ORIGINAL ARTICLE

CONTENTS

Resilience, hardiness and social support in combatants with non-psychotic mental disorders that have suffered from Covid-19

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ABSTRACT

Aim: To establish the features of resilience, hardiness and social support in combatants with non-psychotic mental disorders who have suffered from COVID-19 in a comparative aspect.

Materials and Methods: 252 male combatants with non-psychotic mental disorders who suffered from COVID-19 were clinically examined using Connor–Davidson resilience scale-10, Brief Hardiness Scale and MSPSS. The examination included a clinical interview organized by the method of a semi-structured clinical interview, during which the presence and detail of complaints from the affective sphere was established, as well as an assessment of the severity of resilience, hardiness and social support. Statistical analysis of differences in categorized traits was performed using Fisher's exact test (one-sided), quantitative traits - using the nonparametric Mann-Whitney test.

Results: In combatants with non-psychotic mental disorders that have suffered from COVID-19 were found lower levels resilience: 18.08±10.06 points vs 23.41±8.80 points ($p<0.0001$); hardiness: 12.28±4.20 points vs 15.67±6.88 points ($p<0.001$) and his components: commitment: 3.50±1.81 points vs 4.89±2.76 points ($p<0.0001$), control: 4.44±1.70 points vs 5.38±2.40 points ($p<0.01$) and challenge: 4.33±1.79 points vs 5.40±2.42 points ($p<0.001$); social support: 11.63±4.29 points vs 14.68±4.62 points ($p<0.0001$) and his components: family support: 3.85±1.54 points vs 4.95±1.58 points ($p<0.0001$), friends support: 3.95±1.48 points vs 5.00±1.77 points ($p<0.0001$) and significant other support: 3.83±1.51 points vs 4.73±1.53 points ($p<0.0001$). Among combatants with non-psychotic mental disorders who did not suffer from COVID-19, people with average and high levels of resilience, moderate resilience and a high level of social support predominated, and among combatants who recovered from COVID-19, people with low resilience, hardiness and social support.

Conclusions: Combatants with non-psychotic mental disorders are characterized by a low level of resilience and hardiness, as well as a moderate level of social support, significantly worse in combatants that have suffered from COVID-19.

KEY WORDS: combatants, non-psychotic mental disorders, COVID-19, resilience, hardiness, social support

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INTRODUCTION

Restoring the health and social functioning of combatants is one of the most important tasks of the state during the war and in the post-war period. Participation in an armed conflict entails a number of psychosocial, medical and economic consequences characterized by a complex combination of biological, psychological, social, cultural and political factors [1]. Combatants have an increased risk of depression, anxiety disorders, post-traumatic stress disorder, various forms of addictions, which often become chronic and long-lasting, significantly reducing the adaptive capacity and quality of life of combatants [2].

An important role in the psychosocial rehabilitation and readaptation of combatants is played by the features of stress response, which is a component of personal potential; these features can be used as predictors of psychosocial maladaptation and should be taken into account when planning rehabilitation measures [3].

In recent years, the attention of researchers has been drawn to personality characteristics such as resilience and hardiness, which are important for combating the severe psycho-emotional stress of war [4, 5].

Resilience is considered as a dynamic process that determines the individual's ability to restore adaptive and effective psychosocial functioning and ensure personal growth after a period of maladaptive functioning, which is a consequence of the disorganizing action of psychotraumatic factors [6]. Resilience is one of the key factors that determines a serviceman's ability to counteract the stress of combat operations and restore normal mental functioning [7]. It is important that resilience

in modern clinical psychology and psychotherapy is not considered as a static innate trait, but as a dynamic personality characteristic that can change in the course of life and is subject to correction [8, 9].

Along with resilience, hardiness is important for resistance to psycho-emotional stress, which is considered a psychological trait that allows an individual to maintain a normal psychological state under the influence of extraordinary stressful events and remain healthy despite severe stress [10, 11]. In the structure of hardiness, three components are distinguished: commitment (an individual's conviction that participation in events gives him a chance to find something important and interesting), control (confidence in the fact that the struggle with circumstances gives an opportunity to influence the result, even if this influence is not absolute , and success is not guaranteed), and challenge (the belief that all events contribute to personal development through the acquisition of knowledge and experience - both positive and negative) [12]. Hardiness is an important component of the personal characteristics of a serviceman, which determine his professional suitability and effectiveness of functioning in combat conditions, as well as affect the emotional state and behavioral strategies [13, 14].

Social support of combatants is an important factor in their resocialization and psychological adaptation, helping to reduce the severity of post-traumatic symptoms, depression and anxiety [15, 16]. Importantly, social support has been shown to moderate genetic and environmental vulnerability and increase resilience, as confirmed by neurobiological studies; this opens up new perspectives for the development of intervention methods to prevent the development of mental disorders [17].

The COVID-19 pandemic caused a significant negative impact on the mental activity of people around the world, including military personnel [18]. During the pandemic, military personnel experienced greater psychological stress compared to civilians, which, in combination with the impact of professional stress, led to a high risk of developing mental illnesses [19, 20]. A special danger for mental health is the transferred coronavirus infection, which was found to be associated with the presence of both acute and long-term mental disorders, in particular, affective disorders, cognitive dysfunction, somatovegetative manifestations and various forms of dyssomnias [21-23]. At the same time, the impact of negative psychological factors associated with the COVID-19 pandemic. can be effectively reduced by increasing resilience and using constructive behavioral strategies [18]. Hardiness was also found to moderate the impact of stress due to COVID-19 on depressive and anxiety symptoms [24].

The research hypothesis was that combatants with non-psychotic mental disorders who recovered from COVID-19 have a worse resilience, hardiness and social support compared to combatants who did not have COVID-19.

AIM

The aim of the study was to establish the features of resilience, hardiness and social support in combatants with non-psychotic mental disorders who have suffered from COVID-19 in a comparative aspect.

MATERIALS AND METHODS

In compliance with the principles of biomedical ethics on the basis of informed consent, we clinically examined 252 male patients who were directly involved in combat operations, and who applied for psychiatric help in the Ternopil Regional Neuropsychiatric Hospital and for consulting and medical assistance in the Department of Psychiatry, Narcology and Medical Psychology of the Ternopil National Medical University named after I. Y. Gorbachevskiy during 2020-2022. The selection of patients for the study was carried out using a sampling method based on the following criteria: participation in hostilities and the establishment of a diagnosis of non-psychotic mental disorder to the criteria of ICD-10. the criterion for exclusion from the study was the presence of mental disorders of the psychotic register, narcological pathology, as well as concomitant severe somatic diseases. Among these patients, we identified two groups: patients who did not have COVID-19 numbering 132 people (group 1 – G1), and patients who had COVID-19. which was confirmed by enzyme immunoassay or polymerase chain reaction and recorded in the relevant medical documentation, numbering 120 people (group 2 – G2). Comparison of the results of clinical and psychopathological, psychodiagnostic and psychometric studies was carried out by comparing the indicators of patients of the first and second groups.

STUDY DESIGN

The study was carried out in three stages. At the first stage, patients were selected for the study and their medical records were studied. At the second stage, a clinical examination of patients and a psychodiagnostics study using resilience, hardiness and social support scales were carried out. At the third stage, statistical processing, data analysis and generalization of the research results were made.

The study used clinical, anamnestic, psychodiagnostic and statistical methods. Clinical and anamnestic meth-

ods were used to assess the subjective manifestations of affective pathology and their dynamics, the psychodiagnostic method – for a standardized assessment of the level of resilience using the Connor–Davidson resilience scale-10 [25], hardiness using the Brief Hardiness Scale [26] and social support using the Multidimensional Scale of Perceived Social Support (MSPSS) [27], the statistical method – to analyze the differences in indicators.

The examination included a clinical interview organized by the method of a semi-structured clinical interview, during which the presence and detail of complaints from the affective sphere was established, as well as an assessment of the severity of resilience, hardiness and social support.

Statistical analysis of differences in categorized traits was performed using Fisher's exact test (one-sided), quantitative traits - using the nonparametric Mann-Whitney test.

RESULTS

In general, combatants with non-psychotic mental disorders had a moderate level of resilience. At the same time, in combatants who not suffered from COVID-19 the resilience index corresponded to a moderate level (within 21-25 points), and in combatants who were have suffered from COVID-19, it was lower than the average level (Table 1). Differences in resilience scores between groups statistically significant.

When studying the peculiarities of the distribution of the examined combatants into groups depending on the resilience indicator, differences were also found depending on the transferred COVID-19 (Table 2).

Most combatants with non-psychotic mental disorders who have suffered from COVID-19 belonged to the group with a low level of resilience (37.5%), moderate (25.0%) and higher than moderate (24.2%) levels of resilience. The specific weight of combatants with lower than average (7.5%) and high (5.8%) levels of resilience turned out to be the smallest in this group.

In a group of combatants with non-psychotic mental disorders who did not have suffered from COVID-19 the majority of those examined had a higher than moderate level of resilience (36.4%). The specific weight of persons with moderate (22.7%), low (18.9%) and high (16.7%) levels of resilience was also significant, and the smallest – with a lower than moderate level (5.3 %). Statistically significant differences between groups 1 and 2 were found for low, above average and high levels.

Combatants with non-psychotic mental disorders also had a low level of hardiness and its components (table 1). Indicator of commitment in combatants with non-psychotic mental disorders who did not have suffered from COVID-19 turned out to be moderate and the lowest among all components of hardiness. Commitment is associated with the ability to get satisfaction from one's own activity, and its low level creates in the individual a feeling of rejection, detachment from life, a feeling that he is "on the sidelines" of life, and the surrounding world is unfair and indifferent to him. In combatants with non-psychotic mental disorders who have suffered from COVID-19 the commitment rate was low, and significantly lower compared to combatants who did not have suffered from COVID-19.

The control indicator among combatants who did not have suffered from COVID-19 turned out to be significantly higher, than in combatants who have suffered from COVID-19. Control implies the individual's confidence that he chooses his own path, and low control indicators give rise to a feeling of helplessness, powerlessness in the face of circumstances.

Challenge in combatants who did not have suffered from COVID-19 also turned out to be significantly higher, although the quantitative values of the indicator are also not very high. Challenge is associated with the tendency to take risks and the willingness to act despite the lack of reliable guarantees of success through the active assimilation of knowledge and experience and their further use to achieve life goals. A low level of challenge is associated with passivity, reluctance to take risks even in situations when the goal is attractive, a tendency to "go with the flow", and a desire for peace and security.

The general level of hardiness in combatants who have and not have suffered from COVID-19 corresponded to a moderate level, while in persons who did not have suffered from COVID-19 it was significantly higher.

The study of hardiness levels also confirmed these patterns (table 2). Although in groups G1 and G2, most of the examined belonged to moderate hardiness (54.3% and 64.7%, respectively), among those who did not have suffered from COVID-19 there were more people with high hardiness - 30.2% against 11.8%, and among those who were have suffered from COVID-19 - more people with low hardiness - 23.5% against 15.5%.

Interesting data were obtained when studying the features of social support. In general, a high level of social support among combatants with non-psychotic mental disorders was found for the social support of friends (Table 1). Level of family social support in combatants with non-psychotic mental disorders who did not have suffered from COVID-19 also approached a high level, and the level of social support significant other was moderate. Combatants with non-psychotic mental disorders who have suffered from COVID-19 also rated the level of social support from friends the high-

Table 1. Indicators of the resilience, hardiness and social support in combatants with non-psychotic mental disorders

Indicators	Value, points M±SD (conf. limits 95%) / Me [Q_{25}-Q_{75}]		p
	G1, n=132	G2, n=120	
Connor Davidson Brief Resilience Scale			
Resilience	23.41±8.80 (21.89–24.92) / 26.00 [21.00–30.00]	18.08±10.06 (16.26–19.89) / 22.00 [7.00–27.00]	<0.0001
Brief Hardiness Scale			
Commitment	4.89±2.76 (4.42–5.37) / 4.00 [3.00–6.00]	3.50±1.81 (3.17–3.83) / 3.00 [3.00–4.00]	<0.0001
Control	5.38±2.40 (4.96–5.79) / 5.00 [4.00–6.00]	4.44±1.70 (4.13–4.75) / 4.00 [4.00–5.00]	0.0049
Challenge	5.40±2.42 (4.98–5.82) / 5.00 [4.00–6.00]	4.33±1.79 (4.01–4.66) / 4.00 [3.00–5.00]	0.0004
Hardiness	15.67±6.88 (14.49–16.86) / 13.00 [11.00–20.00]	12.28±4.20 (11.52–13.03) / 12.00 [11.00–14.00]	0.0001
Multidimensional Scale of Perceived Social Support			
Family Subscale	4.95±1.58 (4.68–5.22) / 5.00 [3.75–6.50]	3.85±1.54 (3.57–4.13) / 4.00 [2.50–5.25]	<0.0001
Friends Subscale	5.00±1.77 (4.70–5.31) / 5.25 [3.50–6.63]	3.95±1.48 (3.68–4.22) / 4.00 [3.00–5.00]	<0.0001
Significant Other Subscale	4.73±1.53 (4.47–4.99) / 4.75 [3.75–6.00]	3.83±1.51 (3.56–4.10) / 3.75 [2.88–5.00]	<0.0001
Total score	14.68±4.62 (13.89–15.48) / 15.25 [11.00–18.75]	11.63±4.29 (10.85–12.40) / 11.63 [8.63–15.00]	<0.0001

Source: compiled by the authors of this study

Table 2. Structure of levels of the resilience, hardiness and social support in combatants with non-psychotic mental disorders

Level	G1, n=132		G2, n=120		p
	abs.	%	abs.	%	
Connor Davidson Brief Resilience Scale					
Low resilience	25	18.9	45	37.5	0.0008
Below moderate resilience	7	5.3	9	7.5	0.3239
Moderate resilience	30	22.7	30	25.0	0.3913
Above moderate resilience	48	36.4	29	24.2	0.0245
High resilience	22	16.7	7	5.8	0.0056
Brief Hardiness Scale					
Low hardiness	20	15.5	28	23.5	0.0679
Moderate hardiness	70	54.3	77	64.7	0.0480
High hardiness	39	30.2	14	11.8	0.0004
Multidimensional Scale of Perceived Social Support					
Family Subscale					
Low support	15	11.4	32	26.7	0.0015
Moderate support	52	39.4	55	45.8	0.1827
High support	65	49.2	33	27.5	0.0003
Friends Subscale					
Low support	20	15.2	26	21.7	0.1212
Moderate support	42	31.8	70	58.3	<0.0001
High support	70	53.0	24	20.0	<0.0001
Significant Other Subscale					
Low support	20	15.2	30	25.0	0.0359
Moderate support	54	40.9	61	50.8	0.0731
High support	58	43.9	29	24.2	0.0007

Source: compiled by the authors of this study

est, but the rate was significantly lower compared to combatants who did not have suffered from COVID-19. In a group of combatants with non-psychotic mental disorders who have suffered from COVID-19 indicators of family support and significant other support were moderate and significantly worse.

Most combatants who did not have suffered from COVID-19 belonged to the group with a high level of family support, friends support, and significant other support: 49.2%, 53.0%, and 43.9%, respectively, the percentage of people with a moderate level of support was smaller in this group: 39.4%, 31.8%, and 40.9%, respectively. The smallest among combatants who did not have suffered from COVID-19 there was a specific weight of people with a low rating of family support, friends support, and significant other support: 11.4%, 15.2%, and 15.2%, respectively (Table 2). Instead, in the group of combatants who have suffered from COVID-19 persons with a moderate assessment of family support, friends support and significant other support prevailed: 45.8%, 58.3% and 50.8%, respectively. In this group, there were slightly more people with a high level of family support (27.5%) than people with a low level (26.7%), and more people with a low level of friends support (21.7%) and significant other support (25.0%) than with high level (20.0% and 24.2%, respectively).

DISCUSSION

The differences we identified in the resilience indicators of combatants with non-psychotic mental disorders depending on the experienced COVID-19 are consistent with modern concepts of resilience, which consider it as a dynamic process that is closely related to the state of the affective sphere, cognitive functioning and can change under the influence of external factors (Assonov D., 2021; Niederhauser M. et al., 2023; Zueger R. et al., 2023). In previous studies, we found them in combatants who have suffered from COVID-19 higher levels of depression and anxiety, as well as a worse state of cognitive functioning compared to combatants who have suffered from COVID-19 [28, 29]. The neuropsychiatric consequences of COVID-19 include persistent affective and cognitive disorders that significantly affect the general state of functioning of patients (Ismael F. et al., 2021; Renaud-Charest O. et al., 2021) [30, 31], which can also cause a decrease in the ability to resist stress, and therefore, a decrease in resilience indicators. Resilience is formed by a set of interrelated competencies that influence each other (Bekesiene S. et al., 2024) [7], and the psychological mechanisms linking such a psychological construct as resilience with behavior are still very complex unclear (Sefidan S. et al., 2021), although the connection of greater resilience with a lower level of stress and better functioning in military personnel is not in doubt [4].

Similarly, hardiness is related to the state of the affective sphere, and less hardiness is associated with high levels of depression and the use of non-constructive behavioral strategies (Bartone P.T., Homish G.G., 2020) [14]. Our study confirmed these patterns, and our data are consistent with the data of other researchers who found an inverse relationship between hardiness and the severity of the consequences of stress, as well as the influence of psychosocial factors on hardiness (Bartone P.T. et al., 2022 [24]; Bekesiene S. et al., 2024 [7], et al.). Hardiness, like resilience, is a dynamic characteristic and can change over time (Kokun O. et al., 2023) [13], which determines the need to analyze not only the impact of hardiness on the state of the affective sphere and the effectiveness of an individual's functioning, but also the dynamics of hardiness in the process of life, especially in critical periods of life.

In general, we tend to believe that lower levels of resilience and hardiness are found in combatants who have suffered from COVID-19 mediated by neuropsychiatric consequences of coronavirus infection, primarily persistent depressive, anxiety, dyssomnic and somatovegetative manifestations, as well as deterioration of cognitive functioning. These persistent changes in some patients, who probably have a certain personal predisposition, acquire the character of patho-characteristic transformations, leading to a change in the general psychological model of response and behavioral strategies, while others do not undergo significant patho-characteristic changes. This is confirmed by the heterogeneity of the studied groups: among combatants who did not have suffered from COVID-19 there were individuals with low resilience and hardiness, and among combatants who were sick with COVID-19 – individuals with high resilience and hardiness.

Lower ratings of social support in combatants who have suffered from COVID-19 in our opinion, they are also associated with a greater expressiveness of depressive and anxiety manifestations in them, which confirms the connection of worse social support with the expressiveness of psychopathological symptoms and resistance to stress found in other studies (Ozbay F. et al., 2007 [17]; Blais R.K. et al., 2021; Pollmann J.B. et al., 2022) [16]. At the same time, a greater expressiveness of psychopathological symptoms, a lower level of resilience and hardiness contributes to psychosocial maladjustment, worsening microsocial relations and leading to a decrease in social support.

CONCLUSIONS

1. Combatants with non-psychotic mental disorders are characterized by a low level of resilience, significantly lower in combatants who have suffered from COVID-19: 18.08±10.06 points vs 23.41±8.80 points in combatants who were not sick with COVID-19 (<0.0001).
2. To combatants with non-psychotic mental disorders who have suffered from COVID-19 inherent reduced levels of hardiness (12.28±4.20 points vs 15.67±6.88 points, p<0.001) and its components: commitment (3.50±1.81 points vs 4.89±2.76points, p<0.01), control (4.44±1.70 points vs 5.38±2.40 points (p<0.01) and challenge (4.33±1.79 points against 5.40±2.42 points, p<0.001).
3. Combatants with non-psychotic mental disorders who did not have suffered from COVID-19 rate the level of social support of family, friends, and significant other as moderate (4.95±1.58 points, 5.00±1.77 points, and 4.73±1.53 points, respectively), and combatants who have suffered from COVID-19 as lower than moderate (3.85±1.54 points, 3.95±1.48 points and 3.83±1.51 points, respectively). General level of social support in combatants who have suffered from COVID-19 significantly lower compared to combatants who did not have suffered from COVID-19 (11.63±4.29 points vs. 14.68±4.62 points, p<0.0001).
4. Reduction of resilience, vitality and level of social support in combatants who have suffered from COVID-19 probably mediated by long-term neuropsychiatric consequences of coronavirus infection, in particular, persistent anxiety, depressive, dyssomnic, somatovegetative and cognitive disorders.

LIMITATION

This study used short scales for assessing resilience and hardiness, one for each of these psychological characteristics. The impact on the results of measuring resilience, vitality and social support of depressive and other psychopathological disorders present in the examined persons was not evaluated. The study contingent is represented only by male combatants with non-psychotic mental disorders.

PROSPECTS FOR FURTHER RESEARCH

Related to the study of the mutual influence of psychopathological symptoms and resilience, vitality and social support in both combatants and the civilian population, as well as improvement of existing methods of developing resilience and vitality in combatants.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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