

BRIEF REPORT

Psychological and work-related factors associated with emotional exhaustion among healthcare professionals during the COVID-19 outbreak in Italian hospitals

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Abstract

The coronavirus disease 2019 (COVID-19) pandemic has induced considerable psychological distress in healthcare workers, increasing the risk of burnout. This research aimed to investigate sociodemographic, work-related, COVID-19-related, and psychological factors associated with emotional exhaustion (the core component of burnout) among healthcare professionals during the first wave of the COVID-19 pandemic in Italy. A cross-sectional study was conducted to assess risk (e.g. perceived risk and fear of contagion, stress) and protective factors (e.g. job satisfaction, resilience) for emotional exhaustion among 616 hospital staff. Women, nurses, shift workers, those with a permanent contract, and frontline workers reported significantly higher levels of emotional exhaustion compared to others. Significant risk factors predicting emotional exhaustion were prolonged use of personal protective equipment, increased work pressure, lack of support, and prolonged working hours; psychologically protective factors were resilience and job satisfaction, while perceived stress was found to be a significant psychological risk factor. Organizational interventions should focus on these factors to prevent the onset of burnout.

KEYWORDS

burnout, COVID-19, emotional exhaustion, healthcare workers, protective factors, risk factors, pandemic

Key points

- Women, nurses, shift workers, permanent employees, and frontline workers reported higher levels of emotional exhaustion compared to other healthcare staff.
- Work-related risk factors associated with exhaustion were prolonged use of personal protective equipment, increased work pressure, lack of contacts and social support from colleagues and supervisors, and prolonged working hours.
- Resilience and job satisfaction were protective factors against the onset of emotional exhaustion.

1 | BACKGROUND

During the COVID-19 spread, critical aspects related to the pandemic, such as the unexpected and uncontrollably increasing number of cases and deaths, the severe risk of contagion, the prolonged use of personal protective equipment (PPE), the forced social isolation and separation from families, have significantly increased the incidence of psychological disturbances in frontline healthcare workers (Barello et al., 2020; Cai et al., 2020; Gorini et al., 2020; Hu & Huang, 2020; Lu, Wang et al., 2020; Ness et al., 2021). As shown by other studies from previous epidemic/pandemic events (e.g., Maunder et al., 2006), such symptoms may have severe long-term effects, frequently resulting in psychological disorders such as burnout syndrome or post-traumatic stress disorder. In particular, considerable attention has been given to emotional exhaustion which represents the basic dimension of individual strain in burnout, and relates to the feeling of being overextended and depleted of emotional and physical resources (Maslach et al., 1996). Some studies have found high levels of healthcare professional burnout during this COVID-19 pandemic, and the main risk factors were exposure to COVID-19 patients, being female, being in the nursing profession, and experiencing stress, while protective factors were adequate PPE and resilience (Barello et al., 2020; Duarte et al., 2020; Luceño-Moreno et al., 2020; Matsuo et al., 2020; Morgantini et al., 2020). However, studies are still limited, and for this reason, we conducted this research aimed at exploring the prevalence of emotional exhaustion and the associated risk and protective factors among different healthcare professionals during the peak of the COVID-19 outbreak in Italy.

2 | METHODS

Healthcare professionals from two Italian hospitals, Institution for Hospitalization and Healthcare (IRCCS) Istituti Clinici Maugeri and IRCCS Centro Cardiologico Monzino, were invited to participate in an online cross-sectional survey conducted using the Qualtrics® platform from April 1 to May 1, 2020. Both of these hospitals, located in Lombardy, the Italian region most affected by the pandemic (Percudani et al., 2020), underwent a major reorganization with several units admitting COVID-19 patients almost exclusively. The survey was anonymous, and confidentiality of information was assured.

The study was approved by the local scientific ethics committees of the two hospitals (Comitato Etico IRCCS Istituti Clinici Maugeri, approval number 2411, March 26, 2020; Comitato Etico IRCCS Centro Cardiologico Monzino approval number 1238, 17 April 2020) and all participants provided informed consent electronically. This study is part of a larger research project exploring mental health among Italian healthcare workers during the COVID-19 pandemic (for details, see Gorini et al., 2020).

The survey gathered sociodemographic, work-related, and COVID-19-related information, and included psychological self-reports. Specifically, we investigated the following: (a) *Emotional exhaustion*: the five-item scale (scored on a 7-point scale, 0–6, with

higher scores meaning higher levels of exhaustion) from the Maslach Burnout Inventory-General Survey (MBI-GS; Maslach et al., 1996; Italian validation by Borgogni et al., 2005); (b) *Perceived risk and fear of being infected by COVID-19*: two items, scored on a 0–100 slider scale, with higher scores indicating higher risk and fear (for details see Gorini et al., 2020); (c) *Resilience*: the “Resilience” 16-item scale (scored on a 5-point scale, 0–4, higher scores meaning higher resilience) from the Maugeri Stress Index-Revised (MASI-R; Massidda et al., 2017); (d) *Job satisfaction*: a single-item from the MASI-R questionnaire (Massidda et al., 2017), measuring overall satisfaction in the last 2 weeks (0–100 slider scale, higher scores meaning higher satisfaction); (e) *Perceived stress*: a single item (“How much did you perceive stress in the last 2 weeks?”), 0–100 slider scale, higher scores meaning higher stress; this single item had shown sufficient validity in several previous studies (e.g. Elo et al., 2003).

2.1 | Statistical analysis

Characteristics of the sample were analyzed by descriptive statistics. Emotional exhaustion levels of the healthcare staff were compared using analysis of variance (ANOVA); univariate and multiple regression analyses were used to explore factors associated with emotional exhaustion. The probability level of $P < 0.05$ was considered statistically significant. SPSS 22.0 (SPSS Inc, Chicago, IL) was used to conduct the analysis.

3 | RESULTS AND DISCUSSION

The survey was sent to all healthcare employees of the two hospitals included in the study, and the total number of the invited healthcare professionals was 1174. We retrieved a total of 728 questionnaires, for an overall response rate of 62%. Out of the 728 questionnaires collected, 73 were excluded from the analysis because completion time was too long compared to the mean, and another 39 were excluded because completion rate was lower than 70% (i.e. responders answered less than 70% of the questions). The eligible sample thus included 616 healthcare workers, with a mean age of 44.75 years (SD = 11.03). Most of them were either nurses (35.9%) or other healthcare staff (35.4%; i.e. physiotherapists, psychologists and speech therapists), the majority were female (68.2%), nearly half had more than 20 years of work seniority (49.5%), and most were frontline workers (61.5%; Table 1). The mean score for emotional exhaustion recorded in the entire sample was 2.07 (SD = 1.37; range 0–6), suggesting a moderate risk of burnout according to cutoff values (low as <2.00, moderate as 2.01–3.19, high as >3.20) based on normative data from previous studies (Maslach et al., 1996). This result can be explained by the study being conducted during the second month of the COVID-19 pandemic, when hospital staff was in an acutely stressful phase of response; it is important to monitor the long-term individual responses since studies have showed that burnout and health problems are caused by excessive and prolonged stress, which

TABLE 1 Sociodemographic and work-related characteristics of the sample

Characteristics	Total % (n)	Exhaustion M (SD)	F	P
Age (years) ^a				
<35	24.1 (147)	2.02 (1.33)	1.84	0.159
36–50	41.9 (256)	2.18 (1.39)		
>50	34.0 (208)	1.93 (1.33)		
Gender ^a				
Male	31.7 (195)	1.72 (1.20)	19.16	0.000
Female	68.2 (420)	2.23 (1.42)		
Marital status				
Married/in a relationship	77.1 (475)	2.08 (1.33)	0.05	0.798
Unmarried	22.9 (141)	2.05 (1.51)		
Professional category				
Physician	28.7 (177)	1.84 (1.18)	21.13	0.000
Nurse	35.9 (221)	2.54 (1.42)		
Other healthcare professionals ^b	35.4 (218)	1.79 (1.34)		
Work seniority (years)				
<5	14.1 (87)	1.95 (1.36)	0.45	0.714
5–10	11.5 (71)	1.97 (1.22)		
11–20	24.8 (153)	2.14 (1.40)		
>20	49.5 (305)	2.10 (1.40)		
Type of work contract				
Permanent	90.6 (558)	2.11 (1.39)	5.90	0.015
Temporary	9.4 (58)	1.65 (1.11)		
Shiftwork (during COVID-19 pandemic)				
No	49.0 (302)	1.81 (1.30)	22.01	0.000
Yes	51.0 (314)	2.32 (1.39)		
Working hours/week				
<40	76.0 (463)	2.01 (1.36)	1.35	0.245
>40	24.0 (146)	2.16 (1.32)		
Working in a COVID-19 unit				
No	38.5 (237)	1.82 (1.33)	12.65	0.000
Yes	61.5 (379)	2.23 (1.38)		
Swab test for COVID-19				
Never tested	42.4 (261)	1.83 (1.25)	5.95	0.001
Negative	53.5 (329)	2.25 (1.43)		
Positive, in the past	3.4 (21)	2.41 (1.60)		
Positive, currently	0.7 (4)	0.95 (0.41)		
Do you think you are currently positive for COVID-19?				
No	79.2 (469)	2.02 (1.34)	3.55	0.060
Yes	20.8 (123)	2.29 (1.48)		

Abbreviations: M, mean; SD, standard deviation.

^aThis variable includes some missing values.

^bIncluding physiotherapists, psychologists and speech therapists.

may lead to mental and physical exhaustion in a subsequent phase of the pandemic.

The results (Table 1) showed that women, nurses, and frontline and shift workers reported higher levels of emotional exhaustion

compared to the other responders, in line with the literature (Lai et al., 2020; Woo et al., 2020). Regarding gender differences, the data obtained in this study confirmed a higher prevalence of mental health problems in women compared to men, even if this result may be

partly due to the high number of women in nursing positions (Luceño-Moreno et al., 2020). Nurses are more at risk than other healthcare professionals because of the intrinsic characteristics of their frontline caring role, especially during the outbreak because family visits were forbidden and they also had to take care of patients in the role of “emotional supporters” (Chen et al., 2005; Woo et al., 2020). In this study direct contact with infected people was obviously a risk factor for mental health problems, as reported in most COVID-19 studies (Duarte et al., 2020). In addition, we found that hospital staff with a permanent contract were more likely than temporary staff to experience emotional exhaustion; this is in contrast with the literature which suggests professionals with less clinical experience were more likely to experience stress during the COVID-19 outbreak. In the current study there was only a small group of workers on temporary contract, some of whom were consultants, and it is possible that they felt a higher sense of responsibility and involvement in the hospital's response to the pandemic.

Table 2 shows the responders' knowledge of and worries about burnout syndrome: 92.9% of them indicated they knew what burnout is, 39.9% were worried about the possibility of suffering from it, and 68.3% declared the intention to seek professional help in case of burnout. Knowledge of the syndrome represents an important resource in recognizing early symptoms and asking for professional help to prevent serious health problems (Hu & Huang, 2020). The results of multiple regression analysis (Table 3) showed that emotional exhaustion was significantly predicted by a lack of social contacts and organizational support, prolonged use of PPE, increased working hours, and excessive work pressure, regardless of the professional category and other relevant sociodemographic and occupational factors (adjusted $R^2 = 0.35$). Effective communication with supervisors and

colleagues, the existence of supervision, exchange of views, and clear protocols are measures that increase the state of confidence and control, which obviously decreases the stress level (Ness et al., 2021). Social support and emotional connections are key factors for protecting workers' health as well during a severe pandemic which forces social isolation and an absence of human touch (Cai et al., 2020). In contrast with the literature, in this study marital status did not function as a protective factor, meaning that during the COVID-19 pandemic, what really made the difference seems to be social support in the workplace, since the experience of sharing doubts and difficulties with colleagues and supervisors may decrease emotional agitation and uncertainty. Prior to the current pandemic situation, healthcare professionals were already considered at high risk for stress disorders. The pandemic has exacerbated existing work-related risks and triggered new risks, including long working hours, work pressure in terms of risk of infection, increased volume and severity of patients, critical decision making, and fatigue (Duarte et al., 2020).

Furthermore, we found higher levels of emotional exhaustion in responders who were previously infected by the virus and in frontline workers. Previous studies during the COVID-19 and the SARS outbreaks in China also showed high levels of mental burden among hospital staff working in clinical wards with high risk of contagion (Chen et al., 2005; Lai et al., 2020; Lu et al., 2020).

Regarding psychological factors, we found that emotional exhaustion was positively predicted by perceived stress and negatively by resilience and job satisfaction, explaining 45.0% of the total variance (adjusted $R^2 = 0.43$; Table 4). This means that in this study low psychological stress, high resilience, and job satisfaction were protective factors against emotional exhaustion, as previously shown by Cai

TABLE 2 Burnout-related information

Characteristics	Total % (n)	Exhaustion M (SD)	F	P
Do you know what “burnout syndrome” is?				
No	3.6 (22)	1.77 (1.31)	1.02	0.360
Yes	92.9 (560)	2.06 (1.37)		
Maybe	3.5 (21)	2.37 (1.44)		
Have you ever been worried that you could suffer from burnout?				
No	31.1 (182)	1.50 (1.18)	33.21	0.000
Yes	39.9 (234)	2.55 (1.40)		
Maybe	29.0 (170)	2.04 (1.27)		
If you suffer from burnout, would you seek professional help to cope with it?				
No	4.1 (24)	1.83 (0.99)	3.03	0.049
Yes	68.3 (400)	2.00 (1.34)		
Maybe	27.6 (162)	2.29 (1.45)		
Have you ever undergone psychological treatment?				
Never	61.9 (374)	1.84 (1.28)	13.72	0.000
No, but I thought about it	21.5 (130)	2.42 (1.32)		
Yes	16.6 (100)	2.43 (1.57)		

TABLE 3 Work-related risk factors predicting emotional exhaustion during the COVID-19 outbreak

	Univariate				Multivariate ^a				
	B	β	t	P	B	95% CI	β	t	P
Prolonged use of PPE	0.02	0.33	8.09	0.000	0.01	0.00; 0.01	1.11	2.11	0.036
Increased work tension	0.02	0.35	8.77	0.000	0.00	-0.00; 0.01	0.08	1.35	0.178
Impossibility to carry out leisure activities after work	0.01	0.20	4.66	0.000	0.00	-0.00; 0.01	0.01	0.18	0.854
Increased work pressure	0.02	0.44	11.50	0.000	0.01	0.00; 0.01	0.12	2.04	0.042
Divergences between colleagues about clinical activities	0.01	0.32	7.44	0.000	0.00	-0.00; 0.01	0.03	0.64	0.525
Increased family burden	0.01	0.25	5.98	0.000	0.00	0.00; 0.01	0.08	1.80	0.073
Lack of contacts and social support from colleagues and supervisors	0.02	0.41	10.34	0.000	0.01	0.01; 0.01	0.24	4.49	0.000
Prolonged working hours	0.01	0.35	8.44	0.000	0.01	0.00; 0.01	0.12	2.32	0.021
Increased bureaucracy	0.01	0.29	6.92	0.000	0.00	-0.00; 0.01	0.00	0.50	0.613

^aThe model is adjusted for sex, professional category, contract, shiftwork, working with covid-19 patients, swab test for Covid-19.

TABLE 4 Psychological factors predicting emotional exhaustion during the COVID-19 outbreak

Variable	Univariate				Multivariate ^a				
	B	β	t	p	B	95% CI	β	t	p
Perceived risk of being infected	0.02	0.29	6.93	0.000	0.00	-0.00; 0.01	0.04	1.08	0.282
Fear of being infected	0.02	0.33	8.25	0.000	0.01	-0.00; 0.01	0.05	1.14	0.253
Perceived stress	0.03	0.61	18.74	0.000	0.02	0.02; 0.03	0.47	11.19	0.000
Resilience	-0.04	-0.29	-7.52	0.000	-0.01	-0.02; -0.00	-0.08	-2.17	0.031
Job satisfaction	-0.01	-0.19	-4.78	0.000	-0.01	-0.01; -0.00	-0.13	-3.39	0.001

^aThe model is adjusted for sex, professional category, contract, shiftwork, working with covid-19 patients, swab test for Covid-19.

et al. (2020). Indeed, resilience is defined as “the interactive and dynamic process of adapting, managing, and negotiating adversity” (Goodman et al., 2020, p. 2) and it is an essential resource for coping with a crisis such as a pandemic (Fessell & Cherniss, 2020; Heath et al., 2020). In addition, employees with low levels of job satisfaction are most likely to experience emotional burnout, to have reduced levels of self-esteem, and to have raised levels of both anxiety and depression. Therefore, a supportive work environment is vital to promoting resilience and the job satisfaction of clinicians during an emergency such as COVID-19 (Faragher et al., 2005; Klockner et al., 2021).

This study presents some limitations. First, the burnout syndrome is characterized by three domains, but given the space limitations in our questionnaire, we only included the central component of burnout (emotional exhaustion), as seen in a number of previous studies (Rotenstein et al., 2018). This choice was motivated by the intention of reducing the length of the assessment that was performed during a very critical period. Second, these results relate to the second month of the pandemic in Italy, but longitudinal research is needed in order to assess long-lasting effects of the COVID-19 outbreak on workers' mental health and well-being especially because the burnout syndrome, as well as post-traumatic stress disorder, tends to worsen over a period of prolonged stress rather than during the peak of an emergency.

In conclusion, our study underlines the negative effects of the COVID-19 pandemic on the psychological well-being of frontline

healthcare workers, which can lead to emotional exhaustion and increased risk of burnout. Moreover, this study suggests that intervention policies should include strategies to promote resilience (see, for example, Klockner et al., 2021; Heath et al., 2020) and the development of stress management practices to identify working conditions that cause the most job dissatisfaction (Neto et al., 2020). These findings are relevant in order to protect the health of professionals who are caring for patients in different waves of COVID-19 or similar emergency situations.

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AUTHOR CONTRIBUTIONS

Study design: Elena Fiabane, Paola Gabanelli, Maria Teresa La Rovere, Elena Tremoli, Caterina Pistarini, Alessandra Gorini. Data collection: Elena Fiabane, Paola Gabanelli, Maria Teresa La Rovere, Elena Tremoli, Caterina Pistarini, Alessandra Gorini. Data analysis: Elena Fiabane, Alessandra Gorini. Manuscript writing: Elena Fiabane, Paola Gabanelli, Maria Teresa La Rovere, Elena Tremoli, Caterina Pistarini, Alessandra Gorini.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- Barello, S., Palamenghi, L., & Graffigna, G. (2020). Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Research*, 290, 113129.
- Borgogni, L., Galati, D., Petitta, L., & Schweitzer, C. F. (2005). *Il questionario di Checkup organizzativo. Manuale dell'adattamento italiano [Organizational Checkup Survey, Manual of the Italian Adaptation]*. O.S. Organizzazioni Speciali [in Italian].
- Cai, W., Lian, B., Song, X., Hou, T., Deng, G., & Li, H. (2020). A cross-sectional study on mental health among health care workers during the outbreak of Corona Virus Disease 2019. *Asian Journal of Psychiatry*, 51, 102111.
- Chen, C. S., Wu, H. Y., Yang, P., & Yen, C. F. (2005). Psychological distress of nurses in Taiwan who worked during the outbreak of SARS. *Psychiatric Services*, 56(1), 76–79.
- Duarte, I., Teixeira, A., Castro, L., Marina, S., Ribeiro, C., Jácome, C., Martins, V., Ribeiro-Vaz, I., Pinheiro, H. C., Silva, A. R., Ricou, M., Sousa, B., Alves, C., Oliveira, A., Silva, P., Nunes, R., & Serrão, C. (2020). Burnout among Portuguese healthcare workers during the COVID-19 pandemic. *BMC Public Health*, 20(1), 1885.
- Elo, A. L., Leppänen, A., & Jahkola, A. (2003). Validity of a single-item measure of stress symptoms. *Scandinavian Journal of Work, Environment & Health*, 29(6), 444–451.
- Faragher, E. B., Cass, M., & Cooper, C. L. (2005). The relationship between job satisfaction and health: A meta-analysis. *Occupational and Environmental Medicine*, 62(2), 105–112.
- Fessell, D., & Cherniss, C. (2020). Coronavirus disease 2019 (COVID-19) and beyond: Micropractices for burnout prevention and emotional wellness. *Journal of the American College of Radiology*, 17(6), 746–748.
- Goodman, D. J., Saunders, E. C., & Wolff, K. B. (2020). In their own words: A qualitative study of factors promoting resilience and recovery among postpartum women with opioid use disorders. *BMC Pregnancy and Childbirth*, 20(1), 178.
- Gorini, A., Fiabane, E., Sommaruga, M., Barbieri, S., Sottotetti, F., La Rovere, M. T., Tremoli, E., & Gabanelli, P. (2020). Mental health and risk perception among Italian healthcare workers during the second month of the Covid-19 pandemic. *Archives of Psychiatric Nursing*, 34(6), 537–544.
- Heath, C., Sommerfield, A., & von Ungern-Sternberg, B. S. (2020). Resilience strategies to manage psychological distress among healthcare workers during the COVID-19 pandemic: A narrative review. *Anaesthesia*, 75(10), 1364–1371.
- Hu, X., & Huang, W. (2020). Protecting the psychological well-being of healthcare workers affected by the COVID-19 outbreak: Perspectives from China. *Nursing & Health Sciences*, 22(3), 837–838.
- Klockner, K., Crawford, C., Craigie, M., Tsai, L., & Hegney, D. (2021). A qualitative exploration of a mindful resiliency program for community healthcare providers. *Nursing & Health Sciences*, 23(3), 620–627.
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., Li, R., Tan, H., Kang, L., Yao, L., Huang, M., Wang, H., Wang, G., Liu, Z., & Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3(3), e203976.
- Lu, W., Wang, H., Lin, Y., & Li, L. (2020). Psychological status of medical workforce during the COVID-19 pandemic: A cross-sectional study. *Psychiatry Research*, 288, 112936.
- Luceño-Moreno, L., Talavera-Velasco, B., García-Albuerne, Y., & Martín-García, J. (2020). Symptoms of posttraumatic stress, anxiety, depression, levels of resilience and burnout in Spanish health personnel during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(15), 5514.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed.). Consulting Psychologists Press.
- Massidda, D., Giorgi, I., Vidotto, G., Tringali, S., Imbriani, M., Baiardi, P., & Bertolotti, G. (2017). The Maugeri Stress Index - reduced form: A questionnaire for job stress assessment. *Neuropsychiatric Disease and Treatment*, 13, 917–926.
- Matsuo, T., Kobayashi, D., Taki, F., Sakamoto, F., Uehara, Y., Mori, N., & Fukui, T. (2020). Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA Network Open*, 3(8), e2017271.
- Mauder, R. G., Lancee, W. J., Balderson, K. E., Bennett, J. P., Borgundvaag, B., Evans, S., Fernandes, C. M., Goldbloom, D. S., Gupta, M., Hunter, J. J., McGillis Hall, L., Nagle, L. M., Pain, C., Peczeniuk, S. S., Raymond, G., Read, N., Rourke, S. B., Steinberg, R. J., Stewart, T. E., ... Wasylenki, D. A. (2006). Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerging Infectious Diseases*, 12(12), 1924–1932.
- Morgantini, L. A., Naha, U., Wang, H., Francavilla, S., Acar, Ö., Flores, J. M., Crivellaro, S., Moreira, D., Abern, M., Eklund, M., Vigneswaran, H. T., & Weine, S. M. (2020). Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey. *PLoS One*, 15(9), e0238217.
- Ness, M. M., Saylor, J., Di Fusco, L. A., & Evans, K. (2021). Healthcare providers' challenges during the coronavirus disease (COVID-19) pandemic: A qualitative approach. *Nursing & Health Sciences*, 23, 7–8.
- Neto, M., Almeida, H. G., Esmeraldo, J. D., Nobre, C. B., Pinheiro, W. R., de Oliveira, C., Sousa, I., Lima, O., Lima, N., Moreira, M. M., Lima, C., Júnior, J. G., & da Silva, C. (2020). When health professionals look death in the eye: The mental health of professionals who deal daily with the 2019 coronavirus outbreak. *Psychiatry Research*, 288, 112972.
- Percudani, M., Corradin, M., Moreno, M., Indelicato, A., & Vita, A. (2020). Mental health Services in Lombardy during COVID-19 outbreak. *Psychiatry Research*, 288, 112980.
- Rotenstein, L. S., Torre, M., Ramos, M. A., Rosales, R. C., Guille, C., Sen, S., & Mata, D. A. (2018). Prevalence of burnout among physicians: A systematic review. *JAMA*, 320(11), 1131–1150.
- Woo, T., Ho, R., Tang, A., & Tam, W. (2020). Global prevalence of burnout symptoms among nurses: A systematic review and meta-analysis. *Journal of Psychiatric Research*, 123, 9–20.

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