

## The Study of Personal Characteristics of Cancer Patients Who Have Had the Disease COVID-19

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### Abstract

**Introduction.** Cancer patients in the context of the pandemic experienced additional distress. Their psychoemotional state was influenced by factors such as the threat of COVID-19 infection, delayed treatment, postponement of planned operations, deterioration of their condition against the background of comorbid pathology and chemotherapy. Due to the continuing threat of the emergence of new strains of coronavirus infection, the study of the psychological characteristics of patients with mono- and comorbid cancer does not lose relevance. The purpose of this study was to investigate the personal characteristics, value-semantic orientations and other psychological features reflecting psychological adaptation to prolonged distress in groups of cancer patients who have and have not had a coronavirus infection. **Methods.** The study was conducted on the basis of the Federal State Budgetary Institution "NMIC of Oncology" of the Ministry of Health of the Russian Federation (Rostov-on-Don) in the period from spring 2021 to autumn 2023; 112 cancer patients aged 18 to 62 years took part in it (the average age was 42 years, 64% of them were women, 36% were men), 48% of them suffered COVID-19. The following psychodiagnostic techniques were used: SCL-90-R, Lazarus coping test, 5PFQ, D.A. Leontiev's life sense orientations test, M. Rokich's "Value Orientations" technique, the WHO-100 scale. The one-way ANOVA (Analysis of Variance) and post-hoc analysis (Tukey's test) were used for statistical processing of the obtained results. **Results.** The fact of the transferred disease COVID-19 is associated with a change in the hierarchy of values, the expression of volitional qualities and flexibility in solving life difficulties: in the group of cancer patients who suffered COVID-19, the values of "love",

"development", "breadth of views", "sensitivity" are significantly more pronounced; in the personal sphere, the poles of irresponsibility and practicality are expressed. **Discussion.** The results obtained complement the existing data on the features of the value-semantic and personal sphere of cancer patients with comorbid pathology. **Conclusion.** The conducted theoretical and empirical research can be useful for psychologists, medical and social workers who provide assistance to cancer patients and their families.

### **Keywords**

cancer, comorbidity, pandemic, COVID-19, anxiety, distress, value-semantic sphere

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## **Introduction**

In March 2020, the COVID-19 outbreak affected more than 200 countries and territories (Dai et al., 2020). The psychological consequences of COVID-19 for the general population and for cancer patients in particular were manifested in the high prevalence of symptoms of depression, anxiety and post-traumatic stress (Liu et al., 2020; Romito et al., 2020; Al-Shams et al., 2020; Acevedo-Ibarra et al., 2022).

The COVID-19 pandemic has led to severe distress with a high potential for traumatic effects. For many people, the pandemic and social isolation have provoked the activation of non-constructive behavioral reactions and psychological conditions, which is especially true for those who are vulnerable due to other biological or psychological problems, in particular, cancer. As has been demonstrated in a number of studies, these stressors are factors that increase the pre-existing burden of cancer (Yelnikova, 2020; Chia et al., 2021; Romito et al., 2020; Muls et al., 2022; Ostrovsky, Ivanova, 2020).

The survey results showed that cancer patients recognize the need for psychological help and support, but 75% did not apply for it until the time of the survey. Participation in socio-psychological research and surveys often initiated the subsequent referral of patients to specialists for advice and helped alleviate the psychological burden of cancer and stress (Romito et al., 2020).

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The economic and political consequences of a pandemic can both accompany and displace the psychological problems of patients. There is no doubt that there is a need to develop clinical and psychological care services for vulnerable groups (Ibáñez-Vizoso et al., 2020). The underestimation of the problem, as well as the lack of resources to solve it, can subsequently lead to an even greater increase in the need for psychological and psychiatric care (Ho et al., 2020). In the case of cancer patients, lost time can significantly change the course of the disease and increase the severity of its burden, which may subsequently affect the quality and timing of remission.

According to a number of studies, in the context of a pandemic, on average 1 out of 7 cancer survivors and 1 out of 9 healthy people from the control group reported depressive symptoms, the intensity of which reached a borderline level; the severity of symptoms of depression and anxiety in cancer patients who had experience seeking psychiatric help before the pandemic was expected to be higher (Al-Shamsi et al., 2020; Caliandro et al., 2023; Ng et al., 2020). The factor that aggravated the anxiety-depressive symptoms, among others, was information about an increase in mortality from COVID-19 on the background of chemotherapy (Gregucci et al., 2020; Lee et al., 2020). After getting acquainted with such information, many patients refused treatment for the underlying disease, which significantly reduced their chances of achieving a relatively rapid and stable remission.

The causes of mental disorders in coronavirus include, among others, intoxication and oxygen starvation due to the development of pulmonary insufficiency (Seledtsov et al., 2020). The psychoemotional impact of the pandemic on cancer patients is diverse and is likely to have long-term consequences (Edge, 2021). Timely diagnosis and psychological help available at the time of severe negative experiences can help in the future to reduce the severity of symptoms and reduce the duration of their treatment. This can improve the quality of life for some patients, and save this life for others (Kadyrov et al., 2020).

### ***Emotional and personal characteristics of cancer patients during the COVID-19 pandemic***

The prevalence of anxiety-depressive symptoms in patients suffering from life-threatening diseases, which include cancer and COVID-19, is explained by a number of factors: personal predisposition, peculiarities of the belief system, physical resistance of the body to the effects of damaging factors, etc.

The personality traits of patients – a set of cognitive, emotional and behavioral patterns – influence adherence to treatment and focus on cooperation with medical staff; on the patient's ability to take on some responsibility for the recovery process, which means they can both help and hinder the treatment and recovery processes.

The level of psychological resources that a person can devote to adaptation to the disease and recovery is related to the type of response to the disease. A harmonious type of attitude to the disease is characterized by a higher level of emotional stability, a wider

range of stress coping strategies, as well as personal competencies that are significant in social life (Finagentova, 2010).

It is known that character accentuations exacerbate the perception of negative information (Laskov et al., 2017) and affect the orientation of a person towards recovery (Afanasyeva et al., 2009; Nikitina, 2021; Smulevich et al., 2014). The peculiarities of motivation allow a person to realize his inner potential, to be active, to go beyond the traumatic experience. The level of self-esteem affects the ability to believe in a good outcome and positive predictions. According to Kryukova et al., "people with low self-esteem are more likely to use such types of erroneous thinking as "Catastrophization" and "Exclusion of good" (2018, p. 63), which negatively affects the course and outcome of the disease, manifesting itself in the affective sphere in the form of the development of anxiety-depressive symptoms.

A study conducted by Bäuerle et al. (2021) in Germany demonstrated an increase in the incidence of major symptoms of depression in cancer patients after the outbreak of COVID-19 from 9.3% to 16.7%; an increase in the prevalence of severe generalized anxiety symptoms from 8.0% to 20.7%. 38% of the study participants reported distress before the pandemic, and 54.7% after its onset.

According to the results obtained by a group of scientists from the United States of America (Miaskowski et al., 2020), the statistics on the prevalence of clinically significant symptoms in patients with breast cancer in the context of the COVID-19 pandemic are as follows:

- depression – 71.2%;
- alarm – 78.0%;
- sleep disorders – 78.0%;
- evening fatigue – 55.9%;
- cognitive impairment – 91.5%;
- Post-traumatic stress disorder - 31.6%.

According to the results of a study by Wang et al (2020) conducted among 6213 patients of one of the largest cancer centers in China, 23.4% of respondents were diagnosed with depression, 17.7% with anxiety, 9.3% with post-traumatic stress disorder, and 13.5% with high hostility. The authors found that the most significant risk factors for the development of mental maladjustment of cancer patients against the background of a high risk of coronavirus infection are a history of mental health disorders, frequent episodes of excessive alcohol consumption, uncontrolled anxiety and depression associated with cancer treatment during COVID-19, high levels of fatigue and pain. Despite the widespread prevalence of problems related to mental maladaptation, only 1.6% of patients with these difficulties sought psychological help.

Similar data were obtained by a group of Italian scientists who studied the level of distress in patients with lymphoma during the pandemic. The majority of respondents

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stated that their anxiety increased: 36% of them had high anxiety, 31% had high depression, 43% of respondents had super threshold values according to the integral indicator of the Hospital Anxiety and Depression Scale HADS; 36% had symptoms corresponding to the diagnostic criteria of post-traumatic stress disorder (PTSD). At the same time, the number of requests for psychological help during the COVID-19 pandemic increased more than 4 times (Romito et al., 2020; Caliandro et al., 2023).

Thus, an analysis of the results of international studies on the characteristics of personal response to the disease and the prevalence of anxiety and depressive symptoms in cancer patients during the COVID-19 pandemic showed the presence of common trends: increased affective symptoms, most pronounced in a group of people with a history of psychopathological symptoms and dominant maladaptive attitudes. The frequency of requests for psychological help from cancer patients differs from country to country and is presumably related to the general awareness of people about psychological support: low among respondents from China (Yang et al., 2023), high among respondents from Germany, Italy (Molinari et al., 2012; Sampogna et al., 2021), USA (O'hea et al., 2020), as well as the inclusion of psychological services in health insurance (many patients in need of psychological help cannot afford it for financial reasons).

### ***Features of cancer patients' response to life-threatening diseases during the COVID-19 pandemic: post-traumatic stress disorder and post-traumatic growth***

Cancer patients are considered to be more psychologically vulnerable to distress. On average, by the time they seek help from an oncologist again, most patients have high rates of post-traumatic stress disorder (PTSD) (Bergfeld, 2017).

Symptoms of post-traumatic stress disorder in the context of the pandemic of a new coronavirus infection, according to the results of a study conducted in Italy, were detected in 36% of patients with lymphoma; high levels of PTSD were recorded in the age group from 18 to 50 years, among women PTSD was more common than among men (Romito et al., 2020).

In a longitudinal study of the mental health of the Chinese population conducted during the coronavirus pandemic on a sample of 1,738 healthy participants, it was noted that, despite a significant decrease in the level of psychological tension recorded during repeated testing conducted 4 weeks after the outbreak of COVID-19, the average group results of respondents obtained in both surveys indicated severe symptoms of PTSD (Wang et al., 2020).

The traumatic nature of experiences in conditions of cancer is explained, among other things, by the prolongation of the fear of death. The latter acquires a "chronic character" due to the lack of connection with a "visible" danger or a certain event, unlike a situation of military operations or a catastrophe (Tarabrina et al., 2010).

According to Trusova A.D. and Faustova A.G., "comprehensive fear arising in conditions of man-made and biological natural disasters or due to deadly diseases can be designated as a specific category in the cluster of existential psychological traumas" (2021, p. 357).

Studies examining the condition of people affected by various epidemics in the pre-epidemic period show that the level of post-traumatic stress was higher in quarantined people compared to those who were not isolated (Brooks et al., 2020). The degree of manifestation of symptoms of post-traumatic stress depended on the duration of quarantine (Ostrovsky, Ivanova, 2020; Reynolds et al., 2008).

"... Mental post-stress disorders ... act as a trigger for a variety of somatic diseases, the growth of which is predicted in the coming years" (Aronov et al., 2021, p. 67). Researchers suggest that in the years following the end of the pandemic, people become aware of their traumatic experiences and may feel the depletion of psychological resources, which will lead to an increase in requests for psychological and medical help (Alekhin et al., 2021).

According to Vasilyeva et al., comorbid PTSD complicates the treatment and adaptation of patients (2020). Nikitina D.A. (2021), in her work on post-traumatic stress in people with a life-threatening disease, notes that the message of diagnosis itself is a high-intensity stressor, the occurrence of which is accompanied by an experience of fear of death, fear of the appearance of cognitive dysfunctions, identity disorders. Thus, cancer patients in the conditions of COVID-19 faced the fear of death twice: at the time of the announcement of the diagnosis and during the pandemic, which could lead to retraumatization. At the same time, life experience related to adaptation to an oncological diagnosis could contribute to the formation of optimal stress-coping behavior in the context of the COVID-19 pandemic.

Experiencing distress and being in conditions of uncertainty have different effects on a person, depending on his general condition and the internal resources spent on adaptation. It is known that against the background of mortal danger, a maladaptive type of attitude towards the disease can form, accompanied by destructive forms of behavior (Yelnikova, 2020). At the same time, with sufficient resources (including psychosocial support), so-called post-traumatic growth is possible - positive personal changes associated with overcoming emotional and physical difficulties in the treatment of the disease, indicating an increase in psychological stability of the individual.

The absence of spiritual changes and low rates of autocompassion are associated with lower rates of post-traumatic growth (Darabos et al., 2021; Trusova and Faustova, 2021) and may also be symptoms of a patient's depressive state, indicating maladaptation (including the process of "freezing in trauma"). Awareness of new opportunities in life, high social status, as well as a change in self-perception contribute to post-traumatic growth: if the attitude towards illness as a severe ordeal changes by changing the focus of perception to "illness as a way of development", post-traumatic growth is possible (Yelnikova, 2020). Existential resources are also important in the process of post-traumatic

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growth: the search for and finding meaning in life are important conditions for it (Tedeschi & Calhoun, 2004; Jaspers, 2013).

Distress can weaken a person's emotional and physical condition. At the same time, the idea of safety as the opposite of distress and a necessary factor of post-traumatic growth depends on the perception, characteristics and properties of a person, her moral values, rules of behavior and communication, as well as their assessment system (Pukhareva, 2016). The above indicates the need for an individual approach to the psychological support of cancer patients in the context of the COVID-19 pandemic and the effects of other additional traumatic factors.

For a more detailed study of the psychological characteristics of cancer patients, taking into account the fact of COVID-19 disease, we planned and conducted an empirical study.

## Methods

In the period from spring 2021 to autumn 2023, a psychodiagnostic study of cancer patients was conducted on the basis of the National Research Institute of Oncology of the Ministry of Health of the Russian Federation (Rostov-on-Don); 112 respondents aged 18 to 62 years took part in it (the average age was 42 years, out of of these, 64% were women, 36% were men), 48% of them had suffered COVID-19, 52% denied the fact of coronavirus infection in the previous 6 months.

The following research methods were used: the SCL-90-R questionnaire, the R. Lazarus coping test, 5PFQ, the "Test of meaning-life orientations" by D.A. Leontiev, the M. Rokich "Value Orientations", the WHO-100 scale.

For statistical processing of the results obtained, one-factor ANOVA analysis of variance (categorization factor: COVID-19 in the anamnesis no earlier than 6 months relative to the time of psychodiagnostics), as well as a posteriori Tukey analysis for nonequilibrium sample sizes were used.

## Results

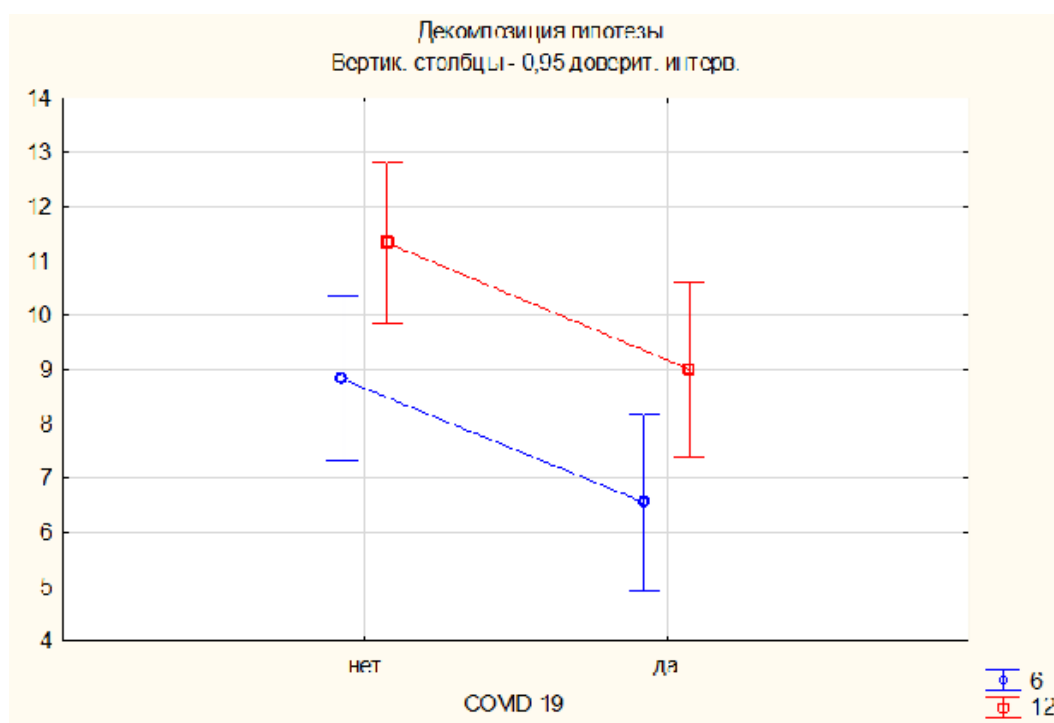
According to the results obtained during the ANOVA univariate analysis of variance, there were no significant differences in quality of life indicators measured using the WHO-100 scale ( $F = 0.68$ ,  $\text{Effect}_{df} = 25$ ,  $\text{Error}_{df} = 43$ ,  $p = 0.8$ ), as well as in the severity of psychopathological symptoms, measured using the SCL-90 questionnaire, in cancer patients who had and had not had COVID-19 ( $F = 0.6$ ,  $\text{Effect}_{df} = 16$ ,  $\text{Error}_{df} = 43$ ,  $p = 0.9$ ). The lack of results can be explained by the presence of the influence on the quality of life of the main factor – cancer.

At the same time, during the a posteriori analysis of Tukey, the features of the value orientations of cancer patients who had and had not had COVID-19 were revealed.

In cancer patients who have had COVID-19 (M2), significantly higher positions in the hierarchy of terminal life values are occupied by love (spiritual and physical intimacy with a loved one;  $M_1 = 8.8$ ,  $M_2 = 6.6$ ,  $p = 0.045$ ) and development (self-improvement, constant physical and spiritual improvement;  $M_1 = 11.3$ ,  $M_2 = 9.0$ ,  $p = 0.038$ ), compared with cancer patients who did not have COVID-19 ( $M_1$ ) (Fig. 1).

**Figure 1**

*Results of variance and a posteriori analyses of the severity of terminal values in cancer patients who have and have not had COVID-19 disease (Tukey's Test for Post-Hoc Analysis after One-way ANOVA)*



**Note.** Designations: 6 – value orientation "Love" (spiritual and physical intimacy with a loved one), 12 – value orientation "Development" (self-improvement, constant physical and spiritual improvement).

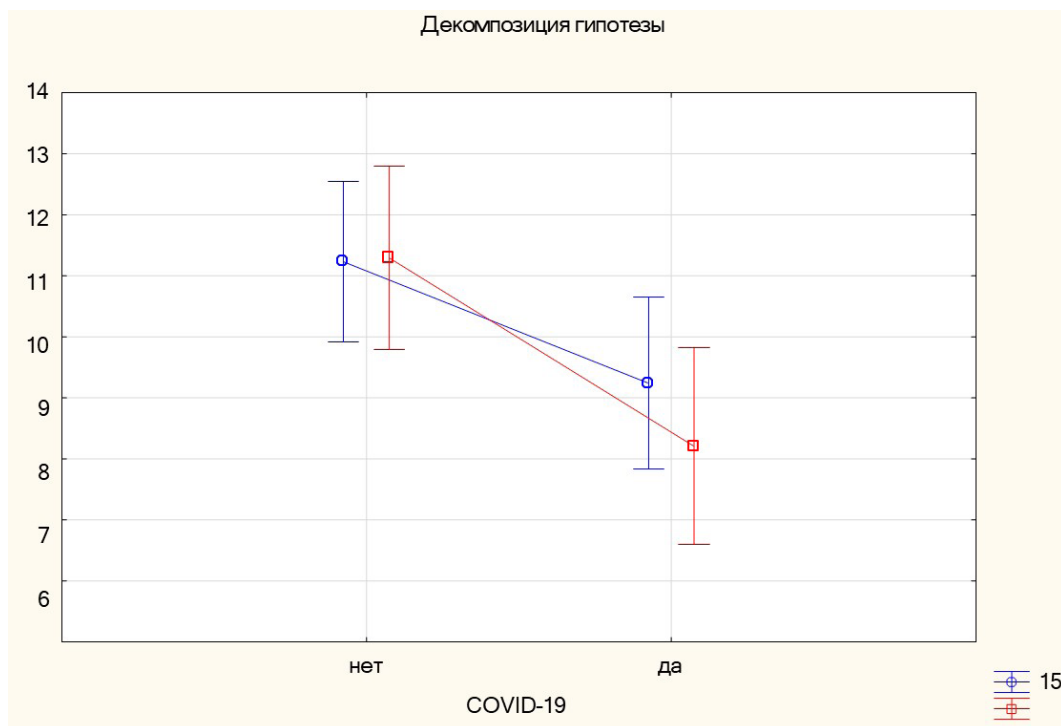
In the hierarchy of instrumental life values, cancer patients who have had COVID-19 have significantly higher positions in the value orientations of "Breadth of views" (the ability to understand someone else's point of view, respect other tastes, customs, habits); ( $M_1 = 11.3$ ,  $M_2 = 9.0$ ,  $p = 0.042$ ), as well as "Sensitivity" (caring) ( $M_1 = 11.3$ ,  $M_2 = 8.2$ ,  $p = 0.007$ ), compared with cancer patients who were not ill with COVID-19 (Fig. 2).



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**Figure 2**

*Results of variance and a posteriori analyses of the severity of instrumental values in cancer patients who have and have not had COVID-19 disease (Tukey's Test for Post-Hoc Analysis after One-way ANOVA).*

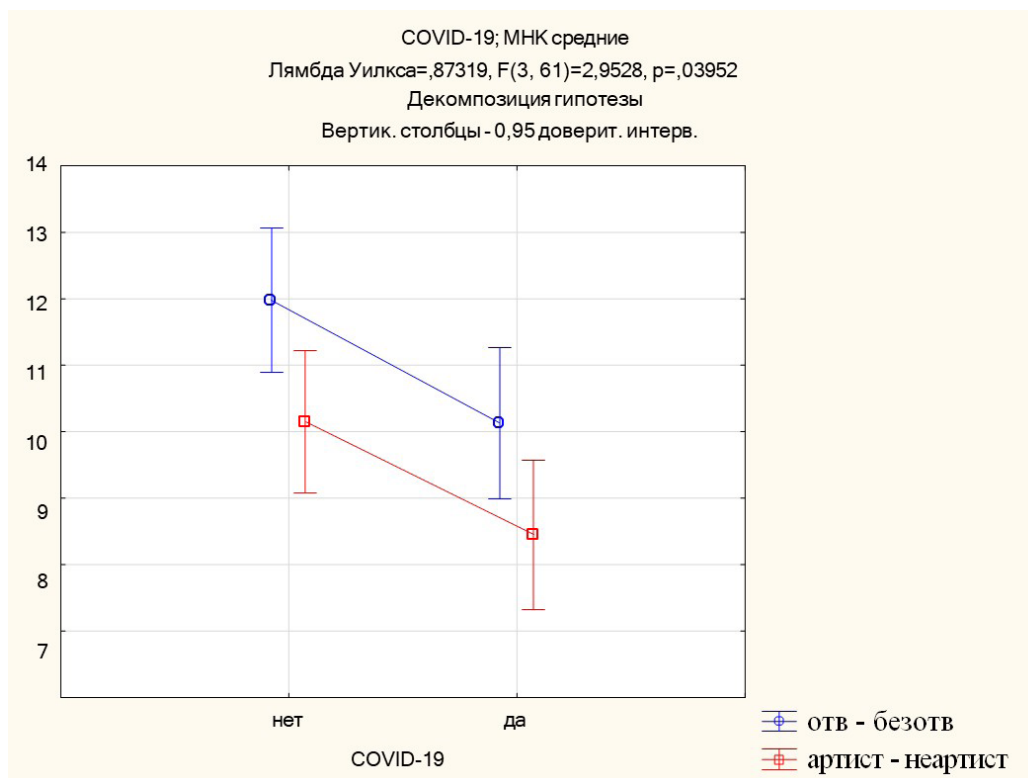


**Note.** Designations: 15 – breadth of views (the ability to understand someone else's point of view, respect other tastes, customs, habits); 18 – sensitivity (caring).

A study of the personal characteristics of cancer patients demonstrated that the pole of irresponsibility is significantly more pronounced in cancer patients who have had covid; this result may be associated with a decrease in volitional qualities under the influence of two life-threatening diseases at once ( $MS = 55.0$ ,  $F = 5.5$ ,  $p = 0.02$ ;  $M1 = 10.2$ ,  $M2 = 8.5$ ,  $p = 0.03$ ) (Fig. 3).

**Figure 3**

Results of variance and a posteriori analyses of the severity of personality traits in cancer patients who have and have not had COVID-19 disease (Tukey's Test for Post-Hoc Analysis after One-way ANOVA).



**Note.** Designations: «отв - безотв» – pole "Responsibility - Irresponsibility"; «артист - неартист» – pole "Artistry - Inartistic" (according to the 5PFQ).

The pole of practicality (including the indicator "Inartistic";  $M_1 = 10.2$ ,  $M_2 = 8.5$ ,  $p = 0.03$ ), also more pronounced in patients with covid cancer, may be associated with their greater conservatism, less flexibility and greater adaptability to everyday life ( $MS = 664.3$ ,  $F = 5.5$ ,  $p = 0.02$ ;  $M_1 = 46.5$ ,  $M_2 = 40.1$ ,  $p = 0.02$ ) (Fig. 3).

There were no significant differences in the severity of life-meaning orientations ( $F = 0.2$ ,  $Effect_{df} = 6$ ,  $Error_{df} = 70$ ,  $p = 0.9$ ) and coping strategies ( $F = 0.9$ ,  $Effect_{df} = 8$ ,  $Error_{df} = 73$ ,  $p = 0.48$ ) depending on the transferre covid over the past 6 months.

## Discussion

According to the results of the study, the following psychological characteristics of cancer patients who have and have not suffered from COVID-19 disease were revealed.

The value-semantic sphere of cancer patients who have had COVID-19, compared with cancer patients who have not had COVID-19, is characterized by dominance in the hierarchy of terminal life values of "love" and "development"; in the hierarchy of instrumental values – "breadth of views" and "sensitivity". Their personal sphere is characterized by the dominance of the pole of irresponsibility, which may be associated with a decrease in volitional qualities under the influence of two life-threatening diseases at once, as well as the pole of practicality, which may indicate a more pronounced conservatism, rigidity in decision-making. Thus, the described characteristics are sensitive to the comorbidity of cancer and coronavirus infection.

There were no significant differences in the severity of coping strategies, life orientations, psychopathological symptoms and quality of life in patients, depending on the fact of COVID-19 disease.

There are not enough studies in the modern literature that could confirm or refute the observations we have received. There are known studies that have studied the differences between the described characteristics in conditions of exacerbation of life-threatening diseases and remission. In the work of Bergfeld A. Yu. (2017), it was shown that the level of neuropsychic resistance to stress is higher in women in remission, because they are characterized by using an effective way to deal with stress – they analyze a problematic situation and try to find the optimal solution, while avoiding analysis and distraction to external objects are not effective in dealing with stress. In the study of cancer-affected women in remission, "direct links of emotional intelligence and quality of life, feedback links of emotional intelligence and alexithymia, alexithymia and coping strategies, quality of life and coping strategies, and direct and feedback links of emotional intelligence and coping strategies were confirmed" (pp. 75-76). Nikitina (2021) showed that patients' belief in the value and importance of their Self is an important part of coping strategies with intense stress.

The scientific literature presents the results indicating an aggravation of psychopathological symptoms in conditions of comorbidity of cancer. According to the results of a study conducted by Ho et al. (2020), prolonged emotional stress during the pandemic could provoke psychopathological symptoms in people who do not suffer from psychiatric diseases and worsen the mental state of those who already had similar disorders. The researchers found that during the pandemic, psychiatric patients had significantly increased levels of anxiety, depression, stress, anger, impulsivity and suicidal thoughts; more than a third of the identified symptom complexes met the diagnostic criteria for PTSD.

The absence of significant differences in the severity of the characteristics studied by us in the groups of cancer patients who have and have not undergone coronavirus

infection may be due to the fact that they change in a similar way in the presence of one life-threatening disease, and remain stable under conditions of addition of a comorbid background. The results may also be influenced by the fact that the respondents stayed in the oncological hospital during the study period. The expectation of surgery, as well as the early postoperative period, create an additional background of psycho-emotional stress.

Thus, in order to increase the reliability of the results obtained, it is necessary to continue the study.

### **Conclusion**

The novelty of the work consists in a broad overview of the problem: the description of emotional and personal characteristics, as well as the characteristics of the response of cancer patients to life-threatening diseases during the COVID-19 pandemic.

According to our results, the fact of COVID-19 disease is associated with a change in the hierarchy of values, the expression of volitional qualities and flexibility in solving life difficulties, the described characteristics are sensitive to the comorbidity of cancer and coronavirus infection.

The features of the quality of life, life-meaning orientations, the intensity of coping strategies, as well as the severity of psychopathological symptoms in cancer patients do not change significantly under the conditions of the addition of a comorbid background (COVID-19).

To date, there is no doubt that "with an increase in neuropsychiatric resistance to stress, the risk of continuing the disease decreases, and with a decrease in resistance to stress, it increases, i.e. the disease can become protracted (metastasis, relapse)" (Bergfeld, 2017, pp. 74-76). Thus, increasing the individual's resistance to the effects of distress should become one of the targets of psychological support for cancer patients in the context of the COVID-19 pandemic.

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**Ekaterina M. Kovsh** – statistical processing and analysis of the results obtained, writing the text of the article.

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### Conflict of Interest Information

The authors have no conflicts of interest to declare.