

## Research Article

# The Impact of Psychosocial Stress on Self-Assessment of Quality of Life in the Context of the Covid-19 Pandemic and Various Quarantine Restrictions

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**Abstract: Background:** The reality today is that for a little over two years as a modern society has been living in a pandemic of COVID-19, when no one feels really protected from the possible viral infection and the development of this serious infectious pathology. And since February 24, 2022, the situation in Ukraine has become even more complicated due to the military aggression of the Russian Federation and the occupiers' policy of genocide in the temporarily occupied territories. Unlike the majority of the civilian population, clinicians mostly realistically assess both the scale of this pandemic and the war, and their cumulative consequences for citizens regardless of their age, gender, social status, economic status and political preferences. **Objective:** To study the dependence of quality of life of health workers (doctors, medical students) in age, gender and professional aspects, taking into account the level of their physical and emotional state, anxiety, social activity and the negative impact of basic chronic stress-many months of professional communication with various patients during the pandemic of COVID-19 and the war. **Results:** Conducted pilot remote (in quarantine) voluntary and clearly positively perceived by somatically healthy physicians-recipients comprehensive test examination asked more questions than could give answers in the analysis of the results. However, it gives every reason to consider the results as a certain "control constant". We are firmly convinced of its usefulness and prospects for further in-depth clarification of the impact on QOL self-assessment of many significant, though not self-evident factors among other physicians who faithfully perform their professional work in a pandemic and prolonged quarantine.

**Keywords:** Quality of life, medical students, doctors, psychological stress, Pandemic, COVID-19, war.

## Introduction

The reality today is that for a little over two years as a modern society has been living in a pandemic of COVID-19, when no one feels really protected from the possible viral infection and the development of this serious infectious pathology. And since February 24, 2022, the situation in Ukraine has become even more complicated due to the military aggression of the Russian Federation and the occupiers' policy of genocide in the temporarily occupied territories. Unlike the majority of the civilian population, clinicians mostly realistically assess both the scale of this pandemic and the war, and their cumulative consequences for citizens regardless of their age, gender, social status, economic status and political preferences.

It was the sudden outbreak of this viral infection, which catastrophically quickly became a global pandemic, and the beginning of a massive military invasion of Ukraine by the Russian army that made it extremely limited to maintain adequate self-esteem. For the first time in the last hundred years, Ukrainian society found itself in qualitatively different conditions of its existence-when the myth of the existence of both medical and physical security guaranteed by state institutions was loud. This almost "equalized" the life chances of bankers and the unemployed, politicians and homeless people, business owners and unskilled workers, respected judges and convicts, police and thieves. The world suddenly, rapidly and irreversibly changed for the worse and began to resemble the times of the "black death"-the plague pandemic. And we all now have to live, work, fight, study, love, raise children, communicate, dream and die of wounds in this harsh reality of collective trauma.

Given the above circumstances, we thought it appropriate to pay more attention to the objective study of self-assessment of quality of life (QL) by different groups of physicians during the pandemic and war, when they are forced to be at the forefront of the struggle to limit it and overcome somatic, posttraumatic, psychological consequences of shelling.

Self-assessment of the QOL personality is an integral indicator that is mostly subconsciously formed from a large number of different components that reflect the ability of each person to somehow adapt to clinical manifestations of any somatic pathology and the threat of traumatic injury and further fatal development of self-health and life.

In the medical scientific literature, quality of life (QOL) has been recognized as an integral part of a comprehensive analysis of modern methods of diagnosis, treatment, prevention, evaluation of treatment effectiveness and the provision of highly qualified medical care since the end of the last century [1, 2, 10]. The ability to objectively determine with the help of questionnaires both self-assessment of QOL and at least the basic factors influencing it, helps if not to solve the problem as a whole, then at least partially improve the effectiveness of individualized treatment of somatic patients and injured [1, 2, 3, 7].

### **The purpose of the study**

To study the dependence of quality of life of health workers (doctors, medical students) in age, gender and professional aspects, taking into account the level of their physical and emotional state, anxiety, social activity and the negative impact of basic chronic stress-many months of professional communication with various patients during the pandemic of COVID-19 and the war.

### **Research Methods**

General clinical-to assess the existing clinical manifestations of somatic pathology; psychodiagnostic questionnaire-adapted questionnaire SF-36 to determine self-assessment of quality of life; Spielberger-Hanin alarm scale; G. Eisenko's self-assessment test of mental states; Wasserman levels of neuroticism; biostatistical-for the purpose of mathematical processing of the received data [3].

Self-assessment of quality of life (QOL) was conducted using the SF-36 questionnaire, which belongs to the general (non-specialized) questionnaire tests and has been widely used for decades in various QOL studies in various somatic patients [4, 5, 6 ].

Its parameters allow to quantify the various qualitative components of the QOL separately in conditional points. They are traditionally divided into the following scales: physical functioning (PF); role functioning due to physical condition (RP); bodily (pain) sensations (BP); general health self-assessment (GH); viability (subjective feeling of fullness of forces and energy, or, conversely, the absence of such forces) (VT); social functioning (SF); role functioning due to emotional state (RE); mental health (MH). The scores obtained for statistical processing for each such scale can range from 100 (maximum result = complete well-being) to 0. The scales are also combined into two qualitatively different groups. Some that determine the physical component of health or physical

well-being (RN-physical health). The second, which reflects the psychological component of health, or mental well-being (MH-mental health).

In addition, the analysis of the results of professional studies of QOL using the SF-36 test in different groups of somatic patients shows that the average acceptable level is the significance of the scales of 60 points; 50-55 points is a zone of a certain "risk"; 65-75 points is a zone of positive "peace"; 80-90 points is a zone of "prosperity". To qualitatively assess the range between 91-100+ points, the aphoristic phrase is often used- "You were touched by the Buddha!". No less interesting is the assessment of the minimum (30 points or less) values of the scales- "You are in a sea of problems and you do not even have a paddle!"- "storm zone".

The structure of this questionnaire allows us to quantify the expressiveness of each of these scales, and qualitatively "see the subtle places" of self-esteem QOL. Based on the above, it was decided to use the Spielbergen-Khanin anxiety scale along with the definition of QOL self-assessment, which allows to quickly determine the levels of situational (ST) and personal anxiety (ST). This allowed us to objectively assess not only the level of anxiety relevant at the time of the survey, but also to establish or refute the fact of long-term exposure of the respondent physician under the intense influence of various stressors [7, 8].

The high value of OT directly correlates with the possibility of neurotic conflict and underlies emotional breakdowns and the development of psychosomatic diseases. Using the test of self-assessment of Eisenko's own psychological state allowed to determine both the levels of severity of anxiety, frustration, aggression, rigidity and their impact on QOL. The state of emotional instability (neuroticism), which can cause the development of both the neurosis itself and the subsequent formation of neurotic tendencies in the behavior of any individual was determined by the test of neuroticism L. Wasserman [9, 10,11, 12].

## **Results and Discussion**

Between personal contacts with fellow clinicians for the period from spring 2020 to summer 2022 took place exclusively remotely, first due to quarantine restrictions, and then due to martial law and aggression of Russian troops.

In both cases, testing took place against the background of severe emotional and psychosocial stress, collective trauma. The anonymous examinations were mostly initiated by the doctors themselves, who learned about the possibility of remotely and objectively clarifying their psychological state from their own patients, who mostly found the opportunity to contact doctors for video consultations to monitor their physical condition.

This certainly showed both their high interest in their own health and their willingness to actively cooperate with physicians in this regard. In the course of such an initially sporadic request for help and treatment advice, it was noted that most of our fellow physicians who contacted us in this way also had complaints of sleep deprivation, irritability, and unmotivated emotional breakdowns.

It was these feelings that prompted them to ask for help, if not to help, at least to comment on all these psychoneurological manifestations from the point of view of medical psychology. Unexpectedly for us, the same wish was expressed by several senior students of NMU (O.O. Bogomolets National Medical University), who contributed to such professional communication, and thus also wanted to objectively clarify their own psychological state during the protracted quarantine. In total, it took 5 to 8 minutes to complete the answers to the 36 questions of the SF-36 questionnaire.

Completion of other tests took up to 20-30 minutes. Questionnaires for self-assessment of one's own QOL were conducted using the Medical Outcomes Study Short Form 36 questionnaire (SF-36,

version 1, with an adapted Ukrainian translation recommended by the International Center for QOL) during each remote communication with them.

Thus, slightly more than a hundred male and female physicians aged 21 to 73 were remotely examined. After receiving and analyzing the results of the first ten voluntarily tested people, we faced the problem of lack of "control group"-people without significant clinical manifestations of concomitant somatic pathology (gastritis, rhinitis, eczema, bronchitis, psoriasis, migraine, and hypertension). This forced us to gradually single out from all the tested colleagues a separate group of 42 physicians who vehemently denied any somatic pathology from January to December 2020, before and during quarantine.

This was done in order to obtain "pure" basic self-assessments of one's own QOL, which were mainly affected only by external quarantine restrictions and the resulting difficulties in the daily performance of colleagues' duties in constant communication with various patients at work. Initially, this "control" group numbered almost 6 dozen people. However, it turned out that some of them already had certain somatic problems in the fall of 2019, and another 9 doctors managed to relapse into a coronavirus infection before the start of quarantine.

So, in the end, only 42 doctors were included in this publication: 12 doctors aged 40-46 with clinical experience of 18-20 years and 30 NMU students aged 20-22, who combine training with work as nurses in hospitals. Another 5 dozen young doctors without manifestations of somatic pathology at the end of autumn 2020 have not been fully tested and therefore the results of their survey are not included in this publication.

Therefore, such a kind of "control group" was divided into 2 subgroups. The first includes experienced doctors, and the second medical students. All of them were united only by the availability of medical education, the absence of obvious somatic pathology and the stay and work in quarantine for many months under the real threat of being infected with Covid-19. And it was fundamentally separated by age and clearly different clinical experiences. Doctors had an average age of 40 years and about 20 years of diverse clinical experience. NMU (National Medical University) students were 21-23 years old and had virtually no real clinical experience.

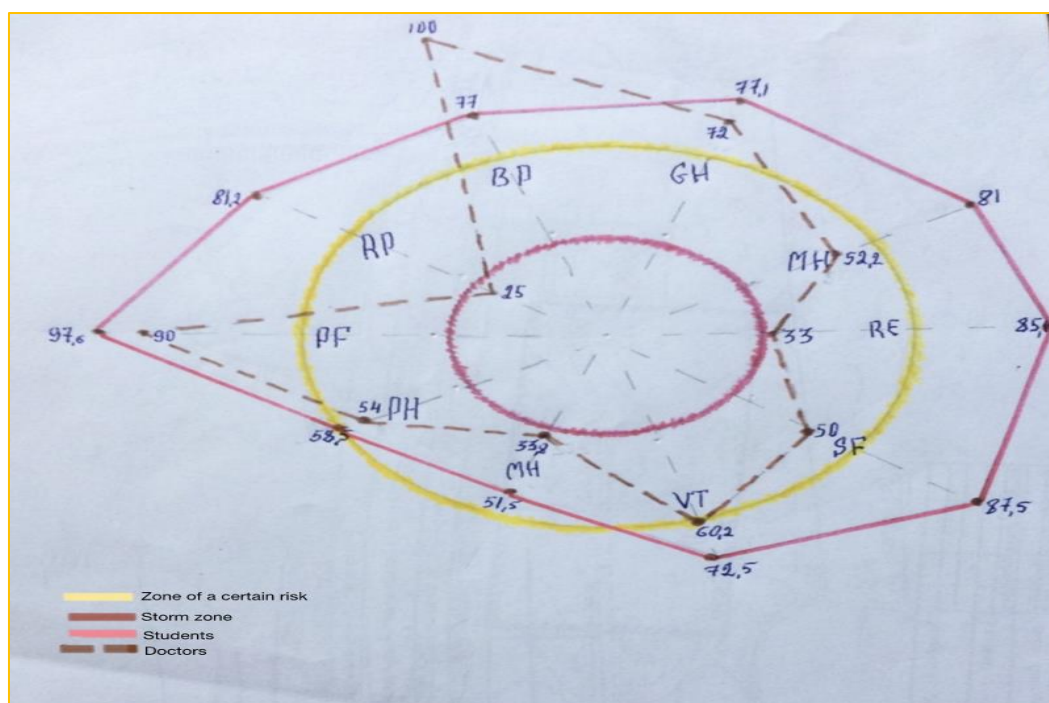
That is, they are representatives of 2 different (albeit related) generations of medical workers who hypothetically have to react somewhat differently psychologically to months of stress associated with quarantine restrictions and work in conditions of collective infectious trauma.

Regarding the established quantitative indicators of self-assessment of QOL, there was a significant deterioration of QOL in patients 1 subgroup (doctors) when tested on all scales of the mental sphere: the rate of VT was ( $60.21 \pm 1.03$ ) points, SF- ( $50.01 \pm 1.25$ ) points, RE- ( $33.33 \pm 2.16$ ) MH- ( $52.20 \pm 1.53$ ) points.

In the second subgroup, the index VT was ( $72.54 \pm 1.16$ ) points, SF- ( $87.52 \pm 2.01$ ) points, RE- ( $85.11 \pm 2.27$ ) points, MH- ( $81.55 \pm 1.03$ ) points. The differences in the severity of general physical well-being (RN) were quite unexpectedly only slightly higher (better) in group 2 (students) compared to the first (58.5 points vs. 54.1 points).

The picture was similar on the scales GH ( $72.1-77.1$  points) and PF ( $90-97.6$  points). According to the scale of TB\BP, the 1<sup>st</sup> subgroup defined by the phrase "almost touched the Buddha" scored almost 100 points. In the second subgroup of students, the value on this scale was equal to 77 points.

For better clarity and understanding of the scores on all scales of SF-36, we placed them on a kind of graphical form where marron lines around the center shows a 30-point zone of "storm" and yellow 60-point limit between zones of positive "calm" and a certain "risk" (Figure 1).



**Figure 1. Graphic representation of the comparative distribution of values of individual scales for students and doctors**

This graphical representation of the average results of both subgroups of "control" clearly indicates the presence of significant differences in their self-assessments of their own QOL on many scales. It became graphically obvious a very significant "subsidence" of self-esteem on the scale of RP in the "storm" zone (25 points) and in areas of obvious "risk" on the scales RE (33.3 points) and mental well-being (MH-33.8 points). And this at the same time really complete physical well-being: PF = 90 points and BP = 100 points.

That is, these high scores clearly indicate the absence of obvious somatic pathologies in adult physicians of subgroup 1, and therefore-they can really be considered as a kind of "control" group of physicians who are not burdened with serious somatic pathology. And the identified deterioration in their mental well-being can be attributed solely to a relatively "calm" professional understanding and awareness of the realities of the pandemic and its hypothetical somatic risks.

And that is why they have a convincing "storm" results of the scales of mental anxiety. That is, for experienced doctors, professional work in an infectious pandemic has led to a significant deterioration mainly only of the components of their psychological health and role functioning-RP+RE.

The red line of point values of 2 subgroups looks like a certain contrast in this figure. For almost all indicators, it is in the zone of clear positive "rest": PF = 97.6 points.; RP = 81.25 points.; BP = 77 points.; GH = 72.1 points.; MH = 81 points.; RE = 85.1 points.; SF = 87.5 points.; VT = 72.5 points. According to only one scale of mental well-being, NMU students working as nurses are in the zone of moderate "risk" (51.5 points). That is, they clearly have problems with the psychological component of health with a clear lag in the formation of problems with the role of functioning due to their emotional state-RE. And all this despite the fact that when analyzing and discussing the test results, neither of the two subgroups of physicians consciously noted (realized) the impact of their own emotional state on the performance of their professional duties.

When analyzing and comparing gender differences in QOL self-assessments among both subgroups, it was found that in women all QOL indicators of physical health scales were expected to be slightly lower than in men. An analysis of the "mental health" component found the opposite-in men, unlike

women, all components had worse results. This, in our opinion, indicates a better preservation of social contacts in quarantine in women.

A somewhat unexpected psychological phenomenon was discovered in the analysis of the results of the Spielberger-Hanin anxiety scales. Hypothetically, it was implied that many months of forced restriction in quarantine-familiar interpersonal communications should clearly affect the marked increase in levels of situational anxiety (ST), which is mainly due to subjective "fresh" emotions [10].

Moreover, in informal remote communication in the summer and spring, most openly complained about both the "strict" quarantine restrictions and the real deadly danger of violating them. In reality, the digital indicators of ST were mostly in the range from 32-37 to 47-48 points, within their low average severity. And this despite the fact that at the same time the levels of OT were slightly higher - from 38-40 to 50-54 points.

Unexpected was the comparison of ST levels in experienced doctors (32-36 points) and medical students (50-52 points). In young physicians without proper clinical experience, situational anxiety about the need to work in a pandemic was much stronger (almost 18-20 points). And this despite the fact that they did not actually take a direct part in the examination and treatment of patients with this viral infection. Unlike some senior colleagues who worked in this field daily, it seems possible to explain this phenomenon by the fact that their mostly theoretical knowledge about this pathology and its probably lethal consequences made a clearly shocking impression on their minds - "it's like at the front."

The other side of this tense psychological background formed by the months-long pandemic was a consistently significant amount (38-54 points). Of personal anxiety (OT), which is due to a person's tendency to perceive a significant number of life situations as clearly threatening. OT is mainly activated under the influence of certain information stimuli that are repeated many times (regular briefings of the Ministry of Health on the growing number of infected Covid-19).

This expressiveness clearly correlates with the real possibility of developing an emotional breakdown without an "apparently conscious" reason. Direct evidence of this is the "neurotic scores" of OT in medical students (49-51 points), who uncritically perceive the external communicative influences of both members of their non-medical families and various TV experts. Because in the conditions of quarantine they really turned out to be medical "experts" for their relatives and for the first time they really realized the responsibility that doctors bear in professional communication with non-physicians.

Realizing that neuroticism is a state of expressive emotional instability that can provoke the appearance of neurotic tendencies in the behavior of any person, we began to use a specialized scale of L. Wasserman for rapid diagnosis of its severity. It turned out that among the tested subgroups, her quantitative assessment was mostly low (up to 12 points), which indicates its absence in the vast majority of respondents. Accordingly, its effect on QOL was obviously insignificant.

Our use of the classic Eysenck mental state of self-assessment test in the course of a comprehensive examination made it possible to assess the individual level of anxiety of any person, and the level of their frustration, rigidity and aggressiveness. It turned out that the overwhelming majority in both subgroups belong to people with high self-esteem who are not afraid of difficulties (0-1 p.). Conducted pilot remote (in quarantine) voluntary research, which was positively received by somatically healthy medical recipients. The comprehensive test survey raised more questions than it could provide answers in the analysis of the obtained results. However, it gives every reason to consider the results as a certain "control constant". We are firmly convinced of its usefulness and prospects for further in-depth clarification of the impact on QoL self-assessment of many significant,

though not self-evident factors among other physicians who faithfully perform their professional work in a pandemic and prolonged quarantine.

## **Conclusions**

- 1) Professional activity in the conditions of many months of quarantine and psychosocial stress caused by it led to certain psychosomatic reactions and deterioration of self-esteem of QOL in all physicians examined, increase of personal anxiety, but did not lead to their neuroticism, psychosomatic disease and marked decrease in self-esteem.
- 2) There is a clear expression of personal interest of physicians to objectively and impartially clarify at least the basic parameters of their psycho-emotional state in the face of prolonged quarantine restrictions during the "waves" of this pandemic. At the heart of this are their short-term emotional disturbances and functional somatic disorders.
- 3) Significant differences in the self-assessment of QOL were identified not so much by age and sex, but by the level of professional experience and personal clinical experience gained in the real possibility of being infected with this viral pathology.
- 4) The established features of self-assessment of QOL by physicians are a sufficient basis not only for further deepening the study and analysis of such correlations, but also for further development of professional recommendations and methods of psycho-corrective action on clinicians, nurses who are forced to communicate personally and directly with many potentially already infected covid19 in their workplace.

**Conflicts of interest:** There is no conflict of interest of any kind.

## **References**

1. Ware JE, Kosinski M, Keller SD. SF-36 Physical and Mental Health Summary Scales: A User's Manual The Health Institute, New England Medical Center: Boston, Mass, 1994:53.
2. Raigorodskiy DY. Practical psychodiagnosis. M.: Bachrach-M, 2011.
3. Feshchenko YI, Mostovoy YM, Babiychuk YV. The procedure of adaptation of international quality of life questionnaire MOS SF-36 in Ukraine: the experience of administration in asthma patients. Ukrainian Pulm Mag. 2002;3:9-11.
4. Chernega NV. Determining the quality of life of children with chronic viral hepatitis B and liver cirrhosis. Perinatol Pediat. 2011;2:56–58.
5. Morales LS, Edwards TC, Flores Y, Barr L, Patrick DL. Measurement properties of a multicultural weight-specific quality-of-life instrument for children and adolescents. Qual Life Res. 2011;20(2):215-24.
6. Nguyen HL, Bonadurer GF, Tollefson MM. Vascular malformations and health-related quality of life: a systematic review and meta-analysis. JAMA Dermatol. 2018;154(6):661-9.
7. Yorks DM, Frothingham CA, Schuenke MD. Effects of group fitness classes on stress and quality of life of medical students. J Osteopath Med. 2017;117(11):e17-25.
8. Karagol A. Levels of depression, anxiety and quality of life of medical students. Psychiatr Danub. 2021;33(suppl 4):732-7.
9. Irribarra TL, Mery IP, Lira SMJ, Campos DM, González LF, Irrázaval DS. Quality of life scores among 411 medical students. Rev Med Chil. 2018;146(11):1294-303.
10. Noreen A, Iqbal N, Hassan B, Ali SA. Relationship between psychological distress, quality of life and resilience among medical and non-medical students. J Pak Med Assoc. 2021;71(9):2181-5.
11. Fatehi F, Monajemi A, Sadeghi A, Mojtahedzadeh R, Mirzazadeh A. Quality of life in medical students with internet addiction. Acta Med Iran. 2016;54(10):662-6.

12. Abreu-Reis P, Oldoni C, de-Souza GA, Bettega AL, Góes MN, Sarquis LM, Brunello LF, Tomasich FS, Collaço IA, Nasr A. Psychological aspects and quality of life in Medical Residency. Rev Col Bras Cir. 2019;46(1):e2050.

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