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Psychological distress and perceived job stressors among hospital nurses and physicians during the COVID-19 outbreak

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Abstract

Aims: The study examined self-reported job-related stressors induced by the COVID-19 pandemic and psychological distress among hospital nurses and physicians. In addition, we explored the role of negative affect (NA) and background variables in relation to COVID-19-related job stressors and psychological distress.

Background: During COVID-19 pandemic, hospital nurses and physicians were exposed to highly enduring occupational stress, that stem from subjective appraisal of inadequate job resources (i.e., personal protection equipment, information on how to manage safely in the ongoing work and organizational attention to the needs arising from the ongoing work).

Design: Cross-sectional design.

Methods: Between May and July 2020, 172 nurses and physicians working at a medical centre in Israel filled in self-report questionnaires about sociodemographic data, COVID-19-related job stressors, psychological distress and NA.

Results: Our results confirmed the positive direct link between perceived COVID-19-related job stressors and psychological distress among hospital nurses and physicians. NA was found to serve as a mediator in this association (indirect link). Furthermore, nurses and physicians' seniority was related positively to psychological distress and also played a moderator role in the indirect link.

Conclusion: We recommend to monitor the mental health of hospital nurses and physicians and to provide a platform to address their job stressor concerns related to COVID-19, and share helpful coping strategies.

Impact statement: During the abrupt COVID-19 outbreak, hospital nurses and physicians face challenges that might raise NA and psychological distress. Our study revealed that among hospital nurses and physicians, COVID-19-related perceived job stressors and psychological distress were positively linked, and NA plays a mediating role in this association. Among nurses and physicians with moderate or high years of seniority (>11 years), higher COVID-19-related perceived job stressors associated with higher NA, which in turn was associated with greater psychological distress. Policymakers would be wise to provide a platform to address hospital nurses and physicians' mental health.

1 | INTRODUCTION

Hospital nurses and physicians (healthcare professionals, hereinafter referred to as "HHPs") generally work in a high-pressure environment and are often required to face issues involving occupational stress (Chou et al., 2014; Gulavani & Shinde, 2014). As such, working during the abrupt COVID-19 outbreak put HHPs under conditions of high occupational stress. Specifically, HHPs must maintain direct contact with COVID-19 patients and take care of them in the infectious diseases departments, often under conditions of limited staff due to the fear of infection (Greenberg et al., 2020; Vinkers et al., 2020). As such, HHPs face challenges related to work overload, high risk of infection for themselves and their family members, insufficient supply of protective materials and concerns about the possible insufficiency of hospital beds and medical equipment to care for future patients (Dai et al., 2020; Greenberg et al., 2020; Pappa et al., 2020; Shahrour & Dardas, 2020). Given these challenges, HHPs face complicated decisions and work under extreme pressures that might also evoke ethical issues, such as situations of triage, lack of experience in treating critical illness, inadequate palliative care and inability to support relatives of terminal patients adequately (Greenberg et al., 2020). These challenges and conditions might amplify HHPs' emotional distress (Neto et al., 2020). In this study, we focused on HHPs' self-reported psychological distress. We explored the associations between COVID-19-related perceived job stressors that stem from subjective appraisal of inadequate job resources (i.e., personal protection equipment, sufficient information on how to manage safely in the ongoing work and organizational attention to the needs arising from the ongoing work) and psychological distress.

The guiding framework for the present study is the job demand–resource (JD-R) model (Bakker & Demerouti, 2007, 2017; Demerouti et al., 2001). According to this framework, work environments and job characteristics can be classified into two main categories: job demands and job resources. Job demands refer to the physical, psychological, social or organizational aspects of the job that require sustained effort (i.e., work overload, emotional demands, job insecurity, insufficient work resources, role conflict and role ambiguity) and are therefore associated with certain costs (i.e., stress, health problems and burnout). In contrast, job resources are the physical, psychological, social or organizational aspects of the job (i.e., social support, coaching, performance feedback, opportunities for development and time control) that may help workers achieve work goals, stimulate personal growth and reduce job demands (Bakker & Demerouti, 2007, 2017). The balance or imbalance between job demands and job resources is critical for predicting an individual's mental health (Schaufeli & Bakker, 2004). In addition, the JD-R model involves two independent psychological processes that influence individuals' well-being and performance: a health impairment/stress

process and a motivational process (Schaufeli, 2017). Specifically, the health impairment/stress process assumes that chronic job demands exhaust individuals' physical and psychological resources and may therefore cause burnout, health problems and poor work performance. In contrast, the motivational process suggests that job resources may fulfil basic human needs (e.g., autonomy, competence and relatedness) and create a supportive work environment that leads to high work engagement and excellent performance (Bakker & Demerouti, 2007, 2014, 2017). Following the health impairment/stress process, the present study aims to explore the links between HHPs' appraisal of an inadequacy of workplace resources during the abrupt COVID-19 outbreak (hereinafter referred to as HHPs' "perceived job stressors") and HHPs' negative affect (NA) and psychological distress. NA has strong positive ties with mental health outcomes (Trick et al., 2016). Moreover, Rubino et al. (2013) argued that discrete emotions play a role in the JD-R model, whereby positive emotions should be linked to job resources and negative emotions to job demands. The authors suggested that the mediating role of emotional states in the relationship between job conditions and well-being should be explored. Furthermore, they noted that such an extended model is of particular interest because employees could be trained to manage their emotions and accordingly reduce job strain. Following this call, in this study, we investigated the indirect link between HHPs' perceived job stressors and psychological distress through NA.

Finally, we strove to examine background variables (gender, age, profession [nurse/physician] and seniority) in relation to psychological distress. Indeed, a previous meta-analysis (Kisely et al., 2020) that described 59 papers on the psychological reactions of healthcare staff in virus outbreaks (e.g., SARS, MERS, Ebola, H1N1 and COVID-19) revealed that being female, young, less experienced (in term of seniority), and employed part-time and in the nursing profession are demographic characteristics that make individuals more vulnerable to psychological distress. In consideration of the JD-R model, these background variables might serve as predictors or antecedents that contribute to the psychological process of health impairment/stress (i.e., low job resources and high job demands) and may trigger HHPs' psychological distress.

Given the above, our study might add innovative knowledge to the empirical literature about perceived job stressors by HHPs, specifically about their workplace resources. Understanding the association between COVID-19-related perceived job stressors stemming specifically from the subjective appraisal of inadequate job resources (i.e., equipment, availability of information and organizational attention to HHPs' needs) might enable development of more effective support practices on the part of medical institutions and public health authorities, thereby limiting the pandemic's effects on HHPs' mental health. Furthermore, system-level changes (i.e., safe

hospital policies, adequate resource provision and accessibility of relevant information) might have far-reaching effects beyond a potential positive impact on HHPs' mental health, in terms of bolstering workers' trust, confidence and self-efficacy (Wu et al., 2020).

1.1 | Background

In general, exposure to job stressors was found to adversely affect HHPs' wellbeing, leading to mental health problems and experience of burnout (Bernburg et al., 2016; Dagget et al., 2016). With regard to the COVID-19 outbreak, changes in concentration, irritability, anxiety, insomnia, reduced productivity and interpersonal conflicts have been reported as job stress reactions in HHPs during the COVID-19 pandemic (Liu et al., 2020; Pappa et al., 2020; Petzold et al., 2020; Xing et al., 2020). Specifically, a study in Singapore and India by Chew et al. (2020) revealed that within a sample of healthcare workers in which nurses constituted 39.2% and physicians constituted 29.6%, 3.8% reported moderate to severe levels of psychological distress. Dai et al. (2020) conveyed that 39.1% of the healthcare workers in China had psychological distress, mainly given concerns of self-infection (34.7%), infection of colleagues (72.5%), infection of family members (63.9%), inadequate protective measures (52.3%) and medical-setting violence (48.5%). Furthermore, in a survey that included healthcare providers from the US and Israel, higher resilience scores were associated with less COVID-19-related worries (i.e., getting infected, dying from COVID-19, currently having COVID-19, family member getting COVID-19, unknowingly infecting others and experiencing significant financial burden following COVID-19) and with lower likelihood of anxiety or depression (Barzilay et al., 2020). Notably, data on HHPs' mental health should be taken with caution, because all studies are cross-sectional, many of them included no control group, and there is a lack of standardization in the research measures. Moreover, the majority of the available studies were conducted in Asia; thus, cultural differences limit the generalization of the results (Magnavita et al., 2020).

This study, conducted among Israeli HHPs, examined the associations between COVID-19-related perceived job stressors in the hospital's working environment and HHPs' psychological distress, following the health impairment/stress process in the job demands–resources (JD-R) model (Bakker & Demerouti, 2007, 2014, 2017; Demerouti et al., 2001). In addition, we sought to examine a potential impact of COVID-19-related perceived job stressors on NA, as emotions play a central role in the job stress process (Rubino et al., 2013). Generally, individuals indicate increased levels of NA after having encountered a stressful event (Röcke et al., 2009; Zautra et al., 2005). NA is one of two states of affect (the second one is positive affect—PA) that are considered equal predictors for subjective well-being (Watson et al., 1988). The NA state is based on emotional responses that, although invariably short-lived and fluctuating, are representative of the nature of everyday life (Gilman et al., 2000). NA has been evaluated as a separate construct from PA, resulting from different mechanisms, and the existence of one

may result in the reduction of the other (Fredrickson, 2009). NA involves display of subjective distress and unpleasant engagement (e.g., feelings of upset, fear, hostility, shame and irritability; Thompson, 2007; Watson et al., 1988). In the present study, we sought to explore the mediating role of NA in the association between COVID-19-related job stressors and HHPs' psychological distress.

Notably, HHPs' personal background variables were found to relate to job stressors and psychological distress induced by the COVID-19 pandemic. Barzilay et al. (2020) stressed that among healthcare providers in the US and Israel, females overall experienced a greater amount of COVID-19-related stress than males, and older participants were more worried about getting infected themselves than their younger counterparts. With regard to psychological distress, Al-Hanawi et al. (2020) found that older health workers and males were less likely to be distressed relative to young and female workers, respectively. Likewise, Zhu et al. (2020) found among healthcare workers in Wuhan, China, that being a woman was associated with acute stress, depression and anxiety symptoms. Furthermore, previous studies conducted among HHPs during the COVID-19 pandemic revealed inconsistent findings about seniority. Namely, Gupta et al. (2020) found that symptoms of depression and anxiety were more common in Indian healthcare workers (including nurses and physicians) with less than ten years of work experience, whereas Zhu et al. (2020) found that having over ten years of seniority was associated with acute stress, depression and anxiety symptoms amongst healthcare workers in Wuhan, China. In contrast, Gotlib et al. (2021) stressed that professional experience had no effect on level of anxiety among Polish midwives. Finally, with regard to profession, nurses were found more likely to have anxiety symptoms compared with physicians and other medical workers (Lai et al., 2020; Si et al., 2020).

2 | THE STUDY

2.1 | Aims

This study aimed to explore the direct link between COVID-19-related perceived job stressors (i.e., appropriate personal equipment protection; sufficient information how to manage safely in the ongoing work; and concerns about organizational attentiveness to the needs arising from the ongoing work) as reported by HHPs (nurses and physicians), and their psychological distress. In addition, we explored the indirect link; the mediating effect of NA on the association between COVID-19-related perceived job stressors and psychological distress, and the contribution of background variables (gender, age, profession [nurse/physician] and seniority) to psychological distress.

The following hypotheses were suggested:

1. COVID-19-related perceived job stressors will be positively associated with psychological distress.

2. NA will be positively associated with COVID-19-related perceived job stressors and with psychological distress.
3. NA will mediate the association between COVID-19-related perceived job stressors and psychological distress.

We also explored background variables (gender, age, profession [nurse/physician] and seniority) in relation to psychological distress.

2.2 | Design

The present study is a cross-sectional design and a part of longitudinal research conducted at one medical centre in Israel's north. The sample size was estimated using Monte Carlo power analysis simulation for the indirect effect (Schoemann et al., 2017). This analysis indicated that 68 participants were needed to achieve at least 80% power (95% CI). Note, the sampling frame included all nurses ($n = 1,800$) and physicians ($n = 300$) listed as employed by medical centre's human resources department, at the time of data collection. We recruited 245 potential participants, out of which 172 had completed the questionnaires.

2.3 | Participants

The sample consisted of 172 participants aged 23–66 ($M = 39.32$, SD 10.05). Eighty-five (49.4%) were nurses and 87 (50.6%) were physicians. One hundred and four (60.5%) were female and 68 (39.5%) were male. The majority ($n = 143$, 77.3%) were married or in a relationship. Approximately half of the sample ($n = 87$, 50.6%) reported religious affiliation as Jews. Most participants ($n = 161$, 93.6%) rated their health as good or excellent. Seniority at work ranged from 0.5 to 44.0 years ($M = 11.38$, SD 10.98).

2.4 | Data collection

Data collection took place between May and July 2020. During this period, over 25,000 people in Israel were confirmed to have the coronavirus, 1.4% of them HHPs. In addition, about 650 patients were hospitalized, and the mortality exceeded 380 cases (Health Ministry of Israel, 2020). SARS-CoV-2, the virus that causes COVID-19, had been spreading throughout Israel since early 2020, after the first case was diagnosed on 21 February. In the first three weeks of April 2020, Israel underwent its first COVID-19 lockdown. Notably, no case of death among HHPs was reported in Israel. Furthermore, the restrictions imposed between May 2020 and July 2020 (i.e., social pods, reducing gatherings, maintaining hygiene and frequent disinfection, wearing masks) enabled calculated return to schools and to economics activities. Yet at the end of June 2020, due to a gradual increase in morbidity, the government decided to suspend cultural events and shut down fitness clubs.

In early stages of our data collection process, we recruited 245 potential participants. Of these, 172 had filled in completely the electronic questionnaire run on QUALTRICS through a web address. Of the 73 incomplete questionnaires, 47 potential participants opened the link leading to the questionnaire, filled in the part giving their informed consent and discontinued; whereas 26 participants completed half of the questionnaire and discontinued. All the incomplete questionnaires were excluded from the entire sample, resulting in a sample of 172 HHPs (nurses and physicians) respondents. The time to complete the questionnaire set was approximately 15 min.

2.5 | Ethical considerations

The study protocol was approved by the Institutional Review Board and Ethics Committee of that institution (No. 0075-20-BNZ). After approval, the authors applied through a web address a direct link to an electronic questionnaire run on QUALTRICS. Participants were informed of the purpose of the study and eligibility criteria: HHPs were supposed to be nurses or physicians who are able to read and speak Hebrew fluently. They provided their consent electronically (by clicking "I agree to participate").

2.6 | Measures

Participants completed the following self-report questionnaires:

2.6.1 | Sociodemographic data

This questionnaire gathered details on participants' age, gender, country of origin, marital status, education and religiosity. Self-rated health was assessed with a single question: "In general, how do you rate your health?". The scale ranged from 1 to 4 (1 = bad to 4 = excellent). This measure was found to be valid and highly associated with objective indicators of health (Benyamini et al., 2003). In addition, participants were asked to indicate their profession, years in the profession, and job percentages.

2.6.2 | COVID-19-related perceived job stressors

The participants were asked to rate the following questions on a four-point scale, ranging from 1 (not at all) to 4 (a lot): "To what extent do you feel that you have appropriate personal equipment protection at your workplace?"; "Have you received sufficient information about how to manage safely in your ongoing work?"; "Do you think the hospital is attentive to the needs arising from the ongoing work since the COVID-19 outbreak?". An exploratory factor analysis (EFA) with principal component estimation on the three items was used. Results yielded a one-factor solution (based on the criterion of eigenvalue > 1), which explained about 70% of the

TABLE 1 Means, standard deviations and correlations between study variables

	Variables	M	SD	1	2	3	4	5	6	7
1.	Age	39.78	11.76	–						
2.	Gender[a]	0.40	–	−0.17*	–					
3.	Family status[b]	0.77	–	0.18*	0.01	–				
4.	Profession[c]	0.51	–	−0.34***	0.42***	0.02	–			
5.	Seniority (years)	11.38	10.98	0.75***	−0.24**	0.12	−0.46***	–		
6.	COVID-19	2.06	0.75	−0.18*	0.14	−0.09	0.23**	−0.27***	–	
7.	Negative affect	9.69	3.70	−0.18*	0.08	−0.13	0.11	−0.29***	0.31***	–
8.	Psychological distress	11.26	4.54	−0.11	0.06	−0.10	0.04	−0.22**	0.31***	0.68***

Note: $N = 172$. Pearson coefficients are presented for continuous variables. For correlations between dichotomous and continuous variables, point-biserial coefficients are presented. The means of the dichotomized variables represent the proportion of the upper score.

[a]0 = Female, 1 = Male.

[b]0 = Other, 1 = Married/in a relationship.

[c]0 = Nurse, 1 = Physician; COVID-19 = COVID-19-related perceived job stressors.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

variance. All three item loadings were larger than 0.81. According to the content of the items, the factor was described as the perceived preparedness of the hospital environment to deal with the COVID-19 pandemic. It was titled, "COVID-19-related perceived job stressors." Reliability analysis for the factor yielded satisfactory results (Cronbach's $\alpha = 0.79$).

2.6.3 | Negative affect

Of the 10 items of the International PANAS Short Form (I-PANAS-SF; Thompson, 2007), we used the five items of the NA sub-scale (i.e., afraid, ashamed, hostile, nervous and upset). The participants were asked to rate the extent to which they experienced these specific feelings during the last two weeks, along a 5-point scale ranging from 1 (*very little*) to 5 (*very much*). Cronbach's alpha for the original NA was 0.74 (Thompson, 2007). In the present study, Cronbach's α was 0.79.

2.6.4 | Psychological distress

The Kessler psychological distress inventory (K-6; Kessler et al., 2002) is a six-item questionnaire intended to yield a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the last week (e.g., "During the last week, about how often did you feel restless or fidgety?"). Each item is scored from "*none of the time*" (0) to "*all of the time*" (4). The numbers attached to the participants' ten responses are added up, so the total score ranges from 0 to 24. A cut point of 13+ is the optimal cut point for assessing the prevalence of serious mental illness, while scores of 19 or higher indicating elevated psychological distress. Cronbach's alpha for the original scale was 0.83 (Kessler et al., 2002). In the present study, Cronbach's α was 0.87.

2.7 | Data analysis

Zero-order correlations were performed for associations between continuous variables. For associations between dichotomous and continuous variables, point-biserial correlations were used. The mediation model was analysed using the PROCESS macro for SPSS (Hayes, 2018). Percentile confidence intervals (CI) were estimated for the indirect effects based on 5,000 bootstrap samples of the data (Hayes, 2018). Model 4 was used to examine the indirect effect of COVID-19-related perceived job stressors on psychological distress through NA (Hypothesis 3). Model 7 was used to explore whether seniority moderated the direct and indirect effects of COVID-19-related job stressors on psychological distress through NA. Following Aiken and West (1991), COVID-19-related perceived job stressors and NA were mean centred. Data were analysed using IBM SPSS statistics version 26, with an alpha level of 0.05 for all statistical tests.

2.8 | Methodological rigour

The Kessler psychological distress inventory (K-6; Kessler et al., 2002) and the five items of the NA sub-scale from the International PANAS Short Form (I-PANAS-SF; Thompson, 2007) were used previously in their Hebrew versions (Ben-Ezra & Bibi, 2016; Zohar et al., 2011, respectively), and have an acceptable internal consistency. About the three items included in the variable "COVID-19-related perceived job stressors," we used an EFA with principal component estimation. All three item loadings were larger than 0.81.

3 | RESULTS

Analysis of self-reported COVID-19-related job stressors among HHPs (nurses and physicians) revealed the following: 39.5% reported

they do not consider the personal equipment protection at their workplace to be adequate ("not at all" or "low extent"); 25% noted that they have received little information on how to manage safely in their ongoing work ("not at all" or "low extent"); and 32.6% reported that the organization is not adequately attentive to the needs arising from their ongoing work since COVID-19 outbreak ("not at all" or "low extent").

Referring to psychological distress, 49 participants (28.5%) exceeded the cut-off score (>13) of psychological distress, while 14 of these participants (8.1%) scored 19 or higher (indicating elevated psychological distress).

3.1 | Bivariate correlations between study variables

Table 1 presents descriptive statistics and correlations for the study variables. As expected, COVID-19-related perceived job stressors positively correlated to NA and to psychological distress. Moreover, NA was positively correlated with psychological distress. Thus, the first and the second hypotheses were supported. In addition, among the background variables, only seniority was correlated with psychological distress.

3.2 | Mediation analysis

About the indirect relationship effect of COVID-19-related perceived job stressors on psychological distress through NA (Hypothesis 3; Figure 1), after controlling for seniority, analysis showed that the path between COVID-19-related perceived job stressors and NA was significant, as was the path between NA and psychological distress. The significant total effect of COVID-19-related perceived job stressors on psychological distress was reduced to non-significance in the direct model. Bootstrapping for the indirect effect showed significant results ($B = 0.94$, $SE = 0.30$, 95% CI: 0.40, 1.57), indicating that higher COVID-19-related perceived job stressors predicted higher NA, which subsequently predicted higher psychological distress, thus confirming the third hypothesis.

Further to the hypotheses analyses, we decided to examine whether the seniority that we found to correlate with psychological distress would moderate the positive association between COVID-19-related perceived job stressors and NA (Model 7; Hayes, 2018). Results showed that the interaction between COVID-19-related perceived job stressors and seniority was significant (Table 2). To understand the nature of this interaction, a simple slopes technique was applied, with sample mean and a standard deviation above and below the mean in seniority, representing moderate, high and low values of seniority, respectively. As shown in Table 2 and in Figure 2, simple slopes indicated that while the path between COVID-19-related perceived job stressors and NA was non-significant for participants with low seniority, this path was significant and positive for participants with moderate or high seniority.

In light of the moderation finding, we were interested in examining whether the mediation effect (i.e., positive indirect effect of COVID-19-related perceived job stressors on psychological distress through NA) varied as a function of this moderation. Results for the conditional indirect effects are shown in Table 2. As can be seen, the index of moderated mediation was significant. The indirect effect of COVID-19-related perceived job stressors on psychological distress through NA was non-significant among those with relatively low seniority. In contrast, the indirect effect was significant and positive among those with moderate or high levels of seniority; higher COVID-19-related perceived job stress was associated with higher NA, which in turn was associated with greater psychological distress.

4 | DISCUSSION

The present study focuses on psychological distress in hospital nurses and physicians and aims to explore the associations between COVID-19-related perceived job stressors that stem from HHPs' appraisal of inadequate "job resources" (i.e., appropriate personal equipment protection; sufficient information on how to manage safely in their ongoing work; and the hospital's attentiveness to the needs arising from their ongoing work) and psychological distress (direct link). In addition, we examined the role of NA as a mediator of the association between COVID-19-related perceived job stressors and psychological distress (indirect link). Our main results confirmed the direct link (i.e., COVID-19-related perceived job stress was positively correlated with psychological distress) and the indirect link (NA did serve as a mediator of this association between

FIGURE 1 Mediation model. $N = 172$. Values are unstandardized regression coefficients controlling for seniority. In parentheses: standard errors. Solid lines indicate significant paths and dashed lines indicate nonsignificant paths. **$p < .01$. ***$p < .001$
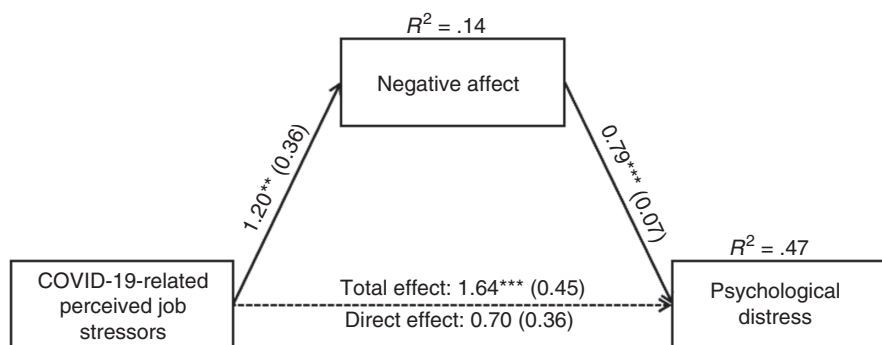
TABLE 2 Regression results for the moderation and moderated mediation models

Explanatory variables	Mediating variable model Negative affect			Outcome variable model Psychological distress		
	B	$SE\ B$	t	B	$SE\ B$	t
COVID-19	1.25	0.36	3.46[***]	0.70	0.36	1.97[*]
Seniority	−0.07	0.03	−2.60[*]	—	—	—
COVID-19 × Seniority	0.07	0.03	1.97[*]	—	—	—
Negative affect	—	—	—	0.79	0.07	10.89[***]
	$R^2 = .16$			$R^2 = .47$		
	$F(3, 168) = 10.69, p < .001$			$F(2, 169) = 74.89\ p < .001$		

Conditional direct and indirect effects of COVID-19 job-related perceived stressors on psychological distress

Seniority	Direct effect	$SE\ B$	t	Indirect effect	Boot $SE\ B$	95% Bootstrap CI
Low (−SD)	0.53	0.50	1.07	0.42	0.38	−0.32 to 1.17
Moderate (Mean)	1.25	0.36	3.46[***]	0.99	0.29	0.47–1.60
High (+SD)	1.98	0.53	3.70[***]	0.56	0.41	0.86–2.45

Index of moderated mediation	Index		Boot SE		95% Bootstrap CI
Seniority	0.05		0.02		0.01–0.10

Note: N = 172. COVID-19-related perceived job stressors and seniority are mean centred.

Abbreviations: CI, confidence interval; COVID-19, COVID-19-related perceived job stressors.
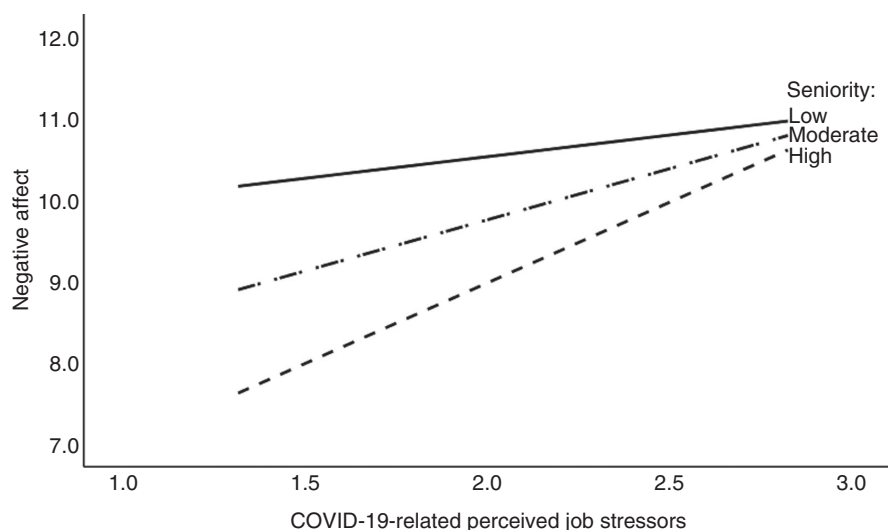
*$p < .05$; ***$p < .001$.

FIGURE 2 Simple slopes technique for plotting the interaction of COVID-19-related perceived job stressors and seniority on negative affect. *N* = 172.

COVID-19-related perceived job stressors and psychological distress). These results support recent research (Giusti et al., 2020) conducted among health professionals in Italian hospitals, which demonstrated increase of negative psychological consequences (i.e., anxiety, depression, post-traumatic symptoms and burnout) related to work factors (e.g., increased workload, fear of infection and contact with COVID-19 patients), associated with the COVID-19 outbreak. Likewise, Dai et al. (2020) stressed that in the early stage of the COVID-19 pandemic, especially in Wuhan, China, 39.1% of healthcare workers developed psychological distress caused by worries about the risk of infection and the short supply in protective

equipment. A possible explanation may stem from a systematic review by Muller et al. (2020), which shows a mismatch between potentially organizational sources of psychological distress, such as workload and lack of personal protective equipment, and the formal interventions the healthcare systems implemented to relieve distress at an individual level. The illustration of the above appeared in another two studies (Chen et al., 2020; Chung & Yeung, 2020), where healthcare workers argued that personal protective equipment would benefit their mental health more than professional help. Actually, the COVID-19 outbreak raised similar problems for health system managers and for HHPs in terms of workload, the need for

adequate protective equipment, concerns about possible infection and limited access to information (Kisely et al., 2020; Muller et al., 2020; Shechter et al., 2020). As such, HHPs' psychological distress might indicate that the healthcare system is currently unable to effectively help the helpers, which in turn might put HHPs at risk of developing psychological distress (Greenberg et al., 2020).

Aside from the direct link between COVID-19-related perceived job stressors and psychological distress, our study confirmed the indirect link; NA mediated the association between COVID-19-related perceived job stressors and psychological distress, suggesting positive correlation with both of them. Concerning the link between COVID-19-related perceived job stressors and NA, previous studies have established the positive association between job demands and NA (e.g., Barsky et al., 2004; Çam Kahraman & Özalp Türetgen, 2016), suggesting that job demands that tend to arouse stress may evoke NA, especially under conditions of low behavioural control, like in the situation surrounding the COVID-19 outbreak. Indeed, the association between COVID-19-related perceived job stressors and NA represents the extent to which HHPs' level of stress influences their emotional well-being. It seems that HHPs appraised their job-related stressors as an intense or threatening situation, and that this appraisal relates to their NA. Moreover, the limited guidelines for patients' treatment and the shortage of personal protective equipment elicited feelings of confusion and a sense of unpreparedness to treat patients adequately (Huang et al., 2020), which might lead to NA among HHPs. According to Tellegen et al. (1999), NA plays a large role in the development and maintenance of mood and anxiety disorders, in general, and depression, in particular. In line with this notion, Watson and Pennebaker (1989) argued that individuals with high NA have a tendency to be in a continual state of distress or dissatisfaction under any circumstances, as they tend to focus on the negative aspects of themselves as well as the negative aspects of others and of the world they live in.

Another central finding in this study was related to the HHPs' seniority (nurses and physicians); seniority among HHPs was related positively to psychological distress. Our finding supported previous research conducted by Godifay et al. (2018) about the magnitude of work-related stress in nurses and physicians in Ethiopia. They demonstrated that healthcare workers who had work experience of ≥5 years had 4.1 times higher odds of developing work-related stress than those who had ≤5 years of experience. About the COVID-19 outbreak specifically, a recent study (Zhu et al., 2020) revealed similar findings, as noted above—healthcare workers in Wuhan, China with above ten years at their workplace reported higher acute stress, depression and anxiety symptoms during the COVID-19 outbreak. Nonetheless, our results suggest a more complex picture, whereby seniority played a moderator role in the indirect link. Specifically, among HHPs with moderate or high seniority (>11 years), higher COVID-19-related perceived job stressors were associated with higher NA, which in turn was associated with greater psychological distress. This finding might be explained through the responsibilities and the challenges that senior HHPs (nurses and physicians) need to address in light of their professional experience and possibly higher

stature, including decision-making as well as supervising and training personnel under sub-optimal conditions and great uncertainty. Furthermore, senior HHPs might be exposed to first-hand medical information on the COVID-19 disease, have increased contact with affected patients, and suffer from less accessibility to psychological support due to full-time employment. As such, senior HHPs (nurses and physicians) may respond emotionally with NA, which, in turn, associates with psychological distress.

4.1 | Limitations

Several limitations should be noted. The main limitation of this study is the small sample and the fact that the study was performed only in one medical centre in the north of Israel, which may limit the generalizability of the findings. Moreover, the cross-sectional nature of this study allowed partial picture of the impact of the COVID-19 outbreak and limits our ability to infer causality. The study relies on participants' self-reporting, which reflected HHPs' emotions and perceptions. Yet, internalized domains cannot be assessed by informant self-reports. As such, we recommend that future studies use in-depth interviews to learn more about COVID-19-related psychological distress in HHPs. Furthermore, longitudinal study could help to assess potential factors that can explain the psychological manifestations in HHP's once the COVID-19 outbreak continues.

5 | CONCLUSION

Despite these limitations, our study contributed to understanding of factors that associate with psychological distress and might serve as essential keys to mitigate the psychological distress experienced by hospital nurses and physicians during the COVID-19 outbreak. Given the continuous duration of the pandemic, higher COVID-19-related job stressors might reduce the capacity of health systems to cope with the increased demand for healthcare. As such, we recommend that healthcare institutions and responsible agencies monitor the mental health of HHPs and implement strategies that include clear communication, limitation of shift hours, provision of adequate protective equipment and specialized training on handling COVID-19 patients. These strategies might reduce anxiety coming from the perceived unfamiliarity and uncontrollability of the COVID-19 outbreak (Giusti et al., 2020). Providing tailored mental health support is also vital (Chen et al., 2020), especially due to the role of NA in the link between COVID-19-related perceived job stressors and psychological distress. Indeed, support from employing organizations has been proven to be an essential factor in protecting healthcare workers' mental health (Mohindra et al., 2020; Serrano-Ripoll et al., 2020). The organization should provide a platform for HHPs (nurses and physicians) to address their concerns, come to terms with their feelings and appraisals related to job stressors, and share helpful coping strategies (Krishnamoorthy et al., 2020). Moreover, efforts should be made to provide continuous practical training and reliable

education in the field of infection prevention policy during a pandemic for junior HHPs, nurses and physicians alike (Apisarnthanarak et al., 2020), as they are first-line responders in the fight against the COVID-19 pandemic. Additional studies should evaluate strategies aimed at improving psychological support for junior HHPs during epidemics and pandemics, to balance job stressors and reduce NA and psychological distress.

CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

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PEER REVIEW

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DATA AVAILABILITY STATEMENT

The data sets used and/or analysed during the current study are confidential and will be available from authors on reasonable request.

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REFERENCES

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage Publications.

Al-Hanawi, M. K., Mwale, M. L., Alshareef, N., Qattan, A. M. N., Angawi, K., Almubark, R., & Alsharqi, O. (2020). Psychological distress amongst health workers and the general public during the COVID-19 pandemic in Saudi Arabia. *Risk Management and Healthcare Policy*, *13*, 733–742. https://doi.org/10.2147/RMHP.S2640

Apisarnthanarak, A., Apisarnthanarak, P., Siripraparat, C., Saengaram, P., Leeprechanon, N., & Weber, D. J. (2020). Impact of anxiety and fear for COVID-19 toward infection control practices among Thai healthcare workers. *Infection Control & Hospital Epidemiology*, *41*(9), 1093–1094. https://doi.org/10.1017/ice.2020.280

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, *22*(3), 309–328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2014). Job demands–resources theory. In P. Chen & C. Cooper (Eds.), *Work and wellbeing: Wellbeing: A complete reference guide* (Vol. III, pp. 1–28). John Wiley & Sons. https://doi.org/10.1002/9781118539415.wbwell019

Bakker, A. B., & Demerouti, E. (2017). Job demands–resources theory: Taking stock and looking forward. *Journal of Occupational Health Psychology*, *22*(3), 273–285. https://doi.org/10.1037/ocp0000056

Barsky, A., Thoresen, C. J., Warren, C. R., & Kaplan, S. A. (2004). Modeling negative affectivity and job stress: A contingency–based approach. *Journal of Organizational Behavior*, *25*(8), 915–936. https://doi.org/10.1002/job.285

Barzilay, R., Moore, T. M., Greenberg, D. M., DiDomenico, G. E., Brown, L. A., White, L. K., Gur, R. C., & Gur, R. E. (2020). Resilience, COVID-19-related stress, anxiety and depression during the pandemic in a large population enriched for healthcare providers. *Translational Psychiatry*, *10*, 291. https://doi.org/10.1038/s41398-020-00982-4

Ben-Ezra, M., & Bibi, H. (2016). The association between psychological distress and decision regret during armed conflict among hospital personnel. *Psychiatric Quarterly*, *87*(3), 515–519. https://doi.org/10.1007/s11126-015-9406-y

Benyamini, Y., Blumstein, T., Lusky, A., & Modan, B. (2003). Gender differences in the self-rated health–mortality association: Is it poor self-rated health that predicts mortality or excellent self-rated health that predicts survival? *The Gerontologist*, *43*(3), 396–405. https://doi.org/10.1093/geront/43.3.396

Bernburg, M., Vitzthum, K., Groneberg, D. A., & Mache, S. (2016). Physicians' occupational stress, depressive symptoms and work ability in relation to their working environment: A cross-sectional study of differences among medical residents with various specialties working in German hospitals. *British Medical Journal Open*, *6*(6), e011369. https://doi.org/10.1136/bmjopen-2016-011369

Çam Kahraman, F., & Özalp Türetgen, I. (2016). The role of negative affectivity structure in the job stress process. *Journal of Workplace Behavioral Health*, *31*(3), 144–161. https://doi.org/10.1080/15555240.2016.1195694

Chen, Q., Liang, M., Li, Y., Guo, J., Fei, D., Wang, L., He, L. I., Sheng, C., Cai, Y., Li, X., Wang, J., & Zhang, Z. (2020). Mental health care for medical staff in China during the COVID-19 outbreak. *The Lancet Psychiatry*, *7*(4), e15–e16. https://doi.org/10.1016/S2215-0366(20)30078-X

Chew, N. W., Lee, G. K., Tan, B. Y., Jing, M., Goh, Y., Ngiam, N. J., Yeo, L. L. L., Ahmad, A., Khan, F. A., Shanmugam, G. N., Sharma, A. K., Komalkumar, R. N., Meenakshi, P. V., Shah, K., Patel, B., Chan, B. P. L., Sunny, S., Chandra, B., Ong, J. J. Y., & Sharma, A. K. (2020). A multinational, multicenter study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak. *Brain, Behavior, and Immunity*, *88*, 559–565. https://doi.org/10.1016/j.bbi.2020.04.049

Chou, L. P., Li, C. Y., & Hu, S. C. (2014). Job stress and burnout in hospital employees: Comparisons of different medical professions in a regional hospital in Taiwan. *British Medical Journal Open*, *4*(2), e004185. https://doi.org/10.1136/bmjopen-2013-004185

Chung, J. P., & Yeung, W.-S. (2020). Staff mental health self-assessment during the COVID-19 outbreak. *East Asian Archives of Psychiatry*, *30*(1), 34. https://search.informit.org/doi/10.3316/informit.099574617030273

Dagget, T., Molla, A., & Belachew, T. (2016). Job related stress among nurses working in Jimma Zone public hospitals, South West Ethiopia: A cross sectional study. *BMC Nursing*, *15*(1), 39. https://doi.org/10.1186/s12912-016-0158-2

Dai, Y., Hu, G., Xiong, H., Qiu, H., & Yuan, X. (2020). Psychological impact of the coronavirus disease 2019 (COVID-19) outbreak on healthcare workers in China. *MedRxiv*. https://doi.org/10.1101/2020.03.03.20030874

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). A model of burnout and life satisfaction amongst nurses. *Journal of Advanced Nursing*, *32*(2), 454–464. https://doi.org/10.1046/j.1365-2648.2000.01496.x

Fredrickson, B. L. (2009). *Positivity*. Crown.

Gilman, R., Huebner, E. S., & Laughlin, J. E. (2000). A first study of the multidimensional students' life satisfaction scale with adolescents. *Social Indicators Research*, *52*, 135–160. https://doi.org/10.1023/A:1007059227507

Giusti, E. M., Pedroli, E., D'Aniello, G. E., Stramba Badiale, C., Pietrabissa, G., Manna, C., Stramba Badiale, M., Riva, G., Castelnuovo, G., & Molinari, E. (2020). The psychological impact of the COVID-19 outbreak on health professionals: A cross-sectional study. *Frontiers in Psychology*, *11*, 1684. https://doi.org/10.3389/fpsyg.2020.01684

Godifay, G., Worku, W., Kebede, G., Tafese, A., & Gondar, E. (2018). Work related stress among health care workers in Mekelle city administration public hospitals, North Ethiopia. *Journal of Health, Medicine and Nursing*, *46*, 189–195. https://core.ac.uk/download/pdf/234692448.pdf

Gotlib, J., Rzońca, E., Baranowska, B., Tataj-Puzyna, U., Pawlicka, P., Jaworski, M., Wójcik-Fatla, A., & Panczyk, M. (2021). Is job seniority a protective factor against anxiety among midwives during the SARS-CoV-2 pandemic? *Annals of Agricultural and Environmental Medicine*, 28(2), 352–357. https://doi.org/10.26444/aaem/136572

Greenberg, N., Docherty, M., Gnanapragasam, S., & Wessely, S. (2020). Managing mental health challenges faced by healthcare workers during covid-19 pandemic. *British Medical Journal*, 368, m1211. https://doi.org/10.1136/bmj.m1211

Gulavani, A., & Shinde, M. (2014). Occupational stress and job satisfaction among nurses. *International Journal of Science and Research*, 3(4), 733–740.

Gupta, S., Prasad, A. S., Dixit, P. K., Padmakumari, P., Gupta, S., & Abhisheka, K. (2020). Survey of prevalence of anxiety and depressive symptoms among 1124 healthcare workers during the coronavirus disease 2019 pandemic across India. *Medical Journal Armed Forces India*, 77, S404–S412. https://doi.org/10.1016/j.mjafi.2020.07.006

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). The Guilford Press.

Health Ministry of Israel. (2020). The Covid-19 National Campaign Information and Knowledge Center. https://www.gov.il/he/departments/corona-national-information-and-knowledge-center

Huang, L., Xu, F., & Liu, H. (2020). Emotional responses and coping strategies of nurses and nursing college students during COVID-19 outbreak. *MedRxiv*. https://doi.org/10.1101/2020.03.05.20031898

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalence and trends in non-specific psychological distress. *Psychological Medicine*, 32, 959–976. https://doi.org/10.1017/S0033291702006074

Kisely, S., Warren, N., McMahon, L., Dalais, C., Henry, I., & Siskind, D. (2020). Occurrence, prevention, and management of the psychological effects of emerging virus outbreaks on healthcare workers: Rapid review and meta-analysis. *British Medical Journal*, 369, m1642. https://doi.org/10.1136/bmj.m1642

Krishnamoorthy, Y., Nagarajan, R., Saya, G. K., & Menon, V. (2020). Prevalence of psychological morbidities among general population, healthcare workers and COVID-19 patients amidst the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Research*, 293, 113382. https://doi.org/10.1016/j.psychres.2020.113382

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. https://doi.org/10.1001/jamanetworkopen.2020.3976

Liu, C. Y., Yang, Y. Z., Zhang, X. M., Xu, X., Dou, Q. L., Zhang, W. W., & Cheng, A. S. (2020). The prevalence and influencing factors in anxiety in medical workers fighting COVID-19 in China: A cross-sectional survey. *Epidemiology and Infection*, 148, 1–17. https://doi.org/10.1017/S0950268820001107

Magnavita, N., Tripepi, G., & Di Prinzio, R. R. (2020). Symptoms in health care workers during the COVID-19 epidemic. A cross-sectional survey. *International Journal of Environmental Research and Public Health*, 17(14), 5218. https://doi.org/10.3390/ijerph17145218

Mohindra, R., R, R., Suri, V., Bhalla, A., & Singh, S. M. (2020). Issues relevant to mental health promotion in frontline health care providers managing quarantined/isolated COVID19 patients. *Asian Journal of Psychiatry*, 51, 102084. https://doi.org/10.1016/j.ajp.2020.102084

Muller, A. E., Hafstad, E. V., Himmels, J. P. W., Smedslund, G., Flottorp, S., Stensland, S. Ø., Stroobants, S., Van de Velde, S., & Vist, G. E. (2020). The mental health impact of the covid-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Research*, 293, 113441. https://doi.org/10.1016/j.psychres.2020.113441

Neto, M. L. R., Almeida, H. G., Esmeraldo, J. D., Nobre, C. B., Pinheiro, W. R., de Oliveira, C. R. T., Sousa, I. D. C., Lima, O. M. M. L., Lima, N. N. R., Moreira, M. M., Lima, C. K. T., Júnior, J. G., & da Silva, C. G. L. (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. https://doi.org/10.1016/j.psychres.2020.112972

Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsi, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907. https://doi.org/10.1016/j.bbi.2020.05.026

Petzold, M. B., Plag, J., & Stroehle, A. (2020). Dealing with psychological distress by healthcare professionals during the COVID-19 pandemia. *Der Nervenarzt*, 91, 417–421. https://doi.org/10.1007/s00115-020-00905-0

Röcke, C., Li, S. C., & Smith, J. (2009). Intraindividual variability in positive and negative affect over 45 days: Do older adults fluctuate less than young adults? *Psychology and Aging*, 24(4), 863–878. https://doi.org/10.1037/a0016276

Rubino, C., Wilkin, C. L., & Malka, A. (2013). Under pressure: Examining the mediating role of discrete emotions between job conditions and well-being. In P. L. Perrewé, C. C. Rosen, & J. R. B. Halbesleben (Eds.), *The role of emotion and emotion regulation in job stress and well-being: Research in occupational stress and well-being* (Vol. 11, pp. 195–223). Emerald Publishing. https://doi.org/10.1108/S1479-3555(2013)0000011011

Schaufeli, W. B. (2017). Applying the job demands-resources model. *Organizational Dynamics*, 2(46), 120–132. https://doi.org/10.1016/j.orgdyn.2017.04.008

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293–315. https://doi.org/10.1002/job.248

Schoemann, A. M., Boulton, A. J., & Short, S. D. (2017). Determining power and sample size for simple and complex mediation models. *Social Psychological and Personality Science*, 8, 379–386. https://doi.org/10.1177/1948550617715068

Serrano-Ripoll, M. J., Meneses-Echavez, J. F., Ricci-Cabello, I., Fraile-Navarro, D., Fiol-deRoque, M. A., Pastor-Moreno, G., Castro, A., Ruiz-Pérez, I., Zamanillo Campos, R., & Gonçalves-Bradley, D. C. (2020). Impact of viral epidemic outbreaks on mental health of healthcare workers: A rapid systematic review and meta-analysis. *Journal of Affective Disorders*, 277, 347–357. https://doi.org/10.1016/j.jad.2020.08.034

Shahrour, G., & Dardas, L. A. (2020). Acute stress disorder, coping self-efficacy and subsequent psychological distress among nurses amid COVID-19. *Journal of Nursing Management*, 28(7), 1686–1695. https://doi.org/10.1111/jonm.13124

Shechter, A., Diaz, F., Moise, N., Anstey, D. E., Ye, S., Agarwal, S., Birk, J. L., Brodie, D., Cannone, D. E., Chang, B., Claassen, J., Cornelius, T., Derby, L., Dong, M., Givens, R. C., Hochman, B., Homma, S., Kronish, I. M., Lee, S. A. J., ... Abdalla, M. (2020). Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *General Hospital Psychiatry*, 66, 1–8. https://doi.org/10.1016/j.genhosppsych.2020.06.007

Si, M., Su, X., Jiang, Y., Wang, W., Gu, X. F., Ma, L., Li, J., Zhang, S.-K., Ren, Z.-F., Ren, R., Liu, Y.-L., & Qiao, Y. L. (2020). The psychological impact of COVID-19 on medical care workers in China. Available at SSRN 3592642. https://ssrn.com/abstract=3592642

Tellegen, A., Watson, D., & Clark, L. A. (1999). On the dimensional and hierarchical structure of affect. *Psychological Science*, 10(4), 297–303. https://doi.org/10.1111/1467-9280.00157

Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, *38*(2), 227–242. https://doi.org/10.1177/0022022106297301

Trick, L., Watkins, E., Windeatt, S., & Dickens, C. (2016). The association of perseverative negative thinking with depression, anxiety and emotional distress in people with long term conditions: A systematic review. *Journal of Psychosomatic Research*, *91*, 89–101. https://doi.org/10.1016/j.jpsychores.2016.11.004

Vinkers, C. H., van Amelsvoort, T., Bisson, J. I., Branchi, I., Cryan, J. F., Domschke, K., Howes, O. D., Manchia, M., Pinto, L., de Quervain, D., Schmidt, M. V., & van der Wee, N. J. A. (2020). Stress resilience during the coronavirus pandemic. *European Neuropsychopharmacology*, *35*, 12–16. https://doi.org/10.1016/j.euroneuro.2020.05.003

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

Watson, D., & Pennebaker, J. W. (1989). Health complaints, stress, and distress: Exploring the central role of negative affectivity. *Psychological Review*, *96*(2), 234–254. https://doi.org/10.1037/0033-295X.96.2.234

Wu, P. E., Styra, R., & Gold, W. L. (2020). Mitigating the psychological effects of COVID-19 on health care workers. *Canadian Medical Association Journal*, *192*(17), E459–E460. https://doi.org/10.1503/cmaj.200519

Xing, J., Sun, N., Xu, J., Geng, S., & Li, Y. (2020). Study of the mental health status of medical personnel dealing with new coronavirus pneumonia. *PLoS One*, *15*(5), e0233145. https://doi.org/10.1371/journal.pone.0233145

Zautra, A. J., Affleck, G. G., Tennen, H., Reich, J. W., & Davis, M. C. (2005). Dynamic approaches to emotions and stress in everyday life: Bolger and Zuckerman reloaded with positive as well as negative affects. *Journal of Personality*, *73*(6), 1511–1538. https://doi.org/10.1111/j.0022-3506.2005.00357.x

Zhu, Z., Xu, S., Wang, H., Liu, Z., Wu, J., Li, G., Miao, J., Zhang, C., Yang, Y., Sun, W., Zhu, S., Fan, Y., Chen, Y., Hu, J., Liu, J., & Wang, W. (2020). COVID-19 in Wuhan: Sociodemographic characteristics and hospital support measures associated with the immediate psychological impact on healthcare workers. *Eclinical Medicine*, *24*, 100443. https://doi.org/10.1016/j.eclinm.2020.100443

Zohar, A. H., Denollet, J. K., Lev-Ari, L., & Cloninger, C. R. (2011). The psychometric properties of the DS14 in Hebrew and the prevalence of type D in Israeli adults. *European Journal of Psychological Assessment*, *27*, 274–281. https://doi.org/10.1027/1015-5759/a000074