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Features of Modern Man Hardiness in the Pandemic Era

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Abstract: Introduction. The article raises the actual problem of instability and uncertainty in the modern world associated with the pandemic and the social restrictions that followed it. In particular, the influence of the levels of resilience components on the effectiveness of the behavior of representatives of helping professions in the era of VUCA has not been studied before. The experimental study aimed to analyze the hardiness characteristics of various population groups in a pandemic situation. **Methods.** The study used the original Maddy Hardiness Survey adapted by D. A. Leont'ev and E. I. Rasskazova. The experimental study was conducted in Yelets, Lipetsk region, and 360 people (girls and women) participated. The sample was made up of representatives of different social groups: students, teachers of educational organizations, social workers, and healthcare workers (an equal number from each group). Statistical analysis of the results was carried out using single-factor analysis of variance, Student's t-test using the SPSS-21 software package. **Results.** The study results showed that most of the students and teachers who participated in the experiment have a high level of hardiness, while a third of the residents of these groups have a low level; medical workers are equally characterized by high and medium levels, and social workers demonstrated almost identical indicators of high and low levels. The data obtained allow us to conclude about more developed indicators of hardiness in medical workers. However, statistical analysis of the results shows that the level of resilience does not depend on the type of employment of the respondents. **Discussion.** Analysis of the degree of one or another component of the manifestation of hardiness in the respondents showed that "control" is dominant. It indicates that most respondents are convinced that the mobilization of internal forces will allow them to adapt to a situation of uncertainty and cope with stressful circumstances of life.

Keywords: hardiness, vitality, engagement, control, risk taking, coping with stress, coping strategy, resilience, personality, pandemic era

Highlights:

► The levels of hardiness of representatives of various social groups under the conditions of a pandemic have been revealed. Most of them have high and medium levels, indicating readiness and ability to cope with stressful situations.

- Among the residents of various social groups who participated in the experiment, the dominant component of hardiness is control – this indicates their conviction that “struggle” and the choice of an activity strategy will help to influence the result of the negative influence of stressful situations.
- A third of the respondents demonstrated a low level of hardiness, suggesting their inability to withstand stressful influences and adapt to changing circumstances in a situation of uncertainty.

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Introduction

Currently, the abbreviation VUCA or VUCA-the world, derived from the English ‘instability’, ‘uncertainty’, ‘complexity’ and ‘ambiguity’, is becoming increasingly popular – these concepts can briefly describe the modern world (Luthans & Broad, 2022; Alkhaldi et al., 2017). It is impossible not to agree with this because today’s realities significantly change the life of a modern person. Recent calls to get out of the ‘comfort zone’ are now unclaimed. Almost the entire modern population is experiencing an era of large-scale changes. The complex epidemiological situation, the associated social restrictions and regulatory requirements, the unstable international situation, and many other factors seriously influence the human psyche (Hagger & Hamilton, 2022). The current trends mentioned above in the development of society have renewed interest in the study of the psychological mechanisms through which a person can not only resist changes (often negative) but also develop a constructive strategy of behavior. A modern member of society just needs to be more adaptable, be able to adapt easily, and be flexible and mobile. In the context of all the above, it is advisable to turn to the study of such a personality trait as *hardiness*.

Hardiness as a psychological phenomenon, in the aspect of its scientific development, in a certain sense, can be called some ‘by-product’, which was the result of practical interest in other tasks, namely, coping with stress, the problem of which is quite relevant today. It should be noted that the study of this phenomenon is not new: this term came into use in the 70s of the XX century in the West. Examining in 1975 the employees of one of the companies, S. Maddi and S. Kobeisa found the presence of high-performance indicators in only a third of employees in the presence of distressed manifestations in all others. The authors of the study concluded that this third of the ‘stable’ (it is how the word ‘hardiness’ is translated from English, originally used by S. Maddi) has many personal characteristics that allow them to cope with stress and recover quickly enough after it (Fominova, 2012; Odintsova et al., 2020; Fedotova, 2020). In Russian psychology, D. A. Leont'ev introduced his own version of the word ‘hardiness’ into the Russian language, additionally ‘anchoring’ the meanings ‘life’ and ‘resilience’ already contained in the root anchor words, gave their combination an additional meaning: a belief system that prevents the emergence of tension in difficult life situations (Leont'ev & Rasskazova, 2011; Egorova et al., 2019; Bragina, 2014).

Maddi’s concept of ‘hardiness’ received the deepest response from humanistically oriented psychologists. S. Maddi himself based his concept on Tillich’s (P. Tillich) – ‘existential courage’ (to assert one’s being and accept life as it is, despite circumstances). In this context, he presented it as a variant of reducing ontological anxiety (Duganova, 2010). It should be noted that the

idea of a person's ability to withstand the negative effects of the environment was somehow identified in the number of concepts put forward by other authors (not in 'hardiness'), including 'courageous despair' by S. Kierkegaard, and 'vitality' by B. G. Ananyev, and 'acceleration in being' by M. Heidegger, and 'courage to create' by R. May, and 'maturity' by G. Allport, and 'transcendence' by S. L. Rubinstein and A. Maslow, and 'presence' by J. Byugental (Nikitin, 2017; Pankov, 2019) and others. Nevertheless, S. Maddi included "his" 'hardiness' in his own theory of personality – the theory of activation, according to which a person can establish an active, cognitively, and emotionally conditioned connection with the environment and not act with fully relying on the innate or biologically determined nature of his behavior (Bragina, 2014; Kobasa, Maddi, & Kahn, 1982). S. Maddi says, first of all, that hardiness manifests itself; firstly, in stressful situations and other moments of life, it does not manifest itself; secondly, hardiness is not just a belief in one's own future and not simple optimism, but is an attitude (as S. Maddi emphasizes) to use all (even negative) options that a person's life situation provides, to be able to extract wise experience from it for oneself, and use this experience to transform your life. Third, 'hardiness', according to S. Maddi, differs very significantly from coping strategies, which S. Maddi considered a rigid-stereotyped response of the subject to the environment, but hardiness is still close to transformational coping, even being productive and active (Nikolaeva, 2013; Franchuk & Gavryuchenko, 2015).

Analyzing the concept of 'hardiness', one should ask the question: "Do such attitudes arise to act in a stressful situation only as an experience of acting in a stressful situation?". The answer is ambiguous because some people 'give up' under stress when others show miracles of heroism, i.e. such attitudes of action in difficult life situations are, in a sense, both 'blurred' and 'consolidated' attitudes for the individual to live and behave in a very specific way. And it is impossible not to agree with S. Maddi, who actually 'deduces' hardiness from the Self-concept of personality and believed that it necessarily considers "a system of beliefs about oneself, the world, and relationships with it, which prevents the emergence of internal tension in stressful situations, and also contributes to coping with stress" (Egorova and others, 2019, p. 23). That is, hardiness reflects the psychological vitality of the individual in the adaptive aspects of its psychological effectiveness in various, especially difficult, life situations. But this is not the only characteristic of the phenomenon being studied.

It can be said that hardiness is not only the general position of a person, only 'acutely' realizing himself in stress, but also vitally active in all other manifestations of life (Southwick & Charney, 2018). It should be particularly noted that hardiness, reflecting the psychological maturity of the individual, cannot be considered outside of universal spiritual and moral categories. Otherwise, the question should be raised about the survivability of the individual or his desire to survive at any cost, even at the expense of others. In this case, the focus of attention is no longer psychological aspects but biological ones as the basis for the continued existence of an individual.

In the context of the study of hardiness, many authors refer to the concept of 'resilience'.

As already noted above, the weak predictability of changes in modern society, combined with gross interference in the nature of humanity, obviously opposes a certain balance of stability and dynamism of the environment, both external and internal, in their obvious interconnectedness. In this regard, the status of axiomatic phenomena that relate to the external conditions of human life (the environment as a whole, climate, geophysical living conditions, spatial terrain, etc. as

the conditions of his life that are available and not so quickly and strongly changed as a result of human activity) and the purely 'human' conditions of his life (from his mentality, lifestyle as a whole of a separate population, and to his purely individual adaptive characteristics), human resilience can be attributed as an extremely complex and multidimensional phenomenon, but before in total, as a "form of manifestation of activity and adaptability of the system" (Makhnach, 2012, p. 84).

The term 'resilience' was originally interdisciplinary but, in the Russian language, it was first used by A. A. Bogdanov in the mid-20s of the last century in the general theory of systems, in the 60s – by B. G. Ananyev in psychology, in the concept of the holistic study of human, in the 50s and 60s. he has already met in cybernetics, synergetics and the analysis of social objects, in the 80s – in medicine, pedagogy, biology, psychology (Tolochek, 2021; Makhnach, 2020). A. V. Makhnach is considered to be the Russian 'luminary' of the resilience study.

A. V. Makhnach (Makhnach, 2012), in his justification of the legality of using the term 'resilience' along with 'hardiness', analyzes the biological and social understanding of this phenomenon. According to A. V. Makhnach, resilience is a measure of a person's adaptation to environmental conditions, his medical characteristics (individual plasticity as an indicator of health, reflecting the conservatism of the internal environment with a feeling of full strength (integral attribute of health) in response to changing conditions).

A. V. Makhnach also analyzes the differences in understanding of the 'hardiness' and 'resilience' concepts, agreeing that the concept of 'resilience' in the Russian language is extremely amorphous, and in the scientific language is still vague. He focuses on the fact that such aspects as preserving one's life, existing and developing, being adapted to life, and literally 'being alive' are more acceptable for resilience, while the author interprets hardiness as the ability to possess vitality and endure unfavorable conditions of existence (Makhnach, 2012, p. 94). In other words, in this context, the emphasis can be placed as follows: for resilience – first of all, biological, for hardiness – psychological (Luthar & Suchman, 2000; Masten, 2011).

However, in the context of studying the characteristics of building a constructive behavior model that promotes effective functioning in an unstable situation, the term 'hardiness' is more acceptable. This postulate is confirmed by many studies. In particular, hardiness was considered as a personality trait that helps cope with uncertainty (Rivera et al., 2021; Santilli et al., 2020; Schwarz, 2018), as a mechanism that allows you to recover quickly after exposure to stressful factors (Cooper et al., 2020), as a protective mechanism that allows you to maintain health, including mental health (Li & Hasson, 2020; Walker & Cooper, 2011), as a personality trait that helps to cope with social isolation in conditions of forced social restrictions (Labrague et al., 2021; Nagi et al., 2021; Linkov & Trump, 2019).

So, we can conclude with full responsibility that hardiness is a system of personal beliefs that allows a person to function effectively in an era of change.

Thus, the study of the hardiness level of a modern member of society does not lose its relevance. On the contrary, the social instability inherent in actual life indicates the need for a detailed study of psychological mechanisms that allow a modern person to effectively cope with rapidly changing living conditions and develop a constructive behavior pattern. In this regard, *the purpose of our study* was to study the resilience of various population groups. The coverage of various segments of the population will provide a more complete picture of the level of ability to withstand instability.

Methods

To examine the characteristics of the hardiness of various population groups, we used the original version of the Hardiness Survey by S. Maddi, adapted by D. A. Leont'ev, E. I. Rasskazova (Leont'ev & Rasskazova, 2006) (using Google Forms). 360 people (girls and women) participated in the study. The respondents were representatives of different social groups of Yelets, Lipetsk region: students of I. A. Bunin YSU (20 ± 2.3 years, $n = 90$), teachers (43 ± 20 years, $n = 90$), social workers (43 ± 20 years, $n = 90$) and medical workers (43 ± 20 years, $n = 90$). The student sample consisted of students studying pedagogy, psychology, social work and medicine. The group of medical workers included both nurses and doctors. It should be particularly noted that the medical workers involved in the treatment of COVID-19 did not act as respondents because the medical personnel who provide support to such patients are in special working conditions and affect their psychological state. The main criterion for sample formation was the massive impact on study participants of social restrictions and other innovations relevant to modern society due to the need to counteract the spread of a new infection caused by the coronavirus COVID-19. The pandemic imposed quite serious restrictions on the daily life and the performance of the professional and educational duties of all participants in the study (this is the constant use of individual protective equipment, restriction of movement, and the technologization of significant areas of life). The sample was randomly collected with 90 residents of each group. Quantitative and qualitative data processing was performed using the SPSS-21 software package.

Results

According to a generalized analysis of all the data obtained during the diagnosis, it is shown that 53 % of teachers, 56 % of university students, and 44 % of representatives of the social sphere and medicine demonstrate a high level of hardiness. The average level is 45 % of medical workers. 46 % of representatives of the social sphere, 33 % of teachers and 31 % of students have a low hardiness level. The medical workers were divided almost in half into people with high and medium hardiness and social workers – the majority with low or high hardiness (the results are presented in Table 1).

Table 1

The different social groups respondent's hardiness level

Hardiness level	Teachers		Students		Social workers		Medical workers	
	(people)	%	(people)	%	(people)	%	(people)	%
Low	30	33	29	31	42	46	10	11
Average	12	14	11	13	9	10	41	45
High	48	53	50	56	39	44	39	44

The table above shows that most of the respondents with a high level of hardiness were observed in the group of teachers and students. It is more than half of the representatives of these groups. However, about a third of both groups of teachers and students have a low level of hardiness. One can see that this is not a small number. The significant notion that the fewest participants in the study with a low level of hardiness were observed in the medical workers group. Most of the representatives have a high and medium level of hardiness precisely in this group. It allows one to state that medical workers are the most resilient among teachers, students, and social workers.

Most of the representatives with a low level of hardiness were observed in the social workers group. Almost half of the respondents in the group show this level. Meanwhile, nearly the whole other half has a high level of hardiness.

However, in our sample, the level of hardiness (final value) does not depend on the area of activity of the subjects (the data were confirmed using a one-way analysis of variance $F = 0.091$). Therefore we should turn to a more detailed approach using a one-way analysis of variance, and Student's t-test.

As mentioned above, hardiness as a personality characteristic consists of three main components:

- *Challenge* is considered as "a person's conviction that everything that happens to them contributes to their development through knowledge derived from experience, positive or negative all the same" (Leont'ev & Rasskazova, 2006, p. 4).

- *Control* is considered as "a person's conviction that the struggle allows one to influence an outcome of what is happening, even if this influence is not absolute, and success is not guaranteed" (Leont'ev & Rasskazova, 2006, p. 4).

- *Commitment* is considered as "the conviction that everything that happens creates a chance to find something worthwhile and interesting for personality development" (Leont'ev & Rasskazova, 2006, p. 4).

An analysis of the expression of various components among representatives of groups of respondents with different types of employment will allow us to understand what resources the study participants of a particular group use to cope with stress inducing factors abounded in their actual living activities. In this case, to determine the statistical significance of the differences in the mean values, we used Student's t-test as a mathematical method. Hardiness indicators were compared among social group representatives with different types of employment.

Table 2

Hardiness components indicators in different social group representatives (mean value, standard deviation)

Hardiness indicators	Teachers	Students	Social workers	Medical workers
Commitment	6.5 ± 4.2	6.7 ± 4.8	4.8 ± 3.7*	8.3 ± 4.4

Hardiness indicators	Teachers	Students	Social workers	Medical workers
Control	8.6 ± 3.5	7.9 ± 3.2	8.2 ± 3.4	8.2 ± 2.8
Challenge	5.1 ± 4.2*	3.4 ± 4.0*	3.3 ± 4.0*	5.3 ± 3.6*
Hardiness	16.7 ± 10.6	16.9 ± 10.9	14.7 ± 10.2	19.4 ± 10.1

* – significance at $p \leq 0.05$ according to Student's *t*-test.

An analysis of the results presented in Table 2 suggests that the dominant hardiness component in the representatives of all social groups participated in the study is 'control'. That is, teachers, students, social workers, and doctors are convinced that it is the 'struggle' that will allow them to function effectively in the situation of uncertainty and instability. According to the respondents, it is due to the mobilization of all internal forces, that it is possible to influence current events and achieve some result, regardless of its completeness.

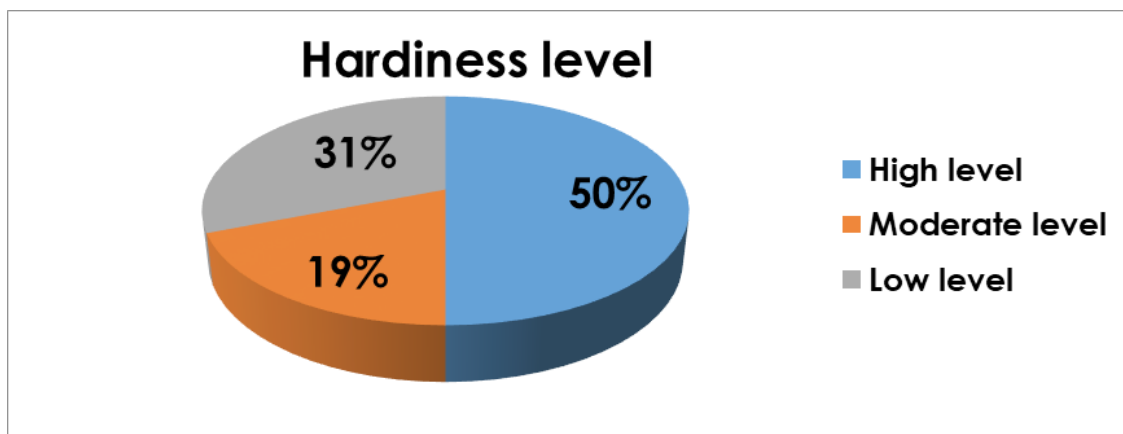
In contrast, representatives of all groups showed low results in the hardiness component 'challenge'. The results obtained can be interpreted as follows: the participants in the study are nowhere near convinced in the benefit of what is happening at the moment in their lives. They do not consider that the social situation in which they live and function contributes to their development. Of great importance is that students and social workers are the least ready to accept the current situation. Moreover, if the position of students can be explained by youthful maximalism, then low indicators for this component among social workers cause concern.

Indicators in different social groups range significantly in the third hardiness component 'commitment'. Among medical workers, 'commitment' is at a quite high level, which shows that the respondents in this group believe that everything that happens is valuable, interesting and stimulates development. However, among social workers, this indicator is not at a high level. That is, they do not see anything positive or interesting in the current situation that could affect their development. For teachers and students, the indicators for this component are essentially identical. This appears to be surprising, because for students this indicator should certainly be higher than for the older generation representatives.

As mentioned above, based on the data obtained in the course of statistical data processing (one-way analysis of variance and Student's t-test), we can conclude that the level of hardiness does not depend on the type of employment. That is, the sample can be conditionally divided into three groups: the first group is resilient (50 % of the total sample), the second group is not resilient (31 %), and the third group is moderately resilient (19 %). The data are presented in Figure 1.

Figure 1

Level analysis of population hardiness



The first group is characterized by high commitment ($F = 4.12$), that is, a pronounced interest in life: they enjoy their life activities, always ready to discover something new for themselves, to learn, to develop themselves, demonstrate an active life position, easily make contact, treat the world as generous. Their 'control' ($F = 17.62$) is at a high level: they are ready to struggle, have a clear confidence that it is not worth fending off difficulties, the result of their activity depends directly on their personal efforts, and they are not afraid to solve the appearing tasks. They are diagnosed with a high level of challenge ($F = 3.13$), that is, people are ready to implement new ideas; they believe that they have made the right choice of their professional activity, and life troubles and problems are perceived by them as one of the stages of the life cycle; any experience, both positive and negative, fills their life with meaning.

The second group is characterized by low commitment ($F = 3.47$), that is, they lost interest in life and do not enjoy it, do not want to discover something new for themselves, learn, self-develop; for them, it is difficult to make contact. Their level of control ($F = 13.83$) is low, that is, people are not ready to struggle, they have a clear confidence that nothing good can be expected from life, the result of their activities does not depend on their efforts, they are afraid to solve the problems that confront them. They are diagnosed with a low level of 'challenge' ($F = 2.24$), that is, people are not ready to implement new ideas; they believe that they made a mistake in the choice of their profession, they strive for comfort and security, the world seems hostile to them.

The third group is characterized by moderate commitment ($F = 2.84$), that is, interest in life is not lost, but they do not enjoy their activities in life, do not want to discover something new for

themselves, learn, develop themselves, to establish contact if they are interested in the subject of communication. Their level of control ($F = 10.11$) is low. They were diagnosed with an moderate level of challenge ($F = 2.97$), that is, people are ready to implement new ideas when they are sure of success; they believe that the choice of their profession is justified, the accumulated knowledge and experience help them in their professional activities; they seek comfort and security, the world often seems hostile to them.

Therefore, a statistical analysis (a one-way analysis of variance) of the data showed that the level of control most clearly affects hardiness of the respondents.

Discussion

The analysis of the problem of hardiness of the respondents selected from various social groups was carried out in the studies of domestic and foreign scientists: medical workers (Alhawatmeh et al., 2021; Lagodich et al., 2020), students (Rivera et al., 2021; Karaman et al., 2020; Özbey et al., 2014; Shereshkova, 2019), social workers (Pharris et al., 2022), teachers (Mayasova et al., 2019; Frizen, 2018). Analysis of these works showed that the hardiness of these social groups was studied in various aspects: comparative characteristics by gender, conditions (Mayasova et al., 2019), in relation to personal qualities (Frizen, 2018), with life satisfaction (Özbey et al., 2014), hope for the future, meaning in life (Rivera et al., 2021), place of residence and participation in management activity (Frizen, 2018), emotional burnout (Lagodich et al., 2020), and others. During the pandemic, hardiness aspects were studied only in relation with certain social categories of the population and are reflected in a limited number of works (Labrague et al., 2021; Alhawatmeh et al., 2021; Rivera et al., 2021).

The present study shows the level of hardiness of various population groups (in our sample, of representatives of helping professions and students – future teachers, psychologists, social and medical workers), exposed to stress in a pandemic situation, in changing living conditions and their professional and/or educational activities, and their comparative features.

The data obtained indicate that a greater number of respondents participated in the study have either a high or moderate level of hardiness. However, a third of the participants showed a low level of hardiness. This draws especial attention, since this category of people is characterized by loss of interest in life, lack of pleasure from professional activities, unwillingness to discover something new, reluctance to implement new ideas, and other characteristics. The further development and consolidation of the 'symptom complex' described above can lead to significant negative consequences. Namely, there is a chance of developing an inability to resist negative trends. People with these characteristics will not be able to build a constructive strategy of behavior in the current stress inducing world. It is of great interest that most of the respondents with the above set of characteristics are social workers.

The vast majority of the study participants cope with current trends (instability, abundance of stress, uncertainty, ambiguity, and others) due to 'control', one of the components of hardiness. However, it may well lead to such negative consequences as emotional burnout.

All of the above indicates the necessity of studying in more detail the hardiness level of modern population, of assessing the level of formation of each of the components of this personal characteristic. Presumably, it is the adequate level of hardiness that will allow a modern person to function effectively in the era of VUCA.

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Author Contributions

O. E. Elnikova conducted a theoretical analysis of scientific literature on the research problem, wrote a review part of the article; planned and conducted the research; wrote the conclusion and findings of the article; conducted a critical overview of the content of the article.

A. N. Pronina worked with the references, wrote a review part of the article; wrote the «Discussion» section.

I. V. Faustova conducted the experiment; interpreted and described received quantitative and qualitative results; wrote the abstract and conclusions; conducted a critical overview of the content of the article.

L. Yu. Komlik conducted the experiment; conducted the quantitative and qualitative processing of the received data using the SPSS-21 software package; interpreted and described received quantitative and qualitative results; designed the results in figure and table forms.

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Conflict of Interest Information

The authors have no conflicts of interest to declare.