



HAL
open science

Sleep quality deterioration in healthcare workers during the COVID-19 pandemic: the role of work-related factors and mental health

Fabienne Marcellin, Clémence Ramier, Tangui Barré, Morgane Bureau-stoltmann, Victoria Metelkina-Fernandez, Patrizia M. Carrieri, Camelia Protopopescu, Faredj Cherikh

► To cite this version:

Fabienne Marcellin, Clémence Ramier, Tangui Barré, Morgane Bureau-stoltmann, Victoria Metelkina-Fernandez, et al.. Sleep quality deterioration in healthcare workers during the COVID-19 pandemic: the role of work-related factors and mental health. *European Review for Medical and Pharmacological Sciences*, 2022, 26 (8), pp.2648-2650. 10.26355/eurrev_202204_28593 . inserm-04028895

HAL Id: inserm-04028895

<https://inserm.hal.science/inserm-04028895v1>

Submitted on 14 Mar 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Letter to the Editor

Sleep quality deterioration in healthcare workers during the COVID-19 pandemic: the role of work-related factors and mental health

Dear Editor,

Alboghhdady et al¹ recently published results of a cross-sectional study conducted in the early phase of the COVID-19 pandemic in 100 healthcare workers (HCW) from Saudi hospitals. They showed tendencies towards higher anxiety levels (Self-Rating Anxiety Scale²) in female and younger HCW, and poorer sleep quality (Pittsburgh Sleep Quality Index³) in male HCW and HCW with higher incomes. We hypothesize that work-related factors and mental health also influence sleep quality in HCW in this pandemic period. In May 2020, 482 HCW (95% being doctors) in France answered an online survey which documented sleep quality before and during the country's first COVID-19 lockdown (visual analogue scale (VAS), ranging from 0 = very poor to 4 = excellent), and current levels of anxiety (General Anxiety Disorders scale, GAD-7⁴ and depression (Patient Health Questionnaire, PHQ-9⁵). To access the survey, online consent was needed. We defined sleep quality deterioration as reporting a decrease in the VAS score since the lockdown resulting in a current score ≤ 1 . Among study participants (median age [interquartile range]: 36 [32-42] years, 84.9% of women), 20.3% reported sleep quality deterioration, 17.9% moderate to severe anxiety (GAD-7 score ≥ 10), and 20.9% moderate to severe depression (PHQ-9 score ≥ 10). Multivariable logistic regression models – with and without adjustment for moderate to severe anxiety and depression – showed higher odds of sleep quality deterioration in HCW not working in the country's largest cities (Paris, Marseille, Lyon), and in HCW working onsite during the lockdown who changed team or hospital unit (Table I). Moderate to severe anxiety and depression were independent predictors of sleep quality deterioration. These results confirm the high rate of HCW who have experienced a deterioration in sleep quality during the pandemic^{1,6,7} and the negative impact of anxiety on their sleep quality⁶. Our findings also suggest that stressful emergency situations such as changes in work organization during the pandemic, which led HCW to temporarily integrate into new teams or hospital units and adapt to new protocols and duties, had a detrimental effect on their sleep quality. Interestingly, not working in the largest cities also appeared to be detrimental to sleep quality. This may have been due to a greater risk of work overload or a lack of support from peers, because of fewer healthcare staff.

To conclude, sleep quality deterioration was highly prevalent in French HCW during the early stages of the COVID-19 pandemic, with multiple risk factors. Given the continued presence of this worldwide pandemic, changes in HCW sleep quality must be monitored to implement interventions at both the structural and individual levels, with a view to improving HCW well-being and health, and consequently the quality of patient care.

Acknowledgments

We thank all the survey participants, and Jude Sweeney (Milan, Italy) for the English revision and copyediting of the manuscript.

Declaration of interest

The authors declare that they have no conflict of interest.

Table I. Work-related and mental health-related factors associated with sleep quality deterioration in healthcare workers during the early stages of the COVID-19 pandemic: an online survey in France (logistic regression models, n=489).

Variable (% of missing values)	% of HCW	Univariable analyses		Multivariable analyses			
		OR [95% CI]	P	Model A: not adjusted for moderate to severe anxiety and depression		Model B: adjusted for moderate to severe anxiety and depression	
				aOR [95% CI]	P	aOR [95% CI]	P
Female sex (0)	84.9	2.70 [1.2 - 6.09]	0.017	2.54 [1.13 - 5.72]	0.025		
Age - in years (0.4)							
- 18 to 29 (ref.)	12.1	1					
- 30 to 49	74.0	1.46 [0.68 - 3.11]	0.328				
- 50 and older	14.0	1.44 [0.57 - 3.62]	0.441				
Work-related factors							
Type of profession (0.2)							
- doctor (ref.)	95.0	1		1			
- paramedical ^a	5.0	3.00 [1.29 - 6.97]	0.011	3.05 [1.30 - 7.13]	0.010		
Work setting (0)							
- self-employed (ref.)	50.4	1					
- employed in a private institution	12.0	0.89 [0.44 - 1.80]	0.749				
- employed in a public institution	37.6	0.71 [0.43 - 1.15]	0.165				
Type of position (0.2)							
- exclusively day work (ref.)	90.6	1					
- day/night alternation or exclusively night work	9.4	0.46 [0.18 - 1.20]	0.113				
Working in a large city^b (0)	13.1	0.45 [0.20 - 1.02]	0.057	0.42 [0.19 - 0.95]	0.037	0.41 [0.18 - 0.91]	0.028
COVID-19-related factors							
Working conditions during the lockdown^c (0)							
- onsite, no change of team or hospital unit (ref.)	42.5	1		1		1	
- onsite, change of team or hospital unit	6.2	3.72 [1.68 - 8.28]	0.001	5.73 [2.24 - 14.66]	<0.001	7.50 [2.84 - 19.83]	<0.001
- telework (at least partially)	44.4	0.95 [0.58 - 1.55]	0.834	0.99 [0.58 - 1.67]	0.963	1.24 [0.71 - 2.19]	0.453
- work interruption	6.8	0.95 [0.37 - 2.45]	0.909	1.10 [0.39 - 3.13]	0.854	1.37 [0.44 - 4.31]	0.585
Exposure to COVID-19 infection (0)							
- exposed but not infected (ref.)	78.6	1		1		1	
- exposed and infected	9.8	0.33 [0.11 - 0.94]	0.037	0.20 [0.06 - 0.71]	0.012	0.18 [0.05 - 0.68]	0.012
- not exposed	11.6	0.76 [0.37 - 1.58]	0.466	0.86 [0.41 - 1.82]	0.700	1.22 [0.53 - 2.81]	0.648
Worried by the risk of COVID-19 complications^d (0)	53.3	1.67 [1.06 - 2.64]	0.028				
Mental health-related factors							
History of psychiatric disorders (0)							
- no (ref.)	65.4	1	0.046				
- yes, not currently on treatment	26.1	1.32 [0.79 - 2.20]	0.284				
- yes, currently on treatment	8.5	2.40 [1.18 - 4.87]	0.015				
Currently receiving hypnotics (0)	2.7	2.53 [0.81 - 7.91]	0.111	3.62 [1.18 - 11.06]	0.024		
Moderate to severe anxiety^e (1.2)	17.9	4.87 [2.92 - 8.11]	<0.001	-		3.39 [1.77 - 6.49]	<0.001
Moderate to severe depression^f (1.9)	20.9	5.16 [3.15 - 8.45]	<0.001	-		3.22 [1.75 - 5.90]	<0.001

Abbreviations: aOR = adjusted odds ratio; CI = confidence interval; HCW = healthcare workers; OR = odds ratio; ref. = reference category. Variables with a *p*-value <0.20 were tested in the multivariable analyses. A backward selection procedure was used to build the final models, which included only significant variables (*p*<0.05). Analyses were performed using Stata version 17.0 for Windows (StataCorp., College Station, TX, USA) software. ^aParamedical professions include nurses, nursing assistants, physiotherapists, osteopaths, midwives, psychologists, pharmacists, and pharmacy dispensers. ^bLarge cities include cities of more than 500 000 inhabitants (Paris, Marseille, and Lyon). ^cFour category-variable built using a hierarchical cluster analysis based on HCW answers to eight binary items concerning their working conditions during France's first COVID-19-related lockdown (17 March-11 May, 2020). ^dThe corresponding item in the questionnaire was as follows: "Do you or a loved one have a health condition that causes you to be concerned about the risk of complications from COVID-19, such as a history of at-risk diseases (diabetes, asthma, etc.) or current pregnancy?" ^eDefined as a GAD-7⁴ score ≥10 (the GAD-7 score ranges from 0 to 21, with higher values denoting higher levels of anxiety). ^fDefined as a PHQ-9⁵ score ≥10 (the PHQ-9 score ranges from 0 to 27, with higher values denoting higher levels of depression).

Funding

There is no funding associated with the work presented in this article.

References

- 1) Alboghdady A, Saadh MJ, Kharshid AM, Shaalan MS, Alshawwa SZ. Assessment of anxiety level and sleep quality of medical staff treating patients with COVID-19. *Eur Rev Med Pharmacol Sci* 2022; 26: 312-319.
- 2) Olatunji BO, Deacon BJ, Abramowitz JS, Tolin DF. Dimensionality of somatic complaints: factor structure and psychometric properties of the Self-Rating Anxiety Scale. *J Anxiety Disord* 2006; 20: 543-561.
- 3) Carpenter JS, Andrykowski MA. Psychometric evaluation of the Pittsburgh Sleep Quality Index. *J Psychosom Res* 1998; 45: 5-13.
- 4) Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006; 166: 1092-1097.
- 5) Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16: 606-613.
- 6) Drager LF, Pachito DV, Moreno CRC, Tavares AR, Conway SG, Assis M, Sguillar DA, Moreira GA, Bacelar A, Genta PR. Insomnia episodes, new-onset pharmacological treatments, and other sleep disturbances during the COVID-19 pandemic: a nationwide cross-sectional study in Brazilian health care professionals. *J Clin Sleep Med* 2022; 18: 373-382.
- 7) Proserpio P, Zambrelli E, Lanza A, Dominese A, Di Giacomo R, Quintas R, Tramacere I, Rubino A, Turner K, Colosio C, Cattaneo F, Canevini MP, D'Agostino A, Agostoni EC, Didato G. Sleep disorders and mental health in hospital workers during the COVID-19 pandemic: a cross-sectional multicenter study in Northern Italy. *Neurol Sci* 2022; 43: 2241-2251.

F. Marcellin¹, C. Ramier¹, T. Barré¹, M. Bureau-Stoltmann¹, V. Metelkina-Fernandez², P. Carrieri¹, C. Protopopescu¹, F. Cherikh^{1,2}

¹Aix Marseille Univ, Inserm, IRD, SESSTIM, Sciences Economiques et Sociales de la Santé et Traitement de l'Information Médicale, ISSPAM, Marseille, France

²Addictology Unit, University Hospital of Nice, Nice, France