



Short communication

Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic.



Serena Barello*, Lorenzo Palamenghi, Guendalina Graffigna

EngageMinds HUB – Consumer, Food & Health Engagement Research Center, Department of Psychology, Università Cattolica del Sacro Cuore, Milano, Italy

ABSTRACT

Italy is among the most severely hit nations in terms of hospital patients' overload, and its healthcare workforce is struggling to cope with challenges that could threaten their own wellbeing. In this scenario, understanding the health-related consequences of COVID-19 outbreak on Italian frontline healthcare professionals is urgent. Our study provides a first account of the huge psycho-physical impact of COVID-19 outbreak for healthcare workers in Italy. Italian healthcare professionals reported relevant work-related psychological pressure, emotional burnout and somatic symptoms. This result requires attention as previous studies showed that emotional distress is associated with long-lasting effect on professionals' health, including risk of post-traumatic stress disorder.

1. Background

The COVID-19 outbreak has placed extraordinary demands upon healthcare systems worldwide. While we are writing (April 26, 2020), the World Health Organization (WHO) reported 2,626,321 confirmed cases including 181,938 deaths in 213 Countries. Italy is grappling with the worst outbreak, with over 106,527 confirmed cases and around 25,969 deaths (WHO, 2020). Therefore, health professionals dealing with COVID-19 are under increased psychological and physical pressure, resembling previous epidemics conditions (Styra et al., 2008). Italy is among the most severely hit nations in terms of hospital patients' overload, and its healthcare workforce struggles to cope with challenges which could threaten their wellbeing. In this scenario, understanding the health-related consequences of COVID-19 outbreak on frontline Italian healthcare workers is today urgent to provide timely interventions to protect their health (The Lancet, 2020).

Objective: This study described the levels of professionals' burnout and physical symptoms of Italian frontline healthcare workers directly involved in the care of patients with COVID-19 at the peak of the pandemics in this country, comparing them across genders and occupational role. It also investigated the relationship between professionals' burnout and negative health symptoms.

2. Methods and findings

A convenience sample of 1,153 Italian healthcare professionals was invited to fill an online questionnaire including the Maslach Burnout Inventory (MBI) (Maslach et al., 1997) and ad-hoc items to assess psycho-somatic symptoms and self-perceived general health status. For

the MBI inventory, cut-off criteria for Italian healthcare workers have been adopted (Sirigatti and Stefanile, 1993). Of the 1,153 professionals involved, 376 participants reported to have directly assisted COVID-19 infected patients. They have been selected for the present study as they are the ones more at risk to develop COVID-related health consequences, according to other studies (Lai et al., 2020; Styra et al., 2008). Table 1 describes participants' characteristics.

A large percentage of healthcare professionals reported high scores in at least one of the MBI domains: in particular, more than 1 out of 3 showed high score of Emotional Exhaustion and 1 out of 4 reported at high levels of Depersonalization, while only around 15% reported low levels of Personal Gratification. A series of one-sample t-test was used to compare the means in our sample with normative values: analyses revealed that levels of emotional exhaustion were higher than in the normative sample ($t_{(320)} = 3.765$; $p < .001$; difference in means = 2.53), while levels of depersonalization appear somehow lower ($t_{(320)} = -2.906$; $p = .004$; difference in means = -0.91) and Personal Gratification higher ($t_{(320)} = 11.856$; $p < .001$; difference in means = 5.02).

The 45% of the sample experienced - with high frequency - at least one physical symptom in the previous 4 weeks. In particular, increased irritability, change in food habits, difficulty falling asleep and muscle tension were very frequently experienced by the majority of the respondents.

Pearson's correlations showed that higher levels of burnout were indeed associated with a more frequent experience of symptoms (calculated by averaging answers to the set of questions). In particular, both higher levels of Emotional Exhaustion and Depersonalization were linked with more frequent experiences of symptoms (respectively,

* Corresponding author.

E-mail address: serena.barello@unicatt.it (S. Barello).

Table 1
Sample characteristics

Socio-demographics			Professional characteristics			
Gender	n	%	Length of work experience			
Male	99	26.3	Min		<1	
Female	277	73.7	Max		42	
			Average (SD)		15 (11)	
Age			Occupational role	N	%	
Min	23		Nurse	271	72.1	
Max	69		Physician	67	17.8	
Average (SD)	40 (11)		Other professionals	38	10.1	
Marital status	n	%	Main work setting	n	%	
Married/living together	228	60.6	Hospital unit	307	81.6	
Single	120	31.9	Rehabilitation center	6	1.6	
Divorced/separated	23	6.4	Ambulatory	3	0.8	
Widow(er)	3	0.8	Private study	1	0.3	
Other	2	0.5	Other	55	14.8	
			Missing	4	1.1	
Personal experience with COVID-19			Professional experience with COVID-19			
Have you been tested for COVID-19?	n	%	Do you work in an hospital with COVID-19 patients?	n	%	
No	242	64.4	No	49	13	
Yes	126	33.5	Yes	327	87	
I'd rather not answer	3	0.8				
Missing	5	1.3	During your interaction with COVID-19 patients, were you wearing adequate PPEs (Personal Protective Equipment)?	n	%	
			No	35	9.3	
Have you been quarantined?	n	%	Yes	328	87.2	
No	335	89.1	I'd rather not answer	12	3.2	
Yes	32	8.5	Missing	1	0.3	
I'd rather not answer	5	1.3				
Missing	4	1.1				
One of your familiars has been found positive to COVID-19?	n	%				
No	347	92.3				
Yes	19	5.1				
I'd rather not answer	6	1.6				
Missing	4	1.1				
Psychological characteristics			Perceived impact on psychological and physical health			
Emotional exhaustion (MBI)	n	%	Experienced symptoms in the last month (at least sometimes)	n	%	
High (≥ 24)	139	37.0	Increased irritability	221	58.8	
Moderate (15-23)	86	22.9	Change in food habits	209	55.6	
Low (≤ 14)	96	25.5	Difficulty falling asleep	208	55.3	
Missing	55	14.6	Muscle tension	182	48.4	
Average score (SD)	22.7 (12.1)		Exaggerated reactions to situations	150	39.9	
Min score	0		Nightmares	150	39.9	
Max score	53		Nervous breakdown	142	37.8	
			Increased sweating	140	37.2	
Depersonalization (MBI)	n	%	Upset stomach	140	37.2	
High (≥ 9)	93	24.7	Gastro-intestinal problems	139	37.0	
Moderate (4-8)	102	27.1	Palpitation	112	29.8	
Low (≤ 3)	126	33.5	Experienced inexplicable physical sensations	101	26.9	
Missing	55	14.6	Shortness of breath	87	23.1	
Average score (SD)	6.1 (5.7)		Chest pain	54	14.4	
Min score	0		Vertigo	43	11.4	
Max score	28					
Personal Gratification (MBI)	n	%	In general, would you say your health is:	n	%	
High (≥ 37)	200	53.2	Poor	2	0.5	
Moderate (30-36)	72	19.1	Fair	24	6.4	
Low (≤ 29)	49	15.3	Good	100	26.6	
Missing	55	14.6	Very good	144	38.3	
Average score (SD)	37.5 (7.6)		Excellent	47	12.5	
Min score	13		Missing	59	15.7	
Max score	48					
			Average score (SD)	3.66		
			Min score	1		
			Max score	5		
			How much are you concerned for the ongoing COVID-19 emergency situation? (1 = Not at all; 10 = A lot)			
			Average score (SD)	8.17 (1.53)		
			Min score	3		
			Max score	10		

(continued on next page)

Table 1 (continued)

Socio-demographics	Professional characteristics
	How much do you feel at risk of being infected by the new Coronavirus (COVID-19)? (1 = Not at all; 5 = A lot)
	Average score (SD)
	Min score
	Max score
	4.04 (0.88)
	2
	5

MBI = Maslach Burnout Inventory: a validated 22-item questionnaire considered the gold standard tool for measuring burnout. Emotional Exhaustion (EE, 9 items) captures the experience of having one's emotional resources depleted and having no source of replenishment. Depersonalization (DP, 5 items) describes the experience of becoming cold and indifferent to other's needs. Personal Gratification (PG, 8 items) is the sense of professional recognition and self-efficacy. Respondents rated each item on a seven-point Likert-type scale for how frequently they experience the feeling (0 = "Never", 6 = "Every day"). Respondents are classified as high, moderate or low burnout cases on the respective subscales. High mean scores on EE and DP subscales correspond to higher degrees of experienced burnout, whereas a low mean score on the PG subscale corresponds to a higher degree of burnout. The MBI yields three, non-cumulative scores.

$r = .491, p < .001$; $r = .268, p > .001$), while Personal Gratification emerged as a significant protective factor ($r = -.126, p = .025$). Emotional Exhaustion was also negatively correlated with self-perceived health status ($r = -.251, p < .001$).

General linear models testing gender and occupational role as independent variables and including age and years of profession as covariates were run to assess the presence of significant differences in levels of burnout and experienced symptoms. Results showed a main effect of gender on Emotional Exhaustion ($F_{1, 312} = 12.444$; $p < .001$; $\eta_p^2 = .038$), with females showing higher levels than male counterparts ($M = 24.05, SD = 11.57$; $M = 18.74, SD = 12.65$, respectively). A significant main effect emerged for gender ($F_{1, 308} = 13.836$; $p < .001$; $\eta_p^2 = .043$) and occupational role ($F_{2, 308} = 5.173$; $p = .006$; $\eta_p^2 = .032$) on experienced symptoms, with males experiencing symptoms less frequently than females ($M = 2.47, SD = .94$; $M = 3.09, SD = .88$, respectively) and physicians less frequently than nurses ($M = 2.47, SD = .83$; $M = 3.05, SD = .93$, respectively).

3. Discussions

This research highlighted the huge psychological and physical impact of COVID-19 emergency outbreak on Italian healthcare workers. Professionals who are directly involved in the care of patients with COVID-19 reported significant work-related psychological pressure and frequent somatic symptoms. Levels of Emotional Exhaustion appeared higher than normative values and the percentage of workers with high levels of Exhaustion was significantly higher than the one found in other Italian samples before COVID-19 outbreak (Bressi et al., 2008) or in other healthcare settings during the SARS pandemic (Mauder et al., 2006).

This result requires special attention as previous studies showed that emotional distress is frequently associated with suboptimal patient care and professional inefficiencies along with long-lasting effect on health professionals' health status (Panagiotti et al., 2018). On the other hand, healthcare workers seemed to be still capable of finding some gratification from their job, as only a rather small amount of them appeared to have low levels of Personal Gratification, which may be considered as a relevant protective factor for the professionals' mental health, as demonstrated in previous studies (Bonetti et al., 2019; Zwack and Schweitzer, 2013).

Our study has some limitations. First, data obtained from self-reported questionnaires were not compared with clinical data on healthcare professionals' health. Second, the sample was not representative of the Italian healthcare workers population and the study was performed in the early outbreak: these aspects may limit the generalizability of the findings and the comparison with MBI normative data. Follow-up, longitudinal studies should assess long-lasting effects of psychological and physical symptoms once the imminent threat of COVID-19 recovers.

Our study presents data after 5 weeks from the beginning of the

COVID-19 pandemic in Italy and provides early insight into the urgent need to support healthcare workers who are at higher risk of negative health consequences. We strongly recommend to provide timely counseling services and support systems to mitigate the massive impact of this emergency on their actual and future wellbeing.

CRedit authorship contribution statement

Serena Barello: Conceptualization, Methodology, Writing - original draft, Supervision, Writing - review & editing. **Lorenzo Palamenghi:** Writing - original draft, Data curation, Formal analysis. **Guendalina Graffigna:** Conceptualization, Methodology, Supervision.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.psychres.2020.113129](https://doi.org/10.1016/j.psychres.2020.113129).

References

- Bonetti, L., Tolotti, A., Valcarengi, D., Pedrazzani, C., Barello, S., Ghizzardi, G., Graffigna, G., Sari, D., Bianchi, M., 2019. Burnout precursors in oncology nurses: a preliminary cross-sectional study with a systemic organizational analysis. *Sustainability* 11 (5), 1246. <https://doi.org/10.3390/su11051246>. 1–13.
- Bressi, C., Manenti, S., Porcellana, M., Cevales, D., Farina, L., Felicioni, I., Meloni, G., Milone, G., Miccolis, I.R., Pavanetto, M., Pescador, L., Poddighe, M., Scotti, L., Zamboni, A., Corrao, G., Lamberti-Deliliers, G., Invernizzi, G., 2008. Haematology and burnout: an Italian survey. *Br. J. Cancer* 98, 1046–1052. <https://doi.org/10.1038/sj.bjc.6604270>.
- 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 Netw. Open* 3, e203976. <https://doi.org/10.1001/jamanetworkopen.2020.3976>.
- Maslach, C., Jackson, S.E., Leiter, M.P., 1997. Maslach burnout inventory: third edition, evaluating stress: a book of resources. 10.1017/S0033291798257163.
- Mauder, R., Lancee, W., Balderson, K., Bennett, J., Borgundvaag, B., Evans, S., Fernandes, C., Goldbloom, D., Gupta, M., Hunter, J., Hall, McGillis, L., Nagle, L., Pain, C., Peczenik, S., Raymond, G., Read, N., Rourke, S., Steinberg, R., Stewart, T., VanDeVelde-Coke, S., Veldhorst, G., Wasylenki, D., 2006. Long-term psychological and occupational effects of providing hospital healthcare during SARS outbreak. *Emerg. Infect. Dis.* 12, 1924–1932. <https://doi.org/10.3201/eid1212.060584>.
- Panagiotti, M., Geraghty, K., Johnson, J., Zhou, A., Panagopoulou, E., Chew-Graham, C., Peters, D., Hodkinson, A., Riley, R., Esmail, A., 2018. Association between physician burnout and patient safety, professionalism, and patient satisfaction: a systematic review and meta-analysis. *JAMA Intern. Med.* 178, 1317–1330. <https://doi.org/10.1001/jamainternmed.2018.3713>.
- Sirigatti, S., Stefanile, C., 1993. MBI - Maslach Burnout Inventory. Adattamento e Taratura per l'Italia, in: MBI Maslach Burnout Inventory. Organizzazioni Speciali, Firenze, pp. 33–42.
- Styra, R., Hawryluck, L., Robinson, S., Kasapinovic, S., Fones, C., Gold, W.L., 2008.

- Impact on health care workers employed in high-risk areas during the Toronto SARS outbreak. *J. Psychosom. Res.* 64, 177–183. <https://doi.org/10.1016/j.jpsychores.2007.07.015>.
- The Lancet, 2020. COVID-19: protecting health-care workers. *Lancet*. [https://doi.org/10.1016/S0140-6736\(20\)30644-9](https://doi.org/10.1016/S0140-6736(20)30644-9).
- WHO, 2020. Coronavirus disease (COVID-19) outbreak. *Emerg. - Dis.*
- Zwack, J., Schweitzer, J., 2013. If every fifth physician is affected by burnout, what about the other four? Resilience strategies of experienced physicians. *Acad. Med.* <https://doi.org/10.1097/ACM.0b013e318281696b>.