



Research Article

The Impact of Stress and Burnout on the Quality of Life of Healthcare Workers within the Covid-19 Pandemic

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ABSTRACT

Background: The quality of an individual's life consists of the harmony of physical and mental health, which is influenced by working and material conditions and the social environment. Healthcare professionals face a lot of pressure caused by workload. Psychological pressure, lack of health personnel, and shift and overtime work lead to stress and burnout syndrome.

Aim: This paper examines the impact of stress and burnout on the quality of life of healthcare workers during the COVID-19 pandemic.

Methods: This cross-sectional study was conducted with 105 subjects who worked at the COVID wards at the COVID-19 Respiratory Centre of the University Hospital Centre Rijeka.

Results: This research shows that healthcare workers developed symptoms of stress and experienced a high degree of burnout during the COVID-19 pandemic. A small number of healthcare professionals also experienced a worse quality of life.

Conclusion: The COVID-19 pandemic put health workers under tremendous psychological pressure. In addition to numerous challenges such as work overload, long working hours, and impacts to work organization; health professionals had to deal with fear, uncertainty, high mortality rates, and the increased use of protective equipment. This impacted the quality of life for at least a small number of health workers.

Keywords: COVID-19, quality of life, burnout, health personnel, mental health

INTRODUCTION

According to the definition of the World Health Organization, quality of life is a personal understanding of a person's position in everyday life, regarding the content of culture, the determinants of laws and rights, especially regarding the possibility of realizing one's goals and desires (World Health Organization, 2012). The quality of an individual's life consists

of the harmony of physical and mental health, which is influenced by working and material conditions and the social environment, that is, the quality of life implies a successful harmony with the environment according to one's own needs and desires (Feleke et al., 2020). Healthcare professionals face a lot of pressure caused by workload. Psychological pressure, lack of health personnel, and shift and overtime work lead to stress and burnout syndrome.

Stress and burnout syndrome develop gradually, leading to exhaustion, reduced efficiency, lowered mood, and the development of somatic diseases. In addition to the already present causes of stress, during the "Coronavirus disease 2019" (COVID-19) pandemic, healthcare workers faced shift work in a high-risk environment (Dall'Ora C et al., 2020), a threat to their own health and that of the health of their families, the absence of staff due to self-isolation, the lack of equipment and limited hospital capacities, and high mortality. Healthcare workers who cared for COVID-19 patients developed symptoms of depression, anxiety, agitation, and insomnia (Feleke, 2022). All the above leads to high levels of stress and professional burnout. Long-term exposure to stress can increase the tendency to diseases of the upper digestive tract, and accelerate cardiovascular and autoimmune diseases (Havelka, 1998), while professional burnout is characterized by a feeling of emotional exhaustion through a negative and distant reaction to other people and a reduced sense of competence and productivity when performing work tasks, leading to an increased level of dehumanization and professional dissatisfaction (Feleke, 2022).

Previous research examining the quality of life of healthcare personnel found statistically significant differences in the quality of life in the domains of physical health, social functioning, and the environment compared to non-healthcare personnel. Findings include a positive correlation between the level of education and physical health and between younger age and the quality of social functioning (Baldonado-Mosteiro, 2019), (Batrnek & Gašpert, 2018; Demir, 2003). Having a higher level of education also significantly contributes to a better quality of life in the domains of physical and mental health (Begić et al, 2020). Research carried out in the Republic of Croatia demonstrates a high level of concern for elderly family members during the COVID-19 pandemic by both nurses and physicians. They are the least worried about family relationships, and the most worried about economic stability. Research shows that they worry the least about their own

mental health, and it is not at risk. Self-efficacy, in combination with social support, leads to optimism and better defense mechanisms in the fight against stress. Physicians nor nurses were not inclined to seek psychological support. The data show that physicians and nurses have not significantly changed their behaviour and that not a single indicator of their mental health assessment health is not worse compared to the rest of the population (Begić et al., 2020). Even though there are plenty of studies regarding burnout, there is still a research gap that needs to be filled, and there is still needed to find adequate prevention programs. This research will explore work stress during the global pandemic, which will give new insight into this field from the perspective of Croatian critical care workers.

Aim

The aim of this research was to examine the influence of stress level and burnout levels on the quality of life of healthcare workers regarding the age and gender of the subject's level of education, and length of service. To examine the level of stress and burnout regarding the availability and use of psychological help within the workplace and to examine the level of stress and burnout regarding the type of COVID ward and the length of work in the COVID ward during the pandemic. And to examine the assessment of the participant's quality of life as well as the presence and intensity of stress and burnout.

MATERIALS AND METHODS

Research design

This was a cross-sectional survey that targeted physicians and nurses of the University Hospital Centre Rijeka (UHC Rijeka) who worked during the COVID-19 pandemic at the COVID Hospital Suits and COVID-19 Respiratory Centre (CRC). Participants were included regardless of sex, age, and level of education. The survey was conducted from March to May 2023. Data were collected through an online questionnaire (questionnaire) created on the Google Forms platform and compiled by the lead researcher. The link with the questionnaire was distributed to subjects electronically via email and the communication platforms Viber and WhatsApp. Filling out the questionnaire was individual, and the expected time to complete it was less than 10 minutes.

Instruments

The following instruments were used for the research:

1. Instructions related to anonymity, data protection, and the possibility to withdraw from the study at any time.
2. Sociodemographic questionnaire with general demographic data (age, gender, occupation, place of work, and work length).
3. World Health Organization Quality of Life Brief Version questionnaire (WHOQOL-BREF) questionnaire on quality of life (World Health Organization, 2012). For the purposes of this research, the Croatian version of the questionnaire was used. The questionnaire contained 26 questions, examining four domains of quality of life: psycho-physical functioning, social interaction, environment, general health, and overall health quality.
4. Questionnaire on workplace burnout developed by Ajduković & Ajduković (1983). The questionnaire consists of 18 items broken down into three domains – cognitive, behavioral, and emotional - targeting the signs of burnout at work.

Statistics

The collected data were statistically processed with the help of the statistical program Statistica (Version 13.5.0.17, 1984-2018 TIBCO Software Inc). To test the hypotheses, parametric statistics methods were used. Spearman's correlation coefficient was used to test the first hypothesis. For the additional hypotheses, the student t-test was used when testing the difference between two independent groups, and ANOVA (analysis of variance) when testing the difference between more than two independent groups. All dependent variables belong to the interval scale, and in the descriptive analysis of the results they are presented using the arithmetic mean and standard deviation. In descriptive data analysis, all categorical variables are presented using frequencies and percentages. The dependent variables were the results obtained from questionnaires burnout level, and quality of life questionnaire. The research carried out was of low risk, and its implementation did not require the permission of the Ethics Committee, both the Rijeka Clinical Hospital Centre and the Ethics Committee of the Faculty of Health Studies.

RESULTS

Sociodemographic data

A total of 105 subjects participated in the research, of which 29 (28%) were male and 76 (72%) were female. The largest number of subjects were aged 26 to 35, 56 of them (53%), followed by subjects aged 36 to 45, of whom there were 26 (25%), and subjects aged 46-55, of whom 14 (13%). The smallest number of subjects was under the age of 25, 5 (5%), and 4 (4%) from 56 to 65. Most subjects with a university degree participated in the research, 64 of them (61%), there were 24 subjects with a higher professional education (22%), while there were the least of those with a secondary education, 17 of them (17%). A slightly larger number of subjects worked in a respiratory centre during the pandemic, 57 (54%) of them, and the other 48 (46%) worked in the hospital's COVID wards, 39 (37%) of the subjects spent time in one of the COVID wards from 6 months to one year, 32 (30%) subjects spent from 2 to 6 months, and 22 subjects (21%) spent two years in the COVID wards. The smallest number of subjects spent less than one month in one of the COVID departments, 12 of them (11%). The largest number of subjects, 81% of them, stated that psychological counselling was available to them within their workplace; however, not a single subject used it. During the descriptive analysis of stress levels, it was found that only 4 (3.81%) of the subjects had low levels of stress, 76 (72.38%) were under moderate stress, and 25 (23.81%) of subjects reported high levels of stress. Half of the subjects, i.e., 50(48%), were without burnout, 31 (30%) had initial burnout, and 24 (23 %) of subjects had a high degree of burnout. The overall average score of subjects on the quality-of-life questionnaire was 68.48 (± 15.56). Subjects had the lowest median grades in the physical and psychological functioning domains, and highest in the environmental domain (73.39 [± 18.51]), followed by the social functioning domain (71.58 [± 23.41]).

Association between stress, burnout, and quality of life

To assess the association of quality of life with stress and burnout, a correlation analysis was done. As the correlation analysis showed, lower stress levels are statistically significantly negatively associated with a higher level of quality of life ($r=-0.34$; $p=0.00$) ($r=0.49$, $p=0.00$). Additionally, there was a strong positive correlation between burnout and quality of life ($r=-0.61$, $p=0.00$),

Difference in stress and burnout levels regarding the location and length of work in the COVID department

No statistically significant difference in the level of stress and burnout was found between subjects in relation to their place of work during the COVID-19 pandemic. On average, the highest level of stress (23.46 ± 4.88) was experienced by subjects who worked in the COVID department from 6 months to one year, while subjects who spent two years in one of the COVID departments had the lowest level of stress (23.3 ± 4.6). Statistical analysis shows no difference in the stress level between subjects in relation to the length of work in one of the COVID departments during the pandemic ($F=0.05$, $p=0.99$) (Table 1). The level of burnout was also not statistically significant in relation to the length of work on the COVID ward during the pandemic.

Table 1.

Difference in stress level compared to the length of work on the COVID department during the pandemic

Length of work in the COVID department	N	X	SD	F	p
Less than 1 month	12	22.9	6.6	0.05	0.99
From 2-6 months	32	23.0	5.1		
From 6 months up to 1 year	39		4.9		
2 years	22	23.3	4.6		
Altogether	1	23.1	5.2		

DISCUSSION

One challenge during the pandemic was dealing with stress and fear for one's own health and the health of the family. Work overload, shift organization, more overtime hours, insufficient workers, media exposure, high mortality, infectiousness, and isolation are the leading stressors during the COVID-19 pandemic worldwide.

Research conducted in Spain, Portugal, and Brazil shows a high level of burnout among healthcare professionals when it comes to the COVID-19 pandemic (Brazil and Portugal 42%, Spain 43%) (Borges et al., 2019), while research in China showed that the average life expectancy (36 -45 years) has a lower risk of developing symptoms of stress and burnout.

The results obtained from this research show that 31% of subjects have initial burnout, while 24 (23%) subjects are in the range of results that indicate a high degree of burnout. By comparing the research conducted in Brazil, Spain, and Portugal with the research conducted at KBC Rijeka, it was confirmed that health workers of a younger age developed the highest level of burnout. The reason for this result may be stress compensation during years of service and learned defense systems, which are not developed in the younger population.

Research conducted by Zhu et al. on health workers at Tongji Hospital in Wuhan shows that the level of stress was higher in women than in men (Zhu et al., 2020), which was also confirmed by the results of this study. Participants have developed a lower level of stress and burnout, and therefore have a better quality of life. If we take age into account, there is no statistically significant difference in the quality of life between male and female subjects in UHC Rijeka.

Analysis of the stress results of this research show that 4 (4%) subjects have a low level of stress, 76 (72%) subjects are under moderate stress, while 25 (24%) subjects report a high level of stress. The obtained results indicate a positive relationship between the influence of stress level on the development of burnout syndrome. Subjects exposed to the stress caused by the COVID-19 pandemic are most likely to develop burnout syndrome. The cause of this result is suppression and failure to recognize the consequences caused by long-term exposure to stress. The negative association of stress and burnout with the subject's quality of life is associated with the ability to separate business from private life, the subject's ability to compensate for exposure to stressful situations, division of work tasks, and communication with work colleagues and team leaders.

Subjects aged 36 to 45 express the highest level of stress, and subjects aged 56 to 65 express the lowest. In addition, those younger than 25 years have the highest level of burnout, and subjects aged 56 to 65 years have the lowest. This thesis was also confirmed by Huang et al. (Huang et al., 2020).

Research conducted in Turkey in 2020 confirms the thesis that women were more prone to developing stress and burnout syndrome during the COVID-19 pandemic (Çelmeçe and Menekay, 2020). However, a study conducted in China found that men were more likely to develop stress and PTSD. The cause of such results may be high expectations from men, their role in society, and the socioeconomic situation within individual provinces (Huang et al., 2020).

The stress and burnout of healthcare workers during the COVID-19 pandemic are closely related to direct contact with patients infected with the SARS-CoV-2 virus, which impairs their work efficiency and quality of life. If the level of education and the possibility of developing stress and burnout are considered, the results show that subjects with SSS develop a higher level of stress and burnout, while the level of professional education has no impact on the quality of life. As a reason, the higher level of education of subjects with a higher professional education in the field of individual coping with stress, perception of stress, and coping in newly created situations can be cited. Research conducted in Turkey confirms the connection between the level of education and the development of stress and burnout, without affecting the quality of life (Çelmeçe N, Menekay M., 2020).

Research by Çelmeçe and Menekay from 2020 showed that subjects who have children are more susceptible to stress (Çelmeçe N, Menekay M., 2020).

Considering that schools were closed during the pandemic and that health workers did not have normal working conditions and shifts, a big problem was taking care of the children. In addition to the fear of spreading the infection, there was also the problem of taking care of children. "Grandparents" and "grandfathers" belonged to the risk population, while in the rest of the family almost always someone else was positive for the coronavirus. The care of the children was left to the neighbours or babysitting aunts, which exhausted the parents mentally, physically, and emotionally.

Examining the influence of length of service, the highest level of stress was present in subjects who had worked for less than 5 years, and the lowest in subjects who had worked between 21 and 30 years. Subjects who have worked for less than 5 years are more prone to burnout syndrome, while the level of burnout was the lowest among subjects with more than 30 years of experience. Also, subjects with less than 5 years of work experience achieved the lowest results in quality of life. The quality of life of the subjects is

influenced by psychophysical characteristics, emotions, and wishes related to the future, physical, and social environment. With the advent of the COVID-19 pandemic, the pressure on health personnel is increasing. Subjects with less than 5 years of work experience do not have developed defense systems, so reactions to stressful situations are more intense. The obtained results of the research indicate that subjects with less than 5 years of work experience achieve the lowest results in all related domains of quality of life. They are faced with high workplace demands, staff shortages, emergencies, constant needs to reorganize work, pressure from the environment, and fear of infection.

Exposure to high mortality in the population, movement bans, isolation, self-isolation, and the use of protective equipment leads to physical, psychological, and social exhaustion. The highest values were obtained in the environmental domain, the cause of which can be cited as the subjects reduced ability to deal with stressful situations, weaker communication with colleagues, and non-participation in decision-making and problem-solving within the work environment. Also, subjects achieved higher results in the social domain, due to the impossibility of social contact during the pandemic caused by isolation, self-isolation, prohibitions on movement and physical contact. The results obtained in the physical domain indicate that the subjects were exposed to the absence of rest and sleep, and the inability to move.

When the psychological domain is considered, the subjects develop negative feelings and impaired self-esteem, which impairs their ability to work. This coincides with research conducted in Spain and Brazil, which show that nurses with longer working experience developed a lower degree of burnout. Nevertheless, a study carried out in Spain shows higher levels of burnout in subjects with medium or longer working experience (Borges et al., 2021).

Considering the exposure to emotional and physical stress, the health workers of UHC Rijeka had the opportunity to access psychological counselling and psychological support. Despite the available psychological support, the results of this study show that most subjects (80.95%) developed a higher level of stress and burnout. Considering the prejudices against people with psychological and mental disorders in the Republic of Croatia, such a result is not unexpected. Society does not understand or reject problems related to mental health, and they are often the subject of ridicule.

Healthcare workers are not exempt from stigma, and those with recognized psychological disorders, in this case, due to the newly created stressful situation and difficult working conditions, were denied timely help and thus the possibility of functioning within the collective. This enhances the development of burnout syndrome and leads to a deterioration in the quality of life.

When we talk about the workplace and length of work with COVID-19 patients, the level of stress and burnout was higher among subjects in the COVID departments, especially among those who worked longer than 6 months, which speaks in favour of exposure to stress at the workplace, fear of infection, protective equipment, and a high mortality rate. Subjects who worked in the respiratory centre developed a lower level of stress compared to subjects in the COVID wards. Also, subjects who worked in the COVID wards developed a slightly higher level of burnout syndrome.

The highest level of stress was developed by subjects who worked from 6 months to 1 year in one of the COVID departments. The subjects who spent 2 to 6 months in the COVID department had the highest mean value of burnout syndrome. The reason for this may be redistribution from the parent department and being caught in a new environment and working conditions, as well as in an extraordinary situation in a new team. In contrast, in the CRC under the expert guidance of intensivists and anaesthesiology nurses, the level of stress was significantly lower. As a result, the healthcare workers transferred from other departments to the respiratory centre were provided with professional guidance and knowledge, which initially prevented the development of a high degree of stress, burnout syndrome, and impairment of the quality of life (Friganovic and Selič, 2019).

This work confirmed the statistically significant connection between stress and the level of burnout on the subject's quality of life. When interpreting the results obtained from this research, it should be considered that the research was conducted within the COVID-19 pandemic and that the time lag probably determined the lower level of stress and burnout obtained in this research. In addition, the response of female and younger subjects (26-35 years) was significantly higher. The results of the research on the psychological state and the consequences left behind would have been more precise if the research had been conducted during the period of high pressure on the medical staff and shortly after the closure of the department. Also,

most of the subjects were employees of the respiratory centre, which did not provide adequate insight into the mental state of healthcare workers in the COVID wards. Finally, this research was conducted on a small sample of UHC Rijeka employees, and to obtain the real situation in the Republic of Croatia, employees of all COVID departments and respiratory centre in the Republic of Croatia should be surveyed.

CONCLUSION

The COVID-19 pandemic puts health workers under great psychological pressure. In addition to numerous challenges such as work overload, working hours, and work organization, health professionals must deal with fear, uncertainty, high mortality rates, and the use of protective equipment. The quality of life of a small number of health workers is impaired. Taught by this experience and the results of the research, emphasis should be placed on educating healthcare workers about preserving mental health and the symptoms of impaired mental health. The reason for this is good teamwork and the support of associates and team leaders. It is necessary to provide training and workshops for health workers so that they know how to recognize the symptoms of burnout and recognize the need for psychological support in emergency situations. All of the above is necessary in order to prevent the physical and psychological manifestation of long-term exposure to stress, all for the purpose of improving the quality of life and better efficiency in the work environment.

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Renata Ros completed her undergraduate nursing studies at the Faculty of Health Studies in Rijeka in 2017 and her graduate studies at the University Graduate School of Nursing in Rijeka, majoring in Mental Health Promotion and Protection in 2023. She has worked at the Department of Anaesthesiology, Intensive Medicine and Pain Management, University Hospital Centre Rijeka, intensive care unit for 15 years.

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