

The COVID-19 pandemic – related psychological distress and job burnout among Serbian pharmacy practitioners: a cross-sectional online study

D. ŽIVANOVIĆ¹, J. JAVORAC^{1,2,3}, S. STOJKOV^{1,4}, M. JEVTIĆ^{5,6,7}, J. KNEŽEVIĆ⁸, J. BLANUŠA⁸, D. ŠTIMAC GRBIĆ^{9,10}, M. PAUT KUSTURICA¹¹, N. JOVANOVIĆ LJEŠKOVIĆ⁴, N. TODOROVIĆ¹²

¹Department of Biomedical Sciences, College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Subotica, Serbia

²Institute for Pulmonary Diseases of Vojvodina, Sremska Kamenica, Serbia

³Department of Internal Medicine, Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia

⁴Faculty of Pharmacy, University of Business Academy, Novi Sad, Serbia

⁵Department of Hygiene, Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia

⁶Institute of Public Health of Vojvodina, Novi Sad, Serbia

⁷Research Centre on Environmental and Occupational Health, Université Libre de Bruxelles, School of Public Health, Brussels, Belgium

⁸Department of Educational Sciences, College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Subotica, Serbia

⁹Department of Social Medicine and Organization of Health Care, School of Medicine, University of Zagreb, Zagreb, Croatia

¹⁰Department for Mental Health and Addiction Prevention, Croatian Institute of Public Health, Zagreb, Croatia

¹¹Department of Pharmacology, Toxicology and Clinical Pharmacology, Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia

¹²Department of Pharmacy, Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia

Abstract. – OBJECTIVE: The current COVID-19 pandemic has increased occupational stress for all healthcare providers, making job burnout one of the most common and largely unrecognized mental health issues among healthcare professionals. Besides physicians and nurses, pharmacy practitioners were “front-line” healthcare professionals with a critical and unique role in the public health crisis. Considering this, the aim of this study was to examine distress levels and the prevalence of job burnout among Serbian pharmacy practitioners in relation to the COVID-19 pandemic.

SUBJECTS AND METHODS: This cross-sectional online study was conducted in April and May of 2020. A total of 176 pharmacy practitioners anonymously and voluntarily completed the two-section questionnaire, consisting of Copenhagen burnout inventory, CBI and 4DSQ Distress subscale. The two-section questionnaire was distributed online, among various social-media groups of pharmacy practitioners, as well as by personal contacts following the “snowball” sampling method.

RESULTS: Results revealed moderately high burnout scores in our sample. The majority of the participants showed signs of personal-related job burnout, followed by work-related and client-related burnout. A strongly elevated distress level was obtained in almost two-thirds of study respondents. In addition, a significant and high correlation of all CBI subscales with distress was found, as well as medium correlations with sleep duration shortening as a mediator between distress and job burnout.

CONCLUSIONS: Results of our study showed that job burnout significantly increased among pharmacy practitioners during the COVID-19 pandemic. Furthermore, we discovered that stress has an indirect impact on study participants’ burnout *via* insufficient sleep.

Key Words:

Pharmacy practitioners, COVID-19, Job burnout, Psychological distress.

Introduction

Over the last two years, the current COVID-19 pandemic has added new sources of occupational stress for all healthcare providers. As a result, the prevalence of various mental health disorders, including job burnout, is increasing. This specific psychoemotional construct is characterized by emotional exhaustion, depersonalization, and diminished personal accomplishment, all of which are related to prolonged exposure to work stressors^{1,2}. Previous research³⁻⁵ indicates that job burnout has become one of the most common and largely unrecognized mental health issues among healthcare professionals during the COVID-19 pandemic.

From the very beginning of the pandemic, pharmacy practitioners were “front-line” healthcare professionals with a critical and unique role in medication management⁶. Pharmacies were one of the few institutions that remained open and accessible to citizens during the COVID-19 lockdown periods in the Republic of Serbia. This period will be remembered by a large number of citizens who waited in front of pharmacies to obtain face masks, disinfectants, hygienic gloves, and vitamin supplements. In a situation where healthcare institutions were overcrowded with COVID-19 patients, pharmacists quickly became the most accessible healthcare experts. The pharmacy staff worked harder and more intensively, providing drug information to healthcare professionals, as well as counseling patients, educating them, and clarifying misconceptions about COVID-19 treatment. They were also involved in drug supply management, infection control safety measures, adverse drug reactions (ADRs) monitoring and reporting, and providing empathy to frightened citizens⁷⁻⁹. These activities not only expanded the defined professional roles of pharmacists^{6,10}, but also significantly contributed to global pandemic control⁷. At the same time, the increased number of COVID-19 patients has created a new workload for pharmacists, significantly reducing the ability to control their own exposure to SARS-CoV-2 virus. Increased infection exposure, work overload, and extended working hours have all contributed to the psychological distress experienced by many pharmacists and pharmacy technicians^{3,11}. Although the COVID-19 pandemic contributed to the spotlighting of pharmacists’ roles in the public health crises¹², there are also negative consequences of working in pandemic

conditions. Two years after the pandemic begun, pharmacy employees are facing with increased general morbidity, psychological burden, and increased prevalence of burnout¹³. Considering this, the aim of this study was to examine distress level and the prevalence of job burnout among Serbian pharmacy practitioners during the COVID-19 pandemic. In addition, we analyzed the role of participants’ sleep duration shortening as a mediator between distress and burnout symptoms.

Subjects and Methods

This online, questionnaire-based cross-sectional study was conducted between April 23rd and May 8th, 2020, during the first wave of COVID-19 pandemic in the Republic of Serbia. The two-section questionnaire was distributed online, among various social-media groups of pharmacy practitioners, as well as by personal contacts following the “snowball” sampling method. This research was approved by the Ethics Committee of the Faculty of Pharmacy, University of Business Academy in Novi Sad, Serbia. The questionnaire was completed anonymously and voluntarily. Respondents were given detailed information about the study’s objective and methodology in the questionnaire’s preamble, and they were given the option to withdraw at any time. By clicking on the provided field in the preamble, each respondent indicated that they were familiar with the research’s purpose and conditions, as well as that they voluntarily agreed to complete the questionnaire (informed consent).

The first section of the questionnaire was *Copenhagen burnout inventory*, CBI^{14,15} which was used to measure fatigue and exhaustion related to job burnout. Originally, the authors proposed three subscales: work-related burnout (7 items), client-related burnout (6 items), and personal burnout (6 items). Personal burnout refers to physical and psychological fatigue that accumulates in a person during the course of a day. Work-related burnout refers to the level of exhaustion and fatigue that derive from work, whereas client-related burnout refers to the exhaustion that is perceived as a consequence of interpersonal relationships with clients. The participants were asked to rate each of 19 statements on a five-point Likert scale (from *never* to *always*). Answers were scored as follows: never – 0 points, seldom

– 25 points, sometimes – 50 points, often – 75, and always – 100 points. The mean of all items on the particular scale represented burnout score: a score less than 50 points indicated no burnout, a score between 50 and 74 suggested moderate burnouts, and between 75 and 99 implied high burnout. Scores over 99 indicated severe burnout. CBI demonstrated high reliability on our sample (Cronbach $\alpha=0.91$).

The second section of the questionnaire was the *Distress subscale* from the *Four-dimensional symptoms questionnaire*^{16,17}, which was used to assess symptoms of psychological distress. This scale is designed to measure distress levels among the working population based on 16 items and 5-point Likert scale for answering (from *never* to *very often or constantly*). The scale is scored as follows: “never” – 0 points, “sometimes” – 1 point, and “regularly”, “often” or “very often or constantly” – 2 points. The total score on all items (0-32) represents the level of distress. Based on the results of an original study, if the score is 10 or less, there are no signs of distress, if it is between 11 and 20, there is moderately elevated distress, and if it is higher than 20, strongly elevated distress is present.

Sleep duration was measured as participants’ estimation of their average sleep hours during the night. It was estimated both for the time before the pandemic and during the pandemic (in the past 7 days). Sleep shortening was calculated as the difference between sleep duration before and during pandemics.

All analyses were conducted in the R environment for statistical computing (R Core Team, 2019). In order to assess distress and burnout scores, we used frequency analyses based on the original scoring of the authors. The correlation analysis was performed to assess the relationship between used variables. Serial mediation analysis was used to test the direct effect of distress on burnout, performed by using Hayes’ PROCESS macro (Model 4, Hayes, 2018). The significant level was set at 0.05.

Results

A total of 176 pharmacy practitioners were included in this study. The study sample consisted of 31 pharmacy specialists, 103 masters of pharmacy, and 42 pharmacy technicians. All of them were employed in the pharmacies at the moment of research. According to Fritz and MacKinnon’s simulation study¹⁸, the required sample size to obtain statistical power of 0.8 to detect a half-way medium effect size (0.26) in mediation analysis for percentile bootstrap method is 162, so we considered a number of respondents in our sample to be satisfactory for further analyses. Females made up the majority of the sample (159; 90.3%), which is usual in studies involving healthcare professionals¹⁹. The average age of the respondents was $M = 40.55$ years (ranged from 20 to 63). The length of service ranged between one month and 45 years ($M = 14.79$ years).

Results revealed moderately high burnout scores in our sample. The highest scores were obtained for personal burnout ($M = 66.36$), followed by work-related (60.36), and lowest for client-related burnout (57.65). When different burnout categories are considered, the majority of the participants showed signs of personal-related burnout (82.9%), followed by work-related burnout (73.9%), while client-related burnout was present in 2/3 of participants (66.5%). The mean distress score was 22.59, indicating strongly elevated distress. The majority of participants (61.9%) were in the strongly elevated distress category, 26.7% in the moderately distress category, while only 11.4% of pharmacy residents showed no signs of distress. Categories of burnout and distress scores in examined sample are presented in Table I.

In order to statistically test the difference in sleep duration before and during a pandemic, repeated measures analysis of variance was performed. It revealed significant differences in sleep duration ($F(175.1) = 94.79$, $p < 0.001$). There was a significant shortening of sleep duration during the pandemic. The estimated mean

Table I. Categories of burnout and distress scores in examined sample.

	Low	Moderately	High
CBI – Total	26 (14.8%)	94 (53.4%)	56 (31.8%)
Personal CBI	30 (17%)	74 (42%)	72 (41%)
Work-related CBI	46 (26.1%)	68 (38.6%)	62 (35.2%)
Client-related CBI	59 (33.5%)	60 (34.1%)	57 (32.4%)
Distress	20 (11.4%)	47 (26.7%)	109 (61.9%)

Table II. Descriptive statistics values and inter-correlation of used variables.

	M	S.D.	1	2	3	4	5	6	7
1. CBI	61.32	22.27		0.90**	0.97**	0.92**	0.68**	0.37**	-0.20
2. Personal	66.36	21.24	0.90**		0.85**	0.70**	0.65**	0.31**	-0.15*
3. Work-related	60.96	24.09	0.97**	0.85**		0.83**	0.66**	0.40**	-0.18*
4. Client-related	57.65	26.39	0.92**	0.70**	0.83**		0.59**	0.30**	-0.21**
5. Distress	22.59	8.78	0.68**	0.65**	0.66**	0.59**		0.25**	-0.17*
6. Sleep shortening	0.95	1.3	0.37**	0.31**	0.40**	0.30**	0.25**		-0.06
7. Length of service	14.79	10.69	-0.20	-0.15*	-0.18*	-0.21**	-0.17*	-0.06	

sleep duration among examined group of pharmacy practitioners was 7.01 hours (± 1.62) before the pandemic and 6.06 hours (± 1.5) during a pandemic, making mean sleep shortening of 0.95 hours (± 1.29). Table II displays the descriptive statistics values and inter-correlation of all variables used in the study.

Correlation analysis was implemented to test the relationship between the variables that were used. Results revealed a significant and high correlation of all CBI subscales with distress, as well medium correlations with sleep duration shortening. Weak and negative, but still significant correlations were found between CBI subscales and length of service. Additionally, distress scores were correlated positively with sleep shortening and negatively with length of service. By performing three separate serial mediation analyses, we tested the interrelation of stress, sleep shortening and burnout. Distress was used as a predictor, each of three CBI scores as criterion variable, and Sleep shortening as mediator variable. Length of service was used as a covariate in the analysis. Results of serial mediation revealed

significant models for personal burnout ($R^2 = 0.42$, $F(172.2) = 61.97$, $p < 0.001$), work-related burnout ($R^2 = 0.45$, $F(172.2) = 69.4$, $p < 0.001$), and client-related burnout ($R^2 = 0.37$, $F(172.2) = 51.56$, $p < 0.001$). Length of service revealed not to be a significant covariate in none of them. There was a significant direct effect of distress on personal burnout, as well and indirect *via* sleep shortening. The same pattern of results was obtained for Work-related CBI and Client-related CBI as criterion variables. All results, direct and indirect effects, are presented in Figure 1.

Discussion

A few months after the pandemic crisis began, the first reports from China highlighted the increased workload and importance of community pharmacy staff in dispensing drugs, advising citizens, managing chronic diseases, educating patients, and providing psychological support to the community during the COVID-19 pandemic²⁰. During the first year of the COVID-19 pandemic,



Figure 1. Results of mediation analysis. Coefficients represent unstandardized values (B); S.E. – Standard error; *Direct effect; **Indirect effect via sleep shortening.

community pharmacists in the Serbian Autonomous Province of Vojvodina faced increased workload, increased workflow, more unpleasant client behavior, and increased care for their own and their families' health²¹. Extraordinary pandemic circumstances positioned pharmacists on the "front lines" of the COVID-19 disease fight. This resulted in a higher prevalence of negative psychological responses in this population of healthcare professionals, primarily in the form of psychological distress and job burnout^{9,22,23}. This claim is also supported by the findings of our study, which show a significantly increased level of psychological distress and burnout among pharmacy staff working in pandemic conditions. The majority of participants showed signs of personal-related burnout (82.9%), followed by work-related burnout (73.9%), while client-related burnout was present in 2/3 of participants (66.5%). At the same time, 88.6% of pharmacy practitioners in the examined sample reported increased levels of psychological distress. In comparison, Jocić et al^{24,25} estimate the risk of burnout among Serbian pharmacists to be 18.1-44.4% in non-pandemic studies published in 2014 and 2018.

Given that the pharmacy staff in Serbia is predominantly female, it appears that they are predisposed to burnout and mental health deterioration. Although gender differences were not examined in this study due to the small number of male respondents, previous research²⁶ has shown that emotional exhaustion as a form of burnout is more prevalent in women than in men, where depersonalization predominates. Several burnout studies^{27,28} conducted in pandemic conditions have yielded similar results, according to the bibliographic sources. Another sociodemographic factor, length of service, was found to be important in explaining burnout. However, this significance was determined at the level of correlation, but it did not prove significant in mediation analysis. This finding was most likely obtained as a result of a well-known correlation between longer professional experience and a lower level of distress²⁶. Considering this, length of service cannot be considered as an independent burnout-related factor in a model examining the impact of distress on professional exhaustion. Khasne et al²⁷ discovered that younger employees (21-30 years old) experienced greater personal and professional burnout during the pandemic. At the same time, a Portuguese study²⁸ found that employees with

more work experience cope better with stress and have lower burnout rates.

Further data analysis revealed a significant reduction in sleep duration during the pandemic compared to the non-pandemic period. According to Maslach and Leiter²⁹, the most important factor that causes job burnout is a workload that exceeds employees' physical capacity and leads to reduced physiological capabilities for psychophysical recovery. In the context of the current pandemic situation, the results of previous studies³⁰ indicate a higher prevalence of sleep disorders and a decrease in the quality of sleep among healthcare professionals who are on the "front-line". In a 2020 international burnout study, Kim et al³¹ discovered that greater sleep problems and a high level of burnout were strongly associated with a higher risk of COVID-19 among healthcare professionals. Saudi Arabian research found a significant increase in anxiety and poor sleep quality among medical staff caring for COVID-19 patients in June and July 2020, including pharmacists³². Another study³³ on the incidence of insomnia among physicians treating COVID-19 disease showed that the majority of participants had sleep issues, both insufficient sleep duration and unsatisfactory quality of sleep, which affected physical and mental functioning. Furthermore, a study involving Turkish nurses also found a link between insomnia, job burnout, and an increased risk of COVID-19³⁴. According to the findings of these studies, sleep duration shortening, and job burnout may be considered as significant risk factors for COVID-19 in the population of healthcare providers.

In addition, we wanted to investigate the complex relationship between distress, sleep deprivation, and burnout symptoms. It was discovered that stress has a direct effect on burnout, as expected. In response to demand, stress causes increased psychological and physical activation, and an activated hypothalamic-pituitary-adrenal (HPA) system is incompatible with normal sleep^{20,35}. An American national study from 2018 confirmed the distinct correlation between sleep quality, stress, and depressive symptoms, identifying stress as the strongest predictor of depressive symptoms in pharmacy employees, while a sufficient number of hours of sleep was identified as the strongest anti-depressive protective factor³⁶. This finding has been supported by similar studies involving healthcare professionals^{20,37}.

Conclusions

Given the high mean scores for personal, work-related, and client-related burnout in the examined sample, it can be concluded that job burnout significantly increased among pharmacy practitioners during the COVID-19 pandemic. Furthermore, we discovered that stress has an indirect impact on burnout through insufficient sleep. The study's findings indicate that there is an urgent need to develop and implement programs to prevent and eliminate the consequences of stress caused by pharmacy staff's work in a pandemic condition, in order to prevent health disorders, reduce work absenteeism, and, finally, improve quality of the service.

Conflict of Interest

The Authors declare that they have no conflict of interests.

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