

Mental health and well-being in healthcare workers in Croatia during COVID-19 pandemic: longitudinal study on convenient sample

Mentalno zdravlje i dobrobit zdravstvenih djelatnika u RH tijekom pandemije COVID-19: longitudinalno istraživanje na prigodnom uzorku

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Summary

Aim: To examine changes in general and work well-being of health professionals in the Republic of Croatia during the first and second waves of the pandemic COVID-19. Although there are numerous studies, in our country and worldwide, that have examined the general and/or work well-being of health care workers during the pandemic(s), few researchers have used a longitudinal approach.

Participants and methods: Ninety-two participants took part in the study. Most of the participants were nurses and technicians (N=88; 95.65%), while physicians were represented to a much lesser extent (N=4; 4.35%). The sample was dominated by women (N=82; 89.1%), compared to men (N=10; 10.9%). Data from all participants were collected at two measurement time points corresponding to the two waves of the pandemic in the Republic of Croatia. In addition to questions on sociodemographic characteristics (age, gender, workplace...), the following instruments were used: DASS-42 (to assess depression, anxiety and stress), Short Mental Health Inventory, Oldenburg Burnout Inventory and Job Satisfaction Scale.

Results: A statistically significant increase in the level of depression ($p < 0.05$), anxiety ($p < 0.05$), and stress ($p < 0.05$) was found during the second wave of the pandemic compared to the first wave. No significant changes were found in the general mental health status of the participants ($p > 0.05$). Regarding work well-being, a significantly higher level of exhaustion was found ($p < 0.05$), while no significant change was recorded in the level of alienation ($p > 0.05$), nor in the participants' job satisfaction ($p > 0.05$).

Conclusion: Although the second wave of the pandemic was associated with an increase in depression, anxiety, stress, and exhaustion among convenient sample of health care workers, there was no decrease in levels of mental health, job satisfaction, and alienation (burnout dimension).

Key words: healthcare professionals, mental health, work well-being, burnout

Sažetak

Cilj: Ispitati promjene opće i radne dobrobiti kod zdravstvenih djelatnika u Republici Hrvatskoj tijekom trajanja prvog i drugog vala COVID-19 pandemije. Iako postoje brojna istraživanja, kako kod nas, tako i u svijetu, kojima se ispitivala generalna i/ili radna dobrobit zdravstvenih djelatnika tijekom pandemije(a), rijetki su se istraživači koristili longitudinalnim pristupom.

Ispitanici i metode: U istraživanju je sudjelovalo 92 ispitanika. Većina njih bile su medicinske sestre i tehničari (N=88; 95.65%), dok su liječnici bili zastupljeni u znatno manjem broju (N=4; 4.35%). U uzorku su dominantno zastupljene žene (N=82; 89.1%) u odnosu na muškarace (N=10; 10.9%). Podaci za sve ispitanike prikupljeni su u dvije točke mjerenja koje su odgovarale dvama valovima pandemije u RH. Osim pitanja vezanih za sociodemografske značajke (dob, spol, radno mjesto...), korišteni su i sljedeći mjerni

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instrumenti: DASS-42 (za ispitivanje depresije, anksioznosti i stresa), Kratki upitnik mentalnog zdravlja, Oldenburški upitnik sagorijevanja i Skala zadovoljstva poslom.

Rezultati: Utvrđen je statistički značajan porast u razini depresije ($p < 0.05$), anksioznosti ($p < 0.05$) i stresa ($p < 0.05$) tijekom drugog vala pandemije u odnosu na prvi val. Nisu zabilježene značajne promjene u razini općeg mentalnog zdravlja ($p > 0.05$) ispitanika. Vezano za radnu dobrobit, u drugom valu pandemije utvrđena je značajno viša razina iscrpljenosti (dimenzija sagorijevanja) ($p < 0.05$), dok u drugoj dimenziji sagorijevanja – razini otuđenosti ($p > 0.05$), nije zabilježena značajnija promjena, kao ni u zadovoljstvu ispitanika poslom ($p > 0.05$).

Zaključak: Iako je drugi pandemijski val bio praćen porastom depresivnosti, anksioznosti, stresa i iscrpljenosti, kod prigodnog uzorka zdravstvenih djelatnika nije došlo do pada u razinama mentalnoga zdravlja, zadovoljstva poslom i otuđenosti (dimenzija sagorijevanja).

Ključne riječi: zdravstveni djelatnici, mentalno zdravlje, radna dobrobit, sagorijevanje

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Introduction

The occurrence of the global pandemic caused by the virus COVID-19 has put a strain on healthcare systems and healthcare workers worldwide, including in the Republic of Croatia. The rapid spread of the virus has resulted in workers having to work under extreme pressure and conditions, often requiring quick and difficult decisions.¹ The experience in the emergence of previous pandemics such as Ebola, avian flu, and swine flu, despite the differences in the impact of the virus, shows that the occurrence of a pandemic undoubtedly has significant physical and psychological consequences not only for the individual but for the entire social community.²⁻⁴ The previously mentioned pandemics were associated with the frequent occurrence of symptoms such as insomnia, depression, PTSD, and substance abuse among healthcare workers.^{5,6} In addition, working in conditions where there is a possibility of personal infection or infection of relatives leads to high levels of stress, depressive symptoms, anxiety, and stigma.⁷⁻⁹ Previous research has shown that healthcare workers who work directly with sick patients during the pandemic are at higher risk of developing mental health problems, both short-term and those with long-term consequences,¹⁰ and that even a year or two after pandemic exposure, especially among healthcare workers, there are higher levels of stress.¹¹⁻¹⁴ Current relevant research lists anxiety as the most common psychological problem that significantly affects the ability to live and work, leading to physical illness and lower work productivity during the pandemic.¹⁵ Research conducted during the SARS pandemic suggests that healthcare workers had moderate levels of anxiety,^{16,17} increased levels of burnout, psychological stress and PTSD,^{13,18} while Nickell et al. indicated that during the SARS pandemic, up to 45% of nurses experienced significant levels of stress.⁴ Numerous studies conducted during the current pandemic COVID-19 confirm the findings of

studies conducted during previous pandemics.¹⁹⁻²² Researchers from Singapore found that during the pandemic COVID-19, 15.7% of healthcare workers were anxious, 10.6% were depressed, and 5.2% had moderate to severe symptoms of stress,¹⁹ while 79.7% of healthcare workers felt alienated and 75.3% felt exhausted.²³ Despoina and Chrysoula also found that stress and anxiety co-occurred with depression in 37.2% of cases among healthcare workers who treated patients infected with the virus COVID-19.²⁴ Similar results were recorded in Turkey,²⁵ Portugal,²⁶ and Iran.²⁷ Despite the above findings, some of the recent research suggests that job satisfaction among healthcare workers is relatively stable and at a "satisfactory" level, even higher than some previous periods.^{28,29} Although numerous studies have been conducted on the association between the COVID-19 pandemic and mental health of healthcare workers, there are few longitudinal studies that track the mental health of healthcare workers during the pandemic. Some of the studies compared outcomes recorded before the pandemic and during the pandemic, with finding an increase in the prevalence of depression, anxiety, and insomnia among healthcare workers over time.³⁰⁻³⁵ Several studies suggest that the level of psychological difficulties decreases during the pandemic.³⁶⁻³⁸ Sampaio and others conducted three measures of depression, anxiety, and stress levels among nurses during the pandemic COVID-19, and the results suggest that depression and stress levels tend to decrease over time, especially anxiety.³⁸ Similar results of a significant decrease in depression and anxiety levels were found by researchers in China when they examined the mental health of healthcare workers at six-week intervals.³⁹ In a study conducted in Russia with 160 medical students during the first and second waves of the pandemic, a decrease in negative psychological phenomena such as anxiety, depression, exhaustion, loneliness, nervousness, and anger was found during the second wave compared

with the first wave.³⁶

Considering the above, the long duration of the current pandemic and the undeniable impact of the pandemic on the general and work well-being of all healthcare workers, the aim of this study was to investigate the changes in the general and work well-being of healthcare workers in the Republic of Croatia during the first and second waves of the pandemic COVID-19 using a longitudinal approach.

Participants and Methods

Participants

Ninety-two participants took part in the study, with median age (during the first wave) of 36.5 years (interquartile range 28 to 46) and median work experience of 15 years (interquartile range 5.50 to 25.5 years of work experience). Most participants were nurses and technicians (N=88; 95.65%), while physicians were represented to a much lesser extent (N=4; 4.35%). The sample was dominated by women (N=82; 89.1%), compared to men (N=10; 10.9%). Almost two-thirds of the participants (64.05%) were employed in inpatient healthcare facilities (clinical hospital centers, general hospitals, etc.), while the rest (35.95%) were employed in other healthcare facilities (Croatian Institute of Emergency Medicine, Health Centers, etc.). The participants come from 15 counties of the Republic of Croatia. Data from all participants were collected at two measurement time points corresponding to the two waves of the pandemic in the Republic of Croatia. Of the total number of participants, 65% (N=60) worked with COVID-19 positive or suspected patients during the first wave, and 72.83% (N=67) of them during the second wave.

Methods

Depression, Anxiety, and Stress Scale DASS-42 (Depression, Anxiety, and Stress Scale, DASS-42,⁴⁰; Croatian adaptation⁴¹) consists of 42 items and three subscales (14 items each) that measure the level of depression, anxiety, and stress. Responses are selected on a four-point Likert scale (from 0 - does not apply to me at all to 3 - applies to me completely), and the total score is a linear combination of the scores on each subscale. The theoretical total range of scores for each individual dimension is from zero to 42. The reliability coefficients are .71 for the Depression subscale, .79 for the Anxiety subscale, and .81 for the Stress subscale⁴¹. In this study, the internal consistency reliability was .94 for the Depression subscale, .90 for the Anxiety subscale,

and .92 for the Stress subscale at the first measurement and .95 for the Depression subscale, .93 for the Anxiety subscale and for the Stress subscale at the second measurement.

Croatian version of the Short Mental Health Inventory (Mental Health Inventory– 5;⁴²; Croatian adaptation.⁴³ The questionnaire consists of five questions on the basic domains of mental health (anxiety, depression, general positive affect, and behavioural/emotional component) and assesses overall mental health in the past month. The participant answers the questions using a frequency scale (1 - always to 6 - never). The total score on the scale is the sum of the responses to all items, with a theoretical range of scores from 5 to 30, with a higher score reflecting a higher level of overall mental health. The questionnaire has an internal consistency reliability of .83.⁴³ In this study, the internal consistency reliability was .86 for the first measurement and .85 for the second measurement.

The Croatian version of the Oldenburg Burnout Inventory (Oldenburg Burnout Inventory;⁴⁴Croatian adaptation,⁴⁵ which measures burnout at work. The questionnaire measures two dimensions of burnout: exhaustion (e.g., "When I work, I usually feel full of energy") and alienation (e.g., "Lately, I do my work automatically, without thinking"). Each of the dimensions contains eight items. Participants rate their agreement with the statements on a four-point Likert scale (from 1 - strongly disagree to 4 - strongly agree). The overall score is averaged on a given scale. Higher scores on the scales indicate higher levels of exhaustion and alienation i.e. higher levels of burnout at work. The questionnaire has an internal consistency reliability of .84 for exhaustion and .76 for alienation.⁴⁵ In this study, the internal consistency reliability for the Exhaustion subscale was .71 for the first measurement and .76 for the second measurement. The internal consistency reliability for the Alienation subscale is slightly lower for both measurements and is .67 for the first measurement and .68 for the second measurement.

The Croatian version of the Job Satisfaction Scale was used to measure job satisfaction.⁴⁶ The scale consists of five statements, and the participant expresses his/her agreement with each statement on a seven-point scale (from 1 - I do not agree at all to 7 - I agree completely). The final scale score is obtained by dividing the total sum of the scores by the number of particles, with a higher score indicating a higher level of job satisfaction, except for two particles that are scored inversely. In this study, the internal consistency reliability was .80 for the first and second measurements.

Procedure

A longitudinal study with two measurement time points was conducted. The first data collection was conducted in May 2020 during the first wave of the COVID-19 pandemic, and the second in November and December of the same year during the second wave of the pandemic. At the second data collection point, participants were asked if they had already completed the questionnaire in the first wave, and if the answer was affirmative and there were overlaps in the sociodemographic and work variables (gender, age, place of work, county, number and age of children, marital status, education level) they were included in the final sample. In this way, 92 participants were identified. These 92 participants who took part in both measurement time points did not differ from the other participants in the first wave with respect to the level of depression, anxiety, and stress at the first measurement time point. Considering the epidemiological situation, the survey was conducted with an online version of the questionnaire and was voluntary and anonymous. The invitation to participate in the survey was sent to the leaders of the health institutions, who forwarded the invitation and the link to the questionnaire to their employees via e-mail addresses. The purpose of the survey was explained in the introductory part of the questionnaire, and it was explained that the estimates refer only to the period of the pandemic.

Statistical analysis of the obtained data was performed using Statistica 13 computer application (TIBCO Software Inc., Palo Alto, USA 2018). Deviations from the normal distribution were determined using the Kolmogorov-Smirnov test on the subscales for depression and anxiety in both pandemic waves, while the scores on the subscale stress deviated significantly only in the case of the first wave. All other variables were normally distributed. Accordingly, the differences in scores (Table 1) obtained during the two pandemic waves were tested with the parametric t-test for dependent samples when variables with a normal distribution were included in the comparisons, and the comparisons that included variables deviating from the normal distribution were performed with the nonparametric Wilcoxon test. Statistically significant values were indicated by $p < 0.01$ and $p < 0.05$.

Ethical consideration

The conduct of the study was approved by the Ethics Committee of the Department of Psychology of the University of Zadar.

Results

The calculated descriptive parameters for the dependent variables used are shown in Table 1. A statistically significant increase in the level of depression ($p < 0.05$), anxiety ($p < 0.05$), and stress ($p < 0.05$) was found during the second wave of the pandemic compared to the first wave. No significant changes were found in the general mental health status of the participants ($p > 0.05$). Regarding the domains of well-being at work, a significantly higher level of exhaustion was found during the second wave of the pandemic ($p < 0.05$), while no significant change was found in the level of alienation ($p > 0.05$) and in the participants' job satisfaction ($p > 0.05$).

In examining the relationship between the dependent variables of the study (Table 2), we can observe their relationship at several levels. First, we can focus on the relationships between the variables reflecting general well-being (depression, anxiety, stress, and mental health) and the relationships between the variables reflecting well-being at work (job burnout, which includes the components of alienation and exhaustion, and job satisfaction) at the level of each wave. (Table 2). The same patterns were found at both measurement time points, i.e., significant positive correlations between depression, anxiety, and stress and their negative correlation with rated overall mental health. In addition, alienation and exhaustion were positively correlated and both negatively associated with job satisfaction.

Regarding the correlations between variables reflecting general well-being and well-being at work, it was found that all general well-being variables were statistically significantly associated with all well-being at work variables at both measurement time points. Specifically, higher levels of depression, anxiety, and stress and lower levels of rated general mental health were associated with higher levels of alienation, exhaustion, and lower job satisfaction. The results described were obtained for both measurement time points.

Regarding the correlations of the same dependent variables collected at two measurement time points, most variables were found to be statistically significantly positively associated with each other. The only exception was the exhaustion variable, for which no statistically significant correlation was found in the two waves of the pandemic.

Table 1 Descriptive data and results of testing differences in depression, anxiety, stress, mental health, alienation, exhaustion and job satisfaction during two pandemic waves

Tablica 1. Deskriptivni parametri i rezultati testiranja razlika u razinama depresije, anksioznosti, stresa, mentalnog zdravlja, otuđenosti, iscrpljenosti i zadovoljstva poslom tijekom dva vala pandemije

Scale Skala	Pandemic wave Val pandemije	M	SD	Min	Max	Skewness (SE)	Kurtosis (SE)	K-S d	P
Depression Depresivnost	First Prvi	4.69	7.14	0	40	2.44 (0.25)	7.10 (0.50)	.26**	<0.05
	Second Drugi	6.53	8.21	0	39	1.80 (0.25)	3.09 (0.50)	.22**	
Anxiety Anksioznost	First Prvi	5.21	6.53	0	38	2.31 (0.25)	7.10 (0.50)	.21**	<0.05
	Second Drugi	7.41	8.37	0	39	1.53 (0.25)	2.05 (0.50)	.21**	
Stress Stres	First Prvi	8.74	7.53	0	37	1.10 (0.25)	1.07 (0.50)	.16*	<0.05
	Second Drugi	11.17	8.58	0	36	0.91 (0.25)	0.52 (0.50)	.12	
Mental health Mentalno zdravlje	First Prvi	20.56	4.28	8	27	0.12 (0.25)	-0.24 (0.50)	.09	>0.05
	Second Drugi	19.81	3.99	11	28	0.57 (0.25)	0.13 (0.50)	.12	
Alienation Otuđenost	First Prvi	2.59	0.44	1.50	3.87	0.20 (0.25)	0.16 (0.50)	.08	>0.05
	Second Drugi	2.66	0.46	1.50	3.87	0.11 (0.25)	0.47 (0.50)	.11	
Exhaustion Ischrpljenost	First Prvi	2.81	0.36	2	3.62	0.12 (0.25)	-0.49 (0.50)	.11	<0.05
	Second Drugi	2.96	0.38	2	3.87	-0.04 (0.25)	-0.03 (0.50)	.11	
Job satisfaction Zadovoljstvoposlom	First Prvi	5.17	1.14	1.20	7	-0.89 (0.25)	1.35 (0.50)	.09	>0.05
	Second Drugi	5.14	1.05	2.60	7	-0.27 (0.25)	-0.69 (0.50)	.09	

Note. **p<.01; * <.05

Higher depression, anxiety, and stress scores and lower estimated general mental health status recorded in the first pandemic wave were statistically significantly related to higher exhaustion and lower job satisfaction in the second pandemic wave, but not to the level of alienation (workplace well-being variables).

Alienation recorded in the first pandemic wave

was statistically significantly related to all general well-being variables in the second pandemic wave. A positive correlation was found between exhaustion in the first wave and anxiety and stress in the second wave, while higher job satisfaction in the first wave was associated with lower anxiety and better mental health in the second wave.

Table 2 Result correlations of all scales in both measurements (first and second pandemic wave)
 Tablica 2. Korelacija rezultata na svim skalama u dvije točke mjerenja (dva pandemijska vala)

Scale <i>Skala</i>	Anxiety 1 st wave <i>Anksioznost 1. val</i>	Stress 1 st wave <i>Stres 1. val</i>	Mental health 1 st wave <i>Mentalno zdravlje 1. val</i>	Alienation 1 st wave <i>Otuđenost 1. val</i>	Exhaustion 1 st wave <i>Iscrpljenost 1. val</i>	Job satisfaction 1 st wave <i>Zadovoljstvo poslom 1. val</i>	Depression 2 nd wave <i>Depresija 2. val</i>	Anxiety 2 nd wave <i>Anksioznost 2. val</i>	Stress 2 nd wave <i>Stres 2. val</i>	Mental. health 2 nd wave <i>Mentalno zdravlje 2. val</i>	Alienation 2 nd wave <i>Otuđenost 2. val</i>	Exhaustion 2 nd wave <i>Iscrpljenost 2. val</i>	Job satisfaction 2 nd wave <i>Zadovoljstvo poslom 2. val</i>
Depression 1 st wave <i>Depresivnost 1. val</i>	.79**	.75**	-.53**	.34**	.36**	-.42**	.32**	.29**	.35**	-.37**	.14	.22*	-.22*
Anxiety 1 st wave <i>Anksioznost 1. val</i>	-	.80**	-.56**	.39**	.48**	-.45**	.38**	.42**	.42**	-.35**	.20	.29**	-.30**
Stress 1 st wave <i>Stres 1. val</i>		-	-.59**	.37**	.47**	-.38**	.28**	.29**	.37**	-.37**	.19	.28**	-.25*
Mental health 1 st wave <i>Mentalno zdravlje 1. val</i>			-	-.29**	-.47**	.50**	-.17	-.20	-.22*	.34**	-.06	-.21*	.25*
Alienation 1 st wave <i>Otuđenost 1. val</i>				-	.31**	-.62**	.29**	.35**	.28**	-.25*	.40**	.23*	-.41**
Exhaustion 1 st wave <i>Iscrpljenost 1. val</i>					-	-.37**	.16	.22*	.21*	-.19	.07	.19	-.14
Job satisfaction 1 st wave <i>Zadovoljstvo poslom 1. val</i>						-	-.18	-.23*	-.20	-.35**	-.35**	-.17	.52**
Depression 2 nd wave <i>Depresivnost 2. val</i>							-	.89**	.86**	-.59**	.31**	.39**	-.46**
Anxiety 2 nd wave <i>Anksioznost 2. val</i>								-	.89**	-.54**	.25*	.29**	-.45**
Stress 2 nd wave <i>Stres 2. val</i>									-	-.62**	.29**	.36**	-.45**
Mental health 2 nd wave <i>Mentalno zdravlje 2. val</i>										-	-.51**	-.55**	.69**
Alienation 2 nd wave <i>Otuđenost 2. val</i>											-	.43**	-.71**
Exhaustion 2 nd wave <i>Iscrpljenost 2. val</i>												-	-.44**
Job satisfaction 2 nd wave <i>Zadovoljstvo poslom 2. val</i>													-

Note. Pearson's correlation coefficient, **p<.01; * <.05

Discussion

The pandemic triggered by the virus COVID-19 caused significant changes in the functioning of the entire social life, including the functioning of health care systems both in the world and in Croatia.⁴⁷ Due to its unexpectedly long duration, it can be considered a permanent stressor, which, due to the nature of its work, has a particular impact on healthcare workers. Therefore, the aim of this study was to investigate how the general and professional well-being of healthcare workers in the Republic of Croatia changed during the second wave of the pandemic COVID-19 compared to the first wave.

The results of this longitudinal study show that during the second wave of the pandemic, there was a significant increase in depression, anxiety, and stress scores among convenient sample of healthcare workers in the Republic of Croatia. Similar findings, indicating the negative impact of the pandemic on mental health and the persistence of symptoms throughout the duration of the pandemic, have also been found in studies during previous pandemics^{10,48} and in more recent studies during the pandemic COVID-19 in other countries.^{30,49,50} Similar results regarding an increase in anxiety scores were also confirmed in healthcare workers in the United Kingdom, but no increase in depression scores was found.³¹ Murphy et al. note that no changes in anxiety and depression scores were found when comparing the first and second waves.⁵¹ By comparing health worker scores from this research with scores obtained in Croatia with samples from the general population,⁴¹ it was shown that health workers differed from other pre-pandemic samples in two situations: Depression in the first wave and Anxiety in the second wave. More specifically, the level of depression among health professionals was statistically lower in the first wave than in the general population before pandemic, whereas the level of anxiety was statistically significantly higher in the second pandemic wave than in the general population before the pandemic. These data, despite the fact that the anxiety, depression, and stress dimensions all increased at healthcare workers in the second wave of the pandemic, suggest that the anxiety dimension most strongly reflects the changes caused by the pandemic. In other words, because of the duration of the pandemic, healthcare workers developed more anxiety symptoms than the pre-pandemic population. Given the context at the time, these results are understandable. It was precisely the uncertainty, fear, and inadequate knowledge about the disease itself and its consequences that were the most important factors characterising this period, so it is not surprising that

the anxiety level of health workers was higher than average in the second wave. A similar conclusion was also reached by Kwong et al., who pointed out that uncertainty and sudden changes in daily life, as well as concerns about health, may explain the increase in anxiety rather than depression.³¹ Aside from concluding that the long duration of the pandemic led to an increase in depression, anxiety, and stress scores among the healthcare workers in this study, we should also consider other possible reasons for these findings. The results of our study can be explained by the fact that depression and anxiety are more common in women than in men,⁵² and women accounted for 89.1% of the participants in this study. Age is also an important factor, because depression and anxiety symptoms occurs most often between the ages of twenty-five and forty, the age of greatest work potential,^{52,53} and at the same time, the largest number of participants in this study belong to this age.

However, despite the increase in depression, anxiety, and stress scores in second wave in this study, the scores for rated general mental health did not decrease significantly, which is consistent with the results of a previous study.⁴⁹ There is a possibility that the symptoms experienced by healthcare workers represent a nonpathological response to extremely stressful and specific circumstances such as increased workload and risk of illness or they already possess appropriate strategies to protect themselves from the stressors to which they are exposed.

Regarding the job burnout, there was no increase in the degree of alienation in the second wave of the pandemic compared to the first wave, while the degree of exhaustion increased significantly. Job satisfaction also remained the same during the two waves. The results are partially consistent with the results obtained in Slovenian healthcare workers, which showed that the level of job satisfaction decreased during the pandemic, the level of emotional exhaustion increased, while the level of alienation did not change significantly before and during the pandemic.³² The authors note that during the pandemic, emotional and cognitive engagement at work increased and interpersonal emotional attachment increased, which is consistent with the results obtained in our study.³² This is also consistent with the results of other studies that highlight the importance of increased personal engagement in reducing depersonalization (dimension of alienation), especially in crisis situations.⁵⁴ Considering what has been said, it is very likely that this mechanism was also reflected in Croatian healthcare workers, since at that time the healthcare profession was in the public spotlight, where their profession received great recognition and gratitude, which may have affected

their greater commitment and involvement in work, i.e. lower alienation towards patients and work in general. Alienation, in fact, encompasses the individual's connection to work and includes the individual's distancing from their work in general, from the object of the work, and from the content of the work,⁴⁴ and public recognition of one's profession nonetheless reduces the likelihood of alienation.

This increased public recognition of the healthcare profession during the pandemic may also be a contributing factor to healthcare workers' job satisfaction remaining the same in both waves, although anxiety, depression, and stress increased in the second wave. Tokić et al. note that during the first wave of the pandemic, the healthcare workers who were most satisfied with their work were those who worked the most overtime, and worked directly with COVID-19 positive patients.⁴⁷ Similar results are confirmed by the Yu et al. in China.²⁸ Considering the social context in which healthcare workers are the focus of public attention and receive strong social support and thanks for their efforts, it is possible that the listed factors act as protective factors and keep the level of job satisfaction stable, as well as the level of alienation. Our study also included a qualitative section, the results of which have not yet been published. From the comments on the positive aspects of the pandemic, it can be concluded that the factors just mentioned could have a protective effect, among others. This explanation is consistent with the results of a Slovenian study,³² that found a decline in job satisfaction during the pandemic.

Correlation analyses showed that higher levels of depression, anxiety, stress, and lower levels of mental health were associated with lower job satisfaction, higher exhaustion and alienation, and this was the case in both pandemic waves. These results are consistent with numerous previous studies conducted before the pandemic,⁵⁵⁻⁵⁹ and in the pandemic period.^{24,28,50} In addition, all measured constructs were significantly moderately correlated at two measurement points, with the exception of exhaustion. Depression, anxiety, and stress from the first wave were statistically significantly related to all variables included in the second wave, except of alienation level. That is, more depressed and anxious participants with higher levels of stress in the first wave reported more anxiety, depression, stress, lower mental health, higher exhaustion, and lower job satisfaction in the second wave. Alienation in the second wave was only positively related to the level of alienation in the first wave and negatively related to job satisfaction in the first wave. Also, the level of alienation from the first wave was significantly related to all the variables recorded in the second

wave, in the way that individuals who already expressed greater alienation in the first wave were more anxious, depressed, with more stress symptoms, lower mental health, more exhausted, and less satisfied with work in second wave. These findings suggest that it is important to pay special attention to the aspects of burnout at work in health professions. Exhaustion, unrelated to other variables, seems to be more situationally determinate. Alienation, on the other hand, proved to be a more stable predictor of all variables from the domain of general and occupational well-being in the direction that its higher values at the first measurement time correlates with lower occupational and general well-being at the second measurement time point.

Several practical implications arise from the results of this study. The maintenance of levels of job satisfaction and alienation among health professionals in the second, more intense wave of the pandemic, is likely a result of increased public attention and recognition of the medical profession, as similar results were found in other surveys during the pandemic.^{28,32,47} In a social context characterised by a chronic shortage of health workers, a tendency to migrate to Western countries, and a sense of underpayment, it appears that raising public awareness of the importance of their work to the overall social community has a motivating and rewarding effect on health workers themselves. In addition, the results of this study suggest that it is important to strengthen the well-being of healthcare workers, as all aspects of work and general well-being were interrelated across the two time points. In particular, special attention should be paid to the dimension of alienation (dimension of job burnout) and to strengthening individuals' personal resources to deal with job challenges.

The study's shortcomings relate primarily to the number of participants, but this shortcoming is partially offset by the fact that it is a longitudinal measurement. It is likely that the sample consists of intrinsically motivated healthcare workers, as they participated in both measurement points voluntarily and without reward, which may be reflected in the research findings. The results of this study should therefore be treated with some caution, as the data were collected on a convenient sample of healthcare workers. Data collection was conducted online, which may also have resulted in participation of only healthcare professionals with higher IT knowledge and skills. Despite its limitations, however, this study offers insights into the well-being of workers in an important profession during a particular moment of crisis, and some useful guidelines for research and practice can be drawn from it.

The duration of the pandemic led to an increase in depression, anxiety, and stress symptoms among health care workers, with only anxiety symptoms increasing at an above-average rate in the second wave compared with the population norm, although the generalizability of the results is limited due to the nature and size of the sample. Nevertheless, healthcare workers managed to keep their mental health, job satisfaction, and alienation levels unchanged compared to the first wave of the pandemic, while exhaustion increased, likely due to the more intense physical and emotional exertion characteristic for the second wave of the pandemic. In addition, a significant relationship was found between each of the constructs at two measurement time points, and alienation from the first wave was the only variable significantly correlated with all of the general and occupational well-being variables in the second wave of the pandemic.

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