SUPPLEMENTARY MATERIAL

TITLE

Examining the Mental Health Adversities Among Healthcare Providers During the Two Waves of the COVID-19 Pandemic: Results from a Cross-sectional, Survey-based Study

AUTHORS

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Table S1. STROBE Statement—Checklist of items that should be included in cross sectional studies

	Item No	Recommendation	Page number
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4
Objectives	3	State specific objectives, including any prespecified hypotheses	4-5
Methods			
Study design	4	Present key elements of study design early in the paper	5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	5
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5-6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	*5*
Bias	9	Describe any efforts to address potential sources of bias	6
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	6
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	6
		(*b*) Describe any methods used to examine subgroups and interactions	-
		(*c*) Explain how missing data were addressed	-
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	-
		(*e*) Describe any sensitivity analyses	-
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6-7
		(b) Give reasons for non-participation at each stage	6-7
		(c) Consider use of a flow diagram	Table 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Page 6, Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Page 6, Table 1
Outcome data	15*	Report numbers of outcome events or summary measures	7

Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	7
		(*b*) Report category boundaries when continuous variables were categorized	7
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	7
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	7
Discussion			
Key results	18	Summarise key results with reference to study objectives	8-10
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	9
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	8-10
Generalisability	21	Discuss the generalisability (external validity) of the study results	9-10
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	11

Table S2. Questionnaire

	Question	Options	Data type	Mandatory?
1	Please enter your age	• Number of years between 18 and 100	Number	Yes
2	Please enter your sex	• Female • Male	Single choice	Yes
3	In which country do you work? (If you have a job in more than one country, please indicate where you worked / are working during the epidemic.)	• List of the European countries	Dropdown menu	Yes
4	What type of settlement do you work in? (If you work in more than one place, indicate where you spent / are spending the most time during the epidemic.)	• Capital city • County seat • Other town • Smaller than a town	Single choice	Yes
5	What field (s) do you usually work in? (Multiple answers possible)	• Intensive care • Anaesthetics • Emergency medicine • Internal medicine profession • Surgical profession • Family doctor/General Practice • Ambulance service • Other	Multiple choice	Yes
6	What position do you work in?	• Doctor • Nurse, assistant • Other professional staff	Single choice	Yes
7	How many years of clinical experience do you have?	• Number of years from 0 (less than one year) to 80	Single choice	Yes
Questions will pop-up randomly				
8	Have you been ordered to work in a different work area during the epidemic?	• No • Yes	Single choice	Yes
9	To what extent do / did you feel it was your inner duty to be involved in caring for patients in an epidemiological situation?	• Not at all • Rather not • Rather yes • Completely	Single choice	Yes

10	On average, how many personal contacts do / have you had with COVID positive or suspected patients at work?	• None • Less than 5 hours a week • More than 5 hours a week • More than 10 hours a week	Single choice	Yes
11	Did you actually have to care for a COVID positive patient?	• No • Yes	Single choice	Yes
12	Have you been diagnosed with coronavirus?	• No • Yes, but I did not need hospital care • Yes, and I have been in hospital care	Single choice	Yes
13	Did / did you have a relative or close acquaintance who was diagnosed with coronavirus? (If more than one, state the person whose infection affected you the most.)	• No • Yes, but there was no need for hospital care • Yes, s/he was in hospital care and recovered • Yes, and s/he died of it	Single choice	Yes
14	Please rate how worried / concerned you are about the following problems during the epidemic? (Use a scale from 1 to 5 to score.)	a. I become infected and become seriously ill / die b. I infect a family member c. I did not receive sufficient professional training d. Little or poor quality protective equipment e. Patients should be discharged due to lack of capacity f. My financial difficulties arise / worsen g. I have to go to quarantine h. Non-COVID patients receive less optimal care than before i. The epidemic restarts j. Missing cases cause / will cause a significant surplus of work	1. Not at all 2. (without marking) 3. (without marking) 4. (without marking) 5. To a very large extent	Yes
15	To what extent is/was your work stressful mentally during the epidemic?	• It was not stressful at all • It was a little stressful • It was moderately stressful • It was very stressful	Single choice	Yes
16	To what extent is / was your work demanding physically?	• It was not demanding at all • It was a little demanding • It was moderately demanding • It was very demanding	Single choice	Yes

17	In your opinion, to what extent has the frequency of tension / conflicts increased between colleagues during the epidemic situation?	• It has not increased at all • It has increased a little • It has definitely increased • It has severely increased	Single choice	Yes
18	Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.	1. I found it hard to wind down 2. I was aware of dryness of my mouth 3. I couldn't seem to experience any positive feeling at all 4. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion) 5. I found it difficult to work up the initiative to do things 6. I tended to over-react to situations 7. I experienced trembling (eg, in the hands) 8. I felt that I was using a lot of nervous energy 9. I was worried about situations in which I might panic and make a fool of myself 10. I felt that I had nothing to look forward to 11. I found myself getting agitated 12. I found it difficult to relax 13. I felt down-hearted and blue 14. I was intolerant of anything that kept me from getting on with what I was doing 15. I felt I was close to panic 16. I was unable to become enthusiastic about anything 17. I felt I wasn't worth much as a person 18. I felt that I was rather touchy 19. I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat) 20. I felt scared without any good reason 21. I felt that life was meaningless	0. Did not apply to me at all 1. Applied to me to some degree, or some of the time 2. Applied to me to a considerable degree, or a good part of time 3. Applied to me very much, or most of the time	Yes
19	Please respond to each item by marking one box per row	• I tend to bounce back quickly after hard times • I have a hard time making it through stressful events. • It does not take me long to recover from a stressful event. • It is hard for me to snap back when something bad happens. • I usually come through difficult times with little trouble. • I tend to take a long time to get over set-backs in my life.	1. Strongly Disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree	Yes
20	How did your sleep change during the epidemic?	• It got a lot worse • It got a bit worse	Single choice	Yes

	(Considering the duration and quality of sleep.)	• There was no change in it • It got a bit better • It got a lot better		
Please answer question 21 only if the answer to question 20 was the worsening of sleep.				
21	If your sleep has deteriorated, what do you think the reason was? (Multiple answers possible)	• Increased stress level • Increased working hours • Change in work schedule • Other	Multiple choice	Yes
22	Please rate each statement how they apply to you in the past two weeks. Notice that higher numbers mean better well-being. Example: If you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 in the upper right corner.	• I have felt cheerful and in good spirits • I have felt calm and relaxed • I have felt active and vigorous • I woke up feeling fresh and rested • My daily life has been filled with things that interest me	5. All of the time 4. Most of the time 3. More than half of the time 2. Less than half of the time 1. Some of the time 0. At no time	Yes
23	With whom could / can you share problems and concerns during the epidemic? (Multiple answer possible. If with no one, please check only the last option.	• My partner • Family • A friend • A colleague • Work manager • Religious leader • With a specialist (psychologist, psychotherapist, psychiatrist) • With an alternative spiritual helper (lifestyle counsellor, astrologer, kinesiologist, etc.) • Other • Nobody	Multiple choice	Yes
24	Do you consider it necessary for your workplace to provide the opportunity for spiritual support from a professional?	• No, I don't find it necessary • Yes, but I would not use it • Yes, and I would make / make use of it	Single choice	Yes
25	How did the following habits change during the epidemic? (If	• Alcohol consumption • Smoking • Coffee consumption	1. Significantly decreased 2. Slightly reduced 3. Not changed	Yes

	one does not apply to you, check "I don't have this habit.")	• Carbohydrate intake (e.g. chocolate, chips, cola) • Energy drink consumption • Sports, physical activities • Gambling • Computer game • Watching TV • use of social media • Use of sedatives, sleeping pills • Drug use • Watching porn	4. Slightly increased 5. Significantly increased 6. I have no such habit	
26	Did / did you have any other concerns or problems you would like to share?		Short text	No

Appendix S1. Information for study participants

Dear Participant Healthcare Worker,

Thank you for participating in our research 'Investigating the Problems and Wellbeing of Healthcare Workers in an Epidemic Situation'. The research is organized by the Intensive Care Unit of the Military Hospital – Hungarian Defense Forces, Budapest, the Institute of Translational Medicine of the University of Pécs, the Institute of Behavioral Sciences of the University of Pécs and the Department of Clinical Psychology and Addiction of Eötvös Loránd University, Budapest. The leader of the research is Dr. Flóra Dezső (Military Hospital).

The aim of the present study is to assess many aspects of the mental burden caused by the COVID-19 epidemic among health care workers. We would like to map out all the personal or institutional opportunities and resources that can contribute to the mental wellbeing of healthcare staff.

Participation in the research is completely voluntary. However, it is very important for the success of the research that we get to know the opinions of as many employees as possible, including yours.

You can complete the questionnaires online during the survey. It will take about 8-10 minutes to complete the questionnaire.

The results of the research will be published later and presented at scientific conferences. Only aggregated data from the research is published, data that can be traced back to individuals are not published.

In the research, we collect the data anonymously and do not record any other personal information.

We treat all information we collect in the course of our research in the strictest confidence, in accordance with data protection rules related. The data obtained during the research are stored on a secure computer with a code. We perform statistical analyses on the data obtained during the research, from which the identity of any participant cannot be established.

If you wish to get any feedback regarding the study, finishing your answers you can send a 6 digit code to the email address below. You will get the response to the email address provided by you.

The study was approved by the Scientific and Research Ethics Committee of the Health Science Council, Hungary.

If you have additional questions or would like to speak to one of the researchers about the research, please contact us:

Dr. Flóra Dezső

(anesthesiologist, psychotherapist)

dflorad@gmail.com

MH EK Military Hospital KAITO

HU-1134 Budapest, Róbert Károly krt. 44.

Appendix S1. Information for study participants - continued

Questionnaire introduction

Dear Participant Healthcare Worker,

In the research organized by the University of Pécs, Eötvös Loránd University, Budapest and the Hungarian Military Hospital, Budapest , we ask you to fill in the following questionnaire. The study seeks to map the physical and mental burden on medical staff and the extent and ways of coping with this burden. The data collected through the questionnaire can help us to design and develop a truly effective support system for healthcare workers in critical situations such as the COVID-19 epidemic.

There is no obligation to answer the questions. You don't have to answer the questions, but any one of them is a great help in our work.

By participating in the research, we are unable to identify you personally, and the data obtained from the completed questionnaires will be treated completely anonymously, encrypted and blocked.

It takes about 10 minutes to complete the questionnaire, there are no right or wrong answers. The questionnaires do not provide a diagnosis and the data will be used solely for the purpose of our scientific research.

More information about the research can be found here (You can reach it by clicking on the detailed information we provided in TUKEB)

Contribution to scientific research

◯ By completing the questionnaire, I consent to the use of the data for scientific research.

Questionnaire closing remarks

Thank you for contributing to our work and helping to prepare medical staff more effectively by completing the questionnaire!

Research leaders: Dr. Péter Hegyi, Dr. Flóra Dezső

Appendix S2. Ethical approval

Medical Research Council
Scientific and Research Ethics Committee
Mailing Address: 7-8 Széchenyi István Square, Budapest H-1051
Seat: 25 Alkotmány Street, Budapest 1054

Reg. no.: **IV/5079-2/2020/EKU**
Administrator: **Dr Tamás Kardon Secretary**
E-mail: tukeb@emmi.gov.hu
Phone: **+(36) 1 795-1197**

Subject: Authorization Decree

Research Center: *Military Hospital – State Health Centre, Central Department of Anaesthesiology and Intensive Care (44 Róbert Károly Blvd. Budapest 1134) University of Pécs Medical School Institute for Translational Medicine (12 Szigeti Street Pécs 7624)*

Chief Investigator: Dr Flóra Dezső and Dr Péter Hegyi

DECREE

The non-intrusive clinical research project titled as **"The Investigation of the Pandemic-related Problems and Well-being of Health Workers (FEAR)"** has been submitted for ethical review to the Scientific and Research Ethics Committee of the Medical Research Council by Dr Flóra Dezső (*44 Róbert Károly Blvd. Budapest 1134*) representing the Military Hospital – State Health Centre, Central Department of Anaesthesiology and Intensive Care, and by Dr Péter Hegyi *(12 Szigeti Street Pécs 7624)* representing the University of Pécs Medical School Institute for Translational Medicine (hereinafter referred to as "Applicants").

I am pleased to inform you that the Scientific and Research Ethics Committee of the Medical Research Council has granted ethical approval for this research project.

Budapest, 17 June 2020.

This is the official translational of the Hungarian ethical approval granted by the Hungarian Scientific and Research Ethics Committee of the Medical Research Council, translated by the University of Pécs Institute for Translational Medicine.

Prof. Dr Péter Hegyi
Head of Institute