

# Hardiness and the Big Five personality traits among inhabitants of the Ural region

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**Abstract** – The problem of the study of individual factors in the course of hardiness formation is considered herein. The authors presented the study results of the hardiness level and the Big Five factors of the residents of the Ural region. 148 people (69 males and 79 females) aged 17 to 65 years took part in the study. Two instruments used which were the Russian-language version of the “Hardiness Survey” questionnaire edited by D.A. Leontiev and The Russian-language version of the Big Five questionnaire (TIPI). Pearson correlation analysis and multiple regression analysis were used to confirm the hypotheses of the study. The results of the study confirmed the hypothesis that the individual traits of the Big Five (extroversion, conscientiousness, emotional stability and openness to experience) correlate with the level of hardiness. In addition, data were obtained on the impact on the level of the hardiness of the three features of the Big Five: extroversion, integrity and emotional stability. The article discusses the limitations of the study and the possibilities of the practical application of the results.

**Keywords** – *resilience, hardiness, personality traits, factors of the big five, opposition to stress.*

## I. INTRODUCTION

The relevance of the study of individual hardiness predictors can be explained by the growth of such new threats in the 21st century as terrorism, economic and political crises, armed conflicts, information wars, climate change, etc. The growing number of stressors and their intensity require the scientific community to search for resources to ensure the effective functioning of the individual in all conditions.

The authors admit that the ability to withstand difficulties is determined by three groups of factors: some features (individual resources), environmental factors (family and public resources), and processes (seeking help from others) [1, 2, 3]. These factors help people continue to act in the face of danger.

## A. Hardiness

Numerous studies have shown that finding a positive even in a traumatic situation contributes to the growth of physical health and well-being of an individual [4]. They provided the basis for the emergence of concepts in which global attitudes are considered, contributing to the acquisition of positive meaning and evoking positive emotions in difficult life situations. These include the theory of salutogenesis by A. Antonovskiy [5] and the theory of individual hardiness by S.R. Muddy [6, 7, 8].

Hardiness is a complex of beliefs about one's person, about the world, about relationships with it. This phenomenon includes three autonomous elements: involvement, control, risk acceptance [9]. The severity of the components of hardiness prevents the creation of internal stress that occurs in stressful situations, due to the sustained resistance to stress and their perception as less significant [9]. Hardiness is a protective mechanism that triggers when confronted with negative life events or adverse living conditions [10].

Three messages of hardiness complement each other, forming together a disposition that contributes to reduction and facilitates the toleration of the ontological anxiety associated with the choice of the future. High involvement implies active participation in everything that happens. The manifestation of control is expressed in the conscious setting that, it is possible to influence the consequences of current events through struggle. The challenge is expressed in the desire to experience one's own positive or negative experience [6].

Over the past 30 years, it has been shown that hardiness provides existential courage and motivation to turn stressful circumstances from potential disasters into growth opportunities [8].

### B. Big Five Model and hardiness

The attention of researchers has always been drawn to the analysis of the relationship of hardiness with various personality traits [11, 12, 13, 14, 15, 16]. At the same time, many of them relied on the Big Five Individual Factors Model, which suggests that the variability in human abilities related to the variability of five independent dimensions: extroversion, benevolence, conscientiousness, emotional stability, openness to experience [17]. The fact that it is independent of the language and other cultural aspects of people determined choice of this model [18]. Cross-cultural studies on six continents confirm the idea that the Big Five Individual Factors model is universal [12, 16, 18, 19].

Previous studies established a link between all the features of the Big Five and resilience [11]. There are numerous indications of the dependence of the resilience of adolescents [11, 20] and students [21, 22] on the characteristics of the Big Five. Namely, direct correlations of resilience with extraversion, openness, pleasantness and integrity, as well as inverse correlations of resilience with neuroticism were found [11, 20].

It should be noted that in many foreign studies, resilience is researched as a dynamic process that embraces positive adaptation in the context of a difficult life situation [11]. In this case, researchers use the term “psychological resilience” [11, 20, 21], rather than “hardiness”. Psychological resilience is a complex structure that includes features, results, and the process associated with recovery, and is interpreted differently in different contexts: family, organizational, social, and cultural [23].

Much less research is devoted to studying of the connection of hardiness, as a set of beliefs about one’s personality and the world (hardiness) with the features of the Big Five [12, 16]. Researchers found that hardiness correlated with such individual factors as extroversion, conscientiousness (direct correlation) and neuroticism (inverse correlation) [16]. Researchers point out that individual factors make it possible to predict the level of the hardiness of Chinese students, regardless of their age and gender [12].

Thus, the problem of the relationship between hardiness and individual factors is widely discussed by foreign researchers and is practically not investigated in Russia. However, the analysis of this problem makes it possible to organize more effectively the interventions when working with people who find themselves in difficult life situations.

Therefore, the purpose of this work is to study the relationship between hardiness and Big Five Factors in the residents of the Ural region.

## II. MATERIALS AND METHODS (MODEL)

### A. Study design

Mass survey using standardized questionnaires represented study design.

### B. Sampling

The study involved 148 people (69 men and 79 women) living in the Ural region of Russia. The age of respondents ranged from 17 to 65 years.

### C. Diagnostic tool

To determine the level of the hardiness of the study participants, a Russian-language version of the “Hardiness Survey” questionnaire revised by D.A. Leontiev was used. For the study of personality traits, a Russian version of the Big Five questionnaire (TIPI) was used.

### D. Procedure

Data collection was carried out individually. The texts of the questionnaires were prepared for each participant, which they filled in independently. The interviewers explained the purpose of the study and answered the questions related to the procedure for filling in the standard forms.

### E. Statistical Analysis

The relationship Pearson Correlation was used to examine, while the Multiple Regression was used to determine the influence of personality traits on hardiness.

## III. RESULTS AND DISCUSSION

### A. Hardiness level of the study participants

Average trends reflecting the level of hardiness and its elements in the sample under study are presented in Table 1.

TABLE I. DESCRIPTIVE STATISTICS FOR HARDINESS

Hardiness indicators	Measures (points)				
	$N^a$	$M^b$	$SD^c$	$SK^d$	$K^e$
hardiness	148	83.6	20.0	-0.4	-0.1
commitment	148	37.1	8.6	-0.7	0.3
control	148	29.5	8.6	-0.3	0.1
challenge	148	17.0	5.2	-0.2	-0.5

a. N: sample size

b. M: mean

c. SD: standard deviation

d. Sk: Skewness

e. K: Kurtosis

The diagnostic results coincided in general with the data obtained during the testing of the method used [9]. In general, the sampling showed a tendency towards high values on the “risk acceptance” scale. This makes it possible to characterize the study participants as people who believe that experience, regardless of its emotional evaluation, can have positive consequences and contribute to personal development.

### B. Personality characteristics of study participants

Table 2 presents the average trends reflecting the severity of the Big Five factors in the sample under study.

According to the data obtained in the sample studied such individual factors as conscientiousness and openness to experience dominate. This makes it possible to characterize the study participants as people who tend to experience intensely the emotions, question the authorities, accept and support new ethical, social and political ideas. They are distinguished by reliability in work, purposefulness, ability

to plan activities and consistently act in accordance with the outlined plan.

TABLE II. DESCRIPTIVE STATISTICS FOR PERSONALITY MEASURES

Features of the personality	Measures (points)				
	N <sup>a</sup>	M <sup>b</sup>	SD <sup>c</sup>	Sk <sup>d</sup>	K <sup>e</sup>
extraversion	148	8.1	2.5	-0.2	-0.1
agreeableness	148	9.3	2.3	-0.3	0.3
conscientiousness	148	11.0	1.9	-1.1	1.2
emotional stability	148	8.9	2.7	-0.3	-0.4
openness to experience	148	9.8	2.3	-0.2	-0.6

<sup>a</sup>: N: sample size  
<sup>b</sup>: M: mean  
<sup>c</sup>: SD: standard deviation  
<sup>d</sup>: Sk: Skewness  
<sup>e</sup>: K: Kurtosis

C. The relationship between the level of hardiness and individual factors

Figure 1 shows the significant correlations found during the study.

The study found significant direct correlations between the level of hardiness and individual factors: extraversion, conscientiousness, emotional stability and openness to experience. The obtained data correspond to the results of studies conducted by foreign authors.

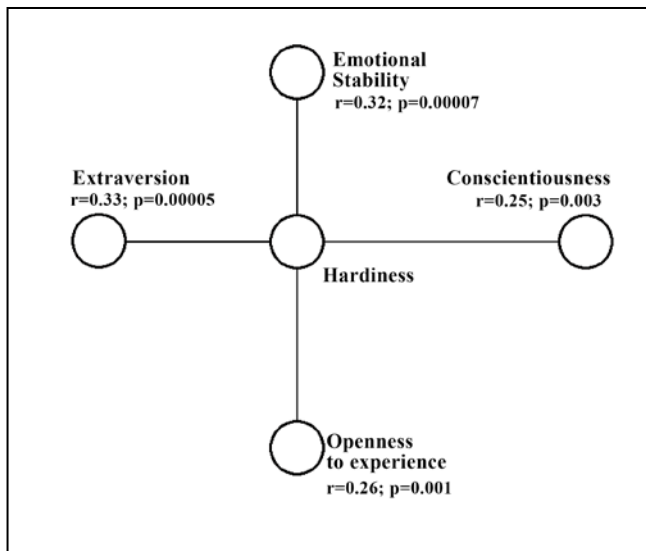


Fig. 1. Correlations between hardiness and five-factor personality traits.

In particular, it was previously established that the relationship of hardiness with extraversion, conscientiousness, openness and emotional stability is direct [11, 13, 16, 20, 24].

D. Influence of the individual factors on hardiness

The results of multiple regression analysis confirmed the hypothesis that individual factors affect the level of hardiness (table 3).

In particular, 3 regression models were obtained, which explain 10.6% to 22.4% of the hardiness variance in the

sample under study. According to the results of mathematical modeling, the level of hardiness is determined by such individual factors as extraversion, emotional stability and openness to experience.

TABLE III. RESULTS OF THE MULTIPLE STEP-BY-STEP LEAST SQUARE REGRESSION MODELS

Independent variables and constant	Model 1	Model 2	Model 3
	The standardized coefficients (β-BETA)		
constant	62.51**	40.63**	27.59*
extraversion	2.64**	2.67**	2.39**
emotional stability	0.32	2.42**	2.32**
openness to experience	0.21	2.7	1.64*
The report for model			
R	0.325	0.459	0.494
R <sup>2</sup>	0.106	0.211	0.244
P	0.00005	0.000001	0.0000001

\* p<0.05  
 \*\* p<0.001

Extroversion is characterized by a tendency to be self-confident, to be active and search for dominance in relationships. Extroverts are distinguished by positive emotions, higher frequency and intensity of personal interactions and a higher need for incentive. Moreover, extraversion, in general, is associated with optimism and the ability to positively reassess the problem situation [14]. In general, the cheerful nature of extroverts makes them focus on the good and positive side of the events, which explains their influence on the formation of such a global personality orientation as hardiness. In addition, extraversion is associated with the use of rational strategies to solve problems and to seek social support [14]. Therefore, it is not surprising that empirical studies have shown an inverse relationship between extraversion and professional burnout [25, 26].

The influence of integrity on the formation of hardiness can be explained by the fact that this individual factor is associated with constancy, conscientiousness and self-discipline [14]. Probably, it is these qualities that contribute to the formation of the message for control, which is a component of hardiness. The researchers also found a negative relationship between honesty and emotional exhaustion [27].

Most often in studies of all the Big Five factors, such individual factor as emotional stability (the opposite of neuroticism) was associated with vitality [11, 13, 16, 20]. At the same time, neuroticism reveals negative correlations with resistance to stress [11, 14, 16], and emotional stability, as was shown in this study, contributes to the formation of a person's ability to withstand a stressful situation, while maintaining internal balance and success of the activity. The found patterns can be explained by the fact that the ability to control oneself and regulate emotions in difficult life situations allows a person to develop existential courage, which presupposes readiness to act in spite of ontological anxiety, anxiety loss of meaning, despite loneliness and despair [9].

Thus, the results obtained on a sample of Russian citizens confirm the data on the relationship between hardiness and the Big Five factors obtained by foreign researchers. This suggests that these relationships are universal and do not depend on the national context.

#### IV. CONCLUSION

The results of the study confirmed the hypothesis that the Big Five individual factors (extroversion, conscientiousness, emotional stability and openness to experience) correlate with the level of hardiness. Moreover, the data were obtained on the impact of three Big Five factors: extroversion, good faith and emotional stability on the hardiness level of a person.

The results of the study confirm the data obtained by foreign researchers. This suggests that these relationships are universal and do not depend on the national context.

A number of limitations of the presented research should be noted. Firstly, the small sample size significantly limits the conclusions made. Secondly, the limitation of the study is related to the fact that self-reports of the respondents were used to determine both of the studied variables. This method is subject to social desirability factors, which could affect the results obtained. However, a comparison of the obtained data with the results of other studies, as well as their critical analysis, can significantly reduce the listed drawbacks of the study.

The research results are of practical value. First, they showed that certain individual factors can be predictors of hardiness. For example, this study indicates that extroversion, good faith, and emotional stability can determine the level of personal vitality. These results suggest that when planning programs to overcome difficult life situations, introverts and people with a high level of neuroticism should be considered as requiring special attention. Also, intervention programs aimed at building hardiness can use the data to develop the blocks related to personal growth and self-improvement.

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