Linden, Te Nijenhuis, & Bakker, 2010), They also more strongly behave in the socially prescribed manner (Bell, Woodley, Schermer, & Vernon, 2012; Dunkel, 2013), exhibit less delinquency (Van der Linden et al., 2015) and are more effective in decision-making strategies (Dunkel, Cabeza de Baca, Woodley, & Fernandes, 2014). The GFP is also definitely associated with higher levels of social knowledge and skills (Dunkel & Van der Linden, 2014; Dunkel, Van der Linden, Brown, & Mathes, 2016; Van der Linden et al., 2014). Finally, the GFP is very substantially related to the emotional intelligence, especially trait emotional intelligence (Van der Linden et al., 2012; Veselka et al., 2009b). In our own research, we found rather high correlation of the GFP with emotional intelligence (r=.54), and the GFP was the strongest personality predictor of the emotional intelligence (Musek, 2010, p. 569-272).

The GFP very probably represents the most informative personality dimension measuring general personal and social effectiveness of human being. That implies also the wide usefulness for many practical purposes and applications. Therefore, the

GFP can be used for practical objectives in counselling, personnel selection, management, organizational settings, industry, prediction of job and career efficiency or successfulness, stress management and similar.

Conclusions

The General Factor of Personality (GFP) is the most general personality dimension, being identified in the recent personality psychology (Musek, 2007; more than 300 scientific articles in top scientific psychological reviews thereafter). It represents a basic dimension of personality, which is evolutionary based and heritable, yet also the result of socialization, child rearing strategy and education. The GFP is a measure of general personal and social adjustment, characterized by high versus low emotional stability, conscientiousness, agreeableness, extraversion and intellectual openness ("good versus difficult personality"). Thus, it can be defined as a dimension of social effectiveness, which is desired in order to reach the important goals in the life: respect, well-being, health, self-esteem, good work, partnership and family relations, success in academic and job career, effective leadership and successful stress management and coping. It is positively related to the ethical standards and morality, wisdom, emotional and social intelligence and negatively related to the "dark triad" (narcissism, macchiavellianism, psychopathy). The GFP is among the most important predictors in psychology, predicting very wide range of criteria including mental and physical health, academic success, professional, job and career achievement, satisfaction with partnership, family life and professional life, satisfaction with friends, peers and overall social relations and, finally, the global life satisfaction and successfulness. Better than the majority of existing measures of personality, social effectiveness and adjustment, the GFP can be therefore used for practical objectives in counselling, personnel selection, management, organizational settings, industry, prediction of job and career efficiency or successfulness, stress management and similar.

The following conclusions are especially focused on the results that convincingly corroborate some characteristic outcomes of the GFP research in the past ten years.

First, the correlations between the Big Five exhibit the pattern that has been found in the majority of GFP research. Neuroticism negatively correlated with other Big Five dimensions, which are mutually positively correlated. Beside this, the correlations between extraversion and openness are higher than the average correlations among the Big Five. This pattern of the Big Five correlations is rather typical for the data, where the GFP and the Big Two were extracted in the introductory GFP study (Musek, 2007) and further GFP research. Thus, a strong first factor has been extracted from the Big Five correlation matrix in MIDUS II data. It can be easily interpreted as a GFP.

Further, the GFP is substantially related to the variables in other important psychological domains including optimism, satisfaction with life, well-being, affect, self-esteem, perceived control, agency, coping and generativity. Similar results can be traced in the majority of the comparable GFP studies in the past decade. Thus, the results of this study confirmed the hypothesis that the GFP is considerably associated to the crucial variables in other domains of non-cognitive traits.

The substantial correlations within the domain of the conative or non-cognitive variables (including personality dimensions) justify the search for a very general super-dimension underlying the entire domain. Indeed, this super-dimension, labelled Super-g, was found in the previous GFP research (Musek, 2017) and was also confirmed in this study. The GFP is obviously an important component of the Super-g. According to our results, both dimensions correlated .78, sharing thus 61 percent of their variance.

The GFP research also demonstrated that the GFP connections with the variables in the domain of intelligence and related cognitive abilities are very weak although they can be significant. Exactly this may be the conclusion that can be drawn also from the results of this study. Conative traits and cognitive abilities represent two rather homogeneous clusters of variables that are sharply separated in the psychological space. There is no variable in each cluster that would be even close to any variable of other cluster. This finding confirmed again the results of the previous GFP studies (see also Musek, 2017).

Our analyses confirmed therefore also the hypothesis that the overall multivariate analyses of non-cognitive (conative) traits and cognitive abilities together should demonstrate a dimensional structure with two dominant factors, Super-g and g-factor, each representing a general factor within the respective domain.

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Factor general de la personalidad: Diez años después

Resumen

Según las investigaciones empíricas y teoréticas en los últimos diez años, el FGP se interpretaba como la dimensión de la personalidad de orden más alto, lo que ocupa el ápice de la jerarquía estructural de los rasgos de la personalidad. Por eso, el FGP es el concepto central en el nuevo paradigma estructural de la personalidad (Modelo Piramidal de la Personalidad).
En la mayoría de los estudios, el FGP se ha conceptualizado como el factor general con el contenido sustancial psicológico (cognitivo y conductual) que refleja el ajustamiento general sociológico y personal o la eficiencia.
Las explicaciones alternativas del FGP acentúan el papel de los factores semánticos, estilos de respuesta y otros sesgos. Este estudio revisa los resultados principales de las investigaciones del FGP. Incluyendo la naturaleza, bases biológicas, fuerza y universalidad cultural del FGP, sus relaciones con la inteligencia y otras variables psicológicas prominentes, tanto como su fuerza predictiva e importancia práctica.

Palabras claves: personalidad, factor general de la personalidad, FGP, Modelo de los cinco grandes, Cinco grandes, habilidades cognitivas, factor G