

# **Psihološka otpornost i zadovoljstvo životom: Učinci sagorijevanja i posttraumatskog stresa u radnom okruženju pandemije COVID-19**

## ***/ Psychological Resilience and Life Satisfaction: Effects of Burnout and Post-Traumatic Stress in the Working Environment of the COVID-19 Pandemic***

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Cilj rada bio je ispitati učinke učestalog izlaganja kriznim situacijama u pandemiji na psihičko zdravlje medicinskih sestara/tehničara s naglaskom na simptome sagorijevanja i posttraumatskog stresa te razine psihološke otpornosti na zadovoljstvo životom. U istraživanju, provedenom na Odjelu za zdravstvene studije Sveučilišta u Splitu u Hrvatskoj, sudjelovalo je 125 medicinskih sestara/tehničara. Razina sindroma sagorijevanja ispitana je upitnikom intenziteta sagorijevanja na poslu, simptomi posttraumatskog stresa procijenjeni su posttraumatskim upitnikom za poremećaj stresa, psihološka otpornost procijenjena je ljestvicom za kratku otpornost, za procjenu općeg zadovoljstva životom korištena je ljestvica zadovoljstva životom. Nakon dvogodišnjeg rada tijekom pandemije COVID-19 otprilike 30 % medicinskih sestara/tehničara prijavilo je simptome posttraumatskog stresnog poremećaja i visok stupanj sagorijevanja. Simptomi sagorijevanja i posttraumatskog stresa nisu se pokazali povezanim sa zadovoljstvom životom. Međutim, psihološka otpornost je pozitivno povezana sa zadovoljstvom životom, čak i nakon kontrole učinka sagorijevanja i posttraumatskog stresa. Pandemija COVID-19 je velik izazov za zdravstvene sustave diljem svijeta s visokim stopama sagorijevanja i simptoma PTSP-a među zdravstvenim radnicima. Važnost psihološke otpornosti naglašava se kao čimbenik u promicanju psihičkog zdravlja među zdravstvenim radnicima.

*/ The aim of this study was to examine the effects of prolonged exposure to emergency situations during the pandemic on the mental health of nurses/technicians, focusing on burnout and post-traumatic stress symptoms, and the effects of psychological resilience levels on their overall life satisfaction. A total of 125 nurses/technicians participated in the study conducted at the Department of Health Studies of the University of Split in Croatia. The burnout syndrome level was examined using the Burnout Intensity Questionnaire, the post-traumatic stress symptoms were assessed using the*

*Posttraumatic Stress Disorder Checklist, psychological resilience was assessed using the Brief Resilience Scale, while overall life satisfaction was measured using the Life Satisfaction Scale. After working for two years amid the COVID-19 pandemic, approximately 30% of nurses/technicians reported symptoms of post-traumatic stress disorder and a high level of burnout. Neither burnout nor posttraumatic stress symptoms were found to be associated with life satisfaction. However, psychological resilience was positively associated with life satisfaction, even after controlling for the effects of burnout and post-traumatic stress. The COVID-19 pandemic has placed an immense burden on healthcare systems worldwide, with high rates of burnout and PTSD symptoms among healthcare professionals. The importance of psychological resilience is emphasized as a factor in promoting mental health among healthcare professionals.*

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## UVOD

Novi koronavirus (engl. *SARS-corona-virus-2*, SARS-Cov-2), koji uzrokuje bolest (engl. *Coronavirus disease*, COVID-19) pojavio se u prosincu 2019. u Wuhanu, Kina (1). Brzo širenje potaknulo je Svjetsku zdravstvenu organizaciju da proglasi pandemiju 11. ožujka 2020. (2). Brzo širenje virusa i provođenje društvenih restrikcija potaknuli su opsežna istraživanja o utjecaju pandemije na mentalno zdravlje pojedinaca otkrivajući značajan porast anksioznosti, depresija, psihoza (3-6), kao i simptome posttraumatskog stresnog poremećaja (5, 7).

Tijekom pandemije COVID-19 zdravstveni djelatnici, posebno medicinske sestre/tehničari, suočili su se s izazovima koje je kriza donijela te postali iznimno podložni tjelesnim i psihičkim problemima (6). Ovi izazovi dodatno su otežani različitim čimbenicima stresa i rizicima koji su povećali mogućnost pojave psihičkih

## INTRODUCTION

The new coronavirus (*SARS-coronavirus-2*, SARS-CoV-2) which causes the coronavirus disease (COVID-19) emerged in December 2019 in Wuhan, China (1). Its rapid spread led the World Health Organization to declare a pandemic on March 11, 2020 (2). The rapid spread of the virus and implementation of social restrictions prompted extensive research on the impact of the pandemic on the mental health of individuals, revealing a significant increase in anxiety, depression, psychosis (3-6), as well as post-traumatic stress disorder symptoms (5,7).

During the COVID-19 pandemic, healthcare professionals, particularly nurses/technicians, grappled with challenges brought about by the crisis, making them particularly susceptible to both physical and mental health issues (6). These challenges were exacerbated by various

poremećaja među zdravstvenim radnicima. Ti su čimbenici uključivali razdoblje karantene, društvenu izolaciju, brigu o prijenosu virusa na obitelj, nedostatak osobne zaštitne opreme, radni stres, prekomjerne radne obveze, fizički i mentalni umor, brigu o bolesnim kolegama, stigmatizaciju, zabrinutost za dobrobit obitelji, poremećaje spavanja i neizvjesnost u vezi s trajanjem pandemije (8-10). Također, zbog nedostatka medicinskog osoblja zdravstveni radnici bili su prisiljeni na prekovremeni rad ili rad izvan vlastitih stručnih područja, što je povećalo razinu njihovog stresa. S produljenim trajanjem pandemije teret na zdravstvenim djelatnicima kontinuirano je rastao, što je rezultiralo psihološkim posljedicama kao što su posttraumatski stres, anksioznost, depresija ili sindrom sagorijevanja (11). Web-anketa provedena u Sjedinjenim Američkim Državama tijekom vrhunca prijema u bolnice istaknula je opseg ovih simptoma/problema/pojava, pri čemu je 57 % ispitanih medicinskih sestara pokazivalo simptome akutnog stresa, 48 % znakove depresije, a 33 % simptome anksioznosti (8). Istraživanja provedena u Kini i Italiji potvrdila su ove rezultate, ukazujući na to da su se zdravstveni djelatnici suočavali s nizom izazova vezanih za psihičko zdravlje, uključujući povećane razine stresa, povećane tjelesne tegobe, depresiju i nesanicu (12-15).

Produljeno izlaganje stresnim uvjetima može pogoršati osjećaje nedostatka kontrole nad radom i nesigurnosti te dovesti do sindroma sagorijevanja. Sindrom sagorijevanja karakteriziraju povećana emocionalna iscrpljenost, depersonalizacija i smanjen osjećaj osobnog postignuća (16). Ovaj je sindrom blisko povezan sa smanjenom radnom učinkovitošću (10) te je primijećen među zdravstvenim radnicima, posebno medicinskim sestrama/tehničarima. Primjerice, psihološki i stručni učinci pružanja zdravstvene skrbi tijekom izbijanja teškog akutnog respiratornog sindroma (engl. *Severe acute respiratory syndrome*, SARS) 2003. godine

stressors and risk factors that increased the likelihood of mental disorders among health-care professionals. These stressors included quarantine, social isolation, concerns about virus transmission to loved ones, inadequate personal protective equipment, workplace stress, excessive workloads, physical and mental fatigue, caring for sick colleagues, stigmatization, family well-being worries, sleep disturbances and uncertainty regarding the duration of the pandemic (8-10). Furthermore, due to a shortage of medical professionals, some healthcare professionals were compelled to work overtime or outside their areas of expertise, adding to their stress levels. As the pandemic persisted, the burden placed on healthcare professionals continued to increase, leading to psychological consequences such as post-traumatic stress, anxiety, depression or burnout syndrome (11). A web-based survey conducted in the United States during the peak of hospital admissions highlighted the extent of these symptoms/problems/occurrences, whereby 57% of surveyed nurses exhibited acute stress symptoms, 48% showed symptoms of depression, and 33% displayed symptoms of anxiety (8). Studies conducted in China and Italy supported these findings, indicating that healthcare professionals faced a spectrum of mental health challenges, including heightened stress levels, increased physical ailments, depression and insomnia (12-15).

Prolonged exposure to stressful conditions can exacerbate feelings of work-related lack of control and insecurity, potentially leading to burnout syndrome. The burnout syndrome is characterized by heightened emotional exhaustion, depersonalization and a diminished sense of personal achievement (16). This syndrome was closely linked to reduced work performance (10) and has been observed among healthcare professionals, particularly nurses/technicians. For instance, the psychological and professional effects of providing health-

u Torontu postali su očiti otprilike dvije godine (13-26 mjeseci) nakon završetka epidemije pri čemu su zdravstveni radnici pokazivali značajno povišene razine sindroma sagorijevanja, psihološkog stresa i posttraumatskog stresnog poremećaja (3). Prethodna istraživanja također su ukazivala da je postotak zdravstvenih radnika u jedinicama intenzivne njege, koji su pokazivali simptome posttraumatskog stresnog poremećaja (PTSP) tijekom pandemije COVID-19, varirao od 10 % do otprilike 30 % (13). Osim znakova koji su povezani s iscrpljenošću kao što su anksioznost, depresija ili drugi tjelesni simptomi, sindrom sagorijevanja povezan je i s povećanjem dana bolovanja (11,17).

Međutim, nisu sve osobe izložene kriznim situacijama razvile takve simptome. U takvim okolnostima, psihološka otpornost ima značajnu ulogu kao zaštitni čimbenik (18,19). Psihološka otpornost opisuje se kao sposobnost pojedinca da se prilagodi raznim traumatičnim događajima i značajnim stresorima života, smanjujući konačni utjecaj traumatičnih iskustava i vjerojatnost razvoja poremećaja poput posttraumatskog stresnog poremećaja (18-20). Istraživanja provedena tijekom pandemije COVID-19 pokazala su da veća psihološka otpornost ublažava negativni utjecaj stresa na poslu, depresije i anksioznosti, sprječava narušavanje psihološkog zdravlja medicinskih sestara/tehničara te povećava ugodne emocije, zadovoljstvo životom i subjektivni osjećaj blagostanja među zdravstvenim radnicima (20). Na primjer, istraživanje provedeno u talijanskoj regiji Veneto, koja je pretrpjela najveći udar u prvom valu pandemije COVID-19, pokazalo je pozitivne posredne učinke psihološke otpornosti i strategija suočavanja sa sekundarnom traumatizacijom zdravstvenih radnika koji su bili izloženi pacijentima oboljelima od COVID-19 (21). Ova istraživanja ističu ključnu ulogu psihološke otpornosti u ublažavanju simptoma sagorijevanja među pojedincima angažiranim

during the outbreak of severe acute respiratory syndrome (SARS) in 2003 in Toronto became evident approximately two years (13-26 months) after the epidemic had ended, with healthcare professionals displaying significantly elevated levels of burnout syndrome, psychological stress and post-traumatic stress disorder during that period (3). Previous research has also indicated that the proportion of healthcare professionals in intensive care units displaying symptoms of post-traumatic stress disorder (PTSD) during the COVID-19 pandemic ranged from 10% to approximately 30% (13). In addition to exhaustion-related symptoms such as anxiety, depression or other physical manifestations, burnout has been associated with an increased rate of sick leave (11,17).

However, not all individuals exposed to emergency situations develop these symptoms. Under such circumstances, psychological resilience plays a significant role as a protective factor (18, 19). Psychological resilience refers to an individual's capacity to adapt to various traumatic events and significant life stressors, ultimately reducing the impact of traumatic events and the likelihood of developing disorders such as post-traumatic stress disorder (18-20). Studies conducted during the COVID-19 pandemic have shown that greater psychological resilience mitigated the negative impact of stress at work, depression and anxiety, prevented the impairment of nurses'/technicians' psychological health and increased positive affect, life satisfaction and subjective well-being among healthcare professionals (20). For example, a study conducted in the Italian region of Veneto, which was most affected in the first wave of the COVID-19 pandemic, found positive mediating effects of psychological resilience and coping strategies on secondary traumatization in healthcare professionals exposed to patients with COVID-19 (21). These studies underscore the crucial role of psycho-

u hitnim medicinskim intervencijama visoke razine stresa tijekom pandemije (22). Autori ističu da pandemija stavlja pojedince u iznimno zahtjevne situacije, posebno u radno-zdravstvenom okruženju gdje se briga o pacijentima smatra ključnom. Stoga, potiču na temeljito istraživanje psihološke otpornosti, posebno u izazovnim okolnostima, budući da se ističe kao izuzetno bitan čimbenik u smanjenju razine sindroma sagorijevanja i unaprjeđenju općeg funkcioniranja.

## CILJ ISTRAŽIVANJA

U ovom istraživanju osnovni cilj bio je istražiti rasprostranjenost sindroma sagorijevanja, simptoma posttraumatskog stresa te razine zadovoljstva životom i psihološke otpornosti među medicinskim sestrama/tehničarima koji su pružali skrb zaraženim pacijentima COVID-19 nakon dvije godine od početka pandemije. Također, istraživači su željeli ispitati povezanost sindroma sagorijevanja i simptoma posttraumatskog stresa s razinom psihološke otpornosti i općeg zadovoljstva životom nakon dugotrajnog rada u uvjetima COVID-19. Pretpostavilo se da će zadovoljstvo životom biti više izraženo kod ispitanika koji su izrazili višu razinu psihološke otpornosti prema stupnju sindroma sagorijevanja i simptomima posttraumatskog stresa.

## METODA

### Sudionici i postupak

Uzorak je obuhvaćao 125 bolničkih medicinskih sestara/tehničara (89 % ženskog spola; srednja dob=35,1; SD=10,1), koji žive i rade u Hrvatskoj. Istraživanje je provedeno u okviru kolegija „Intervencije u kriznim situacijama u radu medicinskih sestara/tehničara”, koji organizira Sveučilišni odjel zdravstvenih studija Sveučilišta u Splitu u Hrvatskoj. Sudionici su

logical resilience when it comes to mitigating burnout symptoms among individuals engaged in high-stress emergency healthcare interventions during the pandemic (22). The authors assert that during the pandemic individuals faced extremely challenging situations, particularly within the work-health environment where patient care is paramount. Consequently, they advocate a thorough investigation into psychological resilience, particularly in such challenging circumstances, given that it has shown to be a highly influential factor when it comes to reducing burnout levels and enhancing overall functioning.

## THE AIM OF THE STUDY

The primary aim of the present study was to examine the prevalence of burnout syndrome, post-traumatic stress symptoms and levels of life satisfaction and psychological resilience among nurses/technicians caring for COVID-19 patients, two years after the start of the pandemic. Furthermore, the researchers focused on investigating the correlation between burnout syndrome and post-traumatic stress symptoms, and the levels of psychological resilience and overall life satisfaction after two years of working under COVID-19 conditions. It was anticipated that life satisfaction would be more pronounced in participants who expressed a higher level of psychological resilience regarding the degree of burnout and post-traumatic stress symptoms.

## METHOD

### Participants and Procedure

The sample consisted of 125 hospital nurses/technicians (89% female; mean age = 35.1; SD=10.1), residing and working in Croatia. The study was carried out within the framework of the course “Crisis Interventions in the Work of

ispunili upitnike dobrih psihometrijskih svojstava kojima se procjenjuje njihova trenutna razina sindroma sagorijevanja, simptoma posttraumatskog stresa, psihološke otpornosti i zadovoljstva životom. Sudjelovanje u istraživanju bilo je potpuno anonimno i dobrovoljno, a sudionici su dali pisanu suglasnost. U analize su uključeni samo potpuno ispunjeni upitnici. Prikupljanje podataka odvijalo se u veljači 2022. godine, nakon dva vrhunca vala pandemije COVID-19. Etička odobrenja za ovo istraživanje dao je Etički odbor Zavoda za zdravstvene studije u Splitu.

## Instrumenti

Prikupljene su opće demografske informacije, jedinice zdravstva i pitanja povezana s COVID-19 na radnom mjestu, uključujući duljinu rada s pacijentima zaraženima COVID-19. Razina sindroma sagorijevanja ispitana je Upitnikom intenziteta sagorijevanja na poslu (*The Workplace Burnout Intensity Questionnaire*) kojim se mjeri intenzitet različitih simptoma povezanih sa sindromom profesionalnog sagorijevanja (23). Upitnik sadrži 18 izjava koje ispituju kognitivne, bihevioralne i emocionalne znakove sindroma sagorijevanja na trostupanskoj Likertovoj ljestvici. Ukupni rezultat kreće se od 18 do 54 i izražava kao zbroj svih odgovora. Prisutnost određenog ponašanja ocjenjuje se na ljestvici od 1 (rijetke i manje izražene simptome sagorijevanja) do 3 (uvijek prisutno ponašanje s većom izraženošću simptoma). Ispitanici s rezultatom od 18 do 25 ne pokazuju simptome sagorijevanja već samo izolirane znakove stresa, a ispitanici s rezultatom od 26 do 33 imaju simptome početnog sagorijevanja, što ukazuje na ozbiljne znakove upozorenja zbog trajne izloženosti stresu. Ispitanici s rezultatom od 34 do 54 pokazuju visoki stupanj sagorijevanja na poslu, što zahtijeva intervenciju (23). Ovaj upitnik je prethodno primijenjen s koeficijentom po-

Nurses/Technicians”, organized by the University Department of Health Studies at the University of Split, Croatia. The participants completed questionnaires with good psychometric properties assessing their current level of burnout, posttraumatic stress symptoms, psychological resilience and life satisfaction. Participation in the study was entirely anonymous and voluntary, with participants providing written consent. Only fully completed questionnaires were included in subsequent analyses. Data collection took place in February 2022, following two peak waves of the COVID-19 pandemic. Ethical approvals for this study were granted by the Ethics Committee of the Department of Health Studies in Split.

## Instruments

General information regarding demographics, healthcare units and work-related COVID-19 questions, including the duration of work with COVID-19 patients, was collected. The levels of burnout were examined using the Workplace Burnout Intensity Questionnaire in order to assess the intensity of the various symptoms associated with the professional burnout syndrome (23). The questionnaire consists of 18 statements examining cognitive, behavioral and emotional signs of the burnout syndrome on a 3-point Likert scale. The total score ranges from 18 to 54 and it is expressed as the sum of all answers. The presence of specific behaviors is assessed on a scale from 1 (rare and less pronounced symptoms of burnout) to 3 (always present behavior with higher expression of symptoms). Participants with a score between 18 and 25 do not show burnout symptoms, only isolated signs of stress, while participants with a score between 26 and 33 display symptoms of initial burnout, indicating serious warning signs due to prolonged exposure to stress. Participants with a score between 34 and 54 exhibit a high degree of burnout at

uzdanosti (Cronbach alfa koeficijent) od 0,89 (24), dok je u ovom istraživanju koeficijent pouzdanosti bio 0,92.

Simptomi posttraumatskog stresa procijenjeni su posttraumatskim upitnikom za poremećaj stresa (*Post-Traumatic Stress Disorder Checklist: Civilian Scale*, PCL-5) (25), prevedenim na hrvatski (26), sastavljenim od 20 pitanja samoprocjene simptoma posttraumatskog stresa, na petostupanjskoj Likertovoj ljestvici. PCL-5 daje ukupnu ocjenu ozbiljnosti simptoma (raspon: 0-80), koja se može dobiti zbrajanjem rezultata za svaku od 20 čestica. Rezultat koji je viši od 33 ukazuje na vjerojatnost PTSP-a (27) pa su sudionici koji su postizali ovaj rezultat u ovom istraživanju kategorizirani kao osobe s visokim razinama PTSP-a. Prethodno provedeno istraživanje ukazalo je da PCL-5 pokazuje dobre psihometrijske karakteristike i pouzdanost na uzorku hrvatskih ispitanika (Cronbach alfa koeficijent = 0,95) (25), dok je u ovom istraživanju Cronbach alfa koeficijent iznosio 0,96.

Psihološka otpornost procijenjena je ljestvicom za kratku otpornost (*Brief Resilience Scale*, BRS) (28), koja je prilagođena i prevedena verzija na hrvatski (29), a mjeri sposobnost suočavanja s krizom ili brzi povratak na prethodno stanje. Upitnik se sastoji od 6 čestica na petostupanjskoj Likertovoj ljestvici. Ukupni rezultat formira se kao aritmetička sredina odgovora svih 6 čestica. Rezultat od 1 do 2,99 pokazuje nisku razinu psihološke otpornosti, 3 do 4,30 normalnu psihološku otpornost, a rezultat 4,31 do 5 pokazuje visoku razinu psihološke otpornosti. Izvorni BRS testiran je na različitim uzorcima kako bi se procijenila njegova psihometrijska kvaliteta. Faktorska analiza je pokazala da je BRS unidimenzionalan upitnik te da se 55-67 % varijance može objasniti ovim faktorom. Cronbach alfa koeficijent faktora bio je između 0,80 i 0,91, a pouzdanost test-retest bila je 0,69 za jedan mjesec, 0,62 za tri mjeseca. Valjanost je testirana na različite načine i

work, requiring intervention (23). This questionnaire was previously utilized with a reliability coefficient (Cronbach's alpha coefficient) of 0.89 (24), while in this study, the reliability coefficient amounted to 0.92.

Symptoms of post-traumatic stress were assessed using the Post-Traumatic Stress Disorder Checklist: Civilian Scale (PCL-5) (25), translated into Croatian (26), consisting of 20 items aimed at self-reporting the symptoms of post-traumatic stress, on a 5-point Likert scale. The PCL-5 yields a total symptom severity score (range: 0–80), which can be obtained by summing the scores for each of the 20 items. A score higher than 33 indicates the likelihood of PTSD (27), so participants who obtained this score in this study were categorized as individuals with high levels of PTSD. A previous study indicated that the PCL-5 presented good reliability and psychometric properties in the Croatian sample (Cronbach's alpha coefficient = 0.95) (25), while in this study, the Cronbach's alpha coefficient amounted to 0.96.

Psychological resilience was assessed using the Brief Resilience Scale (BRS) (28), which was adapted and translated into Croatian (29), and which examines the ability to cope with a crisis or to quickly recover to the previous state. The instrument consists of 6 items on a 5-point Likert scale. The total score is formed as the arithmetic mean of the answers to all 6 items. A result ranging from 1 to 2.99 indicates a low level of psychological resilience, a result from 3 to 4.30 indicates normal psychological resilience, while a result ranging from 4.31 to 5 indicates a high level of psychological resilience. The original BRS was tested on different samples in order to assess its psychometric quality. Factor analysis showed that the BRS is a unidimensional questionnaire and 55-67% of the variance could be explained by this factor. Cronbach's alpha coefficient of the factor amounted to between 0.80 and 0.91, and

potvrđena (30). Cronbach alfa koeficijent za hrvatsku verziju cijele ljestvice bio je 0,82 (29), dok je u ovom istraživanju Cronbach alfa koeficijent bio 0,77.

Za procjenu općeg zadovoljstva životom korištena je ljestvica zadovoljstva životom (*Satisfaction with Life Scale*, SWLS) (31). Ova se ljestvica sastoji od 5 čestica koje se ocjenjuju na sedmostupanjskoj Likertovoj ljestvici. Ukupni rezultat na ljestvici kreće se u rasponu od 5 do 35. Rezultat između 5-9 pokazuje jako nezadovoljstvo životom; 10-14 nezadovoljstvo životom, 15-19 uglavnom zadovoljstvo, 20 neutralno, 21-25 uglavnom zadovoljstvo, 26-30 zadovoljstvo i 31-35 jako zadovoljstvo životom. Rezultati na SWLS-u pokazali su pouzdanost, visoku unutarnju konzistentnost te sposobnost razlikovanja skupina s pretpostavljeno različitim subjektivnim stanjem. Nadalje, ova mjerna ljestvica dokazala se kao učinkovita i jednostavna za korištenje (31). Cronbach alfa koeficijent interne konzistentnosti iznosio je 0,87, dok je pouzdanost mjerenja putem test-retest metode iznosila 0,82 (32). U ovom istraživanju je Cronbach alfa koeficijent iznosio 0,91.

## REZULTATI

Tablica 1 prikazuje opisne podatke medicinskih sestara/tehničara. Aritmetička sredina i standardna devijacija korišteni su za prikaz prosječnih vrijednosti. Oko dvije trećine (66,4 %) medicinskih sestara/tehničara radilo je s pacijentima zaraženima COVID-om do godinu dana, dok je 23,2 % radilo u toj ulozi od 12 do 18 mjeseci, a 10,4 % duže od 18 mjeseci. Većina medicinskih sestara/tehničara bila je dio zdravstvenog tima (58,4 %), uglavnom radeći u kliničkim okruženjima (67,2 %). Što se tiče obrazovanja, 26,4 % završilo je srednju školu, 63,2 % imalo je diplomu prvostupnika, 9,6 % posjedovalo je magisterij, a manje od 1 % steklo je doktorat.

test-retest reliability was 0.69 for one month, and 0.62 for three months. Validity was tested using different methods and thus confirmed (30). Cronbach's alpha coefficient for the Croatian version of the entire scale amounted to 0.82 (26), while in this study, Cronbach's alpha coefficient was 0.77.

Finally, the Satisfaction with Life Scale (SWLS) was used in order to measure overall life satisfaction (31). This scale consists of 5 items assessed on a 7-point Likert scale. The total score ranges from 5 to 35. A score in the range 5-9 indicates extreme life dissatisfaction; 10-14 life dissatisfaction, 15-19 slight dissatisfaction, 20 neutral, 21-25 slight satisfaction, 26-30 satisfaction, and 31-35 extreme life satisfaction. The SWLS results have shown to be reliable, with high internal consistency and capability of differentiating groups of presumed different subjective well-being levels. Furthermore, this measuring scale proved to be efficient and easy to use (31). Cronbach's alpha coefficient of internal consistency amounted to 0.87, while measurement reliability when using the test-retest method amounted to 0.82 (32). In this study, the Cronbach's alpha coefficient was 0.91.

## RESULTS

The descriptive data among nurses/technicians are presented in Table 1. Arithmetic mean and standard deviation were used to present the average values. Around two-thirds (66.4%) of nurses/technicians worked with COVID-infected patients for up to one year, while 23.2% held that role for 12 to 18 months, and 10.4% for more than 18 months. The majority of nurses/technicians were part of a healthcare team (58.4%), mostly working in clinical settings (67.2%). With regard to education, 26.4% completed high school, 63.2% had a bachelor's degree, 9.6% held a master's degree, and less than 1% obtained a doctorate.



**TABLICA 1.** Opće informacije i deskriptivni podatci među medicinskim sestrama/tehničarima  
**TABLE 1.** General information and descriptive data among nurses

	N (Total)	M (SD)	Min–Max
<b>Dob / Age</b>	125	35,1 (10,1)	20–63
			<b>N</b> <b>%</b>
<b>Spol / Gender</b>			
Male	14		11,2
Female	111		88,8
<b>Stručna sprema / Education</b>			
Srednja škola/High school	33		26,4
Viša škola ili Preddiplomski / Bachelor's degree	79		63,2
Visoka stručna sprema ili magistar struke / Master's degree	12		9,6
Doktorat/Doctoral degree	1		0,8
<b>Ustrojstvena jedinica rada / Work unit</b>			
Klinika / Clinic	84		67,2
Zavod/Institute	30		24,0
Odjel/Department	11		8,8
<b>Radna uloga / Work role</b>			
Medicinska sestra / Nurse	73		58,4
Medicinska sestra voditelj tima / Nurse leader	34		27,2
Glavna medicinska sestra / Head nurse	18		14,4
<b>Rad s COVID-19 pacijentima / Work with COVID-19 patients</b>			
0-6 mjeseci / months	42		33,6
6-12 mjeseci / months	41		32,8
12-18 mjeseci / months	29		23,2
18-24 mjeseca / months	11		8,8
> 24 mjeseca / months	2		1,6

Bilješke: M=srednja vrijednost; SD=standardna devijacija  
 / Notes: M=mean; SD=standard deviation

## Rasprostranjenost sindroma sagorijevanja, simptoma posttraumatskog stresa, zadovoljstvo životom i psihološke otpornosti među medicinskim sestrama/tehničarima

Tablica 2 prikazuje opisne podatke sindroma sagorijevanja, posttraumatskog stresa, zadovoljstvo životom i psihološke otpornosti. 39,2 % sudionika susrelo se s blagim simptomima, dok je 26,4 % izvijestilo o značajnim simptomima sindroma sagorijevanja. Također,

## Prevalence of burnout syndrome, post-traumatic stress symptoms, life satisfaction and psychological resilience among nurses/ technicians

Table 2 shows descriptive data relating to the burnout syndrome, posttraumatic stress, life satisfaction and psychological resilience. A total of 39.2% of participants experienced mild symptoms, while 26.4% reported experiencing significant burnout symptoms. Additionally, 29.6% of participants noted high levels of

**TABLICA 2.** Deskriptivna statistika (n=125)**TABLE 2.** Descriptive statistics (n=125)

	M	SD	Min–Max
Sagorijevanje / Burnout	28,9	7.7	18–53
Simptomi PTSP-a / PTSD symptoms	37,3	25.2	17–84
Zadovoljstvo životom / Life satisfaction	21,9	6.4	7–35
Psihološka otpornost / Resilience	16,1	2.4	9,17–22,67

*Bilješke:* Sagorijevanje = Upitnik o intenzitetu sagorijevanja na radnom mjestu; PTSP = Ljestvica za procjenu posttraumatskog stresnog poremećaja; Civilna ljestvica (PCL-C); Zadovoljstvo životom = Ljestvica zadovoljstva životom (SWLS); Psihološka otpornost = Kratka ljestvica otpornosti; M=srednja vrijednost;SD = standardna devijacija / *Notes:* Burnout= The Workplace Burnout Intensity Questionnaire; Posttraumatic symptoms (PTSD)= Posttraumatic Stress Disorder Checklist: Civilian Scale (PCL-C); Life satisfaction= Satisfaction with life scale (SWLS); Resilience= Brief Resilience Scale; M=mean; SD=standard deviation.

29,6 % sudionika primijetilo je visoke razine simptoma posttraumatskog stresa. Što se tiče zadovoljstva životom, 28 % sudionika izrazilo je dobru ili neutralnu razinu, dok je 26,4 % pokazalo određeni stupanj nezadovoljstva svojim životom. Što se tiče psihološke otpornosti, 30,4 % je pokazivalo visoke razine otpornosti, 43,2 % normalne razine, a 26,4 % niske razine otpornosti (tablica 3).

post-traumatic stress symptoms. In terms of life satisfaction, 28% of participants expressed either good or neutral levels, while 26.4% indicated some degree of dissatisfaction with their life. With regard to psychological resilience, 30.4% of participants exhibited high levels of resilience, 43.2% exhibited normal levels, while 26.4% exhibited low levels of resilience (Table 3).

**TABLICA 3.** Raspodjela sudionika prema razini sagorijevanja, simptoma posttraumatskog stresa, otpornosti i zadovoljstva životom**TABLE 3.** Distribution of participants according to the levels of burnout, post-traumatic symptoms, resilience and life satisfaction

Varijable / Variables	N	%
<b>Psihološka otpornost / Resilience</b>		
Nisko / Low	33	26,4
Normalno / Normal	54	43,2
Visoko / High	38	30,4
<b>Zadovoljstvo životom / Life satisfaction</b>		
Nezadovoljan / Dissatisfied	1	0,8
Djelomično nezadovoljan / Somewhat dissatisfied	14	11,2
Neutralan / Neutral	33	26,4
Zadovoljan / Satisfied	35	28,0
Jako zadovoljan / Very satisfied	7	5,6
<b>Sagorijevanje / Burnout</b>		
Nema simptoma / No symptoms	43	34,4
Blagi simptomi / Mild symptoms	49	39,2
Teški simptomi / Severe symptoms	33	26,4
<b>PTSP simptomi / PTSD symptoms</b>		
Ne / No	88	70,4
Da / Yes	37	29,6

*Bilješke:* M=srednja vrijednost; SD=standardna devijacija / *Notes:* M=mean; SD=standard deviation

## Učinak razine sindroma sagorijevanja i simptoma posttraumatskog stresa na zadovoljstvo životom medicinskih sestara/tehničara nakon dvije godine rada u uvjetima pandemije COVID-19

Izračunata je Pearsonova korelacija s ciljem istraživanja povezanosti između prediktora uključujući sindrom sagorijevanja, simptoma PTSP-a i psihološku otpornost, te kriterija, zadovoljstvo životom. Zatim su provedene hijerarhijske linearne regresije kako bi se ispitaio udio varijance koju sindrom sagorijevanja i simptomima posttraumatskog stresa imaju na zadovoljstvo životom. Sindrom sagorijevanja i simptomi posttraumatskog stresa uneseni su istovremeno u regresijski model u prvom koraku, dok je u drugom koraku psihološka otpornost unesena kao prediktor radi ispitivanja njezinog utjecaja na zadovoljstvo životom. Za svaki prediktor u regresijama prikazani su standardizirani regresijski koeficijent ( $\beta$ ), promjena u  $R^2$  te veličina učinka  $f^2$ . Prema Cohenovoj klasifikaciji, vrijednosti  $f^2$  iznad 0,15 označavaju srednje, a iznad 0,35 velike veličine učinka (33,34).

Pearsonova korelacija je pokazala visoku povezanost između varijabli (dodatni materijal 1). Rezultati hijerarhijske analize ukazali su da ni sindrom sagorijevanja ni simptomi posttraumatskog stresa nisu pokazali povezanost sa zadovoljstvom životom (tablica 4). Međutim,

## Effects of burnout syndrome levels and post-traumatic stress symptoms on life satisfaction of nurses/technicians after two years of working under the conditions of the COVID-19 pandemic

Pearson correlation was calculated in order to explore the correlation between predictors, including the burnout syndrome, PTSD symptoms and psychological resilience, and the criterion of life satisfaction. Hierarchical linear regressions were computed to assess the impact of variance accounted for by burnout and post-traumatic stress symptoms on life satisfaction. Burnout and posttraumatic stress symptoms were entered simultaneously in the regression model in the first step, while in the second step, psychological resilience was entered as a predictor in order to examine its effects on life satisfaction. The standardized regression coefficient ( $\beta$ ), change in  $R^2$ , and effect size  $f^2$  were reported for each predictor in the regressions. Following Cohen's classification,  $f^2$  values above 0.15 signify medium effect sizes, while those above 0.35 indicate large effect sizes (33, 34).

Pearson correlation showed that there is a high correlation between the variables (Supplementary material 1). The results of hierarchical analysis indicated that neither burnout syndrome nor posttraumatic stress symptoms had a distinct connection with life satisfaction (Table 4). Nevertheless, at the second step it

**DODATNI MATERIJAL 1.** Pearsonova korelacija zadovoljstva životom sa sindromom sagorijevanja, simptomima PTSP-a i psihološke otpornosti

**SUPPLEMENTARY MATERIAL 1.** Pearson's correlation of life satisfaction with the burnout syndrome, PTSD symptoms, and resilience

Kriteriji / Criterion	
Zadovoljstvo životom / Life satisfaction	
Prediktori / Predictors	
Sagorijevanje / Burnout	-0,258**
Simptomi PTSP / PTSD symptoms	-0,234**
Psihološka otpornost / Resilience	0,379**

Bilješke: \*\*Korelacija je značajna na razini od 0,01 (dvosmjerni test); PTSP= Posttraumatski Stresni Poremećaj / Notes:\*\* Correlation is significant at the 0.01 level (2-tailed); PTSD= Posttraumatic Stress Disorder

**TABLICA 4.** Hijerarhijski linearni regresijski modeli sagorijevanja, posttraumatske simptomatologije i otpornosti na zadovoljstvo životom**TABLE 4.** Linear regressions of burnout, post-traumatic symptomatology, and resilience on life satisfaction

Prediktori / Predictors										
	Sagorijevanje / Burnout			Simptomi PTSP / PTSD symptoms			Psihološka otpornost / Resilience			
Kriterij / Criterion										
KORAK 1 / STEP 1	$\beta$	$\Delta R^2$	$f^2$	$\beta$	$\Delta R^2$	$f^2$				
Zadovoljstvo životom / Life satisfaction	-0,186	0,024	0,03	-0,132	0,012	0,01				
KORAK 2 / STEP 2	$\beta$	$\Delta R^2$	$f^2$	$\beta$	$\Delta R^2$	$f^2$	$\beta$	$\Delta R^2$	$f^2$	Ukupni $R^2$ / Total $R^2$
Zadovoljstvo životom / Life satisfaction	-0,173	0,024	0,03	-0,138	0,012	0,01	0,239**	0,057	0,07	0,136

Bilješke/Notes: \*  $p < 0,05$ , \*\*  $p < 0,01$ , \*\*\*  $p < 0,001$

u drugom koraku primijećeno je da psihološka otpornost ima pozitivan i značajan učinak na zadovoljstvo životom ( $\beta = 0,239$ ;  $p < 0,01$ ), neovisno o utjecaju sindroma sagorijevanja i simptoma posttraumatskog stresa. Stoga su medicinske sestre/tehničari s višim razinama psihološke otpornosti pokazale veće zadovoljstvo životom.

## RASPRAVA

Preliminarni rezultati istraživanja ističu važnu ulogu utjecaja sindroma sagorijevanja, simptoma posttraumatskog stresa i psihološke otpornosti na opće zadovoljstvo životom među hrvatskim medicinskim sestrama/tehničarima koji su radili s pacijentima zaraženima COVID-19 tijekom dvije godine nakon početnog vala pandemije. Medicinske sestre/tehničari posebno su bili suočeni sa značajnim psihološkim izazovima tijekom pandemije. Učestala izloženost zahtjevima i stresorima povezanim s brigom o pacijentima zaraženima COVID-19 dovela je do pojave ovih negativnih simptoma.

Ovo istraživanje ukazuje da je nakon dvije godine rada tijekom pandemije COVID-19 otprilike 30 % medicinskih sestara/tehničara prijavilo simptome povezane s PTSP-om i sindromom sagorijevanja. Najveći postotak medicinskih sestara/tehničara doživio je blage simptome (39,2 %), dok je 29,6 % prijavilo visoku razi-

was observed that psychological resilience had a positive and significant effect on life satisfaction ( $\beta = 0.239$ ;  $p < 0.01$ ), regardless of the impact of burnout syndrome and posttraumatic stress symptoms. Therefore, nurses/technicians with higher levels of psychological resilience displayed greater life satisfaction.

## DISCUSSION

The preliminary findings of the study highlight the important role of the impact of burnout syndrome, post-traumatic stress symptoms and psychological resilience when it comes to determining the overall life satisfaction among Croatian nurses/technicians who worked with COVID-19 patients for two years following the initial pandemic wave. Nurses/technicians in particular faced significant psychological challenges during the pandemic. Prolonged exposure to the demands and stressors associated with caring for COVID-19 patients has led to the emergence of these negative symptoms.

The results of this study indicate that after two years of working amidst the COVID-19 pandemic, approximately 30% of nurses/technicians reported symptoms associated with post-traumatic stress disorder (PTSD) and burnout syndrome. The highest percentage of nurses/technicians experienced mild symptoms (39.2%), while 29.6% reported high levels of posttrau-

nu posttraumatskih simptoma, a 26,4 % visoke simptome sagorijevanja. Ovi rezultati su u skladu sa sistematskim istraživanjem koje je prijavilo stopu sagorijevanja od 34,4 % među zdravstvenim radnicima tijekom pandemije (35) i 34,1 % za medicinske sestre/tehničare (36). Međutim, važno je napomenuti da je učestalost obilježja PTSP-a u našem istraživanju bila značajno viša (20,7 %), kao i stope sagorijevanja u drugoj meta-analizi koja je uključivala podatke iz 49 zemalja, gdje je ukupna prevalencija simptoma sagorijevanja među medicinskim sestrama/tehničarima iznosila 11,23 % (37). Učestalost simptoma posttraumatskog stresa i sindroma sagorijevanja među medicinskim sestrama/tehničarima ima važan utjecaj na njihovo osobno stanje/zdravlje i stručnu učinkovitost.

Što se tiče psihološke otpornosti rezultati su pokazali da unatoč izazovima značajni postotak medicinskih sestara//tehničara pokazuje otpornost u suočavanju s poteškoćama, što je moglo poslužiti kao zaštitni faktor. Psihološka otpornost, definirana kao proces pozitivne prilagodbe stresnim situacijama, ima ključnu ulogu u ublažavanju negativnog utjecaja pandemije COVID-19 na zdravstvene radnike (38). Istraživanja koja su ispitivala razine otpornosti među medicinskim sestrama/tehničarima tijekom pandemije otkrila su da je 43,2 % imalo normalne razine otpornosti, dok je 30,4 % pokazivalo visoku otpornost. Prethodna istraživanja pokazala su umjerenu razinu otpornosti među medicinskim sestrama/tehničarima tijekom pandemije COVID-19 (39,40). Primjerice, istraživanje provedeno u Ujedinjenom Kraljevstvu otkrilo je umjerenu razinu psihološke otpornosti među medicinskim sestrama/tehničarima tijekom pandemije (41). Slično tome, istraživanje provedeno u Španjolskoj prijavilo je umjerenu razinu psihološke otpornosti među svim zdravstvenim radnicima (42). Ta istraživanja potvrđuju rezultate ovog istraživanja i upućuju na to da medicinske sestre/tehničari

matic symptoms, and 26.4% experienced high burnout symptoms. These results are consistent with a systematic review the results of which reported a burnout rate of 34.4% among health-care professionals during the pandemic (35), and 34.1% among nurses/technicians (36). It is, however, worth noting that the prevalence of PTSD features in our study was significantly higher compared to the systematic review (20.7%), as well as the burnout rates reported in another meta-analysis that included data from 49 countries, where the overall prevalence of burnout symptoms among nurses/technicians amounted to 11.23% (37). The prevalence of post-traumatic stress symptoms and burnout syndrome among nurses/technicians has important implications for their personal well-being/health and their professional efficacy.

As regards psychological resilience, the findings have shown that despite the challenges, a significant proportion of nurses/technicians displayed resilience when facing difficulties, which may have served as a protective factor. Psychological resilience, defined as the process of positive adaptation to stressful situations, plays a crucial role in mitigating the negative impact of the COVID-19 pandemic on healthcare professionals (38). Studies examining the resilience levels among nurses/technicians during the pandemic found that 43.2% had normal levels of resilience, while 30.4% exhibited high resilience. Previous studies have reported moderate levels of resilience among nurses/technicians during the COVID-19 pandemic (39, 40). For instance, a study conducted in the United Kingdom found that nurses/technicians exhibited moderate levels of psychological resilience during the pandemic (41). Similarly, a study conducted in Spain reported moderate levels of psychological resilience among all healthcare professionals (42). These studies collectively support the findings of this study and indicate that nurses/technicians tend to display moderate levels of psychological resilience when fac-

obično pokazuju umjerenu razinu psihološke otpornosti u situaciji pandemije. Međutim, 26,4 % medicinskih sestara/tehničara pokazalo je nisku psihološku otpornost, što upućuje na potencijalnu ranjivost psihičkog zdravlja.

Važno je napomenuti da su medicinske sestre/tehničari s visokim razinama psihološke otpornosti iskazali veće zadovoljstvo životom ističući važnost otpornosti u održavanju psihičkog zdravlja. Istovremeno su brojna istraživanja također otkrila pozitivnu povezanost između psihološke otpornosti medicinskih sestara/tehničara i zadovoljstva poslom ukazujući da su više razine otpornosti povezane s većim cjelokupnim zadovoljstvom životom (43-45). Osim toga, istraživanja provedena prije izbijanja COVID-19 pokazala su dosljednu pozitivnu povezanost između otpornosti i zadovoljstva poslom kod medicinskih sestara/tehničara (46,47) sugerirajući da psihološka otpornost, osim što pomaže medicinskim sestrama/tehničarima da učinkovito svladaju izazove na poslu, pridonosi i njihovom psihičkom zdravlju i općem blagostanju.

Psihološka otpornost omogućuje pojedincima da se vrate na razinu funkcioniranja kakva je bila prije traumatičnih iskustava. Iako stres može negativno utjecati na psihološku otpornost, smatra se univerzalnim čimbenikom koji osigurava radnu učinkovitost, bez obzira na prisutnost pandemije (48). Otporni medicinski djelatnici mogu se učinkovito nositi s izazovima na radnom mjestu i imaju sposobnost oporavka nakon neuspjeha te zadržavanja pozitivnog stava (49). Prethodnim istraživanjima uočeno je nekoliko čimbenika povezanih s unaprijeđenom otpornošću tijekom kriza, uključujući optimizam, društvenu podršku, izbjegavanje preopterećenja informacijama te održavanje komunikacije (50). Ti čimbenici mogu pomoći pojedincima u suočavanju s izazovima koje postavlja pandemija COVID-19. Također, osjećaj kontrole zdravstvenih djelatnika u kriznim situacijama ključan je za poticanje

ing the pandemic. However, 26.4% of nurses/technicians exhibited low psychological resilience, suggesting potential vulnerability when it comes to their mental health.

It should be noted that nurses/technicians with high levels of psychological resilience displayed higher life satisfaction, underscoring the significance of resilience in the maintenance of mental health. Numerous studies have also revealed a positive correlation between psychological resilience among nurses/technicians and their job satisfaction, indicating a link between higher levels of resilience and greater overall life satisfaction (43-45). Additionally, studies conducted prior to the COVID-19 outbreak have consistently shown a positive correlation between resilience and job satisfaction among nurses/technicians (46, 47), suggesting that psychological resilience not only helps nurses/technicians to effectively navigate their work challenges, but also contributes to their mental health and overall well-being.

Psychological resilience enables individuals to restore their well-being to the levels prior to the traumatic experiences. Although stress can negatively impact psychological resilience, it is considered to be a universal factor that ensures work performance, regardless of the presence of a pandemic (48). Resilient medical professionals can effectively cope with workplace challenges and possess the ability to bounce back from setbacks and maintain a positive outlook (49). Previous studies have identified several factors associated with enhanced resilience during crises, including optimism, social support, avoidance of information overload and maintaining communication (50). These factors can help individuals cope with the challenges posed by the COVID-19 pandemic. Furthermore, the sense of control that healthcare professionals have in crisis situations is pivotal for fostering resilience. Understanding that the disease can be controlled through preventive measures and the implementation of personal protec-

otpornosti. Razumijevanje da se bolest može kontrolirati preventivnim mjerama i provedbom osobnih zaštitnih mjera pri kontaktu sa zaraženim pacijentima može povećati osjećaj kontrole kao i njihovu otpornost (51). Tijekom epidemije SARS-a, medicinske sestre/tehničari koji su zadržali pozitivan stav prema zaštiti od infekcija i opremi za kontrolu infekcija pokazali su niže razine anksioznosti, negativnog raspoloženja i emocionalnog umora (52). To ukazuje na važnost usadivanja pozitivnog mentaliteta i pružanja zdravstvenim radnicima potrebnu podršku kako bi učinkovito upravljali svojim strahovima i tjeskobama. Nadalje, osobe s višim razinama otpornosti obično pokazuju manju razdražljivost, smanjene reakcije na okolišne podražaje, poboljšane međuljudske odnose, te manje simptoma depresije (53). Jačanje psihološke otpornosti među zdravstvenim radnicima može ne samo poboljšati njihovo mentalno blagostanje, već i pozitivno utjecati na njihovu cjelokupnu radnu učinkovitost i skrb o pacijentima.

Ovo istraživanje ima nekoliko ograničenja. Prije svega, većina uzoraka sastojala se uglavnom od ženskih sudionika, a istraživanje je uglavnom usmjereno na zdravstvene djelatnike s određenih područja u Hrvatskoj, što možda ne odražava potpuno iskustvo zdravstvenih djelatnika u drugim dijelovima Hrvatske, kao i šire, u globalnom kontekstu. Stoga se širina ovih rezultata može ograničiti. Međutim, istraživanje je omogućilo uvid u preliminarne dokaze o učincima sindroma sagorijevanja i simptoma povezanih s posttraumatskim stresom u suočavanju s iznimno stresnom situacijom poput COVID-19. Još važnije, istraživanje je istaknulo psihološku otpornost kao iznimno važan faktor koji treba uzeti u obzir u tim situacijama. Drugo, presječno istraživanja ograničava mogućnost utvrđivanja uzročnih veza između ovih varijabli pa su longitudinalne studije poželjnije za utvrđivanje ovakvih veza. Na kraju, razlike u stopama sindroma sagorije-

tion measures when in contact with infected patients can increase the sense of control and resilience among healthcare professionals (51). During the SARS epidemic, nurses/technicians who maintained a positive attitude towards protection against infection and infection control equipment exhibited lower levels of anxiety, negative moods and emotional fatigue (52). This highlights the importance of instilling a positive mindset and providing healthcare professionals with the necessary support in order to be able to manage their fears and anxieties effectively. Additionally, individuals with higher levels of resilience tend to display lower irritability, reduced reactions to environmental stimuli, improved interpersonal relationships and fewer symptoms of depression (53). Strengthening psychological resilience among healthcare professionals can not only enhance their mental well-being, but can also positively impact their overall work performance and patient care.

There are several limitations to this study. Firstly, the majority of the sample consisted primarily of female participants, and it primarily focused on healthcare professionals from specific regions in Croatia, which may not fully reflect the experiences of healthcare professionals in other parts of Croatia and beyond, in a global context. The breadth of these results can, therefore, be limited. On the other hand, the study has enabled an insight into the preliminary evidence regarding the effects of burnout and post-traumatic stress-related symptoms when facing a highly stressful situation such as COVID-19. More importantly, the study highlighted psychological resilience as a particularly important factor which needs to be taken into account in these situations. Secondly, the cross-sectional nature of this study limits the ability to determine causal relationships between these variables, so longitudinal studies are more preferable when it comes to determining such connections. Finally, differences in burnout syndrome and posttraumatic stress disorder rates that

vanja i posttraumatskog stresnog poremećaja koje se mogu pripisati različitim čimbenicima, uključujući društvena očekivanja, stresore na radnom mjestu i ranjivosti specifične za spol, nisu istražene u ovom radu pa se stoga preporučuju dodatna istraživanja. Na primjer, istraživanje uloge pojedinačnih karakteristika, poput optimizma, samo-efikasnost i strategija suočavanja moglo bi pružiti vrijedne uvide u to kako unaprijediti otpornost i promicati bolje ishode psihičkog zdravlja. Nadalje, utjecaj organizacijskih čimbenika, poput podrške vodstva, upravljanja radnim opterećenjem i pristupa resursima za mentalno zdravlje, zahtijeva daljnje istraživanje. Što se tiče intervencija, buduća istraživanja mogu se usredotočiti na razvoj i evaluaciju programa utemeljenih na pokazateljima koji ciljaju jedinstvene psihološke izazove s kojima se suočavaju zdravstveni radnici tijekom kriznih vremena. Cilj ovih intervencija trebalo bi biti jačanje psihološke otpornosti, pružanje učinkovitih strategija suočavanja te promicanje psihičkog zdravlja. Studije dugoročnog praćenja mogu procijeniti održivost i učinkovitost tih intervencija u poboljšanju ishoda mentalnog zdravlja za zdravstvene radnike.

Važno je također razmotriti širi kontekst zdravstvenih sustava i politika u podršci mentalnom zdravlju zdravstvenih djelatnika. Dovoljan broj osoblja, upravljanje radnim opterećenjem i pozitivno radno okruženje imaju ključnu ulogu u sprječavanju sindroma sagorijevanja te pospješivanju psihičkog zdravlja osoblja. Zagovaranje promjena politika i organizacijskih reformi koje prioritetno podržavaju mentalno zdravlje zdravstvenih djelatnika trebalo bi se uzeti u obzir kao dio sveobuhvatnog pristupa.

## ZAKLJUČAK

Istraživanje produljenih posljedica pandemije COVID-19 te isticanje utjecaja sindroma sagorijevanja i simptoma posttraumatskog stresa

may be attributed to various factors, including societal expectations, occupational stressors, and gender-specific vulnerabilities, are not explored in this paper, therefore further research into the topic is recommended. For instance, investigating the role of individual traits, such as optimism, self-efficacy and coping strategies, could provide valuable insights into how to enhance resilience and promote better mental health outcomes. Additionally, the impact of organizational factors, such as leadership support, workload management and access to mental health resources, warrants further investigation. In terms of interventions, future research may also focus on developing and evaluating indicator-based programs that target the unique psychological challenges faced by healthcare professionals during times of crisis. The aim of these interventions should be to enhance psychological resilience, provide effective coping strategies and promote psychological well-being. Long-term follow-up studies can be used to assess the sustainability and effectiveness of these interventions in improving mental health outcomes for healthcare professionals.

It is also important to consider the broader context of healthcare systems and policies when it comes to supporting the mental health of healthcare professionals. Sufficient staffing, workload management and supportive work environments play a crucial role in preventing burnout syndrome and supporting the psychological well-being of the personnel. Advocating policy changes and organizational reforms that prioritize mental health support for healthcare professionals should be taken into consideration as part of a comprehensive approach.

## CONCLUSION

Investigating the prolonged consequences of the COVID-19 pandemic and emphasizing the impact of burnout syndrome and post-traumatic stress symptoms in determining mental



na određivanje psihičkog zdravlja može dodatno pomoći u otkrivanju potencijalnih mehanizama prevencije i poboljšanja općeg tjelesnog i psihičkog zdravlja zdravstvenih stručnjaka. Posebno je istaknuta povezanost psihološke otpornosti na povećanje zadovoljstva životom. Stoga bi bilo od iznimne važnosti implementirati strategije javnog zdravstva koje unapređuju i podržavaju otpornost i psihičko zdravlje zdravstvenih stručnjaka kako bi se u budućnosti ublažile negativne posljedice na psihičko zdravlje masovnih traumatičnih događaja poput pandemije.

well-being may help further detect the potential underlying mechanisms of prevention and enhancement of the overall physical and mental health of healthcare professionals. Special emphasis was put on the connection between psychological resilience and increased life satisfaction. It would, therefore, be of particular importance to implement public health strategies that enhance and support resilience and mental health of healthcare professionals, in order to mitigate the negative consequences that mass traumatic events such as a pandemic could have on mental health in the future.

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