HOW NORMAL IS THE NEW NORMAL? INDIVIDUAL AND ORGANIZATIONAL IMPLICATIONS OF THE COVID 19 PANDEMIC

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HOW NORMAL IS THE NEW NORMAL? INDIVIDUAL AND ORGANIZATIONAL IMPLICATIONS OF THE COVID 19 PANDEMIC

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EDITORIAL
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Editorial: How Normal Is the New Normal? Individual and Organizational Implications of the COVID-19 Pandemic

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Editorial on the Research Topic

How Normal Is the New Normal? Individual and Organizational Implications of the COVID-19 Pandemic

"How normal is the new normal?" The idea of this Research Topic started from this simple question that is tickling our imagination as scholars, employees, and—for some of us—as supervisors. The term "new normal" was coined during the 2008 financial crisis to refer to the dramatic economic, cultural, and social transformations that seriously impacting collective perceptions and individual lifestyles. During the COVID-19 pandemic in 2020, the term "new normal" reappeared to point out how the pandemic completely transformed human life, including professional identity, economic subsistence, work and family organization, children's education; and, in turn, demanding a radical revision of the traditional ways, practices and skills used to manage them.

Indeed, since the start of the pandemic, it has been evident that COVID-19 was destined to mark our history, triggering long-term effects for individuals, teams, and organizations. Although we are longing to return to our familiar routines, it is evident that everything has changed, and we still have difficulties adapting to this new normal. Accordingly, the increasing complexity of the present scenario urges us find answers for the most evident implications of the pandemic (e.g., remote working and technostress, distance management, work/life interface, economic, and job insecurity) with other eminent issues that emerged in this "new normal" phase (e.g., research on long-term effects, cross-country comparative research, how to prepare for a new health crisis, how to support workers who suffer from long-COVID, how to accommodate workers who are afraid of getting infected, how to keep the good things that the new normal has brought us, including the increased respect for health workers?).

In view of the above, the present Research Topic aims to answer some of these questions by nurturing an expert discussion on the issue, and by focusing on some emergent challenges that will most likely keep having an impact on the future workplace, conditioning workers' wellbeing and functioning, and consequently organizational performance.

In particular, the pandemic has affected both objective and subjective aspects of work experiences. It has led to the re-organization of working spaces and organizational processes, the restructuration of tasks, herewith demanding individuals to rapidly adapt to change, and having a substantial impact on the person/organization relationship (Robelski et al., 2019; Caligiuri et al., 2020; Carnevale and Hatak, 2020). Connected to these changes in working spaces and organizational processes, different stakeholders in organizations (e.g., employees, supervisors, and top management) are experiencing several transformations related to new forms of distance management and performance control. Issues like motivation, coaching and mentoring, organizational support, conflict management, and employee development are more important than ever for organizational survival. At the same time, there is still a limited understanding of how objective and subjective aspects of employees' working experiences have been affected by the changes due to COVID-19, let alone what organizations can do to safeguard employee wellbeing and functioning.

We argue that Human Resource Management (HRM) plays a crucial role in helping all parties involved to cope with the enormous challenges posed by the changes triggered by the pandemic. More specifically, HRM professionals should function as key strategic partners, and focus on developing a new culture of change that can inspire workers to adjust to the new normal (Gould-Williams, 2007; Demo et al., 2012; Manuti et al., 2020). As such, HRM professionals are indispensable in the light of protecting all workers' career sustainability (i.e., happiness, health, and productivity) over time (De Vos et al., 2020).

Most contributions in this Research Topic underline the central role played by management in supporting employees to deal with the effects of the pandemic both in their private and professional life. Supervisors are key figures who can buffer the effects of some negative organizational actions. For instance, the study by Spagnoli et al. highlights that for remote workers a low authoritarian leadership style has a moderating effect on the relationship between workaholism and technostress. The qualitative investigation by Ripamonti et al. underlines managers' responsibility in constructing a positive environment (an HRM ethics of care as the authors write) by adopting a people-based approach wherein employees are supported, trust and engagement are created, and the quality of the relationships within the organization is cherished, especially during times of great change and uncertainty like the one drawn by the pandemic. In a similar vein, Coun et al. make an important contribution by showing the positive relationship between empowering leadership style and employees' innovative work behavior, even in intense remote work contexts. In line with these empirical findings, the theoretical paper by Chen poses an important question analyzing the managerial point of view in dealing with the new normal: How can HR practitioners enhance the role of culture in the new work model, given that they could be important promoters of corporate culture? The author offers a series of reflections on the psychological impact of "working from home" (WFH) on workers wellbeing and on their performance, and addresses what is in his view one of the most urgent challenges for HRM practitioners in this scenario: the need to reformulate traditional training approaches and to develop innovative models that could equip workers with the skills needed to cope with new job demands, in order to reduce stress and work/life conflict.

Parallel to these studies that have mostly focused on the organizational perspective, other studies encompassed in this Research Topic consider the individual's point of view in dealing with the ongoing changes. Adopting the Job Demands-Resources model, these studies show how the pandemic has exacerbated the negative perceptions of some specific job demands (e.g., workload and social isolation), that because of remote working (Pulido-Martos et al.) profoundly affected the quality of life of workers (Barbieri et al.), resulted in behavioral stress (Ingusci et al.), and impacted the work/life interface (De Simone et al.), job insecurity (De Angelis et al.; Vieira dos Santos et al.), and financial insecurity (Rasdi et al.) have proven to be the most diffused psychological consequences of the pandemic, together with a lower work engagement (Reinwald et al.), somatization and distress (Franck et al.), and poor wellbeing (Rus et al.), especially for healthcare professionals who were among the most challenged category of workers. By adopting an individual perspective, from the scholarly work in our Research Topic, we conclude that fostering job crafting behaviors, that is providing workers with opportunities to rely upon organizational job resources (e.g., organizational, and social support) as well as on their personal resources (self-efficacy, commitment to organizational change, vigor at work), could help workers' attitudes and behaviors in the new normal.

To conclude, the rich scholarly work that is presented in this Research Topic offers several lessons for individuals and organizations for a positive transition to the new normal in the post-pandemic scenario. Yet, as argued earlier and clearly shown by the studies presented above, the huge and radical transformations that have impacted the working context have reshaped not simply the objective conditions of work but also the subjective experiences of work. Specifically, beliefs, attitudes, feelings, and practices traditionally linked to one's own professional experience and to the organizational identity have been reformulated. As a matter of fact, organizations, being social systems, need to carefully consider this evidence and to rethink their practices and policies accordingly, to protect and further enhance all workers' health, happiness, and productivity over time, whether in times of crises or not.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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BRIEF RESEARCH REPORT
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Workaholism and Technostress During the COVID-19 Emergency: The Crucial Role of the Leaders on Remote Working

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Although remote working can involve positive outcomes both for employees and organizations, in the case of the sudden and forced remote working situation that came into place during the COVID-19 crisis there have also been reports of negative aspects, one of which is technostress. In this context of crisis, leadership is crucial in sustainably managing and supporting employees, especially employees with workaholic tendencies who are more prone to developing negative work and health outcomes. However, while research on the role of the positive aspects of leadership during crises does exist, the negative aspects of leadership during the COVID-19 crisis have not yet been studied. The present study aimed to explore the role of authoritarian leadership in a sample of 339 administrative university employees who worked either completely from home or from home and the workplace. The study examined the moderating effect of a manager on this relationship and the connections between workaholism and technostress through conditional process analysis. Results pointed out that high authoritarian leadership had an enhancing effect, whereas low authoritarian leadership had a protective effect on the relationship between workaholism and technostress, only in the group of complete remote workers. Thus, authoritarian leadership should be avoided and training leaders to be aware of its effect appears to be essential. Limitations, future directions for the study, and practical implications are also discussed.

Keywords: technostress, workaholism, authoritarian leadership, conditional process analysis, remote working

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INTRODUCTION

Due to the COVID-19 lockdown, administrative staff at universities as well as many other service employees suddenly shifted from traditional working modalities to remote working. Consequently, one of the most important challenges for university management was the creation of a virtual environment in which employees could continue working. Remote working can have some positive outcomes, such as improved performance, cutting the costs of "home-work-home" traveling, saving time, and organizational resources, and increasing employee satisfaction (Barbuto et al., 2020; Thulin et al., 2020), however, some negative consequences have also been highlighted, particularly in relation to wellbeing, and it can cause stress, discomfort, and anxiety due to the constant use

of the Internet, email, instant messaging, and smartphones (Salanova et al., 2013). In a recent contribution, Molino et al. (2020) reported on the effects of technology use on wellbeing during COVID-19 mandatory remote working, or technostress, namely "the stress that users experience as a result of application multitasking, constant connectivity, information overload, frequent system upgrades and consequent uncertainty, continual relearning and consequent job-related insecurities, and technical problems associated with the organizational use of ICT" (Tarafdar et al., 2010, pp. 304–305). Although these wellbeing costs might affect some remote workers, we believe that they might have specifically caused trouble for workaholic workers, namely "persons whose need for work has become so excessive that it creates noticeable disturbance or interference with (their) bodily health, personal happiness, and interpersonal relations, and with (their) smooth social functioning" (Oates, 1971, p. 4). The effects of wellbeing on a sudden change in working processes might have been particularly detrimental for workers who are addicted to their job, since they might have perceived the change as hindering their usual job routine, with an amplified feeling of guilt, anger, anxiety, and frustration, and, therefore, in general, a more stressful experience.

In this context of change and crisis, leadership plays a crucial role (Bartsch et al., 2020; Bodolica and Spraggon, 2020). Research examining the role of leadership behavior in the context of planned organizational change is well established (e.g., Oreg and Berson, 2019; Sverdlik et al., 2020), and more recent studies in response to the pandemic crisis have focused on "being a smart leader" or an "e-leader" (Cortellazzo et al., 2019; Iannotta et al., 2020) while also at the same time, being an effective leader (Bartsch et al., 2020). However, few leadership studies discuss ineffective leadership behaviors in the context of rapid and unpredictable organizational transformation like that of the COVID-19 pandemic. It is likely that, since they are deprived of forms of physical control in the workplace, leaders might exaggerate the authoritative style they use to control the performance of employees. This can manifest as an invasion into the private life of employees, relying upon the situation of being "always-on" that is created by the constant use of communication technologies when remote working.

In line with these speculations, with special reference to the peculiar working conditions imposed by the spread of COVID-19, which are mostly based on mandatory remote work, and the hierarchic work organization of the academic context, this study aimed to investigate if and to what extent authoritarian leadership behaviors could be a moderator of the relationship between workaholism and technostress in employees.

Workaholism and Technostress

Technostress is defined as "the phenomenon of stress experienced by end users in organizations as a result of their use of ICTs" (Ragu-Nathan et al., 2008, pp. 417–418). The symptoms related to technostress include anxiety, behavioral strain, feelings of exhaustion, mental fatigue, poor concentration, physical diseases, and insomnia, while its main consequences are reduced productivity, job satisfaction, and organizational commitment and increased employee outcomes (e.g., absenteeism and turnover) (e.g., Tarafdar et al., 2010; Ayyagari et al., 2011; La Torre et al., 2019). The use of ICTs might challenge employees by creating a variety of stressors, including information overload, role ambiguity, job insecurity (Fenner and Renn, 2010; Grant et al., 2013), the intensity of teleworking (Suh and Lee, 2017), high quantities of e-mails, poor e-mail quality (Brown et al., 2014), and frequent interruptions during work (Ninaus et al., 2015).

A widely accepted scientific classification of the creators of technostress is proposed by Tarafdar et al. (2007) who used a transactional approach to describe five techno-stressors: (1) techno-overload (ICTs increase the pace and volume of work and induce users to work faster and longer); (2) techno-invasion (ICTs invade personal life and blur boundaries between work and private domains); (3) techno-complexity (ICTs' complexity leads to feelings of incompetence); (4) techno-insecurity (workers feel threatened by job loss to automation or other people who have a better knowledge of ICT); and, (5) techno-uncertainty (continuous changes or upgrades in ICTs that generate ambiguity and disturb users). Moreover, ICTs and Internet connection enable constant availability and 24/7 access to work. The increased use of ICTs has engendered expectations about workers being always available and working faster and better (World Health Organization, 2005). In light of this, it is interesting to investigate the interaction between technostress creators and work addiction.

Workaholism is the tendency to work excessively hard and to be obsessed with work. Thus, it consists of two main dimensions: working excessively (tendency to allocate remarkably much time to work than to other life activities and to work beyond what is reasonably expected) and working compulsively (a strong inner drive to work hard and to think about work, even when not working) (Schaufeli et al., 2008). Workaholics invest a lot of time and energy in their work, without respecting any boundaries between work and private lives. They also work in the evening and at the weekend, at the cost of other private and family activities and relationships.

Previous studies have found a positive relationship between workaholism and job stress and burnout (Taris et al., 2005; Clark et al., 2016a; Andreassen et al., 2018a), psychophysics strain (Falco et al., 2013), low sleep quality, and daytime sleepiness (Spagnoli et al., 2019), anxiety/insomnia, somatic symptoms, and social dysfunction (Andreassen et al., 2018b), and work-family conflict (Bonebright et al., 2000; Taris et al., 2005; Bakker et al., 2009). Although the determinants of workaholism are not questioned here, a recent meta-analysis has shown that it is linked to both personal and organizational factors (Clark et al., 2016a), and, despite there being a lack of evidence on the relationship between remote working and workaholism, we believe it is likely that the absence of defined boundaries between work and life could represent a risk factor.

To date, the relationship between workaholism and ICTs has been primarily referred to as the phenomenon of techno-addiction (an uncontrollable "have to" pressure paired with anxiety when not using ICTs, which leads to the use of them for long periods in an excessive way) (Salanova et al., 2013) or to the fact that being a workaholic could lead to intensive smartphone use (Spagnoli et al., 2019). Nevertheless, since workaholism

entails a combination of concern and a craving to always stay connected to work, it is interesting to observe its relationship with techno-stressors and, more specifically, to investigate whether workaholism might increase the risk of technostress.

Hypothesis 1: *Workaholism is positively related to technostress.*

The (Moderated) Moderating Role of Authoritarian Leadership in the Relationship Between Workaholism and Technostress

The leadership construct has attracted scientific attention due to the positive impact it exerts within an organizational context. However, to date, very few studies have focused on the potentially harmful effects of leadership behaviors or the negative impact that misconduct can have both on individual and organizational outcomes (e.g., Pelletier, 2010; Ghislieri and Gatti, 2012; Ghislieri et al., 2019). Studies that do address the negative impact of leadership styles mostly refer to the concept of authoritarian leadership, stemming from the early experimental studies by Lewin et al. (1939). This style is usually characterized by behaviors that centralize decision-making and exert power and control over subordinates without any consideration of their contribution or productivity (Sauer, 2011). Authoritarian behaviors might include giving orders to followers, telling them what to do, and making decisions in a unilateral way (De Hoogh and Den Hartog, 2009).

The basis of authoritarian power is derived from the opportunities created by the leader's position in the organization, with control over resources and rewards (Cheng et al., 2004). Yet, this form of "toxic" leadership (Schmidt, 2008) could be concretely enacted by a broad variety of negative behaviors (Pelletier, 2010) such as intimidating, bullying, manipulation, micromanaging, and engaging in abusive or unethical behavior. Several scientific studies have documented that authoritarian leadership negatively affects subordinates in terms, for example, of increasing spontaneous aggression and hostile behaviors, decreasing job satisfaction, and trust in management (see Bass and Bass, 2008 for a comprehensive review). Early social psychology studies showed that authoritarian leadership tends to increase spontaneous aggression and hostile behavior (Lewin et al., 1939). More recently, studies in the field of management sciences have suggested that it also harms the attitudes and behaviors of subordinates, including job satisfaction (Smither, 1993), organization-based self-efficacy (Chan et al., 2013), trust in management (Chen et al., 2014), interactional justice (Wu et al., 2012), organizational voice behaviors (Li and Sun, 2015), task performance, and conscientious behavior (Wang et al., 2013). Contingency theories have affirmed that specific contextual factors such as role ambiguity and uncertainties (Rast et al., 2013) may increase the effectiveness of authoritarian leadership (Yukl, 2011), as well as the dependence and compliance of followers (Chou et al., 2015).

The present study focused on the moderating role played by an authoritarian leadership style on the relationship between an employee's attitude toward their job, namely their perception of workaholism and technostress. Accordingly, the study was conducted in an academic context and involved university administrative staff during the COVID-19 pandemic, where all participants were forced to working remotely and therefore were supposed to be exposed to increased use of technology. Yet, following studies conducted in public management, affirming the difference between public and private organizations in leadership style (Anderson and Anderson, 2010), the study assumed that the academic context could be characterized by the presence of an authoritarian leadership style, because public managers operate under a different set of organizational or procedural constraints compared to private managers. Accordingly, the organization of work within the public context seems to be attuned to the main components of authoritarian leadership (Farh and Cheng, 2000), which involve top-down communication, control information, and an underestimation of subordinate competence.

This study explored the idea that remote working is a condition that could deprive employees of physical controls and therefore, leaders might exaggerate their authoritative style to control the performance of subordinates. This could manifest as an invasion of private life by relying upon the situation of being "always on" that is facilitated by communication technologies. On the other hand, employees might be pushed to work harder and compulsively to meet the demands of leaders and avoid retaliation, punishment, and negative feedback (Molino et al., 2019), thus increasing technostress.

In position papers about the research needs in COVID-19 emergency, the experts recommendation suggest to deepen the role of the leadership (Kniffin et al., 2020). Even though many studies focus on the "light" side of leadership, more and more scholars have recently outlined the "darker" aspects of leadership, particularly based upon several informal reports by workers (Molino et al., 2019) and, the stress dynamics of work. Our study is rooted in this perspective and, between the different facets of the "toxic" leadership, took into account authoritarian leadership concerning the central position of control in this expression of leadership (Cheng et al., 2004), which is challenged in the context of remote work.

Authoritarian leadership may have a moderating role in the relationship between workaholism and technostress, following the self-determination theory (SDT) by Deci and Ryan (2000). In line with previous studies (e.g., Chu, 2014), authoritarian leadership insists on control and, places people in a state of powerlessness, a condition that can exacerbate the effect of workaholism on technostress. The process by which workaholism is associated with negative outcomes can be related to the quality of motivation and action, as Van den Broeck et al. (2011) have highlighted. Through actions that limit self-determination, authoritarian leadership further undermines the autonomy of workers through forms of control that, in remote work, pass through ICT, enhancing the effect of workaholism on a negative result such as technostress.

The current study took place soon after the COVID-19 lockdown and some of the university employees decided to keep working remotely. Other employees started to work in a "hybrid" way, involving some days at home and some days in the workplace. We believe that the negative effect of authoritarian

leadership could have been stronger for employees who work remotely full time. Given the distance, a lack of live contact and communication, an authoritarian leadership style might have been perceived as more incisive and intrusive with more negative outcomes for those who worked remotely. Thus, we put forward the following hypotheses:

Hypothesis 2: *Higher levels of authoritarian leadership and workaholism are positively related to technostress.*
Hypothesis 3: Higher levels of workaholism and lower levels of authoritarian leadership decrease technostress.
Hypothesis 4: The effect of authoritarian leadership is stronger for the employees working in a completely remote condition.

We tested hypotheses controlling the effect of personal data, with a focus on gender. Scientific literature showed results on the relationship between gender and technostress that are contrasting and scarce. Some contributions have outlined that men tend to show more positive attitudes toward technology, with less self-control and that they are more prone to developing problematic behaviors than women, especially for agentic purposes (Lee et al., 2014). Conversely, other studies have highlighted that women are less inclined to use technology in the workplace (Venkatesh and Morris, 2000), that they sometimes find it complicated, and develop higher anxiety and phobia (Whitley, 1997).

METHODS

Participants and Procedure

Data were collected through an online self-report questionnaire within a project that involved consulting the technical-administrative staff for the introduction of new management policies related to remote work during the COVID-19 emergency in July 2020. Participants had 2 weeks to answer the questionnaire, which took about 15 min to complete. The link for filling the online questionnaire was sent to 867 employees of an Italian University. At the end of the questionnaire, administration data were available for 359 individuals. Then 20 participants were excluded due to missing values. Thus, 339 employees were involved in the study. They were 46.6% male and 53.4% female. Age ranged from 22 to 70 years old (Mean = 48.43; St. Dev. = 9.71). Education was: 59% bachelor or master degree; 38.6% high school; and 2.4% middle school. Regarding their role, 34% held a position of responsibility and most of them (85.3%) declared a tenure of more than 10 years. More than half of them (52.7%) worked partially remotely, alternating days of work at home and days of work in the workplace, whereas the rest (47.3%) always worked remotely from home.

Ethics Statement

This study was in accordance with the standards of national laws on data treatment as followed by the University of Campania "Luigi Vanvitelli," which is part of the University of Torino and University of Bari (Italy). Since there was no medical treatment or other procedures that could cause psychological or social discomfort to participants, who were all anonymous adult healthy subjects, additional ethical approval was not required. The research was conducted in line with the Helsinki Declaration (World Medical Association, 2001), as well as the data protection regulation of Italy (Legislative Decree No. 196/2003). Participation in the study was voluntary and not rewarded, and data collection and analysis were anonymous. A covering letter, attached to the questionnaire, provided information about the aims of the study, guarantees about anonymity, voluntary participation, data treatment, and instructions for filling out the questionnaire. When agreeing to fill out the questionnaire, all study participants provided their informed consent.

Measures

Workaholism

Workaholism was measured by the 10-item version of the Dutch Work Addiction Scale (DUWAS), which was adapted and validated in Italian (Balducci et al., 2015). The DUWAS investigates the respondent's feelings about their work, which reflects the two components of workaholism (i.e., working compulsively, WC, and working excessively, WE). Example items are the following: "I feel that there's something inside me that drives me to work hard" (WC) and "I stay busy and keep many irons in the fire" (WE). Responses were given on a 6-point scale varying from 1 ("Never or almost never") to 6 ("Almost always or always"). Cronbach's alpha is 0.85.

Authoritarian Leadership

Authoritarian Leadership was measured by the six-items from the Toxic Leadership Scale (Schmidt, 2008). Participants were asked to respond about the occurrence of leader typical authoritarian behaviors in recent weeks. An example item is the following: "They are inflexible when it comes to organizational policies, even in special circumstances." Responses were given on a 6-point scale ranging from 1 ("Never") to 6 ("Always"). Cronbach's alpha is 0.81.

Technostress

Technostress was measured by the 9-items version of the Technostress Creator Scale (TCS -Ragu-Nathan et al., 2008), which was adapted and translated into Italian by Molino et al. (2020), with three items for techno-overload, three items for techno-invasion, and three items for techno-complexity. In this study, we considered these three dimensions because of their relevance to the current scenario, where the increase of technology use, due to remote working leads workers to experience overload, an intrusion of work into their private life, and difficulties in managing complex technologies. An example is: "I do not find enough time to study and upgrade my technology skills." Responses were given on a 6-point scale ranging from 1 ("Completely disagree") to 6 ("Completely agree"). Cronbach's alpha is 0.87.

Data Analysis

Zero-order correlations were used to examine the associations between variables. Reliability analysis was used to assess the internal consistencies of the scale. A series of ANOVAs were

conducted to better examine the role of gender in the study variables. The hypotheses concerning direct and moderated effects were tested through conditional process analysis based on OLS regression using bootstrapping technique (Hayes, 2017), a non-parametric resampling procedure that does not assume normality extracted several thousand subsamples (5000, in our case) from a dataset. Through bootstrapping, the distribution of effects was empirically approximated and used for calculating confidence intervals. We tested a moderated moderation, where the direct effect of workaholism on technostress is moderated by authoritarian leadership, and the moderating effect of authoritarian leadership is, in turn, moderated by the dichotomous variables "working mode" (i.e., complete remote working/alternate remote working). The model examined in the current study is represented in **Figure 1**, it corresponds to the conceptual model number 3 of Hayes templates.

RESULTS

Before conducting the main analysis, we computed the risk for common method bias through the Harman single-factor test. The variance explained by the single factor, including all the observed variables, was only 23%. Thus, we concluded that the risk for common method variance was low.

Table 1 shows descriptive analysis and zero-order intercorrelations of the variables in the study. Results pointed out that workaholism positively and significantly correlated with both authoritarian leadership and technostress. We also ran a series of ANOVAs to better examine the role of gender in the study variables. Results pointed out that women had statistically significant higher scores on technostress ($F = 4.57$; $p < 0.05$), while no gender differences were detected for workaholism ($F = 0.52$; $p = 0.47$) and authoritarian leadership ($F = 1.34$; $p = 0.25$). In particular, the mean score for women on technostress was $M = 2.18$ ($SD = 1.07$), and for men, it was $M = 1.95$ ($SD = 0.85$). To better assess the hypothesized model we added gender as well as age to the tested model. **Table 2** concerns the results of the conditional process analysis on technostress. Although both workaholism and authoritarian leadership seemed to not be significantly and directly related to technostress, the interaction between them was significantly related to it ($B = 0.62$, LLCI = 0.23, ULCI = 1.01). Moreover, the working mode (complete/alternate remote working) was not significantly related to technostress as well as the interactions between workaholism and working mode (complete/alternate remote working) and between authoritarian leadership and working mode (complete/alternate remote working). Finally, the interaction among workaholism, authoritarian leadership, and remote working was significantly related to technostress ($B = -0.22$, LLCI = −0.39, ULCI = −0.06).

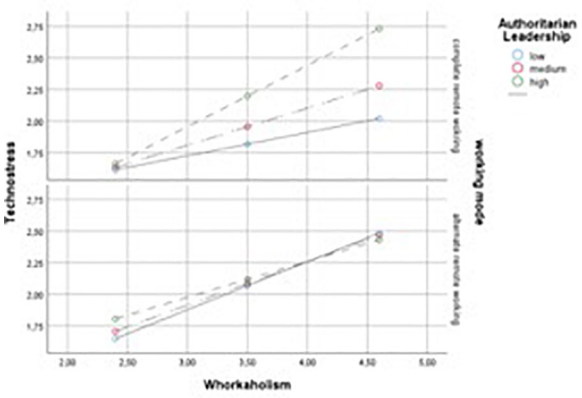

FIGURE 1 | Plots for the moderated (moderated) analysis.

TABLE 1 | Descriptions and intercorrelations of the study variables.

	Mean	St. Dev.	Gender	Age	Workaholism	Authoritarian leadership
Age	48.29	10.06	−0.04			
Workaholism	3.5	1.05	0.04	0.06		
Authoritarian Leadership	2.3	1.01	0.06	−0.14**	0.21**	
Technostress	2.07	0.98	0.12*	0.18**	0.40**	0.18**

$^{**}p < 0.01$; $^{*}p < 0.05$. Gender was coded as 1 = men and 2 = women.

TABLE 2 | Conditional process analysis on technostress.

Variables	B	LLCI	ULCI	R^2
Outcome: Technostress				0.25*
Workaholism	0.41	−0.04	0.87	
Authoritarian Leadership	0.56	0.07	1.04	
Workaholism * Authoritarian Leadership	0.55	0.17	0.93	
Working Mode (complete/alternate remote working)	0.06	−0.13	0.24	
Workaholism * Working Mode (complete/alternate remote working)	−0.03	−0.21	0.14	
Authoritarian Leadership * Working Mode (complete/alternate remote working)	−0.17	−0.36	0.01	
Workaholism * Authoritarian Leadership * Working Mode (complete/alternate remote working)	−0.19	−0.35	−0.03	
Gender	0.19	0.01	0.37	
Age	0.02	0.01	0.03	
Moderated effect of workaholism on Technostress				
Low authoritarian leadership/complete remote working	0.19	0.03	0.34	
Low authoritarian leadership/alternate remote working	0.34	0.15	0.52	
Medium authoritarian leadership/complete remote working	0.30	0.17	0.43	
Medium authoritarian leadership/alternate remote working	0.31	0.18	0.45	
High authoritarian leadership/complete remote working	0.48	0.33	0.63	
High authoritarian leadership/alternate remote working	0.28	0.11	0.44	

$^{*}p < 0.05$.

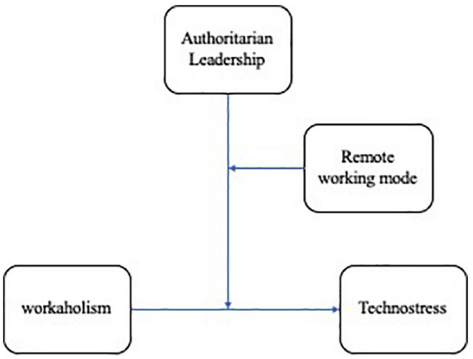

FIGURE 2 | Conceptual model of the study.

Following Hayes (2017), the values of workaholism were observed at the 16th, 50th, and 84th percentile of authoritarian leadership. In the complete remote working plot displayed in **Figure 2** when workaholism is high and authoritarian leadership is high, technostress is significantly higher than when authoritarian leadership is low. As far as the simple slopes are concerned, results pointed out that all the six simple slopes were statistically significant, with the highest effect for the combination of high levels of authoritarian leadership in the group of complete remote working (B = 0.51, LLCI = 0.36, ULCI = 0.67). However, a test of the conditional interaction of workaholism and authoritarian leadership at the two levels of working mode revealed that the positive effect (B = 0.17, $p < 0.001$) was significant only for the complete remote working mode, whereas was not significant for the alternate remote working mode ($B = -0.06$, p = 0.36). Thus, we concluded that high authoritarian leadership had an enhancing effect whereas low authoritarian leadership had a protective effect on the relationship between workaholism and technostress, but only in the group of complete remote workers.

DISCUSSION

The current study, based on the self-determination theory (Deci and Ryan, 2000), aimed to test if and to what extent an authoritarian leadership style might moderate the relationship between workaholism and technostress in a sample of university administrative staff who worked either totally or partially remotely during the COVID-19 emergency during summer 2020. Our hypotheses were supported and the interaction between workaholism and authoritarian leadership was significantly related to technostress. The effect of this interaction particularly concerned those employees who worked remotely full time. In particular, our study indicated that high levels of authoritarian leadership enhanced the positive relationship between workaholism and technostress and that it boosted the effect of workaholism on technostress, which was significantly higher than when the level of authoritarian leadership was low.

These results are in line with literature on the negative outcomes of authoritarian leadership (Bass and Bass, 2008) and supports the original assumption of this study, that authoritarian leadership might be harmful and enhance the technostress of employees with a compulsive work ethic. Moreover, the moderating effect was significant only for those who worked remotely. This could be, because the absolute distance between employees and their managers might exacerbate the perception of invasion or the leader's unilateral decision-making. On the other hand, a leader's behaviors toward workers who alternate between remote and office working might be or at least perceived by the workers as being less invasive. This situation could be more participatory in terms of the decision-making process, given that both the leader and the employee can meet at the workplace.

In terms of gender differences, the results confirmed that technostress was higher for women. These results are consistent with previous evidence (Whitley, 1997; Venkatesh and Morris, 2000; Lee et al., 2014). Men are generally involved in more complex and technology-based tasks, while women have fewer opportunities to develop technology confidence (Brussevich et al., 2018), also because of occupational segregation, which is particularly dominant in Italy and among university staff.

While these results provide meaningful research evidence and could have useful practical implications, they should be considered in light of the study's limitations. This was a, cross-sectional study and data were self-reported. A longitudinal study would provide a more robust method of testing the study hypotheses, and a larger collection including multiple sources would strengthen results.

Moreover, recent literature has also emphasized the role of situational factors, for instance of the work context, in exacerbating workaholic behavior among employees prone to developing this compulsive behavior (e.g., Di Stefano and Gaudiino, 2019). The presence of a reciprocal relationship between technostress and workaholism should be addressed in future studies.

A further avenue for future research could also be an investigation of the impact of the behavior of workaholic behavior as conducive to work obsession among subordinates (Clark et al., 2016b) and the likelihood that other leadership styles may intensify the relationship between workaholism and technostress (e.g., transformational leadership), as suggested by prior research (Andreassen, 2014).

Future studies should also explore how work engagement, may exhibit a similar relationship to technostress and how a positive psychological relationship with one's work might affect this situation. Engagement and workaholism are described in recent literature as different forms of heavy work investment, characterized by a high absorption in work (Snir and Harpaz, 2012). It is, therefore, reasonable to assume that engaged employees might also exhibit high levels of technostress, stemming from the blurred boundaries between work and private life due to the greater occurrence of remote working.

In the future, studies should investigate the role of gender in relation to technology-use and technostress in more detail. They could consider factors such as age, as according to Morris et al. (2005) gender differences are not relevant in young employees

and the dimensions of specific types of technostress. Other recent studies have pointed out that there are higher levels of techno-complexity and techno-uncertainty in women, while men are more prone to techno-overload and techno-invasion (Marchiori et al., 2019).

The practical implications of this study are that organizations must monitor the risk of workaholism and any signs of technostress, through organizational analysis tools. This is particularly important during times of crisis when targeted investigations can be used to introduce immediate corrective measures, avoiding dangerous cycles of behavior. Training on psycho-social risks and the introduction of good practices relating to disconnection (during non-work times) are achievable preventive interventions. Other interventions could, include adequate forms of individualized psychological support.

As far as leadership roles are concerned, negative effects must be avoided during the selection and socialization phase, and they should be alert to the abusive and demanding behavior facilitated by a technology-based work environment, which violates employee privacy. Sometimes organizational cultures may induce or fuel these behaviors (even unintentionally) as managers are inclined to test the loyalty of subordinates through excessive requests and tele-pressure (Van Laethem et al., 2018). Training is a crucial way of reducing the impact of authoritarian leadership behaviors. A targeted training program is important in addressing specific forms of authoritarian relationships, enabling interventions in these relationships (Ghislieri and Gatti, 2012) and helping people to cope with abusive supervision (Harvey et al., 2007), whilst also helping organizations avoid negative authoritarian processes.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the Local Legislation and Institutional Requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

PS: conceptualization, formal analysis, and project administration. PS and DM: methodology, software, and data curation. PS, MM, MG, AM, and CG: writing–original draft preparation and writing–review and editing. All authors contributed to the article and approved the submitted version.

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Financial Insecurity During the COVID-19 Pandemic: Spillover Effects on Burnout–Disengagement Relationships and Performance of Employees Who Moonlight

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The novel Coronavirus disease (COVID-19) has magnified the issue of financial insecurity. However, its effect on individual-organizational relations and, consequently, on organizational performance remains understudied. Thus, the purpose of this study was to explore the spillover effect of financial insecurity on the burnout–disengagement relationship during the pandemic. The authors investigate in particular whether the spillover effect influences the performance of moonlighting employees and also explore the mediating effect of disengagement on the relationship between financial insecurity and burnout interaction effect and the performance (i.e., mediated-moderation). This study collected responses from 162 public and private sector employees who are engaged in moonlighting activities in Malaysia. The results from the partial least square structural equation modeling (PLS-SEM) revealed greater levels of financial insecurity and burnout associated with greater levels of work disengagement. The analysis of the interaction-moderation effect showed that when financial insecurity rises, the burnout effect on work disengagement increases among moonlighters. Using the PROCESS macro model, the results displayed burnout as a predictor of extra-role performance via a moderated (financial insecurity) mediation (work disengagement) relationship. Going forward, this study not only opens new avenues for research into the financial consequences of COVID-19 but also calls on managers to take proactive steps to mitigate the negative effect of the pandemic on the performance of moonlighting employees to keep them in the profession.

Keywords: burnout, COVID-19, disengagement, employees' performance, financial insecurity, moonlight

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INTRODUCTION

Financial insecurity refers to the frequency of personal financial concerns and financial stress that interfere with work (Kim and Garman, 2004). An unexpected event, such as COVID-19, may result in these concerns. Due to the COVID-19 pandemic, employees, particularly those engaged in moonlighting (working another job), are generally more aware of the financial security issue. Recent studies on work engagement and job performance have shown that employees ranked financial security as a factor of the highest significance (Kulikowski and Sedlak, 2020). When their employers in mandatory quarantine are unable to provide job protection and income replacement,

employees are likely to experience a complicated array of negative emotions and work stress that may impair their work effort and resources. Previous studies on post-coronavirus outbreaks have reported that employees who engaged in any outside employment tend to suffer from enormous financial stress, anxiety, and social isolation that affect their health and productivity (Banerjee and Rai, 2020; Tan et al., 2020).

Furthermore, financial security made vulnerable by COVID-19 could pose drastic functional outcomes for an organization, particularly in the form of increased emotional exhaustion and burnout, impacted disengagement and absenteeism among employees who are double jobholders, and reduced organizational commitment (Russo et al., 2020) and job performance (Sasaki et al., 2020). Hamouche (2020) argued that the pandemic has placed employees at a significantly higher risk of burnout, thus experiencing physical symptoms of stress, such as severe lethargy or exhaustion, and a certain sense of disconnectedness toward work.

However, while a heightened concern is shown toward the financial consequences of the pandemic, less is shown toward the effects it has on moonlighters who fall into a high-risk cohort for burnout and disengagement in organizations. Although there remains an absence of definitive statistics on the prevalence rates of employees' financial insecurity and burnout during the pandemic, previous studies have found that dual jobholders were impacted by both (Bick et al., 2020; Talaee et al., 2020). Financial insecurity and burnout have been given great attention by researchers and practitioners because of the potential vulnerability on dual jobholders' well-being and effectiveness (turnover; Betts, 2006(job satisfaction; Sliter and Boyd, 2014; Campion et al., 2020). The major impact of financial insecurity on organizations during the pandemic makes it a key phenomenon that provides opportunities to further investigate how and why it affects organizational functioning.

To adequately address these concerns, this research explores two notable gaps in the extant literature. First of all, we examine the possible relationship between financial insecurity and individual-organizational relations. It is proposed that this relationship transpires from a spillover effect where financial insecurity affects the relationship between burnout and work engagement of employees who moonlight. Specifically, this study tests if these employees' perceptions of financial insecurity during the pandemic moderates the relationship between burnout and disengagement. Second, the extent of the spillover effect on employee performance is examined. We examine whether the interaction effect between financial insecurity and burnout has implications for the performance of moonlighting employees.

HYPOTHESES

Financial Insecurity, Burnout, and Disengagement

Financial insecurity is employees' biggest wellness concern in the wake of the coronavirus pandemic. Since the outbreak of COVID-19, many governments have announced an initial movement restriction order (Roberton et al., 2020). The impact of this restriction on an organization would significantly increase the feeling of financial insecurity among employees who moonlight (ILO, 2020). It can harm the mental health of moonlighters who are affected by the reduction of working hours and the organizational reforms of closure. Recently, the National Foundation for Credit Counseling surveyed Americans ages 18 and up, and the results showed that 69% of the respondents' report experiencing financial insecurity due to the economic fallout as a result of COVID-19 (Consumer Credit, 2020). Researchers have suggested that financial insecurity transpires if one cannot fulfill financial obligations (Odle-Dusseau et al., 2018). According to Hjelm et al. (2017), one of the top contributors to psychosocial stress is financial insecurity since basic living conditions are built upon the management of personal financial resources. Prawitz et al. (2010) showed a significant positive effect of employee financial distress on high absenteeism. Sinclair and Cheung (2016) study also found that financial insecurity is negatively associated with work engagement, workers' performance at the workplace, and organizational commitment. Given this, financial insecurity and other personal finance-related stress can result in negative outcomes among employees at work.

According to the Conservation of Resources (COR) theory, individuals strive to reduce the depletion of resources (Hobfoll, 2011), and to overcome this, they may seek additional employment to replace any loss of resources (Park et al., 2014). A study examined the extension of this experience and found that when the substitution of diminished resources is not possible, the individuals may simply disconnect from the situation as a means to reduce further losses (Whitman et al., 2014). Therefore, it can be rationalized that if financial security is considered a resource, then what threatens it is financial insecurity. Furthermore, as far as work disengagement is concerned, the fear of losing an income during the pandemic itself may outweigh the actual income loss. Given the perceived threat to their finances, it is likely that employees begin to disengage from work and seek alternative employment. Thus, we proposed that:

> **Hypothesis 1**: *There is a positive relationship between financial insecurity and disengagement.*

There is no doubt that the COVID-19 situation has created ambiguities and uncertainties for organizations to function. This has required organizations to step-up in safeguarding employee wellness. By extending the Job Demands-Resources (JD-R) model (Bakker and Demerouti, 2017) in the COVID-19 situation, it can be observed that across and within industries, there exists a variety of effects on both job demands and resources. Present evidence suggests a deterioration of working conditions in general, and this may apply to moonlighters as well. In light of these constraints, COVID-19 has substantially increased the prevalence of job burnout encounters, which bring forth a chronic stress syndrome that encompasses chronic exhaustion and feelings of disconnect with work (Demerouti et al., 2017). Furthermore, previous studies have found that job demands lead to an increase in emotional exhaustion while job resources (or

lack thereof) result in work disengagement (Peterson et al., 2008; Kaiser et al., 2020).

> **Hypothesis 2:** *Job burnout will have a positive relationship with disengagement.*

It is noteworthy to mention that the relationship between burnout and disengagement has been recognized in the JD-R model (Bakker et al., 2008). According to the JD-R theory, financial insecurity can be considered a demand that exacerbates health impairment conditions contributed to by the exhaustion of mental and physical resources. This continuing state of depletion has been connected with the employee's state of disengagement; the onset of negative work attitudes begins to develop as demonstrated by a distant sense between self and work (Demerouti et al., 2017). According to the JD-R theory, demands are burnout predictors, and lack of resources is the main antecedent for less than desired engagement levels. As such, we put forth the argument that financial insecurity can attenuate engagement because the twin effect of demands and lack of resources may result in employees' work goals being unmet and their growth and development being hindered. From the employer, the employee expects job safety and security, but the lack thereof converts into the threat of financial insecurity. This demand serves as a signal for employees to adjust their willingness to perform; when their employer does not appreciate their loyalty and dedication, they perform at a less than desired work engagement quality (Parzefall and Hakanen, 2010). The extant empirical research has provided evidence on the negative effects of financial insecurity on work engagement. However, the aspect and effect of financial resources in Kahn (1990) grounded findings remain ambiguous. Therefore, this study considers financial insecurity as the likely moderator of the association between burnout and disengagement. We further extend this approach by converging it with Baron and Kenny (1986) moderation approach, whereby the moderator variable can affect a change—of direction and/or strength—in the relationship between an endogenous and an exogenous variable. We contend that the strength of an individual's financial insecurity is likely to intensify the interaction of burnout toward work disengagement. However, it must be noted that earlier studies have realized a weak relationship between these two variables (Basinska and Gruszczynska, 2020). Researchers argued that this can be deducted as an employee's rational response. An employee copes with financial insecurity by exerting effort while maintaining job performance to assert him/herself as a valuable asset to the organization (Wang et al., 2015). Despite this argument, other researchers alluded that employees' behaviors and reactions in the incidence of financial instability are not limited to individual factors, they are also reliant on the organization's treatment toward their employees (Lin et al., 2018). Price et al. (2002) found that employees who suffer from economic stress are those who are faced with strikingly challenging outcomes that push beyond physical and mental health conditions, diminish life satisfaction, and intensify the probability of emotional exhaustion and burnout. It must be noted that while several studies have connected financial insecurity perception to reduced organizational commitment and higher levels of disengagement (Lambert et al., 2010), the general perception is that when the financial insecurity stressor increases, burnout levels will increase, and work engagement levels will decrease. Thus, we proposed that:

> **Hypothesis 3**: *Financial insecurity moderates the relationship between burnout and disengagement, so that when financial insecurity is elevated during the pandemic, the relationship will be stronger than when financial insecurity is low.*

The Mediating Role of Work Disengagement

Work disengagement relates to work engagement; numerous studies have examined the interaction between the two, where disengagement is discussed as a negative influence on the organization (Rastogi et al., 2018). Kahn (1990) considered the following concept of personal disengagement that describes the issue of disengagement, which leads to the decoupling of the self from job role. He defined personal disengagement as the simultaneous defense and withdrawal of an individual's preferred self in behaviors that encourage a lack of connection, physical, cognitive, and emotional absence, and incomplete role performance.

In a scenario where financial resources are denied, an employee's sense of being able to achieve any goal can be dampened, which leads to inherent failures, frustrations, and disengagement (Bakker et al., 2008), thus leaving them vulnerable to stress. The COR framework provides that individuals tend to avoid the depletion of resources. Performing their duties to the extent of their ability or in compliance with the organizational expectations can be untenable for those who are disengaged (Wang et al., 2015). This is because doing so is likely to cause additional resource losses. Accordingly, the COR model predicts that employees with fewer resources as well as employees with initial resource losses might face future resource losses (Halbesleben et al., 2014). Thus, starved for financial resources, disengaged employees would seek to minimize discretionary outputs and also reduce efforts in their actual job, reducing employees' in-role and extra-role performance (Bakker et al., 2008).

In particular, moonlighting employees would be disengaged as a consequence of the lack of financial resources combined with the failure of personal and social support to compensate for the loss. Therefore, seeking to avoid any further loss of resources, they could opt to restrict their performance. However, disengaged employees are likely to exhibit a lack of commitment combined with leaving their jobs. This is based on the model of COR. Denied job resources, disengaged employees are highly reluctant to expand resources in being committed to the job or the organization. This may manifest into the reduction of the affective commitment and the increase in the turnover intention (Mohd Rasdi and Tangaraja, 2020). Shuck et al. (2011) argued that turnover is the final act of disengagement. Thanacoody et al. (2014) further extend disengagement as a key mediator between exhaustion and turnover intention. Burnout affects work

performances above and beyond disengagement (Rožman et al., 2018). Based on the COR framework, we, therefore, assume the interaction effect of burnout and financial insecurity on work disengagement to reduce moonlighting employees' in-role and extra-role performances.

These results strengthen our conviction that disengagement should affect the burnout-employee performance relationship. To this effect, it is speculated that the conditional relation between burnout (reliant on the various levels of financial insecurity) and performance may occur primarily via its association with the disengagement variable. The hypotheses described above illustrate a mediated-moderation that arises when the relationship between the independent variable and variable Z affects the mediator variable, which eventually impacts the dependent variable (Preacher et al., 2007). Thus, the propositions are as follows:

> **Hypothesis 4**. *Work disengagement mediates the relationship between burnout × financial insecurity interaction and in-role performance.*
>
> **Hypothesis 5**. *Work disengagement mediates the relationship between burnout × financial insecurity interaction and extra-role performance.*

MATERIALS AND METHODS

Research Design

A cross-sectional survey design was employed in this study. A cover letter was provided to explain that the sole intention of the survey was for academic research to extend the understanding of how financial insecurity interacts with job stress, and this could be a concern for organizations operating in the COVID-19 era.

Participants and Procedures

Using the cross-sectional technique, the researchers conducted data collection in April and May, in 2020. The target population is defined as private and public sector employees who are dual jobholders. The inclusion criteria for respondents were those who: (a) moonlight as ride-hailers, (b) ride-hail after the working hours of their primary job, and (c) stay in Malaysia's Klang Valley metropolitan area. In a PLS-SEM context, researchers recommended using G*Power (Hair et al., 2017) and as such, this study employed G*Power Version 3.1. According to Faul et al. (2009), the sample size should be 150 to serve small effect sizes. With this, G*Power can effectively analyze the probabilities of significant associations when examining numerous latent variables invalidated relationships (Baroudi and Orlikowski, 1988). As per Cohen (1988), power is set at a value of 0.80. In this study, 0.99 is the estimated power for the base model which was beyond the 0.80 cut-off value. Therefore, the power greater than 0.80 confirmed that sufficient confidence was attained on the hypothesized relationships of this study. It must be noted that this study had abided by the ethical guidelines of the American Psychological Association. Besides, UPM Ethics Committee for Research Involving Human Subject approved the study protocol as registered as JKEUPM-2020-180.

The study used the systematic sampling method as a simple random method of sampling that applies a constant interval to choosing a sample of elements from the sampling frame (Chauvet, 2020). Approximately 100,000 ride-hailers working in three major companies (e.g., Grab, MyCar, Gojo) in Malaysia, and due to no minimum hours required to drive, more than half of them are moonlighting and working in public and private companies in Malaysia. After obtaining the list and emails of drivers who moonlights from the companies, we used a random number generator available online to select the moonlighters. Then, the approved questionnaire was distributed electronically to participants. The survey was open to online responses for 8 weeks and to encourage participation, e-mail reminders were sent at 1, 3, and 5 weeks after the initial invitation and before survey closure. Of the 180 questionnaires distributed, 162 complete questionnaires were returned (90% return rate).

Measures and Variables

Exogenous Variables

Financial insecurity

This study employed Munyon (2008) ten-item instrument to assess financial insecurity, which reveals an employee's level of certainty regarding his or her future financial security. This scale has a Cronbach alpha of 0.77. The sample items include: "I believe that I have enough savings for an emergency" and "I have financial stability." Responses ranged from not at all (1) to completely agree (6). For each item in the scale, reverse coding was conducted where higher scores represent higher perception levels of financial insecurity.

Job burnout

Maslach and Jackson (1981) eleven-item burnout scale was employed to measure the state of psychological, emotional, and physical stress that manifests from extended exposure to occupational stress. This scale consists of a feeling of emotional exhaustion, depersonalization, and reduced professional accomplishment. The sample items include: "I feel emotionally drained from my work" and "I worry that this job is hardening me emotionally." All of the items were rated on a 5-point Likert scale ranging from never (1) to always (5). Cronbach's alpha was 0.83.

Endogenous Variables

Work disengagement

The work disengagement scale was developed in a Chinese version in previous studies (Hui et al., 2012) to measure work disengagement. This scale comprises of work withdrawal and exit-seeking behaviors, and it was used to measure an employee's self-reported generalized tendencies of the aforementioned behaviors. A sample of items is: "I want to quit the job as soon as possible." All of the items were rated on a 7-point Likert scale which provided the options range of 0 = *never* to 6 = *always*.

Job performance

Job performance was measured from the moonlighter's perspectives in terms of in-role performance and extra-role performance.

In-role performance: It refers to the completion of role and tasks as stipulated in the formal job description, whereas extra-role performance refers to behaviors of a discretionary nature that is not part of the specific job criteria of the employee but also promote effective organizational function (Biswas and Kapil, 2017). The response was rated on a scale of never (1) and always (5). The in-role performance was measured using the 7-item of Task Performance Scale of Goodman and Svyantek (1999). Samples items are: "I complete tasks that are expected of me" and "I adequately complete assigned duties" (a = 0.82).

Extra-role performance: The 8-item of extra-role performance scale by Eisenberger et al. (2010) was used to measure extra-role performance. A sample item is: "I continue to look for new ways to improve the effectiveness of my work."

Data Analysis

The researchers used PLS-SEM to validate the research model developed for this study (Wong, 2013). The authors used the Smart-PLS 3.0 software for data analysis (Ringle et al., 2015) to run the PLS algorithms with a bootstrapping set to 5,000 subsamples (Hair et al., 2016). The PLS method was preferred over other regression models as it can serve the complex study model as well as the small sample size (n = 162), thus the suitability of PLS (Hair et al., 2016) as an analysis technique for this research (Carrión et al., 2016).

The interaction-moderation method was used to test the moderating role of financial insecurity in the burnout-work disengagement relationship. The researchers run a bootstrapping procedure to obtain the standard error for t-value computation. Confidence intervals that do not include zero have means effects that are significant at $\alpha = 0.05$. Both the Standardized Root Mean Square Residual (SRMR) and Bentler-Bonett Normed Fit Index (NFI) were used to evaluate model fit. SRMR evaluated the differences between observed and expected correlations whereas NFI presents the incremental measure of goodness of model fit. The rate of missing data for items was less than 3%, and missing data were addressed by the regression imputation method.

Testing for Moderated Mediation

In this study, we determined moderated mediation as to whether a mediational process is conditional on other variables (Hayes, 2017). Going forward, the bootstrap method of Hayes (2012) PROCESS macro was employed to test both direct and indirect effects of X on Y, conditional on a moderator. Given the sheer number of models available through PROCESS, we focused on models involving a single moderator (W). PROCESS model 7 was used to determine the indirect effect of X on Y that varies as a function of W, where W moderates the path from X to M. In hypotheses 4 and 5, we assumed that financial insecurity moderates the association between burnout and work disengagement. As such, we looked into the possibility that financial insecurity may provide a conditional influence on the strength of the indirect relationship between burnout and in-role and extra-role performances. This is demonstrated by a moderated mediation pattern between the variables as shown in **Figure 1**. We predicted a strong (weak) relationship between burnout and work disengagement when financial insecurity is high (low). In equation form,

Hypothesis 4: $\widehat{WD} = b_0 + b_1 X_{B0} + b_2 X_{FI} + b_3 X_{B0} X_{FI}$
$\widehat{IRP} = b_0 + b_1 X_{BO} + b_2 X_{WD}$

Hypothesis 5: $\widehat{WD} = b_0 + b_1 X_{B0} + b_2 X_{FI} + b_3 X_{B0} X_{FI}$
$\widehat{IRP} = b_0 + b_1 X_{BO} + b_2 X_{WD}$

RESULTS

Demographic Results

The sample consisted of 116 males and 46 females with an average age of 33.07 years (SD = 9.704). The average year they worked as ride-hailers was 2.27 (SD = 1.72), while the average income for their primary and secondary jobs was RM2, 674.83, and RM1, 586.48, respectively.

Measurement Model

The measurement model fulfilled all model fit requirements as per the results shown in **Table 1**. Firstly, the reliability condition was fulfilled as indicated by factor loadings that scored greater than 0.7. The item-trimming process was used to remove weak loading items in terms of values. As such, items at factor loadings, less than 0.05 were disqualified from the final analysis. Next, Dijkstra-Henseler's rho indicators were employed to assess construct reliability (Dijkstra and Henseler, 2015). **Table 1** shows that the construct reliability of composite indicators was confirmed by the minimum reliability value of 0.7 (Henseler, 2017). Also, the latent variables met the standard requirement of convergent validity because all values of their average variance extracted (AVE) surpassed 0.50 (Hair et al., 2016). Also, the values of Cronbach's alpha (α) were greater than 0.70 (see **Table 1**).

Discriminant validity uses empirical standards to distinguish the degree of one construct to another. Therefore, to conduct discriminant validity, this study applied the Fornell-Larcker and Heterotrait-Monotrait (HTMT) criteria as recommended by Fornell and Larcker (1981) and Henseler et al. (2015). Regarding the Fornell-Larcker criterion, the results indicated that the square root of each construct's AVE was higher than the correlation values with any other construct. Also, the values of HTMT were below the threshold value of 0.85 in all cases as shown in **Table 2**. Consequently, this study confirms that burnout, disengagement, financial insecurity, and in-role and extra-role performance could be mutually discriminated in the study.

The Measurement Invariance

The researcher conducted the measurement invariance of composite models (MICOM) procedure to establish the measurement invariance requirements. This step ensures that the group-specific model estimations would not be similar stemming from content distinction and the meaning of the latent variables access group (Chin and Dibbern, 2010; Sarstedt and Ringle, 2010; Hair et al., 2017). Known as a systematic assessment of measurement invariance, the MICOM process consists of three steps that evaluate configural invariance, compositional invariance, and equal means and variances, respectively.

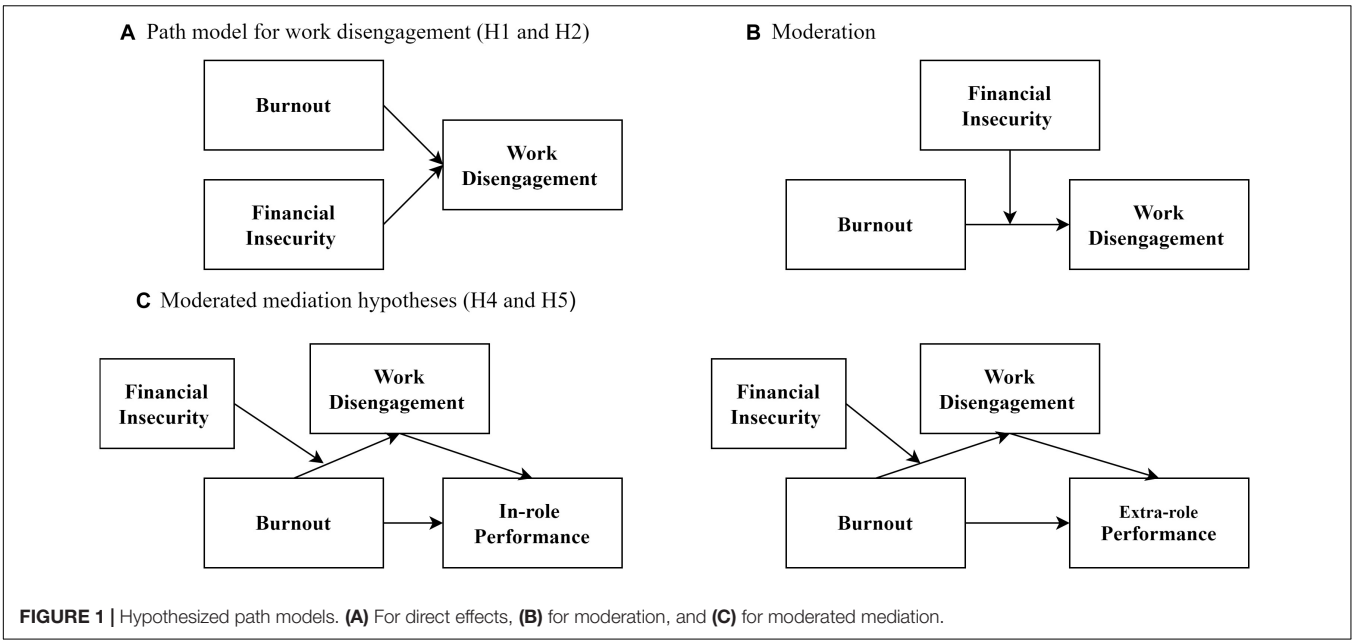

FIGURE 1 | Hypothesized path models. **(A)** For direct effects, **(B)** for moderation, and **(C)** for moderated mediation.

In addition to running MICOM and the measurement invariance analysis, a permutation test was also conducted. A nonparametric test, such as the permutation test, serves to observe interchangeably between male and female groups so that a re-estimation of the model can be made for each permutation. To generate the distribution of test statistics, a total of 1,000 repetitions is deemed sufficient. Random cases were assigned amongst male and female groups and the model was estimated, including the test statistics being calculated. The result is considered significant at the 5% probability when the *r*-value is lower than 0.05 or higher than 0.95 for a coefficient difference of a group path (Rigdon et al., 2010). **Table 3** displays the results of the invariance measurement testing. The MICOM Step 1 process involved content and expert validity, as well as identical indicators per measurement model across the groups. This also included identical data treatment for missing value treatment and identical algorithm settings. The second step determined if a composite contains a correlation in the male and female groups, respectively, which reported a slight difference thus establishing compositional invariance. Finally, based on the permutation test, Step 3 evaluated the confidence intervals for mean and variance values, all of which indicated the establishment of the full measurement invariance. The permutation tests indicated that all variables (across groups) have effects of significant differences.

HYPOTHESIS TESTING

Structural Model

After the measurement model was validated, we conducted path analysis to test H_1 and H_2. The structural model was evaluated through examinations on the significance of path coefficients, effect size (f^2), coefficient of determination (R^2), and predictive relevance (Q^2). The study confirmed that the data fitted the model well because the results of all models show less than 0.08 SRMR values and greater than 0.8 NFI values (Henseler et al., 2016).

The evaluation of the structural model was conducted using a nonparametric bootstrapping procedure with a resample of 5,000 to generate the β and corresponding *t*-values. The results revealed that burnout significantly explains the work disengagement proportion (β = 0.285, *t* = 3.787, *P*-value = 0.000). Furthermore, the path coefficients show the link between financial insecurity (β = 0.220, *t* = 2.458, *P*-value = 0.014) and work disengagement. As shown in **Figure 2**, these results fail to reject H_1 and H_2. Besides, the calculation of R^2 estimated the variance value in work disengagement via the explanation of burnout and financial insecurity. Accordingly, if an R^2 value is greater than 0.134, the coefficient of determination is deemed low (Henseler et al., 2015). This study used f^2 to calculate the deletion impact of exogenous variables, namely burnout and financial insecurity, on the endogenous variable of work disengagement. The researchers of this study observed Cohen (1988) f^2 classification as 0.02 = small, 0.15 = medium, and 0.35 = large, respectively. The f^2 result for financial insecurity was 0.156 while burnout was 0.194, respectively. This showed medium-sized effects in the explanation of work disengagement. This study also used Q^2 for the calculation of predictive relevance job burnout as the endogenous variable. Henseler et al. (2015) Q^2 classifications are 0.02 = small, 0.15 = medium, and 0.35 = large, respectively. The Q^2 result was 0.39, which is an indication of disengagement of work achieving a large predictive relevance.

Moderating Effect of Financial Insecurity

The results of interaction moderation showed a significant and positive link between burnout and work disengagement (b = 0.215, t = 2.887, p < 0.004). Similarly, a positive and significant relationship was reported between financial insecurity and disengagement of work (b = −0.209, t = 2.783,

TABLE 1 | PLS-CFA measurement model results.

Variable	Loading	M	*SD*	α	rh-A	CR	AVE	VIF
In-role performance		4.09	0.705	0.901	0.922	0.922	0.629	2.204
IRP1	0.811							
IRP2	0.835							
IRP3	0.816							
IRP4	0.821							
IRP5	0.81							
IRP6	0.766							
IRP7	0.688							
Extra-role performance		4.08	0.656	0.915	0.922	0.925	0.608	2.336
ERP1	0.83							
ERP2	0.715							
ERP4	0.741							
ERP5	0.867							
ERP6	0.751							
ERP7	0.747							
ERP8	0.745							
Burnout		3.037	0.619	0.849	0.889	0.882	0.52	1.927
BO1	0.651							
BO2	0.646							
BO3	0.797							
BO4	0.899							
BO5	0.703							
BO6	0.658							
BO7	0.656							
Financial Insecurity		2.332	0.619	0.767	0.815	0.847	0.589	1.614
F1	0.825							
F2	0.803							
F3	0.732							
F4	0.685							
Work disengagement		1.832	0.572	0.836	0.866	0.87	0.51	1.88
WD1	0.698							
WD2	0.767							
WD3	0.84							
WD5	0.509							
WD6	0.736							
WD7	0.655							
WD8	0.59							
WD9	0.587							

Values of composite reliability (CR), average variance extracted (AVE), variance inflation factor (VIF), mean and standard deviation.

$p < 0.006$). Additionally, there was a significant relationship between the burnout-financial insecurity interaction effect and work disengagement ($b = 0.165$, $t = 2.67$, $p = 0.0490$). The moderation test results are reported in **Table 4**.

The interaction chart, as shown in **Figure 2**, denotes respondents' level of perceptions of financial insecurity from low to high [±1 standard deviation (*SD*)] where the lower (−1 *SD*), central (mean), and upper (+1 *SD*) lines represent a low, medium, and high level of perceptions of financial insecurity, respectively. When the central line is compared to the upper line, an increase in respondents' burnout perceptions is associated with a greater rise in disengagement, as their perceptions of financial insecurity are elevated. Additionally, it is observed that the significant differences between slopes indicate that financial insecurity impacted the strength of the burnout-disengagement relationship. Therefore, the results confirmed that the main effect of the moderator on work disengagement has been established in this study, thus the results fail to reject H_3.

Moderated Mediating Effect

According to Hayes (2017), when the moderation relationship is present, in this case between the indirect effect of burnout on in-role and extra-role performances, moderated mediation emerges. This indirect effect corresponds with the value of financial insecurity, which is the moderating variable. To evaluate this conditional process model, this study carried out the index of moderated mediation (Hayes, 2017) where the index quantifies the linear association between the moderator and the indirect effect. Therefore, with the inclusion of zero in the confidence interval (95% CI: −0.247 to 0.738), the moderated mediation hypothesis is not supported, as shown in **Tables 5**, **6**. The indirect effect of burnout on in-role performance through work disengagement does not depend on levels of financial insecurity; the results reject H_4. In contrast, the results indicated that financial insecurity significantly moderated the indirect effect of burnout on extra-role performance (95% CI: −0.0061 to −0.0021). This study concluded that the index of moderated mediation for extra-role performance is statistically relevant and that H_5 is failed to reject (see **Figure 3**).

This study conducted a spotlight analysis to investigate the conditional indirect effect of the moderator on extra-role performance. Accordingly, if the existence of moderated mediation is supported by its index, investigations must be carried out on the indirect effect at representative values of the moderator (shown as conditional indirect effect) (Spiller et al., 2013). This method allows for further exploration of the conditions in which mediation is present or absent (Preacher et al., 2007). **Table 7** does not show any significant indirect effect for disengagement with low financial insecurity (effect: 0.0281; 95% CI: −0.1124 to 0.0071). On the other hand, there was a significant effect for both moderate (effect: 0.141; 95% CI: 0.112 to 0.172) and high financial insecurity (effect: 0.015; 95% CI: 0.071 to 0.130). Therefore, it is concluded that burnout affects extra-role performance via work disengagement and the mediation relationship which increases with the increment of financial insecurity. Overall, these results fail to reject H_5.

DISCUSSION

This present study set out to determine the spillover effects of personal financial insecurity that can impact burnout-disengagement relationships during the COVID-19 pandemic. To do this, we examined whether pandemic-perceived financial

TABLE 2 | Measurement model: discriminant validity.

	Fornell-Larcker Criterion					Heterotrait-Monotrait ratio (HTMT)				
	BO	**ERP**	**FI**	**IRP**	**WD**	**BO**	**ERP**	**FI**	**IRP**	**WD**
BO	0.721									
ERP	−0.208	0.780				0.252				
FI	0.032	−0.194	0.763			0.172	0.244			
IRP	−0.286	0.710	−0.164	0.793		0.321	0.802	0.216		
WD	0.296	−0.124	0.223	−0.172	0.680	0.289	0.131	0.257	0.178	

JB, job burnout; FI, financial insecurity; WD, work disengagement; IRP, In-role performance; ERP, extra-role performance.

TABLE 3 | Results of invariance measurement testing.

Variables	**Compositional Invariance (Correlation = 1)**			**Equal Mean Assessment**				**Equal Variance Assessment**		
	C = 1	***CI***	**Partial Measurement Invariance Established**	**Δ**	***CI***	**Equal**	**Δ**	***CI***	**Equal**	**Measurement Invariance**
In-role performance	0.99	[0.88. 1.000]	Yes	0.98	[−0.34,0.35]	Yes	0.04	[−0.48,0.40]	Yes	Full
Extra-role performance	0.88	[0.63, 1.000]	Yes	0.65	[−0.39,0.32]	Yes	−0.06	[−0.72,0.68]	Yes	Full
Burnout	0.98	[0.82,1.000]	Yes	0.83	[−0.31,0.37]	Yes	−0.11	[−0.43,0.46]	Yes	Full
Financial Insecurity	0.99	[0.84,1.000]	Yes	0.95	[−0.36,0.34]	Yes	−0.07	[−0.67,0.60]	Yes	Full
Work Disengagement	0.96	[0.96,1.000]	Yes	0.23	[−0.32,0.35]	Yes	0.10	[−0.75,0.77]	Yes	Full

CI, Confidence interval; Δ, Differences.

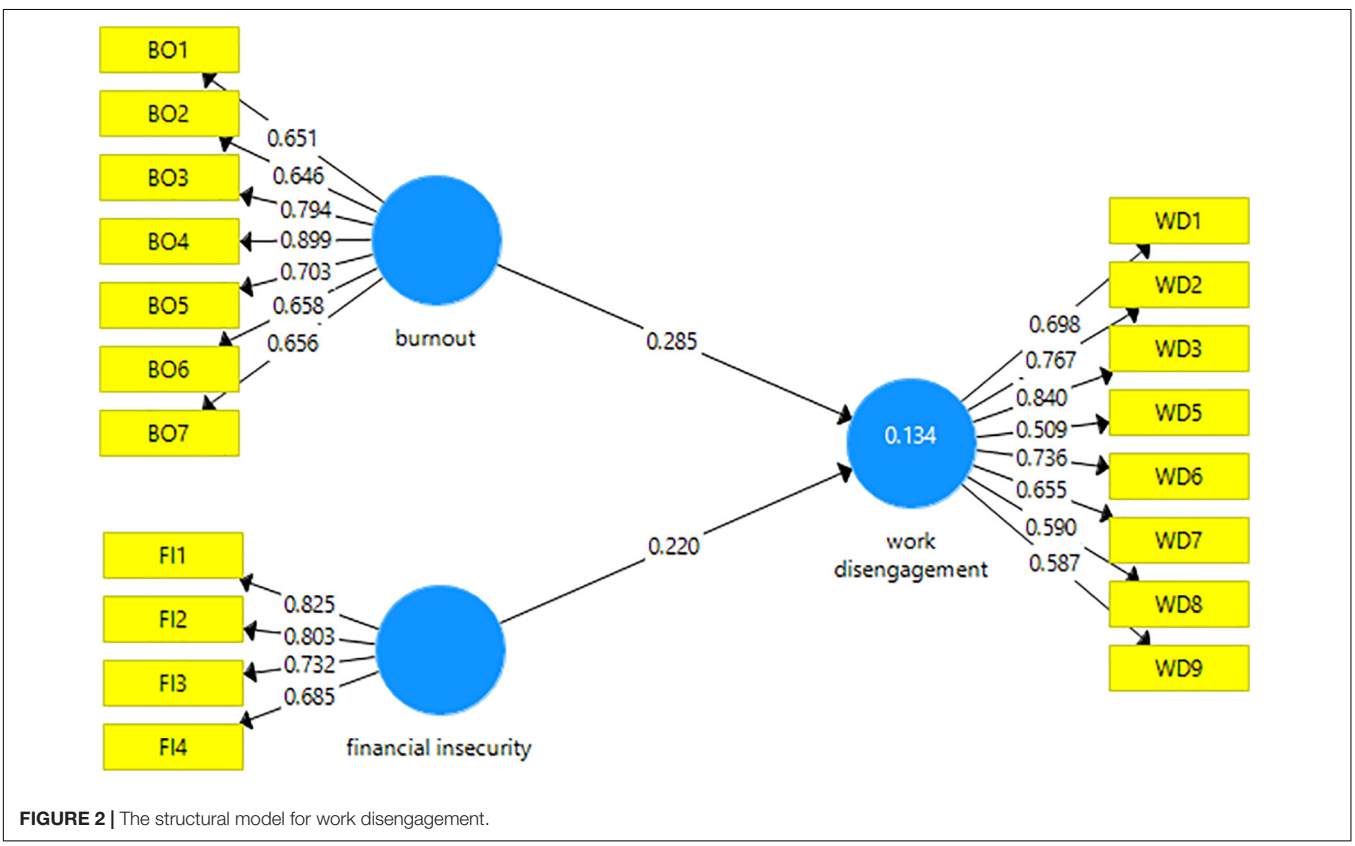

FIGURE 2 | The structural model for work disengagement.

TABLE 4 | Moderation test results.

Hypothesis	β Values	*T* values	*P* Values	f^2	Work Disengagement		
					R^2-without moderation	R^2-with moderation	ΔR^2-Result
H_3: Financial insecurity moderates the burnout-work disengagement relationship.	0.165	2.67	0.0490	0.008	0.134	0.143	0.011 Percent accepted

TABLE 5 | Results of the bootstrapping analysis.

Variable	Outcome variable: In-role performance				Outcome variable: Extra-role performance			
	Coefficients	SE	*t*	95%CI	Coefficients	SE	*t*	95%CI
Independent								
Burnout	−0.0715	0.0852	−0.8389	−0.2397,0.0968	0.201	0.0312	4.591	0.161,−0.243
Mediator								
WD	−0.1627	0.093	−1.74	−0.0837,0.219	−0.243	0.024	5.231	−0.317, −0.218
Interactive Effect								
BO × FI	−0.0310	0.1054	−0.294	−0.239,0.177	−0.014	0.0033	−3.2363	−0.0165,−0.0075
Model Summary	***R***	***R^2***	**MSE**	***F***	***R***	***R^2***	**MSE**	***F***
	0.1615	0.0261	0.4908	2.128	0.681	0.463	30.1	386

*BO, burnout; WD, work disengagement; FI, Financial insecurity.N = 162. *P < 0.01, and ***p < 0.001.*

insecurity moderated the relationship between burnout and disengagement. Secondly, we assessed the interaction effects of financial insecurity and burnout on the performance of moonlighting employees through work-disengagement. Our results indicate that perceptions of financial insecurity shaped by the COVID-19 crisis had positive effects on work disengagement. The results support existing findings (Wittmer and Martin, 2013), suggesting that moonlighters' higher perception of financial insecurity leads to reduced work engagement that leaves them with a negative mentality (H_1 was failed to reject). This result also underscores the negative effect of job demands, as the JD-R theory postulated (Bakker and Demerouti, 2017). Moonlighters who are employed during the COVID-19 crisis tend to experience the dual insecurities of job and finance. When they perceive a stability shortfall in their employer-employee exchange relationship, they respond by withdrawing and disengaging from work (Parzefall and Hakanen, 2010). Compounded by elevated anger, frustration, and negative effects, employees' capacity to sustain a positive motivational-affective state is held back (Sora et al., 2010).

TABLE 6 | Index of moderated mediation.

Moderator: FI	Index	SE (Boot)	Bias corrected bootstrapping 96%	
			Lower	Upper
BO > WD > IRP	0.0051	0.236	−0.247	0.0738
BO > WD > ERP	−0.0041	0.0013	−0.0061	−0.0021

BO, burnout; WD, work disengagement; IRP, In-role performance; ERP, Extra-role performance.

Another notable finding is the great influence of burnout (during the COVID-19 pandemic) on moonlight work engagement, which is in good agreement with earlier literature (e.g., Bakker et al., 2008). These results indicated that moonlighters who have high levels of burnout experience heightened disengagement of work (H_2 was failed to reject). Building upon JD-R theory (Bakker and Demerouti, 2017), the present study demonstrated that variations exist across and within organizations in terms of how COVID-19 has impacted job demands and resources. Our results suggest that most employees face deteriorated working conditions, especially among moonlighters. In light of these constraints, COVID-19 has substantially exposed employees to a greater risk of job burnouts which are associated with disengagement from work as well.

The results of the interaction-moderation analysis revealed that financial insecurity moderates the effect of moonlighters' burnout on their level of disengagement. We found, in line with H_3, that heightened financial insecurity strengthens the burnout-disengagement relationship, which is a striking contrast when compared to the incidence of low financial insecurity. The results support existing findings that found multiple job-holders' susceptibility to crushing concerns about their financial situation, exhaustion, burnout, and overall disengagement (Sliter and Boyd, 2014; Bouwhuis et al., 2018). Similar observations were made on the nature of an economic crisis, which plays the role of a macro stressor that consolidates different economic stressors of employees, namely, financial distress and job instability or loss, all of which could trigger the onset of an extended state of stress that eventually leads to psychological distress and burnout (Caraballo-Arias et al., 2018; Giorgi et al., 2020; Sigursteinsdottir et al., 2020). Following the conservation of resources (COR) theory that

TABLE 7 | Conditional Indirect Effect.

		In-role performance				Extra-role performance			
Mediator		**Effect**	**BootSE**	**Boot LLCI**	**BootULCI**	**Effect**	**BootSE**	**Boot LLCI**	**Boot ULCI**
WD	(−1 SD Fin)	−0.0253	0.0319	0.146	0.228	0.0281	0.022	−0.1124	0.0071
WD	(Mean Fin)	0.0215	0.0216	−0.0762	0.0057	0.141	0.014	0.112	0.172
WD	(+1 SD Fin)	0.0165	0.0267	−0.0721	0.0390	0.208	0.015	0.071	0.130

WD, work disengagement.

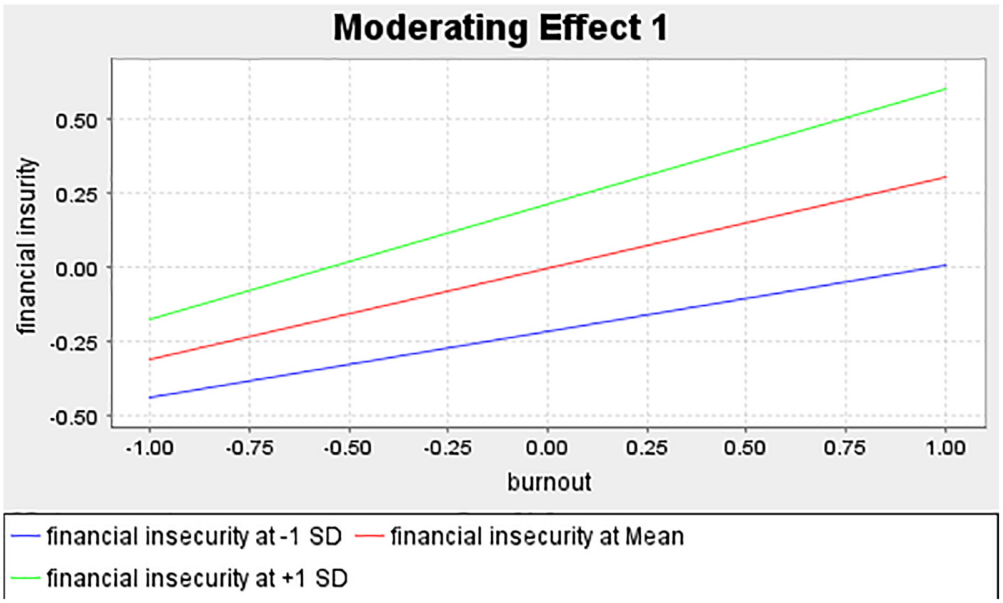

FIGURE 3 | Results of the moderating effect of financial insecurity on the relationship between burnout and disengagement.

predicts loss spirals (Hobfoll, 2011), an employee's exhaustion may deplete resources, thereafter disengaging further in work (Toppinen-Tanner et al., 2002; Diestel and Schmidt, 2010; Tauhed et al., 2019). Prior research also found that job insecurity and financial concerns are associated with suboptimal mental health, specifically impacted by national or global events, such as the COVID-19 crisis (Wilson et al., 2020).

Our study also demonstrated that burnout symptoms that emerged during the COVID-19 crisis depreciate extra-role performance through the work disengagement mediator, conditional on financial insecurity (a boundary condition) for increased work disengagement. The present study provides empirical evidence on the direct link between burnout and disengagement of work, which is similar to previous findings (Tan et al., 2020). Our study confirmed the significance of this direct relationship in congruence with the conditional on an elevated level of financial insecurity. It can be said that the interaction effects of financial insecurity and burnout bring a negative effect on moonlighters' extra-role performance (H_5 was failed to reject). Our findings indicated that the lack of resources as a consequence of unforeseen events, coupled with a lack of days off, would inevitably increase burnout and fatigue. The impact of this demand would reduce the employees' commitment to the organization, increase disengagement, and reduce extra-role performance.

Conversely, there was no major association, directly or indirectly, between disengagement and in-role performance (H_4 was rejected). Among the plausible explanations for this finding is that it represents the behavioral nature of both types of performances. In the pandemic-induced financial crisis, moonlighters who are financially stacked against and have unfavorable relations with their organization tend to decide that reducing their regular work tasks is not a viable option because as their organization undergoes austerity, particular work behaviors are noticed. Therefore, moonlighters in this environment avoid standing out in a negative light.

The present study makes several notable contributions to the management and organization literature with theoretical and practical implications. We conducted a timely and appropriate examination of moonlighters' perceived financial insecurity set against the backdrop of the COVID-19 crisis. We also confirmed the organic and causal relationships between financial insecurity, burnout, work disengagement, and in-role and extra-role performances. This establishes a theoretical foundation that explains the connection between financial insecurity and the psychological responses of moonlighting employees.

Our present research may be one of the earliest empirical works conducted to verify the significant negative effects of financial insecurity to shed light on how moonlighters are responding and behaving in this time of crisis. Besides, as a matter of interest among organizational management practitioners, our study provides insights into the burnout-financial insecurity interactions that affect employees' level of disengagement and performance at the workplace. The academic opportunity for theoretical development is presented - one that explores justifications on placating financial insecurity. More importantly, we highlight practical implications for human resource practitioners. It appears that the COVID-19 crisis is far from gaining a quick resolution. The results indicate that if organizations withhold long term assistance or incentive programs to establish financial security for moonlighters, during and after the crisis, its unfavorable side effects may spill over and influence other organizational members by nature of a multipronged attack, thus making it much harder for managerial interventions. Concurrently, there is an urgent need to advance understanding of organizational support mechanisms that reduce disengagement and boost engagement among moonlighters. They need security blanket resources to face pandemic-specific and uncertain job demands. In response, organizations can intervene through top-down or bottom-up approaches or mechanisms to ensure employee wellness, as a means to restore the JD-R equilibrium.

The most obvious finding to emerge from our study is that the dual insecurities of job and finance lay a path laden with worrying consequences on employee mental health. It makes sense for the organization to pay attention to employees who are experiencing depressive symptoms during this crisis. Importance needs to be placed, on the part of employers, in exercising mindfulness in placating employees' feelings of uncertainty, by being the source of hope. To respond to employees who are enduring burnout symptoms, employer intervention could be carried out to address financial concerns. As an option, employers can promote telecommuting, with or without reduced hours and income, to ensure that some form of income, although not in its entirety, can be safeguarded. This is in line with previous findings that demonstrated job resources playing a weaker role as compared with job demands in predicting job stress. This suggests that demand-prompted policies may be more effective in reducing stressors. Nevertheless, improving job resources should not be discounted. Nurturing and supportive relationships at the workplace is a valuable resource, and if tended carefully, it sets off a "virtuous cycle" that functions as a job-stress reliever. According to Hovey et al. (2014), relationships are the foundation of positive psychology in which the mechanism of emotional and social support is established, thus facilitating continued human evolution and bonding. These relationships provide and strengthen self-efficacy to overcome times of hardship, such as pandemic-prompted financial and economic crisis. It was expected that the psychological benefits of social support mitigated the perception of financial threat concerning life satisfaction in the group of individuals with higher levels of emotional support, in detriment of the group with lower levels of emotional support.

Interestingly, moonlighters who are severely financially impacted are more likely to prevail when social support avails as a coping mechanism as compared with those with less social support access (Åslund et al., 2014). As our results indicate that emotional discord runs parallel with burnout which reduces in-role performance, it is of the interest of the management, therefore, to consider ways to placate emotional discord. Therefore, what is now needed is a study on how HR moonlighting policies affect outcomes for employers and employees alike.

This study acknowledges several strengths and limitations in the aspects of research design. We acknowledged results generalizability issues due to the small sample size. To address this, we adopted the quantitative method and the participant selection process to arrive at an improved generalization of the findings. Quantitative methods produce factual, reliable results that can be generalizable to a larger population (Nardi, 2018). Besides, to generalize the results of the study to similar public and private employees who moonlight, we used a systematic sampling method where we selected members of the population at a regular interval, and we included criteria for participant selection. Despite the limitations, this study provides some insights for future research operationalization. First, our cross-sectional analysis did not yield a conclusion on the causal relationship. Having said that, the experimental research design is better matched to describe a uniform causal direction of the relationships among the constructs. Second, a longitudinal research design allows further assessment of COVID-19's post and long-term effects on employees. Although we tried to examine financial insecurity during the pandemic and its potential impact on moonlighters' burnout, disengagement, and performance, our study might have failed to consider and/or observe all confounding factors. Future research should scrutinize additional factors that might also be influenced by financial insecurity, such as the relationship between moonlighters' adaptation styles or personality and performance. Finally, what is needed is to further assess the effect of the COVID-19 crisis on employee performance as this is compounded on existing occupational stress across all sectors.

CONCLUSION

The findings of the present study point out that financial insecurity, during the pandemic, spills over the exchange relationship of burnout and work disengagement, thus implicating interferences in moonlighters' performance in the organization. Our research explored whether financial insecurity moderates the effect of burnout on disengagement, and how this disengagement acts as a mediating factor in this process. Responding to the critical need, we identified the conditions and mechanisms in which burnout may cause effect variations in performance outcomes. The results of this study exposed financial insecurity as the conditional factor that interacts with the mediation outcome of disengagement between the relationship of burnout and extra-role performance. Explicitly, when the condition of high financial insecurity occurs, the results

showed the mechanism of disengagement outcome is stronger between the relationships of burnout and extra-role performance. In this regard, burnout predicted extra-role performance through a moderated (financial insecurity) and mediation (work disengagement) relationship. In conclusion, this study deduces that the provision of immediate resources to moonlighters could alleviate short-term financial instability, therein minimizing their burnout and disengagement levels at work.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

UPM Ethics Committee for Research Involving Human Subject approved the study protocol as registered as JKEUPM-2020-180. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

RR and ZZ made substantial contributions to the conception of the work, the experimental design, the acquisition of data, the analysis and interpretation of data, and drafting the manuscript and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. ZZ made substantial contributions to the analysis and interpretation of data and revising the manuscript critically for important intellectual content. SA made substantial contributions to the analysis of data and revising the manuscript critically for important intellectual content. All authors contributed to the article and approved the submitted version.

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ORIGINAL RESEARCH
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Workload, Techno Overload, and Behavioral Stress During COVID-19 Emergency: The Role of Job Crafting in Remote Workers

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The radical changes deriving from the COVID-19 emergency have heavily upset some of the most familiar routines of daily work life. Abruptly, many workers have been forced to face the difficulties that come with switching to remote working. Basing on the theoretical framework proposed by the Job Demands-Resources model, the purpose of this paper was to explore the effect of work overload (workload and techno overload), on behavioral stress, meant as an outcome linked to the health impairment process. Furthermore, the aim of the study was to explore the mediating role of job crafting, considered as a second-order construct consisting of two dimensions (increasing structural resources and increasing challenging demands) in the abovementioned relation. Participants were 530 workers experiencing remote working or work-from-home during the first COVID-19 lockdown in Italy (March–May 2020). Hypotheses were explored by using three different latent variables, measured reflexively through indicators on a 5-point scale, extracted from validated questionnaires. Data analysis was performed through Structural Equation Modeling; to test the mediation, bootstrap validation was computed ($n = 2{,}000$). Results showed that the mediation of job crafting was partial. More specifically, the direct effect between work overload and behavioral stress was positive; moreover, the indirect, negative effect through the mediation of job crafting was also significant. Therefore, results showed that job crafting can play a crucial role as a protective factor supporting the activation and adjustment of suitable resources; these resources can be useful to deal with the negative effects of work overload, particularly under the condition of heavy remote working and use of technologies, on individual outcomes. Starting from the current global scenario of the pandemic that has not yet ceased its effects, the study suggested decisive theoretical and practical implications. Accordingly, findings extended the current trends in occupational health psychology research, with special reference to the mainstream topic "work and COVID-19" in the Italian context. Finally, results can give suggestions to companies engaged in managing change, recommending that they build a collaborative workplace at the individual and collective level to implement job crafting interventions and enrich the personal and organizational resources of workers, which is useful cope with the current demands.

Keywords: job demands-resources model, job crafting, techno-overload, behavioral stress, remote working, COVID-19

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INTRODUCTION

The impact of the COVID-19 pandemic has been extreme, and it has had negative effects on many employees, employers, and organizations across the world, contributing to a worsening of the global health and economic situations in many countries. At the individual level, workers have been forced to change their habits and lifestyle. The pandemic has modified the quality of life at work and has accelerated the use of work from home, often generating confusion and misunderstanding between employees and employers. Working from home people have been confronted with several difficulties to organize one's own working time; for instance, spaces, devices, internet connection, and coffee breaks have been forcefully shared with the family, a test that may make it difficult to respect the boundaries between work and private life.

In view of the above, employees have developed new strategies to adapt to job demands. An example could be the emergence of virtual teamwork that has gradually replaced more traditional face-to-face collaborative working modalities, forcing individuals to adopt new social and structural resources and to craft the existing ones. In addition, because of their time- and money-saving features, many organizations will probably continue promoting work-from-home (hereafter: WFH) modalities even after the most acute phase of the pandemic. Consequently, a greater number of employees will get used to it, exploiting their advantages in terms of performance and work-family balance. According to the Technology Acceptance Model (King and He, 2006), depending on the most individual dispositions toward information and communication technology (ICT), the long-term interaction with technologies could contribute to the development of new proactive behaviors. However, on the other side, it could also cause anxiety and stress if it leads to an increase in job demands (work overload, time pressure, cognitive and emotional demands). This last aspect has been recently confirmed by many studies highlighting how remote working, especially during the COVID-19 emergency, has increased workload (Wang et al., 2020; Yang et al., 2020) and techno overload (Molino et al., 2020) from the employee point of view. Among technostress creators, techno overload is related to ICTs' potential to induce users to work faster and longer or alter work habits (Ragu-Nathan et al., 2008). Following the theoretical framework proposed by the Job Demands Resources Model (hereafter: JD-R; Bakker and Demerouti, 2017), job demands (e.g., workload and techno overload) have been proven to foster the motivational process with positive outcomes (e.g., job satisfaction, increased job performance, and work engagement) (Ingusci et al., 2019). However, when demands exceed resources at work, the result is a gradual health impairment process with negative outcomes (such as behavioral stress, burn-out, etc.) (Bakker and Demerouti, 2014, 2017).

Starting from this perspective, the aim of this study was to describe the role of an emerging job demand (work overload), formed by workload and techno overload, in determining behavioral stress during the COVID-19 emergency, and to investigate the mediating role of job crafting as a protective factor between both variables. The study proposed an empirical contribution to this discussion, explaining results coming from a survey carried out with a sample of Italian workers experiencing WFH during the first lockdown of the COVID-19 pandemic (period March–April 2020). The paper first focuses on a literature review of the main scientific evidence on the relationship between workload, techno overload, and behavioral stress, focusing thus on the mediating role played by job crafting behaviors. Later, the methodology (participants, aims, variables, measures, and main results) is described; lastly, a discussion of theoretical and practical implications, including limitations of the study, is provided.

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES DEVELOPMENT

Workload, Techno Overload, and Behavioral Stress

According to the JD-R Model, the balance between demands and resources, and their effects on well-being at work are described by considering the individual and organizational outcomes (which can be either positive or negative) (Bakker and Demerouti, 2017). The JD-R paradigm defines two classes of working conditions: job demands and job resources. Job resources are all those physical, psychological, social, or organizational characteristics of the work that are functional to achieving goals and to reduce the psychological costs associated with job requests (examples of job resources are: work autonomy, feedback relating to performance, social support, supervision, coaching, and time control). On the other hand, job demands are all the requests forcing individuals to put greater effort and energy into their tasks in order to achieve goals and satisfy needs but which can also create opportunities for personal growth and development (Van den Broeck et al., 2010). Examples of job demands are workload, time pressure, emotionally and cognitively challenging interactions with others, high responsibility, new projects, and challenging demands. When job demands are high, they can be considered threatening or challenging for people at work.

Workload is a traditional job demand characterized by the need to work faster, to provide quicker responses, to perform multiple tasks, and to accomplish several projects at the same time. Besides workload, over the last years, a new demand related to the use of technology is emerging in several organizational contexts: this is generally referred to as techno overload. In fact, technology in organizations can be both a positive instrument to better manage the working processes and work-life balance and a challenge because when demanding and stressful it can negatively impact workers' health (Sandoval-Reyes et al., 2019). Technology can support companies in improving the efficiency, quality, and timeliness of human resources' services to employees in addition to the reduction of time and economic costs for businesses (Bell et al., 2006). Thanks to technologies, people at work can easily have access to information and can connect with colleagues, friends, and family members anytime. Nevertheless, the acceptance of changes requires time and effort by employees; some workers gladly accept new challenges, others, instead, get affected by them. Therefore, the rapid technological

changes have caused new problems to individuals in their workplace and lifestyle (Ghislieri et al., 2018). People can feel insecure, incapable, and stressed about handling all the skills and knowledge related to the new updates of information technology. In this perspective, it is worth considering the risk of techno overload, which concerns the greater and heavy work excess, caused by the use of technology (Ragu-Nathan et al., 2008). Techno overload, considered a techno-stressor, is associated with stressful situations that contribute to work longer and faster than normal. It can lead to handling a huge amount of information, provoking fatigue, memory difficulties, and loss of control for the workers.

Users can come across different techno-stressors related to unfamiliarity with the new technology, feeling high pressure, due to the amounts of information, and experiencing negative strain and outcomes (Tarafdar et al., 2015). Two relevant stressors have been correlated with the use of ICTs in professional environments: information overload and constant availability. The first stressor occurs when a worker receives a lot of information from different sources, and this can cause excessive strain. The second is about the individuals' constant availability to be connected to their work through the use of ICTs (e.g., mobile phone or PC). Due to their open attitude, they tend to work longer than usual because ICTs create expectations for faster response (Garbarino and Costa, 2014), contributing to work overload. Thus, moving from this theoretical background, the study investigated the health impairment process during the COVID-19 lockdown considering the relationship between work overload (a job demand consisting of workload and techno overload) and behavioral stress. Specifically, the first hypothesis was formulated as follows:

H_1: work overload will be positively connected with behavioral stress.

Job Crafting, Work Overload, and Behavioral Stress

Workplaces are increasingly characterized by complexity and uncertainty, and they force companies to reinvent themselves and innovate continuously. The biggest challenge for organizations, however, is to retrain and facilitate employee adaptation (Grant and Parker, 2009; van Wingerden and Poell, 2017; Zhang et al., 2018). One way to address these challenges could be to design flexible jobs that allow employees to make changes in tasks, the environment, and work roles, to be proactive, and to engage in self-directed behaviors to enable better individual-environmental adaptation. These self-initiated behaviors, that help workers to shape their work and facilitate the adaptation between their individual interests and skills and the job demands, are defined as "Job Crafting behaviors," or more simply, job crafting.

Based on the JD-R paradigm, described earlier, job crafting is a proactive strategy that involves the changes made by the employees to balance the demands and resources of their job with their abilities and needs (Ingusci et al., 2019; Gemmano et al., 2020). Job crafting is composed of four dimensions; three dimensions are positive, and they concern the increase of positive, proactive behaviors ("increasing structural resources," "increasing social resources," and "increasing challenging demands"); the fourth dimension is called "hindering demands" and concerns avoiding behaviors which impede the improvement of well-being. According to Tims et al. (2012) and Zito et al. (2019a), employees can craft their job by increasing structural job resources (e.g., enhancing one's own skills and influence in decision-making processes) and challenging demands (e.g., implement new ideas at work, accept new tasks and be involved in new projects). Job crafting behaviors can lead to positive outcomes for the employee by increasing the person-job fit, enhancing the meaning of work, job satisfaction, and work engagement, and, at the same time, reducing the negative impact of job demands and the consequences of job health impairment process, such as burnout (Bakker and Demerouti, 2014). Crafting one's own job may encourage employees to develop and increase their skills, and to align job demands with one's own needs.

In view of the above, it is important to consider the balance between demands and resources and the possibility to craft the job at a personal level: in the impairment health process, a heavy workload, if not balanced by job resources, can lead to behavioral stress. However, studies show also that it can work as a driver for proactive behaviors (Kuijpers et al., 2020). Some studies, in fact, largely consider autonomy and workload as positively related to the approach-oriented job crafting (i.e., increasing structural and social job resources and increasing challenging job demands). Furthermore, in this perspective, high levels of workload can generate proactive behaviors such as personal initiative and self-leadership strategies (Kuijpers et al., 2020). Both the Conservation of Resources theory (Hobfoll, 1989) and (Karasek and Theorell, 1990) describe how employees tend to enact themselves in specific situations. In the context of resource loss (Hobfoll and Schumm, 2009) the advantages of specific resources can be relevant when workers need them (e.g., when they experience a high workload). Furthermore, in line with the activation theory, higher levels of workload can push individuals to develop new strategies at work. Therefore, the following hypothesis was formulated, considering the relationship between work overload and job crafting:

H_2: work overload (measured by workload and techno overload) will increase job crafting strategies.

Job crafting has been considered as a strategy that facilitates adaptation to organizational change; people with high levels of job crafting cope with new and threatening situations effectively by adjusting their work environment (Petrou et al., 2018). They can deal with change by maximizing their tools and reducing their stressors (Vakola et al., 2020). Recently, research about job crafting focused on the four dimensions of the concept. Based on the JD-R perspective, structural and social resources help to improve own work, while challenging demands stimulate workers to seek new tasks at work and thus, enhance motivation, mastering, and learning (Karasek and Theorell, 1990). On the other hand, hindering job demands (e.g., making sure that one's job is mentally less demanding; Tims and Bakker, 2010) indicate a health-protecting coping mechanism used to avoid demands perceived as excessively high. Some studies also highlighted unclear results about hindering job demands

(Petrou et al., 2015; Cenciotti et al., 2016). In addition, current meta-analyses show that the decreasing hindering job demands strategy tends to attenuate motivation and health (Rudolph et al., 2017; Lichtenthaler and Fischbach, 2019), leading to withdrawal behaviors and reduced work engagement. Lichtenthaler and Fischbach (2019) found that decreasing hindering job demands is strictly associated with prevention-focused job crafting and negatively correlated with proactive personality, self-efficacy, and personal growth (Lichtenthaler and Fischbach, 2019). An interesting advance in the JD-R literature concerns ICT in the relationship between job demands and resources. Day et al. (2012), starting from the JD-R theory, classified ICT demands and ICT resources. They revealed how job resources and supports can simplify and reduce the demands, help achieve work goals, and increase professional growth. Some authors define them as technological resources (Atanasoff and Venable, 2017). At the individual level, these structural resources concern forms of autonomy (e.g., communication technology control, responsibilities), participation in using ICT, task variety (e.g., changes in job/environment from ICT), and clarity of tasks (i.e., role and tasks well-defined). In line with the above, we focused on active individual strategies and considered only the dimensions of "increasing structural resources" and "increasing challenging demands" in the job crafting construction. These dimensions can make a difference in the outcomes for people's well-being at work. In terms of organizational policies, job crafting is considered a strategy, which can support workers' well-being, acting as a protective factor, and helping to balance the relationship between job demands and job resources. Thus, high job demands can lead workers to be more motivated and competent in job performance. Accordingly, the following hypothesis was proposed:

H_3: job crafting strategies will be negatively linked to behavioral stress.

The structural model was graphically represented in **Figure 1**.

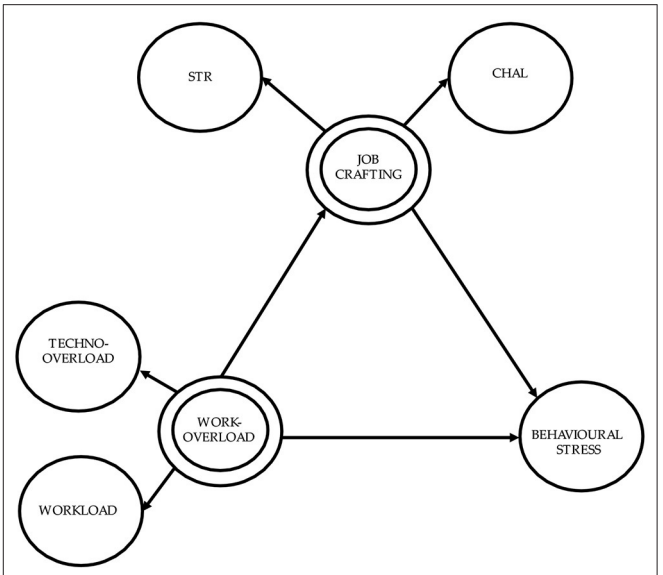

FIGURE 1 | The overall structural model explored. STR, Increasing structural resources; CHAL, Increasing challenging demands.

MATERIALS AND METHODS

Ethics Statement

The study involved a convenience sample of Italian workers. Participants were contacted through an online link where they could find and fill in the questionnaire. More specifically, the study adopted a non-probabilistic sampling approach through a snowball procedure in which each subject recruited other people with suitable characteristics for the research. A requirement for being included in the sample was being a worker with a job contract during the COVID-19 period. Participation in the study was completely voluntary, and the anonymity of subjects was guaranteed according to the General Data Protection Regulation and the Helsinki Declaration (World Medical Association, 2013). Before completion of the questionnaire, individuals provided their informed consent. Data were computed in an aggregated manner without any possibility to identify the personal information of subjects.

Procedure and Participants

The sample constituted 530 subjects who experienced remote working or WFH during the COVID-19 health emergency period. The average time spent in remote working per week was 4.60 days ($SD = 1.48$). The mean age of the sample was 39.0 years old ($SD = 11.2$), ranging between 17 and 70 years old. The mode of the age was 26 years old; 60.4% were female and 39.4% were male workers. Regarding education, the majority of participants had a university degree (36.0%) or a high school degree (31.9%). Among workers, 53.0% had a permanent contract, while 19.6% a temporary one and 20.0% were self-employed; 76.2% of subjects were in a relationship, and 58.1% had no children. Furthermore, 37.2% of the sample worked in public companies, 48.5% in private organizations, 8.3% in social organizations, and 6.1% for more than one. Finally, regarding the occupational sector, 3.0% of participants were working in the primary sector, 8.7% in the secondary, and 55.8% in the third and consulting sector. More specifically, 20.2% declared a job in the education field, 23% in professional services, and 5.1% in the health field.

In terms of exploration of the remote working experience, workers affirmed that this new way of working caused changes in their relationships with clients, colleagues, and supervisors (70.2%), while 29.8% did not feel any variation. In line with the abovementioned studies (Wang et al., 2020; Yang et al., 2020), participants stated that workload and job demands were perceived as increased in 37.2% of cases, unchanged in 41.1%, and decreased in 21.7% of cases.

Variables and Measures

The psychological constructs were investigated through validated scales. Work overload and job crafting were considered high-order constructs. The reliability of all measurements was confirmed.

Work overload was quantified through two first-order latent variables, specifically workload and techno overload. Overall Cronbach's alpha was 0.86 and McDonald's Omega was 0.87. *Workload* was assessed through three items (Melin et al., 2014) on

a Likert Scale from 1 = Strongly disagree to 5 = Strongly agree. Reliability was assessed through Cronbach's Alpha ($\alpha = 0.83$) and McDonald's Omega ($\omega = 0.84$). An example item was: "*I work under pressure due to heavy workload for prolonged periods of time.*" *Techno overload* (overload due to ICT) was measured through five items (Tarafdar et al., 2007; Molino et al., 2020) on a Likert Scale from 1 = Strongly Disagree to 5 = Strongly Agree. Cronbach's alpha was 0.91, and McDonald's Omega was 0.91. An example item was "*I am forced by technology to work faster.*" The abovementioned scales showed good reliability indexes, as confirmed in Converso et al. (2019), Molino et al. (2020), and Pflügner et al. (2021) studies, where their reliability ranged from 0.80 to 0.85 for workload and 0.86 to 0.90 for techno overload.

Behavioral stress was investigated through seven items with a frequency Likert Scale from 1 = Never to 5 = Always (Kristensen et al., 2005). Cronbach's alpha and McDonald's Omega were 0.87. An example item was "*I did not want to talk to anyone.*" The scale was used in other research with good reliability indexes, ranging from 0.86 to 0.90 (Useche et al., 2019; Molino et al., 2020).

Job crafting was measured through six items, concerning two of its subdimensions (Ingusci et al., 2018), namely increasing structural resources and increasing challenging demands. A Likert scale from 1 = Never to 5 = Always was used. Cronbach's alpha and McDonald's omega were 0.93 for increasing structural resources and 0.83 for increasing challenging demands (Cronbach) and 0.84 (Omega), respectively. An example item of increasing structural resources was "*I try to develop myself professionally*" and for increasing challenging demands was "*When an interesting project comes along, I proactively offer myself as project co-worker.*" Regarding the overall scale, Cronbach's alpha and McDonald's Omega were both 0.89. Other studies (Ingusci et al., 2018; Signore et al., 2020) confirmed the reliability of the scale with indexes ranging from 0.74 to 0.92.

Data Analysis

Descriptive analyses, correlations among the study variables, and Cronbach's alpha and McDonald's Omega were tested through the software IBM SPSS 26. Analyses to test the hypothesized model were performed by using the statistical software Jamovi and R Studio, specifically *lavaan* package (Rosseel, 2014). In order to explore our research hypotheses, we conducted Structural Equation Models through the study of the relationship between two latent second-order variables (job crafting and work overload) and a first-order latent variable, behavioral stress. Structural Equation Modeling (SEM) is a statistical technique that allows us to deepen, at the same time, the causal relationships between latent constructs measured by observable variables and connect the latent dimensions to their indicators. The multivariate nature of SEM permits us to study non-directly observable phenomena, quite common in disciplines such as psychology, economy, and educational sciences. Different applications with parametric and non-parametric SEM can be found in Signore et al. (2019, 2020) and Macchitella et al. (2020). To examine the goodness of fit of the overall model, we assessed χ^2, RMSEA, SRMR, CFI, TLI, and AGFI. Results were validated through a bootstrapping procedure (2,000 resampling from the original one). Reliability was measured through Cronbach's alpha, McDonald's Omega, and Joreskog's rho, while construct validity was investigated through the factorization of psychological constructs. Finally, convergent validity was examined with Average Variance Extracted and discriminant validity was measured by using cross-loadings between manifest variables and all the latent variables.

RESULTS

Principal descriptive analyses are depicted in **Table 1**. All variables showed skewness and kurtosis indexes comprised in the range between ±1.96, suitable for normal univariate distribution and parametrical analysis, as suggested in George and Mallery (2010). The Kaiser-Meyer-Olkin (KMO) and the Bartlett Test for sphericity were adequate for all the factors hypothesized. More specifically, the KMO for each factor was higher than 0.80, and Bartlett's Test was significant.

Table 1 shows that workload, techno overload, and behavioral stress are positively and significatively associated. On the contrary, job crafting dimensions correlates negatively with behavioral stress and positively with workload.

The measurement model showed acceptable outcomes. Work overload, measured by the latent variables workload ($\lambda_{\text{WORKLOAD}} = 0.62$, $p < 0.000$) and techno overload ($\lambda_{\text{TECHNO OVERLOAD}} = 0.70$, $p < 0.000$) can be considered as a second-order construct, as for job crafting, composed by the subdimensions increasing structural resources and increasing challenging demands, which appear to be good and statistically significant indicators of the higher-order construct ($\lambda_{\text{STRUCTURAL RESOURCES}} = 0.82$, $p < 0.000$, and $\lambda_{\text{CHALLENGING DEMANDS}} = 0.94$, $p < 0.000$). Average Variance Extracted of the non-observable variables were > 0.50, corroborating the convergent validity, and discriminant validity was confirmed through cross-loading (see **Table 2**) since the manifest variables showed a stronger correlation with the measuring construct rather than the others. Finally, composite reliability was confirmed through Joreskog rho index ($\rho_{\text{WORK OVERLOAD}} = 0.87$; $\rho_{\text{JOB CRAFTING}} = 0.91$; $\rho_{\text{BEHAVIORAL STRESS}} = 0.89$).

The measurement model highlights coefficients statistically significant, reflectively measured (Cheah et al., 2019), in all the latent dimensions hypothesized. In particular, the range of loading for $\lambda_{\text{STRUCTURAL RESOURCES}}$ was 0.89; 0.92, $\lambda_{\text{CHALLENGING DEMANDS}} = 0.66$; 0.79, $\lambda_{\text{WORKLOAD}} = 0.64$; 0.92, $\lambda_{\text{TECHNO OVERLOAD}} = 0.68$; 0.89 and $\lambda_{\text{BEHAVIORAL STRESS}} = 0.59$; 0.82. Bootstrap parameters estimates confirmed even in this case the significance of coefficients after 2,000 resampling. Alternative models performed (**Table 3**) revealed that hypothesized solution (M_1) is the best one. The final model, with measurement and structural model, is depicted in **Figure 2**.

Regarding the structural model, all fit indexes were good. More specifically, CFI = 0.96, TLI = 0.95, AGFI = 0.91, RMSEA = 0.05 (90% CI: 0.05, 0.06), SRMR = 0.06. In greater detail, we found a positive relation between work overload and behavioral stress (H_1) ($\beta_1 = 0.48$, $p = 0.015$) and between work overload and job crafting (H_2) ($\beta_2 = 0.19$, $p < 0.000$). On the contrary,

TABLE 1 | Correlations between manifest variables of the study, means, and standard deviations.

	1	2	3	4	MEAN	SD
1. Workload	–				3.15	1.06
2. Techno overload	0.34***	–			2.50	0.98
3. Behavioral stress	0.24***	0.30***	–		2.51	0.80
4. Increasing structural resources	0.09*	0.08	−0.19***		4.12	0.76
5. Increasing challenging demands	0.12**	0.04	−0.21***	0.61***	3.64	0.85

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

TABLE 2 | Cross-loadings of manifest variables (discriminant validity).

	Job crafting	Work overload	Behavioral stress
Workload (Item 1 work overload)	0.24	**0.60**	0.11
Workload (Item 2 work overload)	0.15	**0.74**	0.22
Workload (Item 3 work overload)	−0.03	**0.53**	0.33
Techno overload (Item 4 work overload)	0.15	**0.73**	0.25
Techno overload (Item 5 work overload)	0.08	**0.79**	0.29
Techno overload (Item 6 work overload)	0.10	**0.80**	0.30
Techno overload (Item 7 work overload)	0.03	**0.56**	0.25
Techno overload (Item 8 work overload)	0.04	**0.68**	0.26
Behavioral stress (Item 1 behavioral stress)	−0.18	0.32	**0.70**
Behavioral stress (Item 2 behavioral stress)	−0.21	0.35	**0.69**
Behavioral stress (Item 3 behavioral stress)	−0.14	0.49	**0.64**
Behavioral stress (Item 4 behavioral stress)	−0.30	0.38	**0.88**
Behavioral stress (Item 5 behavioral stress)	−0.13	0.36	**0.63**
Behavioral stress (Item 6 behavioral stress)	−0.16	0.45	**0.81**
Behavioral stress (Item 7 behavioral stress)	−0.37	0.24	**0.75**
Increasing structural resources (Item 4 job crafting)	**0.83**	0.16	−0.25
Increasing structural resources (Item 5 job crafting)	**0.85**	0.20	−0.21
Increasing structural resources (Item 6 job crafting)	**0.81**	0.18	−0.22
Increasing challenging demands (Item 1 job crafting)	**0.70**	0.12	−0.23
Increasing challenging demands (Item 2 job crafting)	**0.76**	0.17	−0.23
Increasing challenging demands (Item 3 job crafting)	**0.83**	0.16	−0.23

The strongest correlation is between the indicator and the hypothesized latent variable. In bold the highest correlation between manifest and latent variable.

the structural effect of job crafting on behavioral stress is negative and statistically significant (H_3) ($\beta_3 = -0.38$, $p < 0.000$). Thus, the indirect effect of work overload on behavioral stress through the intervention of job crafting is significant and negative ($\beta_{a \times b} = -0.07$, $p = 0.029$). The resulting mediation model is partial, as both direct (*c*') and indirect effect (*a* x *b*) are statistically significant. Following Hair's et al. (2016) guidelines, the partial mediation of job crafting is a competitive one, since indirect and direct effect point in different directions. Based on the ratio between the indirect effect of job crafting and total effect, results suggested that mediator effect size is 17.53% of the total effect, and so a non-trivial part of the causal effect of work overload to behavioral stress can be explained by the intervening effect of job crafting (Gallucci et al., 2017). The bootstrap procedure allowed to improve the generalizability of the explored relations (**Table 4**) since all the bootstrap confidence intervals did not contain the value 0.

DISCUSSION AND CONCLUSION

The study showed interesting relationships between the considered variables and highlighted the positive role of job crafting in a period of rapid and constant changes due to the COVID-19 health emergency. The first hypothesis of our study (H_1) was confirmed: the latent construct called work overload, reflectively measured by workload and techno overload, positively influenced behavioral stress during the COVID-19 health emergency. Results confirmed that both constructs, enclosed in a more general dimension, showed a positive and significant relationship with stress, which is in line with previous studies (La Torre et al., 2019; Scafuri Kovalchuk et al., 2019; Thulin et al., 2019); according to the JD-R model's perspective, these types of job demands have a direct and evident impact on the health impairment process, such as behavioral stress. In light of the JD-R model, organizations should be focused on the balance between demands and resources, since, if not balanced, they can give rise to a process of deterioration of health that can lead, according to the studies, to experiencing burnout, exhaustion or discomfort in general. The presence of adequate resources gives rise to a motivational process that favors better work performance and generates well-being (Bakker and Demerouti, 2014; Zito et al., 2016). According to these considerations, in a peculiar period, such as the COVID-19 pandemic emergency, in which the emotional states and the emotional fatigue linked to the emergency (Carey et al., 2020) can add up to increased and modified work demands, particular attention should be paid to stress dynamics. In this sense, the chance to access job crafting strategies would be useful to allow workers to manage a part of the demands, even having the

TABLE 3 | Results of alternative Structural Equation Models (SEMs).

Models	χ^2	df	*p*	CFI	TLI	RMSEA	SRMR	Comparison	$\Delta\chi^2$	*p*
M_1	433.47	176	0.000	0.961	0.954	0.053	0.061			
M_2	444.03	177	0.000	0.960	0.952	0.053	0.061	M_2-M_1	10.568	<0.05
M_3	459.30	178	0.000	0.958	0.950	0.055	0.061	M_3-M_1	25.829	<0.001

M1 is the hypothesized model with job crafting as a mediator. M2 is the model where job crafting affects work overload and behavioral stress. M3 is the model where behavioral stress is the mediator between job crafting and work overload.

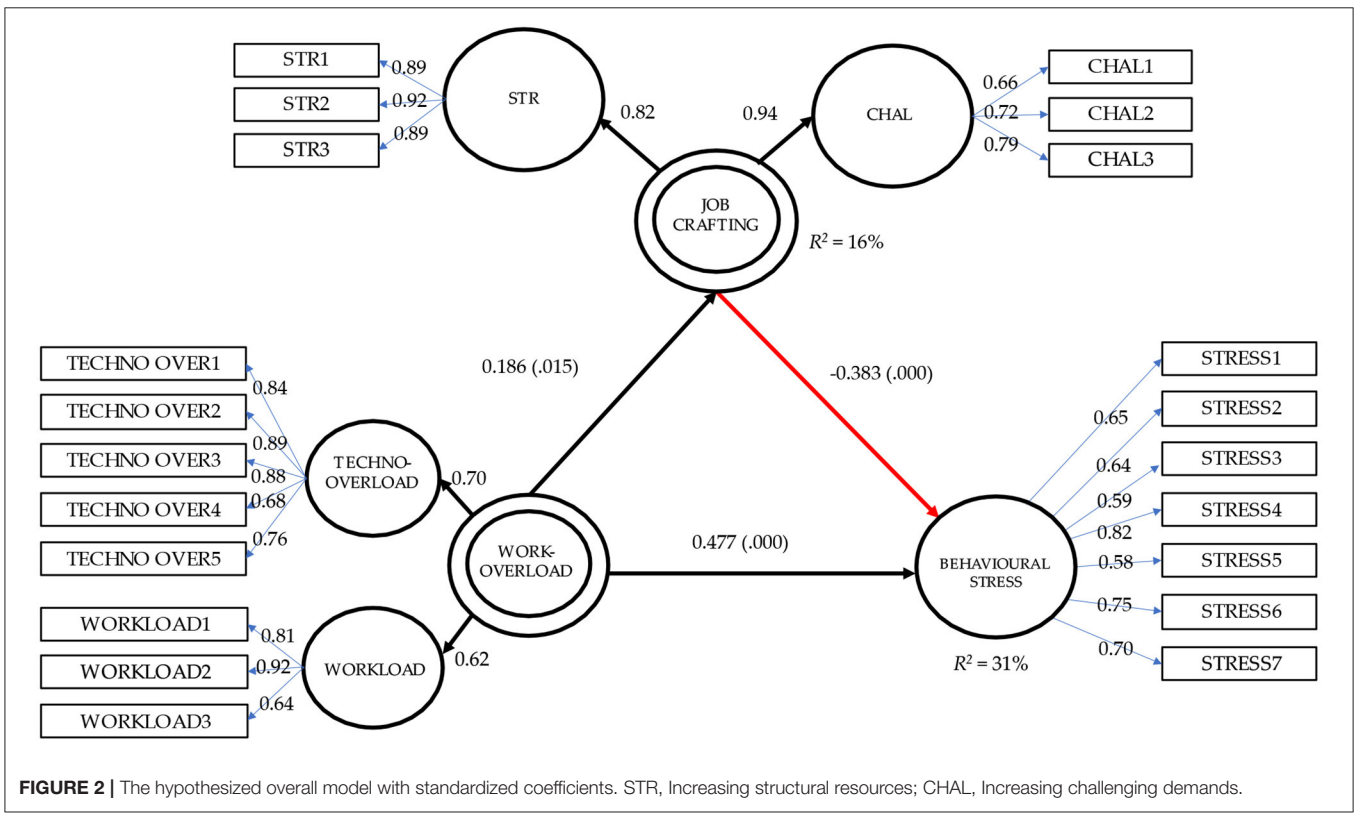

FIGURE 2 | The hypothesized overall model with standardized coefficients. STR, Increasing structural resources; CHAL, Increasing challenging demands.

TABLE 4 | Bootstrap estimation of the coefficients.

Relations			EST	*z*	*p*-value	CI lower	CI upper
Work overload	→	Behavioral stress	0.48	5.331	0	0.34	0.72
Work overload	→	Job crafting	0.19	2.440	0.015	0.03	0.32
Job crafting	→	Behavioral stress	−0.38	−5.494	0	−0.60	−0.29
a*b		Indirect effect	−0.07	−2.177	0.029	−0.15	−0.01
c		Direct effect	0.48	5.330	0	0.34	0.72
c + (a*b)		Total effect	0.40	4.297	0	0.25	0.65

possibility to experiment with control on daily life, with positive outcomes for both the individual well-being and the organization in terms of performance.

The second hypothesis' aim (H_2) was to explore whether a high level of work overload can increase proactive strategies of management, in particular job crafting, in its subdimensions of increasing challenging job demands and increasing structural job resources. Different studies showed that job crafting can increase in cases of high job demands, as a result of high workload and overload due to the use of ICTs (Hakanen et al., 2017; Vanbelle et al., 2017; Kuijpers et al., 2020). Job crafting can be boosted through job resources such as autonomy, but it could also function as a proactive coping strategy activated by job demands (Petrou et al., 2015; Vanbelle et al., 2017). As our study's results proposed, a high level of work overload increased job crafting strategies. Job crafting can represent a

defensive strategy triggered by important demands playing a crucial role in balancing the suitable resources to deal with negative outcomes (Robledo et al., 2019; Signore et al., 2020). As workload increases, having access to job crafting strategies would be helpful for workers dealing with an expected and rapid change in work processes. Human Resources departments should be aware of the potential offered by job crafting strategies: dealing with the innovations of ICT in work dynamics would also be stressful (Molino et al., 2020), and if employees have the possibility to self-manage, they would be more productive (Ren et al., 2020), probably experiencing positive emotions that have a role in the reduction of stress and discomfort (Zito et al., 2019b). The research showed, furthermore, the second-order nature of job crafting itself (Rudolph et al., 2017; Singh and Singh, 2018; Esmaeili et al., 2019). Items reflectively measured the subdimensions "*increasing challenging job demands*" and "*increasing structural job resources*" with significant coefficients, and at the same time the latter contributed to assess the overall job crafting construct.

Finally, the third hypothesis (H_3) was confirmed since job crafting had a negative and significant impact on behavioral stress. This result is in line with the current literature that highlights how job crafting could mitigate non-desirable work outcomes that influence well-being and productivity. Employees proactively craft their jobs to avoid stress (Singh and Singh, 2018) and burnout (Signore et al., 2020), and this strategy has been adopted even in the health emergency context, where ordinary demands (workload) and new forms of strain (overload due to ICTs) represented obstacles to overcome. Furthermore, Mediation analysis showed how job crafting had an impact on stress. The percentage of effect explained by the intervening role of job crafting, accounts for 17% of the overall effect, meaning a non-trivial part of the overall effect can be explained by the intervening effect of the mediator. Job crafting seemed to have a protective role toward behavioral stress, buffering the impact of job demands on the health impairment process. This achievement allows us to consider job crafting an increasing strategy of management in changing work environments and in emergency situations. In remote working or WFH conditions, in fact, the impact of workload perception on behavioral stress, which was positive and significant, was reduced by 17.53% if job crafting strategies were used. Overall, results showed that job crafting can be considered a protective strategy, able to buffer the impact of behavioral stress on workers' well-being. This finding is in line with recent literature, which considers job crafting an important strategy aimed at mediating the relationships between different resources/demands and consequences linked to motivation and health impairment processes (Akkermans and Tims, 2017; Radstaak and Hennes, 2017; van Wingerden and Poell, 2017; Kim and Beehr, 2019; Meijerink et al., 2020). Lichtenthaler and Fischbach (2019), in fact, in a recent meta-analysis, integrated resource and role-based job crafting concepts and, through the regulatory focus theory, distinguished promotion-focused (increasing job resources and challenging job demands) from prevention-focused (decreasing hindering job demands) as drivers of behaviors which can lead to different outcomes. According to this framework, in this contribution, we found that job crafting could improve well-being at work during COVID-19 emergency, and, thus, reduce behavioral stress. Job crafting, in this case, has been considered a resource-building tactic used by workers; nevertheless, it also could be managed by employers that are able to carry out interventions to develop job crafting behaviors to achieve individual and organizational outcomes.

Limitations and Implications for Future Research and Practice

The present study has some limitations which lead to careful reflection on the generalizations of results. First, the cross-sectional design of the research: future investigations could adopt longitudinal or diary data to assess causal, structural connections between the variables matter of research. The second limitation was the self-report measurement of the scales: this cannot allow us to consider our survey data as objective. Further studies could consider other reported data by supervisors and/or colleagues to detect more information. Furthermore, the sample was a convenient one: the subsequent heterogeneity of some sociodemographic features, such as contract type, working sector, age, etc., imply further insights. Finally, the sample size did not consist of a complete generalization of outcomes to the Italian population: this limit can be overcome by using non-parametrical causal methodologies, as for example PLS-SEM (Signore et al., 2019; Macchitella et al., 2020). Nevertheless, starting from the discussion of the results and despite the limitations described above, this study can be considered a first explorative investigation of the literature about job crafting during the COVID-19 emergency and about the strategies that employees implemented to manage the negative behavioral consequences of remote working during the pandemic. The findings reached, in fact, can provide essential implications, both theoretical and practical.

Primarily, these results added to current occupational health psychology literature, especially in the mainstream of the topic "work and COVID-19" about the mediating and protective role of job crafting in the relationship between the new forms of work overload, such as techno overload, and the negative effects on individuals at work, such as varying forms of behavioral stress. Currently, there are no studies, as far as we know, investigating techno overload related to job crafting behaviors during the outbreak of the pandemic, while, to date, very few studies explored the role of job crafting during the COVID-19 pandemic (Signore et al., 2020). Yet, most of the research produced since the beginning of the emergency has focused on remote working, techno overload, and its effects on the individual and organization in terms of age, type of contract, and work conditions (Kooij, 2020; Prochazka et al., 2020). In the specific area of job crafting, the use of these strategies in a specific period of crisis, and management of the crisis itself, has not yet been detected. Job crafting has been widely identified as a useful strategy to deal with stress and positively related to work engagement (Bakker et al., 2015; Demerouti et al., 2015; Baghdadi et al., 2020), also among professions characterized by the emergency, such as care professions and

nursing. This specific adaptability of job crafting in situations of emergency is a key point in the understanding of this construct that is particularly relevant, as this study highlighted, in the management of situations such as the COVID-19 pandemic crisis, in the reduction of stress. This extends the knowledge and the application of job crafting strategies, also considering Human Resources departments, in the redesign of working dynamics along the new horizon of working conditions due to the pandemic situation.

Another element concerns the role of job crafting in the design of this paper. In this study we focused on the mediating role of the job crafting behavior; future research could explore job crafting and its function as a moderator, also including it in a longitudinal design. It could be significant to investigate further variables related to the working context such as decisional autonomy and social job resources and their relationship with job crafting for the improvement of positive outcomes, such as performance, work engagement, and job and life satisfaction (Bakker et al., 2015). Keeping the focus on job crafting, the present study aimed to provide suggestions also for practitioners. In line with the results, organizations could promote job crafting behaviors to build sustainable work environments (Di Fabio, 2017) where dialogue, information exchange, reciprocity, openness, support, role modeling, delegation of responsibilities, and autonomy are encouraged. At an individual level, employees could have more opportunities to improve these resources and activate, through job crafting interventions, new forms of autonomy (e.g., communication technology control, responsibilities), participation in using ICT, task variety (e.g., changes in job/ environment from ICT), and clarity of tasks (i.e., role and tasks well-defined). Future research could explore job crafting interventions with special reference to some typical target groups in organizations (for instance, teachers or administrative staff in the public sector), to better explore the relationship between techno overload, job crafting, and behavioral stress and to provide and develop essential job crafting strategies to improve wellbeing at work and to reduce stress (van Wingerden et al., 2017; Knight et al., 2021). In line with the job crafting methodology, a quasi-experimental design could be implemented with control and treatment groups. In this procedure, during a pre-test phase, some variables like job crafting, workload, and work engagement could be assessed. Then, in the central phase of design, the treatment group could participate in a 2-h job crafting workshop, focused on different steps stemming from job analysis: mapping one's own job by identifying all the tasks; allocating their job by classifying tasks either as "traditional tasks" or "new tasks"; indicating the time they spent and the social and structural resources they need to carry out the tasks. In a further step, participants could revise their homework assignments (after identifying their strengths and weaknesses). Then, participants could be invited to match strengths and interests to the tasks they perform and to choose the assignments that they are able to craft to better align their job with their personal resources and interests or development needs. Subsequently, workers could develop a job crafting goal explaining how to achieve it. Finally, short, medium-, and long-term effects on the individual, group, and collective level could be assessed (van Wingerden et al., 2017). For organizations facing long-term changes due to COVID-19, it could be useful to promote this kind of job crafting interventions, not only as regular human resource practices but also as a sustainable HRM methodology to prevent the stress and the risks associated with the management of the emergency, promoting job crafting strategies and, thus, well-being at work (van Wingerden et al., 2017; Manuti et al., 2020). In terms of strategies used to improve the human capital—that is, an individual's resources and proactive behaviors that can be learned, developed, and shared—job crafting interventions may provide an immediate and long-term impact on individual and organizational well-being. These interventions, in turn, can enable positive attitudes and behaviors, which, in a perspective of sustainable development (Di Fabio, 2017), can be converted into a competitive advantage for companies.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

EI, FS, MG, AM, MM, VR, MZ, and CC contributed to this work, the design of the research, and data collection. FS performed data analysis. EI and FS wrote the original draft of the paper. All authors contributed to the final version of the paper and approved it for submission.

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Gender and Entrepreneurship in Pandemic Time: What Demands and What Resources? An Exploratory Study

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Due to the coronavirus disease 2019 (COVID-19) epidemic, global economies have suffered an exogenous shock never seen before with a strong economic and psychosocial impact on organizations. Italy, in the context of the research, has been severely affected. The economic crisis has mainly affected women. In this scenario, entrepreneurial perceived success (objective and subjective) is influenced by increasingly burdensome job demands that entrepreneurs have to face up. Using the job demand-resources model, the study aims to broaden the knowledge of the determinants of entrepreneurial perceived success in the current emergency moment. In particular, as regards of the demands, alongside the specific entrepreneurial demands (time demands, uncertainty and risk, and responsibility), we also decided to include the negative interface family–work in both directions from-family-to-work (NEGWIF) and from-work-to-family (NEGFIW). Regarding the resources, we considered entrepreneurial self-efficacy (researching, planning, marshaling, implementing people, and implementing financial), proactive and elaborate social strategies (SS), and both directions of the positive interface: from-family-to-work (POSWIF) and from-work-to-family (POSFIW). All participants are women entrepreneurs (N = 137) who have completed a self-report questionnaire. We explored the associations between demands, resources, and the dimensions of success through hierarchical regressions. As for the demands, time demands, uncertainty and risk, NEGWIF, and NEGFIW negatively influenced the perceived entrepreneurial success. Regarding resources, planning, implementing financial, proactive and elaborate SS positively influenced the perceived entrepreneurial success.

Keywords: women entrepreneurs, JD-R model, entrepreneurial self-efficacy, work-family inter-face, entrepreneurial demands, elaborate and proactive social strategies, COVID-19

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INTRODUCTION

Businesses led by women play an increasingly strategic role in the Italian economy. In Italy (September 30, 2019), over 1.3 million enterprises were owned by women (1,340,580) (Osservatorio sull'imprenditoria femminile, 2020). In 2019, more than 10 million women were entrepreneurs in the European Union Member States (Koltai et al., 2020).

But due to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) discovered in the late 2019 (Zhu et al., 2020), global economies have undergone an exogenous shock never seen before (GDA, 2020). Italy has also been seriously affected (Remuzzi and Remuzzi, 2020). Therefore, the Italian government imposed a lockdown, in which there was a total closure of schools, public places, and most of the companies. This lockdown (phase 1) lasted about 2 months (from March to May, 2020). After this first measure, there was a phase defined "first gradual reopening," in which one had to live with the virus by adopting specific security measures (phase 2, from May to June, 2020). This re-starting phase also included the reopening of businesses. But, according to the latest survey by Confindustria (2020), the main Italian business association, 97.2% of the companies suffered from a negative impact. Furthermore, 43.2% of the Italian companies reported very serious financial problems. In this scenario, the success of the Italian companies certainly is changing. This state of emergency has and still is generating a lot of pressure at the job, and entrepreneurs are facing up various obstacles and can rely only on their own resources. This situation particularly reflects the specific conditions of women entrepreneurs, who are utterly affected by the negative economic outcomes caused by the pandemic. Women entrepreneurs have greater problems with liquidity, procurement of supplies, greater difficulties related to the decline in employment, more constraints in access to credit, and technological problems, compared to their male counterparts (Unioncamere, 2021). In light of these problems, this article aims to study the potential entrepreneurial success factors in this time of crisis and restarting, taking job demands and job resources into consideration, with potentially interesting implications for interventions.

Traditionally, entrepreneurial success has been conceptualized through business growth or market dominance (Cooper et al., 1994; Van Praag and Versloot, 2007). Actually, the mere use of objective and financial parameters as a single measure of success has been criticized (Kuratko et al., 1997; Walker and Brown, 2004); this is because many subjective variables come into play in the meaning and representation of what it can be defined as "entrepreneurial success" (Simpson et al., 2004; Walker and Brown, 2004; Amato et al., 2017). Consequently, multiple subjective sources of success have been considered in the literature (e.g., personal satisfaction and flexibility, Walker and Brown 2004; family security, Kuratko et al., 1997; Shane et al., 2003). In this study, we took into consideration both the objective and subjective sources/perceptions of success: Firm performance and personal financial rewards as objective sources and workplace relationships and personal fulfillment as subjective ones. These dimensions have proved to be strategic for understanding entrepreneurial success (Wach et al., 2016).

To better understand the influences of the challenges due to the pandemic on business success, we propose the use of the job demands–resources model (JD-R model, Bakker and Demerouti, 2007) to try to clarify the position of women entrepreneurs in this particular historical moment of emergency and the effects on business success. This model postulates the simultaneous presence of job demands and job resources. Job resources "refer to those physical, psychological, social or organizational aspects of work which (1) reduce the demand for work and the related physiological and psychological costs; (2) are functional to the achievement of the work objectives; (3) stimulate personal growth, learning and development" (Schaufeli and Bakker, 2004, p. 296). The application of this model to entrepreneurs is present in the literature; however, although there is sufficient research on the application of the JD-R model to employees, studies on entrepreneurs are rather few (Dijkhuizen et al., 2016). This model argues that each profession can have its own specific risk factors. For this reason, in this study, we use specific resources and demands related to entrepreneurial work and other types of resources and demands that can help us to better understand the dynamics between demands and resources affecting women entrepreneurs in this particular pandemic time.

Based on earlier discussion, the study aims to explore entrepreneurial resources and demands in pandemic time and their influence on the success of women entrepreneurs. The contribution offered to the literature on this field concerns both the understanding of what entrepreneurial resources and needs are in this period of emergency and practical implications. Based on the findings, potential strategies are discussed to improve women's entrepreneurial success.

Job Demands and Success

Job demands refer to "those physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort and are therefore associated with certain physiological and/or psychological costs" (Schaufeli and Bakker, 2004, p. 296). In an exploratory way, we have chosen the demands that could influence the current job demands for entrepreneurs during the pandemic. We have selected both non-specific demands and specific demands for entrepreneurs. The following demands have been identified as the characterizing dimensions of entrepreneurial work: time demands, uncertainty and risk, and responsibility (Dijkhuizen et al., 2014). Furthermore, in the pandemic situation, these demands certainly have increased. In times of economic crisis, it is reasonable to think that entrepreneurs must be more available and devote more time to business management. They must face greater uncertainties and risks and increase the sense of responsibility toward their company to ensure its survival. These specific dimensions are stronger predictors than the other non-specific dimensions for entrepreneurs (Dijkhuizen et al., 2014, 2016). Alongside to these specific entrepreneurial demands mentioned above, we decided to also include the family–work conflict. The reason is that the lockdown in Italy due to coronavirus disease 2019 (COVID-19) also led to the closure of schools and the suspension of other assistance services for families and individuals. In Italy, it is very important to examine the work–family interface since Italian women dedicate 2h01' per day to housework and taking care of the family (caring for the children, the elder, and cohabitants with disabilities) while men spend 1h24'. And if one would consider parenting (in families with minor children), the participation rate of fathers is 46.8% while that of the mothers is 73% (Istat,

2019). Italian women, along with the Romanian women, spend more time in such activities than women in any other country within the European community (5h02'). Italian and Greek men, on the other hand, are those who dedicate < 2 h a day for unpaid work at home, which shows a huge gender gap (3h08') (*ibidem*). In this difficult pandemic situation, the request for the participation in multiple roles (work and family roles) could increase. Role theory (Biddle, 1986) has been used to explain strategies for reconciling family and work life, assuming that there are limited resources (e.g., Rothbard, 2001), based on the assumption that a greater number of roles required more effort to balance them generating interference (Hsu et al., 2016). The experience of work–family conflict can occur in both directions from work-to-family as well as from family-to-work, and these have been established as distinct constructs (Grzywacz and Marks, 2000). Negative interface from-work-to-family (NEGWIF) is recognized as a form of conflict between the roles in which general needs and work needs interfere with the performance of family-related responsibilities. Negative interface from-family-to-work (NEGFIW), on the other hand, is a form of conflict between the roles in which the general needs and demands of the family domain interfere with the performance of job-related responsibilities (Netemeyer et al., 1996). The work–family conflict has not been studied extensively in relation to entrepreneurs (Jennings and McDougald, 2007). Little attention was paid to women entrepreneurs (Poggesi et al., 2019) in relation to the work–family interface. In fact, women generally experience higher levels of family–work conflict than men (Fahlén, 2014; Lee et al., 2014). This trend is even greater when it comes to women entrepreneurs (Loscocco et al., 1991). In addition, women entrepreneurs can have multiple roles in the family and in their company, which could lead to role conflicts if poorly managed. In general, women entrepreneurs have more responsibilities and work more hours than employed women, having more difficulties in balancing life and work (Kim and Ling, 2001; DeMartino et al., 2006; De Simone and Priola, 2015). Women entrepreneurs need to become "super(wo)men," autonomous, and agentic and need to keep control over all aspects of their life (work, house, etc.), to successfully manage both work and family (De Simone and Priola, in press). For these reasons, we have decided to integrate, among the demand's dimensions, the family–work conflict (in both directions), to take into account also this aspect which is generally not considered, but which could be crucial for women entrepreneurs. Furthermore, in this time in which the demands have increased due to the pandemic, it could be difficult to involve adequate resources for balancing family roles and job roles in addition; it has been found that a high work–family conflict damages both perceived and objective entrepreneurial performances (Shelton et al., 2008).

Based on these premises, we hypothesize that:

H1: Demands (time demands, uncertainty and risk, responsibility, NEGWIF, and NEGFIW) are negatively related to the dimensions of the perceived entrepreneurial success (firm performance, personal financial rewards, workplace relationships, and personal fulfillment).

Job Resources and Success

Concerning the resources, we have considered specifically personal resources. Personal resources are aspects of the self, related to resilience and to the individual sense of one's ability to successfully control the environment (Hobfoll et al., 2003). In this regard, we refer to those salient personal resources able to manage the current moment of crisis. In the literature, there is a growing attention that extends the JD-R model by integrating personal resources (e.g., self-efficacy and optimism: Xanthopoulou et al., 2007). Thus, in this study, we considered self-efficacy as a specific resource for entrepreneurs (this is because self-efficacy should be considered as specific to the situation, Bandura, 1997) and explored effectiveness in various dimensions related to entrepreneurial work (searching, planning, marshaling, implementing people, and implementing financial). These dimensions are also particularly useful for dealing with the current pandemic situation. We have considered the self-efficacy in all phases of the entrepreneur's work, from research to maintenance, because in this crisis moment caused by the pandemic, many entrepreneurs are forced to reinvent themselves as well as to resist in the market. Furthermore, SS are also useful for achieving one's goals (Guirdham, 1990). SS can be considered as the individual owner behavioral strategies (in contrast to firm strategies) (Von Gelderen et al., 2000). Zhao et al. (2010) and claim that SS are the behavioral plans applied to social interactions to achieve goals. Indeed, individuals use SS to deal with challenging social circumstances (Nurmi et al., 1997), such as the current pandemic situation. For these reasons, the use of elaborate and proactive SS can be decisive for entrepreneurial success. As an additional resource, we have included the possibility that the family context can also act as a resource and enrich the work of women entrepreneurs. In fact, some studies have highlighted the positive side of the family–work interface (e.g., Grzywacz and Butler, 2005), which embraces the idea of enrichment that could play a decisive role in this economic crisis that led to more active participation both in the family domain and in the work domain. The vast literature on this topic states that the coexistence with job roles can also be considered positive (e.g., Frone, 2003; Greenhaus and Powell, 2003; Grzywacz and Butler, 2005; Hill, 2005; Carlson et al., 2006). This approach assumes that participation in multiple roles is a resource that improves other areas of life (Barnett, 1998). This generates positive effects that have been called "positive spillover" (Barnett, 1998; Grzywacz and Marks, 2000), "enrichment" (Rothbard, 2001; Greenhaus and Powell, 2003), and "facilitation" (Frone, 2003; Grzywacz and Butler, 2005; Hill, 2005). Along this line, we also embrace the idea that the various social and psychological resources brought into play by the multiple roles of life are sources of empowerment (Ruderman et al., 2002). In particular, we consider both the positive interface from-work-to-family (POSWIF) and the positive interface from-family-to-work (POSFIW) to explore the mutually beneficial relationship between work and family. Women entrepreneurs are particularly benefited from the affective work–family enrichment and family-derived enrichment (Powell and Eddleston, 2011). So, enrichment could play a decisive role in this moment of crisis that

led to more active participation both in the family domain and in the work domain.

Based on these premises, we hypothesize that:

H2: Resources (searching, planning, marshaling, implementing people, implementing financial, POSWIF, POSFIW, and proactive and elaborate SS) are positively related with perceived entrepreneurial success (firm performance, personal financial rewards, workplace relationships, and personal fulfillment).

MATERIALS AND METHODS

Participants and Procedures

This study has involved the Italian women entrepreneurs during the pandemic second phase (or the phase of "gradual reopening"). The participants were recruited through entrepreneurial trade associations as AIDDA (Italian Association of Women Entrepreneurs and Corporate Executives) and Confindustria (General Confederation of Italian Industry). An anonymized questionnaire was presented to participants using two methods: online and on paper. There was no difference between the paper and online administration regarding the content and format of the questionnaire. A total of 159 women entrepreneurs aged 23–66 years (M = 43, SD = 11.09) are participated in the study. The firms of the entrepreneurs were mainly micro (<10 employees, 80.8%), small (10–50 employees, 9.6%), and medium (50–250 employees, 10%) sized enterprises, operating in a variety of sectors. As for the business sector, 11.3% have a company operating in the agricultural sector, 11.3% deal with crafts, 13.2% deal with catering, 37.7% deal with trade, and the remaining 26.4% deal with welfare services. The average age of the company was 25 years, ranging from 1 year to 82 years. Regarding the education level, 42.8% had a high-school diploma, 33.4% completed a bachelor's or master's degree, 8.3% completed a postgraduate specialization or a PhD course, and 15.5% qualified lower than a diploma level. In the sample, 51% of the participants were married, 10.7% lived with partner, 10.7% had a partner, 6% were divorced, 15.5% were single, and the remaining 6% were widowed. Participants were also asked to indicate the presence or absence of sons and/or daughters: 41.7% have no sons and/or daughters, while the remaining 58.2% have sons and/or daughters, and the average of the number of children is 2, ranging from 1 to 4.

Measures

Work–Family Interface

Work and family dimensions were assessed through 14 items measuring 4 different theoretical dimensions: the NEGWIF (4 item, example: The demands of your job interfere with your home and family life? $\alpha = 0.982$), the NEGFIW (4 item, example: The demands of your family or spouse/partner interfere with your work-related activities? $\alpha = 0.841$), the POSWIF (3 item, example: You manage your time at home more efficiently as a result of the way you do your job? $\alpha = 0.747$), and the POSFIW (3 item, example: You manage your time at work more efficiently because at home you have to do that as well? $\alpha = 0.635$) (Kinnunen et al., 2006). This instrument has been validated for the Italian context (De Simone et al., 2018). Response categories for all of the items ranged from 1 ("never") to 5 ("very often").

Entrepreneurial Demands

We used the three scales specifically built for entrepreneurs developed by Dijkhuizen et al. (2014). The first scale is time demands (5 items, example: "Does it feel as if you have to be available for your company 24 h a day?" $\alpha = 0.846$). The second scale is uncertainty and risk (6 items, example: "Do you find it hard to handle risks concerning your company?" $\alpha = 0.688$). The third scale is responsibility (3 items, example: "Do you feel yourself 100% responsible for the satisfaction of the customers of your company?" $\alpha = 0.666$). We used a 4-point Likert scale (never/always). Accuracy translation for the Italian context has been verified through back translation.

Entrepreneurial Self-Efficacy

To perform this measure, we used the scale developed by McGee et al. (2009). Entrepreneurial self-efficacy dimensions were assessed through 19 items measuring five different theoretical dimensions. The searching dimension investigates self-efficacy in developing an idea or identifying opportunities (item example: How much confidence do you have in your ability to design a product or service that will satisfy customer needs and wants? $\alpha = 0.858$). Planning dimension measures self-efficacy in converting the initial idea into a business plan (item example: How much confidence do you have in your ability to design an effective marketing/advertising campaign for a new product or service? $\alpha = 0.847$). The marshaling dimension measures self-efficacy in assembling resources to achieve the enterprise (item example: How much confidence do you have in your ability to clearly and concisely explain verbally/in writing my business idea in everyday terms? $\alpha = 0.827$). The implementing financial dimension measures self-efficacy in making business (item example: How much confidence do you have in your ability to organize and maintain the financial records of my business? $\alpha = 0.870$). The implementing people dimension refers to self-efficacy related to staff development (item example: How much confidence do you have in your ability to inspire, encourage, and motivate your employees? $\alpha = 0.866$). Translation accuracy for the Italian context has been verified through back translation.

Proactive and Elaborate Social Strategies

We used the scale developed by Zhao et al. (2010). The scale consists in 10 items that measure the proactive and elaborate SS (item example: I actively improve my interpersonal skills, $\alpha = 0.852$). We used a 5-point Likert response scale (1 definitely not like me, 5 exactly like me). Translation accuracy for the Italian context has been verified through back translation.

Entrepreneurial Success

Entrepreneurial success was assessed through 14 items measuring four different theoretical dimensions. We used the four scales developed by Wach et al. (2016). The firm performance dimension includes success criteria related to firm economic performance (example: Profit growth, $\alpha = 0.895$). The workplace relationships dimension captures success definitions related to

relationships with stakeholders within and outside the firm (example: Employee satisfaction, $\alpha = 0.777$). The personal fulfillment dimension encompasses the personal aspects of success (example: Personal development, $\alpha = 0.608$). The personal financial reward captures the desire for high income, that is, extrinsic rewards (example: Personal financial security, $\alpha = 0.918$). We used a 5-point Likert response scale. Translation accuracy for the Italian context has been verified through back translation.

Data Analyses

Descriptive statistical analyses were conducted. Preliminarily, Pearson's correlations were carried out. To examine the relationships between the demands and resources in the JD-R model on perceived entrepreneurial success dimensions, four hierarchical regressions were conducted. Predictor variables were entered into the regression equation in three blocks. In the first step (Model 1), we inserted the socio-demographic variables (age, educational level, and number of sons/daughters); in the second step (Model 2), we added, as a predictors, demands (time demands, uncertainty and risk, responsibility, NEGWIF, and NEGFIW); and finally, in the third step (Model 3), we added resources (searching, planning, marshaling, implementing people, implementing financial, POSWIF, POSFIW, and proactive and elaborate SS) as predictors.

RESULTS

Pearson's correlations suggested correlations between several predictors and the outcome variables (see **Table 1**). Firm performance was correlated with uncertainty and risk ($r = -0.25$, $p < 0.05$), NEGWIF ($r = 0.32$, $p < 0.01$), NEGFIW ($r = 0.26$, $p < 0.05$), searching ($r = 0.42$, $p < 0.01$), planning ($r = 0.40$, p < 0.01), marshaling ($r = 0.40$, $p < 0.01$), implementing people ($r = 0.32$, $p < 0.01$), POSWIF ($r = 0.29$, $p < 0.01$), POSFIW ($r = 0.22$, $p < 0.01$), and proactive and elaborate SS ($r = 0.39$, $p < 0.01$). Personal financial reward was correlated with uncertainty and risk ($r = -0.35$, $p < 0.01$), searching ($r = 0.37$, $p < 0.001$), planning ($r = 0.48$, $p < 0.01$), marshaling ($r = 0.38$, $p < 0.001$), implementing people ($r = 0.29$, $p < 0.01$), and proactive and elaborate SS ($r = 0.39$, $p < 0.01$). Workplace relationships were correlated with time demands ($r = 0.51$, $p < 0.01$), responsibility ($r = 0.26$, $p < 0.05$), NEGWIF ($r = 0.41$, $p < 0.01$), NEGFIW ($r = 0.41$, $p < 0.01$), searching ($r = 0.37$, $p < 0.01$), planning ($r = 0.35$, $p < 0.01$), marshaling ($r = 0.42$, $p < 0.01$), implementing people ($r = 0.41$, $p < 0.001$), implementing financial ($r = -0.23$, $p < 0.05$), POSWIF ($r = 0.41$, $p < 0.01$), POSFIW ($r = 0.44$, $p < 0.01$), and proactive and elaborate SS ($r = 0.51$, $p < 0.01$). Finally, personal fulfillment was correlated with uncertainty and risk ($r = -0.49$, $p < 0.01$), NEGWIF ($r = -0.29$, $p < 0.01$), NEGFIW ($r = -0.26$, $p < 0.05$), planning ($r = -0.31$, $p < 0.01$), implementing people ($r = -0.25$, $p < 0.05$), and proactive and elaborate SS ($r = 0.33$, $p < 0.01$).

The results of the hierarchical regressions are shown in **Table 2**.

Model 3 was significant in all four regressions (firm performance $F = 3{,}275$, $p < 0.01$, personal financial rewards $F = 8{,}671$, $p < 0.001$, workplace relationships $F = 4.765$, $p < 0.001$, personal fulfillment $F = 7.569$, $p < 0.001$). The results of the hierarchical regression analysis suggested that NEGWIF ($\beta = 0.575$, $p < 0.05$), NEGFIW ($\beta = -0.671$, $p < 0.05$), and implementing financial ($\beta = 0.375$, $p < 0.05$) depicted significant relationships with firm performance. Uncertainty and risk ($\beta = -0.348$, $p < 0.01$), NEGWIF ($\beta = 0.531$, $p < 0.01$), NEGFIW ($\beta = -0.896$, $p < 0.001$), planning ($\beta = 0.582$, $p < 0.01$), implementing financial ($\beta = 0.409$, $p < 0.001$), and proactive and elaborate SS ($\beta = 0.378$, $p < 0.01$) depicted significant relationships with personal financial rewards. Time demands ($\beta = 0.601$, $p < 0.05$), NEGFIW ($\beta = -0.528$, $p < 0.05$), and proactive and elaborate SS ($\beta = 0.596$, $p < 0.001$) depicted significant relationships with workplace relationships. Finally, uncertainty and risk ($\beta = -0.480$, $p < 0.001$), NEGWIF ($\beta = -0.566$, $p < 0.01$), and proactive and elaborate SS ($\beta = 0.336$, $p < 0.05$) depicted significant relationships with personal fulfillment.

DISCUSSION

The principal objective of the study was to explore the relationships between the demands and resources considered and the perceived entrepreneurial success by women entrepreneurs in pandemic time. In particular, we wanted to explore the relationship between some demands like entrepreneurial demands (time demands, uncertainty and risk, and responsibility) and work–family conflict (NEGWIF and NEGFIW), some resources like entrepreneurial self-efficacy (searching, planning, marshaling, implementing people, and implementing financial), work–family enrichment (POSWIF and POSFIW), proactive and elaborate SS, and four dimensions of perceived entrepreneurial success (firm performance, personal financial rewards, workplace relationships, and personal fulfillment). The results partially confirmed the relationships hypothesized.

Regarding the firm performance, among demands, NEGFIW showed a negative relationship as hypothesized. NEGWIF instead showed a positive relationship. During the pandemic time, women entrepreneurs felt particularly pressured by requests from the family and work domains. The data showed that the participants perceive that when work negatively interferes with the family, the chances of entrepreneurial success in relation to firm performance increase. On the contrary, when the family interferes negatively with work, the perception of success in terms of firm performance decreases. In other words, the interviewed women entrepreneurs seemed to have a clear idea of the need to sacrifice the family and to give priority to work for entrepreneurial success in terms of firm performance. As stated by Hall (1990), it is likely that feelings about how successful one is in balancing work and family may come from situations that represent a sacrifice of one domain for the other. Women entrepreneurs, consistent with neoliberal ideals, mainly invest in the market and sacrifice the family for the business (De Simone and Priola, in press). The successful businesswomen are "women heroines" characterized by confidence, control, and

TABLE 1 | Correlations between variables.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16
Time demands	2.95	0.72	1														
Uncertainty and risk	1.93	0.43	0.20	1													
Responsibility	3.34	0.64	0.49**	0.05	1												
NEGWIF	3.53	1.37	0.36**	0.10	0.24*	1											
NEGFIW	2.65	1.06	0.37**	0.20	0.35**	0.71**	1										
Searching	3.88	0.84	0.47**	−0.08	0.23*	0.44**	0.36**	1									
Planning	3.71	0.76	0.50**	−0.15	0.20	0.27*	0.23*	0.70**	1								
Marshaling	3.86	0.76	0.46**	−0.24*	0.31**	0.24*	0.37**	0.62**	0.62**	1							
Implementing people	3.8	0.74	0.48**	−0.29**	0.34**	0.35**	0.30**	0.59**	0.48**	0.72**	1						
Implementing financial	3.13	0.84	−0.27*	0.27*	−0.15	−0.15	−0.14	−0.30**	−0.35**	−0.50**	−0.52**	1					
Proactive and elaborate social strategies	3.33	0.70	0.31**	−0.06	0.23*	0.31**	0.48**	0.41**	0.16	0.37**	0.33**	−0.17	1				
POSWIF	3.67	1.01	0.35**	0.21*	0.33**	0.46**	0.63**	0.36**	0.14	0.20	0.23*	−0.07	0.58**				
POSFIW	3.75	1.06	0.34**	−0.16	0.19	0.31**	0.38**	0.53**	0.37**	0.50**	0.42**	−0.38**	0.52**	1			
Firm performance	3.46	0.90	0.20	−0.25*	0.17	0.32**	0.26*	0.42**	0.40**	0.40**	0.32**	−0.15	0.29**	0.39**	1		
Personal financial rewards	3.16	0.92	0.17	−0.35**	0.06	0.15	0.09	0.37**	0.48**	0.38**	0.29**	−0.09	0.18	0.39**	0.86**	1	
Workplace relationships	4.13	0.55	0.51**	−0.00	0.26*	0.41**	0.41**	0.37**	0.35**	0.42**	0.41**	−0.23*	0.41**	0.55**	0.61**	0.51**	1
Personal fulfillment	3.70	0.55	0.09	−0.49**	−0.02	−0.29**	−0.26*	0.18	0.31**	0.20	0.25*	−0.19	0.01	0.25*	0.33**	0.47**	0.27*

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

TABLE 2 | Results of hierarchical regression analysis.

	Firm performance			Personal financial rewards			Workplace relationships			Personal fulfillment		
		β			B			*β*			B	
Step 1: demographics												
Age	−0.080	0.008	−0.006	0.051	0.076	0.071	−0.179	−0.134	−0.156	0.212	0.026	0.533
Educational level	0.119	0.422**	0.352*	0.150	0.405**	0.365**	−0.199	0.028	0.037	0.085	0.212	0.740
Number of sons/daughters	−0.018	−0.163	−0.187	−0.052	−0.091	−0.060	0.284*	0.105	0.258	−0.243	0.085	0.929
R^2 Adj		−0.047			−0.038			0.093			0.045	
Step 2: demands												
Time demands		0.507**	0.306		0.636**	0.181		0.598**	0.601*		−0.243*	0.092
Uncertainty and risk		−0.441**	−0.255		−0.589**	−0.348**		−0.248	−0.102		−0.623***	−0.480**
Responsibility		0.078	0.032		0.010	0.005		0.056	−0.035		−0.067	−0.060
NEGWIF		0.626**	0.575*		0.487*	0.531**		0.306	0.183		−0.514**	−0.566**
NEGFIW		−0.370	−0.671*		−0.480*	−0.896***		−0.233	−0.528*		−0.027	−0.208
R^2 Adj		0.382			0.404			0.362			0.583	
Step 3: resources												
Searching			−0.127			−0.289			−0.244			0.013
Planning			0.161			0.582**			−0.198			0.188
Marshaling			0.036			0.008			0.263			−0.101
Implementing people			0.325			0.297			−0.108			0.189
Implementing financial			0.375*			0.409**			−0.014			0.142
POSWIF			0.249			0.257			0.128			0.038
POSFIW			0.040			0.120			0.140			0.060
Proactive and elaborate social strategies			0.275			0.378**			0.596**			0.336*
R^2 Adj		0.436			0.723			0.562			0.657	

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

courage to face and overcome gendered barriers (Adamson and Kelan, 2019). Perhaps this is even more evident because the current pandemic crisis increased the workload of women, both in their occupation and in their housework (Del Boca et al., 2020) asking them to be superwomen at work and in the family context. More time spent on working, neglecting the family, leads to an even greater investment in work, betting on economic growth determined precisely by the time spent at work. Women experience greater conflict between work and family roles than men (e.g., Noor, 2004; Welter, 2004), and given the results obtained, especially in relation to personal fulfillment, the pandemic period could aggravate this gap. With respect to resources, the "implementing financial" dimension is a key factor in predicting success in terms of firm performance. This is in line with the literature that has found relationships between self-efficacy in making business grow and firm performance of women entrepreneurs (e.g., Asandimitra and Kautsar, 2017).

Concerning personal financial rewards, among demands, uncertainty and risk showed a negative relationship as hypothesized. Among entrepreneurial demands, uncertainty and risk in this pandemic scenario is the dimension that interests personal financial rewards of women entrepreneurs. Likewise to the results related to firm performance, NEGFIW showed a negative relationship as hypothesized, but NEGWIF instead showed a positive relationship. The conflict between family and work plays a key role in explaining the entrepreneurial success also in relation to personal financial reward: by sacrificing the family for work, the time spent on working increases, and hypothetically, the personal financial rewards grow. Regarding resources, the "implementing financial" and the "planning" dimensions of entrepreneurial self-efficacy also predicted personal financial rewards. In this case, even proactive and elaborate SS maintain a significant positive relationship with personal financial rewards. Probably, the perception of knowing how to act appropriately in social contexts can lead women to create more networks that can be fruitful. The SS are behavioral strategies of the individual owner (in contrast to firm strategies) (Von Gelderen et al., 2000). For this reason, they are probably predictive of personal financial rewards (as an individual dimension) and not predictive of firm performance.

Regarding the workplace relationships, among demands, NEGFIW showed a negative relationship as hypothesized. Contrary to what we have hypothesized, among entrepreneurial demands, time demands dimension showed a positive relationship. One possible explanation may be that greater time pressure can lead to a greater sense of involvement that improves relationships at work. It could also happen that the increasing time spent at work means spending more time with people inside and outside the company, thus improving relationships. This is what may have happened to the entrepreneurs interviewed during the pandemic period, who, in order to save their company, have dedicated more time and more energy to the business and to relationships with employees. In addition, proactive and elaborate SS, as expected, also improve relationships at work. Proactive and elaborate SS ensure that social skills are continually improved (Zhao et al., 2010), and therefore, women entrepreneurs could use them for internal and external working relationships.

Finally, personal fulfillment among demands showed a negative relationship with uncertainty and risk and NEGWIF as we hypothesized. It is noteworthy that this is the only time NEGFIW was found to be negatively related to one of the dimensions of perceived entrepreneurial success. According to the findings, interference from work at family increases more work-related dimensions but decreases the levels of perceived entrepreneurial success related to the personal aspects of success. It would seem that personal fulfillment is to be sacrificed to increase the perceptions of the financial aspects of success. This can be understood in a penalizing way if we consider that work and family are intertwined areas for women entrepreneurs (Loscocco and Bird, 2012; Peris-Ortiz et al., 2012). The studies on the work–family interface in women entrepreneurs have investigated the work and family demands as sources of conflict and/or as a positive challenge (e.g., Bruni et al., 2004; Ahl, 2006). Mitigating work–family conflict is a strategy to handle the gender roles and manage the work–family conflict developing entrepreneurial business (Shelton, 2006).

Referring to resources, proactive and elaborate SS, as expected, also improve personal fulfillment. SS proved to be an important element in our study. Previous studies (e.g., Brush et al., 2005; Bogren et al., 2013) have reported that establishing good relationships is a key factor in influencing the success of women entrepreneurs. It should also be noted that among the entrepreneurial demands, responsibility was the only dimension not associated with any dependent variable. It therefore seems that this dimension does not affect the entrepreneurial success perceived during the pandemic period. Not even some dimensions of entrepreneurial self-efficacy have shown significant associations. Only financial and planning ability can help women entrepreneurs in the pandemic situation. Unexpectedly, not even the family–work enrichment is predictive of success. The dimension of the conflict between family and work prevails as a demand, and the possible enrichment between these two domains as a resource does not emerge. A possible explanation could lie in the fact that in the pandemic time in which the working life and private life have occupied the same times and (sometimes) the same spaces, it was difficult to create the POSFIW and the POSWIF and to think about the mutual exchange of the two domains in association with entrepreneurial success.

CONCLUSION

The conflict between work and family domains plays an important role in the perceived entrepreneurial success. The work–family conflict affects all four dimensions of the perceived entrepreneurial success, proving to be a key element for the perception of the success of women entrepreneurs in this moment of pandemic. Difficulties related to risk management and uncertainty in managing one's own company, especially in this pandemic crisis, can negatively influence the perceived

entrepreneurial access in terms of personal financial rewards and fulfillment. Time demands, counter intuitively in this moment instead, increase the success in relationships at workplace, probably due to the greater involvement they cause. The resources used are specific resources, which include self-efficacy in terms of planning and implementing financial. The perceived self-efficacy in transforming opportunities into business and in the ability to grow the company also from a financial point of view plays a decisive role. Proactive and elaborate SS influence three of the four dimensions of perceived entrepreneurial success, showing that interpersonal resources are a decisive factor for women entrepreneurs in this time of crisis.

PRACTICAL IMPLICATIONS

The results show the key role of the family–work conflict on entrepreneurial success. The study focused on small businesses with limited resources, where generally women entrepreneurs are the main decision-maker and manager. Initiatives based on more favorable legislation to facilitate women entrepreneurs should be integrated by several actions aimed at implementing and diversifying childcare supply and specific family-friendly policies designed for women entrepreneurs. More services should be implemented for women entrepreneurs in this pandemic situation. Women entrepreneurs seem to feel the negative influence of uncertainty and risk. The political decisions of the Italian government should take into account the greater unpredictability given by the pandemic situation to create measures to protect companies that can guarantee a perception of greater stability over time. Entrepreneurial self-efficacy in the dimensions of planning and implementing financial has proved decisive as a resource to be used in the current situation; specific training can be implemented for women entrepreneurs. The ability to create and maintain networks, through proactive and elaborate SS, proved decisive. The possibility of creating networks and associations must be considered as a possible strategy to help women entrepreneurs in this particular crisis situation.

LIMITATIONS

This is an exploratory study that provides some initial evidence on factors that could affect women's entrepreneurial success. However, this study has several limitations. First, this study used a cross-sectional design and self-reporting tools. Furthermore, the sample is certainly limited and not representative, not taking into account the different characteristics of the companies (size, sector, years of activity, etc.). Thus, this could limit the generalizability of the findings and have to be taken into account when interpreting results.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

JP, SD, and BB developed the research project and reviewed the literature. JP carried out the data analysis. MR-R reviewed the manuscript. All authors contributed to the article and approved the submitted version.

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BRIEF RESEARCH REPORT
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Teleworking in Times of COVID-19: Effects on the Acquisition of Personal Resources

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The COVID-19 pandemic has forced many employees to introduce different degrees of teleworking, leading to a transformation of the psychosocial work environment. In this study, we analyzed whether the relationship between a labor resource, social support, and a personal resource, vigor at work, is affected by the work modality (face-to-face, hybrid that includes face-to-face work and telework time, and telework caused by the current pandemic situation). Five hundred and forty-three employees answered an online questionnaire about their perceptions of the levels of social support, vigor experienced in the last month, and work modality. Seniority in the organization and the gender of the employees were controlled for. The model fit was significant [$F_{(7, 535)} = 20.816$, $p < 0.001$], accounting for 21% of the variation in vigor ($R^2 = 0.21$). The interaction was also significant [$F_{(2, 535)} = 4.13$, $p < 0.05$], with an increase of 1% in the explanation of the variance in vigor at work ($\Delta R^2 = 0.01$). Differences were found in the positive relationship between levels of social support and vigor at work, among the face-to-face and telework modalities (hybrid and telework), but not between teleworking modalities. As a result, we posit that the different forms of telework moderate (buffer) the relationship experienced between labor resources (social support) and personal resources (vigor at work). This implies that, for the design of teleworking conditions, it is necessary to provide work resources similar to those in face-to-face settings, such as social support.

Keywords: COVID-19, labor resources, social support, telework, vigor, well-being at work

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INTRODUCTION

The health crisis caused by the COVID-19 (an infectious disease caused by the SARS-CoV-2 virus) pandemic, declared by the World Health Organization on 11 March 2020 (World Health Organization, 2020), along with the lockdown of large populations, forced numerous organizations to establish teleworking to ensure the health and safety of workers and the maintenance of economic activity (Belzunegui-Eraso and Erro-Garcés, 2020; Bouziri et al., 2020; Morilla-Luchena et al., 2021). In this sense, the pandemic has extensively generated new forms of work, introducing different degrees of telework (complete telework or hybrid, a part of telework and another part of face-to-face work). In this line, Allen et al. (2015, p. 44) defined telework as "a work practice that involves members of an organization substituting a portion of their

typical work hours (ranging from a few hours per week to nearly full-time) to work away from a central workplace – typically from home – using technology to interact with others as needed to conduct work tasks." Although this new formula leads to greater health protection by slowing the expansion of the COVID-19 among workers by increasing the social and physical distances, this social isolation could also impact the mental health of employees (Lengen et al., 2021). Thus, the relationships between this new way of working, employee performance, and health are complex (Vander Elst et al., 2020) and should be further analyzed.

Following the theory of job demands-resources (JD-R; Demerouti et al., 2001; Schaufeli and Bakker, 2004), in this study, various resources are considered. This theory posits that the work demands (i.e., physical, psychological, social, and organizational aspects involving sustained physical and/or psychological efforts and associated with physical and/or physiological costs) can be an obstacle when they require a lot of effort, and the resources (i.e., physical, psychological, social, and organizational aspects that enable goals to be achieved at work) reduce work demands and associated psychological and physiological costs or stimulate personal growth, development, and learning, making it possible to meet the job demands (Bakker and Demerouti, 2007; Bakker, 2011). Thus, work is likely to require an effort that consumes energy resources, whereas other resources would cushion the impact of these demands. In this vein, telework seems to have a considerable impact on the quality and quantity of labor demands and resources. Specifically, in relation to demands, telework increases overload, interruptions, misunderstandings, and conflicts and decreases emotional work. In terms of resources, telework increases feedback and autonomy and decreases career advancement and social support (Demerouti et al., 2014). However, it does not always have to produce a reduction in social support, for example, Collins et al. (2016) posited that working from home can also allow teleworkers to seek and develop greater social and labor support relationships with other teleworkers, permitting them to get emotional support about a work situation or just to catch up on personal issues. Moreover, technology can also maintain the social interaction with peers out of working time and space (Lal and Dwivedi, 2009). Therefore, it could be considered that the mode of teleworking could have a moderating role (Duxbury and Halinski, 2014) between social support and other personal resources (Othman and Nasurdin, 2013; Yu et al., 2019). Could it be the same in a pandemic situation?

The figures concerning telework prior to the COVID-19 crisis indicated that, in 2018, only 4.3% of Spanish workers and 5.2% of European Union (EU) workers worked at home (Eurostats, 2020), whereas during the COVID-19 crisis, early estimates suggest a much larger prevalence than before the crisis. For example, Eurofound (2020) estimated that close to 40% of those currently working in the EU began to telework full time as a result of the pandemic. Thus, the abrupt and unplanned incorporation of these new working modalities, due to the pandemic, has led to a transformation of the psychosocial environment at work, altering different labor and personal resources in workers. In this sense, Salanova et al. (2010) showed that both types of resources influence each other by creating a "positive profit spiral." These cycles of feedback between labor and personal resources can be explained through theories such as the conservation of resources (COR; Hobfoll, 1989, 2002). This theory poses that people strive to protect, preserve, and increase their resources and that, in addition, resources are not held in isolation but tend to be clustered, allowing the possession of certain resources to lead to the procurement of additional resources (Hobfoll et al., 2018). Thus, the threat or loss of one or more resources would encourage to protect them, but not to create or acquire new resources, whereas those workers who obtain new or maintain resources are prone to the creation of new resources, thereby generating a positive profit spiral. The personal resources included in the JD-R theory are cognitive and related to a resilience function (Xanthopoulou et al., 2009; Airila et al., 2014). However, resources of a social nature, or even related to personal physical energy, have not been considered, although they tend to relate to each other, which could reveal the existence of a common nucleus (Mayerl et al., 2016). A fundamental social resource is social support at work, defined as the social interaction available at the workplace involving relationships with coworkers and supervisors (Karasek and Theorell, 1990). This support can provide emotional support, related to listening and comforting colleagues; instrumental support which is more tangible and related to the provision of materials and services needed to perform the work; and information support, which would provide information and advice (Sias, 2009). Bearing in mind, the interplay between resources, social support at work, such as a work resource, could influence other types of resources, such as personal resources. If we consider the recent revisions of the COR theory (Halbesleben et al., 2014), whatever a person perceives as helping them reach a goal or objective would be considered a resource; thus, the vigor at work (Shirom, 2004) could be a personal resource.

Vigor at work is a positive affection composed of three dimensions: physical strength, emotional energy, and cognitive liveliness (Shirom, 2004, 2011). Physical strength has to do with the physical abilities of a person. In contrast, emotional energy refers to the ability to express empathy and a positive orientation toward establishing relationships with other coworkers. Cognitive liveliness is related to mental agility and the ability to contribute new ideas. Thus, feeling vigor at work would imply a feeling of moderate activation that is accompanied by an experience of pleasure. In this way, vigor could be considered a complete personal resource that not only includes cognitive aspects but also addresses the social and physical dimensions of a person. In addition, it would be a result of work experience and, as with other positive affects, would facilitate target-oriented behavior (Carver and Scheier, 1990) and approximate behavior (Watson, 2000). This makes it *de facto* a personal resource resulting from work experiences (Halbesleben et al., 2014).

This study, based on the JD-R and COR theories, aimed to analyze the implications of the relationship between a labor resource experienced at work, such as the social support of colleagues and supervisors, and a personal resource, such as

the vigor at work. Moreover, we consider the modality of work to compare the face-to-face work with the hybrid modality (face-to-face work and telework) and telework. In the latter case, to avoid bias, workers had to begin teleworking due to the COVID-19 pandemic. Specifically, we propose:

> *Hypothesis* 1: Social support will be positively related to the levels of vigor at work.
> *Hypothesis* 2: The modalities that perform some type of telework decrease the slope of the regression line, between the relation of social support and vigor at work, compared to the face-to-face type of work.

MATERIALS AND METHODS

Design, Participants, and Procedure

A cross-sectional online survey was conducted with self-report measures of workers from different sectors of activity. From the initial 594 participants, 51 were eliminated for not paying enough attention to the task. Following the procedure of Maniaci and Rogge (2014), we included an item that asked participants to answer with a specified response (e.g., "If you are reading this question answer with 2") to detect inattention. Thus, the final sample was composed of 543 workers (55.2% women) with a mean age of 38.6 years (SD = 11.7; range 19–63 years) and a mean seniority at the organization of 10.08 years (SD = 9.99; range 0.5–41 years). In terms of work modality, 37.2% were face-to-face workers, 30.4% were teleworkers, and 32.4% had a hybrid modality.

The workers participated voluntarily and were recruited through students from different locations, earning psychology, social work, and social education degrees at the University of Jaén (Spain). The data were collected from October 2020 to January 2021. The students were instructed on the procedure and distribution of the survey, following the protocol approved by the Ethics Committee of the University of Jaén (Ref. NOV.19/1.PROY).

Measures

Sociodemographics

Workers reported their gender, age, seniority in the organization, and working modality, i.e., face-to-face, hybrid mode, or telework. In the last case, they reported whether they began this modality due to COVID-19. Only the workers answering "yes" to this question were considered.

Social Support Received by Peers and Superiors at Work

Social support was measured through the social support dimension of the Job Content Questionnaire (JCQ; Karasek and Theorell, 1990; Spanish adaptation by Escribà-Agüir et al., 2001). This dimension comprises nine items (e.g., "The people I work with are interested in me") with a four-point Likert response format ranging from 1 (totally disagreeing) to 4 (totally agree). The internal consistency of this dimension was adequate (α = 0.91).

Vigor

The Shirom-Melamed Vigor Measure (SMVM; Shirom, 2004; Spanish adaptation by Pulido-Martos et al., 2019) was used to measure vigor at work. The scale consisted of 12 items that comprised the following three dimensions: physical strength (five items; e.g., "I feel full of energy"), cognitive liveliness (three items; e.g., "I feel I can contribute with new ideas"), and emotional energy (four items; e.g., "I feel able to show warmth to others"). The response format ranged from 1 (almost never) to 7 (almost always). The scale yielded adequate reliability (α = 0.92).

RESULTS

Data Analysis

IBM SPSS was used for descriptive statistics, Pearson's correlation coefficients, and intergroup ANOVAs. The macro PROCESS (Hayes, 2018), from SPSS, was used for moderation analysis.

Descriptive Statistics

Descriptive statistics and Pearson's correlation coefficients derived from the analyses, including those for control variables, are shown in **Table 1**. The levels of social support and vigor at work experienced by employees were positively and significantly related (r = 0.40, $p < 0.01$). Years of seniority in the organization and the gender of participants were not significantly related to any of the variables in the study. However, both were controlled for the regression analysis.

Differences Among Work Modalities

Table 2 shows the univariate unifactorial between-group ANOVA results. Statistically significant differences were found between the groups according to the mode of work (face-to-face, hybrid, and teleworking) and the levels of vigor in the work experienced by the participants [$F_{(2, 540)}$ = 5.362, $p < 0.01$, η^2 = 0.02]. Tukey's test which was used to analyze differences in the mean levels of vigor between the groups revealed that employees with teleworking modality (M = 5.44; SD = 0.89) showed lower levels of vigor than those with the face-to-face (M = 5.72; SD = 0.93) and hybrid (M = 5.68; SD = 0.81) modalities. No significant differences were found in vigor at work between the hybrid and face-to-face modalities. Regarding possible differences in the level of perceived social support, although the analysis indicated that the groups were not the same [$F_{(2, 540)}$ = 3.065, $p < 0.05$, η^2 = 0.01], pairwise comparisons of the means using the Tukey's test did not reveal significant differences, possibly due to the more conservative nature of this test (Howell, 2010).

Moderation Analyses

A moderation model was used to test whether the relationship between the perceived levels of social support and that of vigor at work depended on the work modality. Using the macro PROCESS for SPSS (Hayes, 2018), the fit to the data of Model 1 was tested, taking the levels of vigor at work as a variable criterion, the social support perceived as the predictive variable, and the work modality (0 = face-to-face, 1 = hybrid, and

TABLE 1 | Pearson correlations and descriptive statistics for all variables.

	Variable	1	2	3	4
1	Seniority at organization	-	−0.028	−0.075	−0.039
2	Gender		-	−0.002	0.067
3	Social support			-	0.402**
4	Vigor				-
Descriptive statistics	Mean (*n*)	10.08	300	3.25	5.62
	SD (%)	9.99	55.2	0.62	0.88

*Seniority at organization, years as a worker in the organization; Gender, man = 0, woman = 1; and descriptive statistics for column 2 refer to the number and percentage of female workers. **$p < 0.01$.*

TABLE 2 | Vigor and social support by work modality.

	Face-to-face		Hybrid		Telework				
	M	*SD*	*M*	*SD*	*M*	*SD*	$F_{(2, 540)}$	*p*	Contrasts
Vigor	5.72	0.93	5.68	0.81	5.44	0.89	5.362	0.005	a>c;b>c
Social support	3.21	0.63	3.21	0.67	3.35	0.56	3.065	0.047	-

a, Face-to-face; b, Hybrid; and c, Telework.

2 = telework) as the potential moderating variable. As work modality was a categorical variable, with three categories ($k = 3$), PROCESS generated k-1 dummy variables. The indicator coding option was chosen for the generation of these variables (Hayes and Montoya, 2017). Similarly, two interaction terms were introduced into the model to represent the possible interaction between the work modality and the levels of social support of employees. The possible effects of seniority on organization and gender were monitored. The general model results are displayed in **Table 3**. The fit of the model was significant [$F_{(7, 535)} = 20.826$, $p < 0.001$], accounting for 21% of the variance in vigor ($R^2 = 0.21$). The control variables (gender and seniority) were not related to the levels of vigor. Social support levels showed a significant and positive relation with vigor at work ($\beta = 0.79$, $t = 8.95$, $p < 0.001$). The mode of work, represented by the terms D1 ($\beta = -0.07$, $t = -0.81$, $p = 0.42$) and D2 ($\beta = -0.38$, $t = -4.58$, $p < 0.001$), showed a negative and significant relationship only for D2. The interaction effects, represented by Int 1 ($\beta = -0.32$, $t = -2.60$, $p < 0.01$) and Int 2 ($\beta = -0.32$, $t = -2.27$, $p < 0.05$), were significant. An omnibus test of interaction effects testing was significant [$F_{(2, 535)} = 4.15$, $p < 0.05$], with the interaction effects explaining an additional 1% of variance in the level of vigor at work ($\Delta R^2 = 0.01$). **Figure 1** allows us to interpret the interaction effects included in the model, which are shown by the differences between the slopes of the lines. From the levels of significance associated with the coefficients of the interaction terms, which are listed in **Table 3**, it is possible to affirm that the slopes for the two working modalities that include some form of teleworking are significantly different from those for the face-to-face modality. Following Hayes and Montoya (2017), we reran the regression analysis by changing the reference group to be able to check the differences in the slope of the lines between the hybrid modality and teleworking. No significant differences were found ($\beta = -0.07$, $t = -0.81$, $p = 0.42$).

TABLE 3 | Regression analysis testing the effects of the interaction between levels of social support and the modality of work in the explanation of levels of vigor.

DV = Vigor	*β*	*SE*	*t*	*p*
Seniority	−0.00	0.00	−0.82	0.41
Gender	0.12	0.07	1.74	0.08
Social support	0.79	0.09	8.96	0.00
Mode D1	−0.07	0.08	−0.81	0.42
Mode D2	−0.38	0.08	−4.58	0.00
Int1: D1 × social support	−0.32	0.12	−2.60	0.00
Int2: D2 × social support	−0.32	0.14	−2.27	0.02

Working mode: 0 = face-to-face, 1 = hybrid, and 2 = telework; Codes: Mode D1: face-to-face = 0, hybrid = 1, and telework = 0; Code Mode D2: face-to-face = 0, hybrid = 0, and telework = 1; Int1 = D1 × social support; Int2 = D2 × social support.

DISCUSSION

Due to the importance of social support, especially in the lockdown situation due to the COVID-19 pandemic, this study aimed to analyze the implications of experienced work resources and personal resources (vigor at work), testing how they are affected according to the modality of work and comparing the face-to-face modality (37.2% of the workers) with the hybrid (32.4%) and telework modalities (30.4%), the latter of which is caused by the current pandemic situation.

Overall, the study hypotheses were confirmed; the results showed that social support, both from peers and supervisors, is positively and significantly related to the level of vigor at work (H1). Therefore, perceived social support would be a source of resilience to unavoidable challenges (Layous and Nelson-Coffey, 2020), such as the pandemic, confinement, and

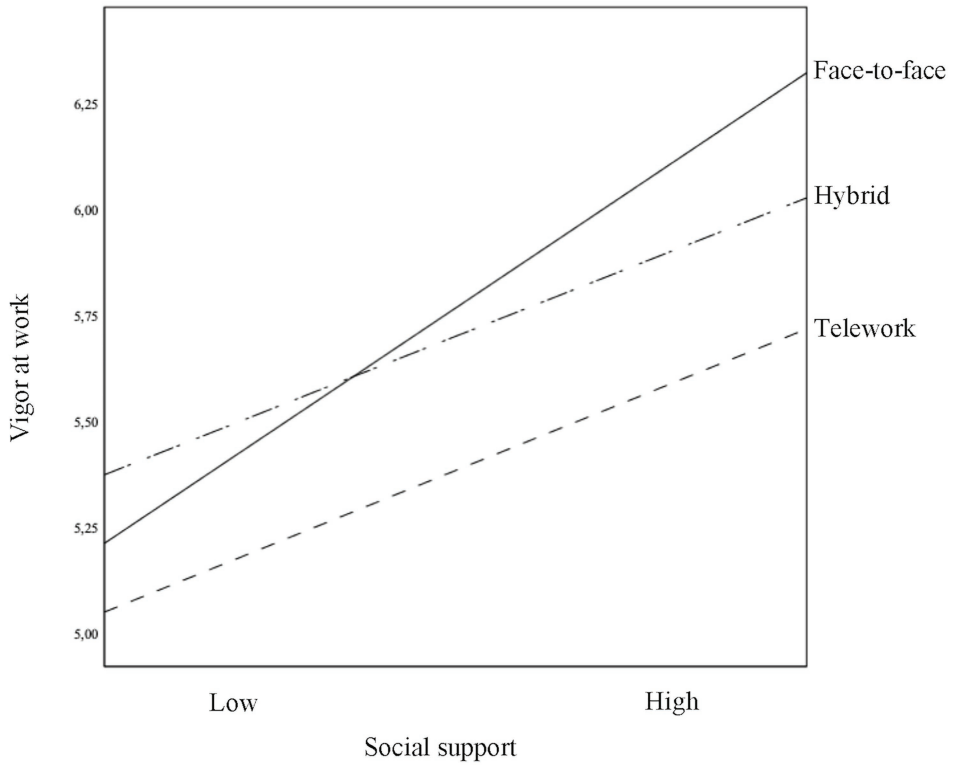

FIGURE 1 | Regression lines showing the effects of the interaction between work modality and social support in the prediction of levels of vigor at work. High and low social support values represent 1 SD above and below the average of the sample.

telework, increasing the level of vigor. Vigor at work has been shown to have important implications for the physical health of workers (Cortés-Denia et al., 2021). Thus, based on the resources of the JD-R theory, it was possible to verify how a labor resource influences a personal resource, confirming the feedback between these resources through the COR theory (Hobfoll, 1989, 2002). However, the relationship between these two resources is moderated, in the pandemic period, by the modality of work, buffering that relationship. Specifically, the relationship between social support and vigor at work is lower when teleworking (H2). Although some studies have found several advantages associated with telework in relation to greater flexibility of time and work–life balance (Madsen, 2003; Gajendran and Harrison, 2007), showing that technologies may maintain the social interaction among colleagues outside the working time (Lal and Dwivedi, 2009), this relation probably does not have the same quality and closeness, even if they perceive the same level of social support. This fact makes it possible for the relationship between social support and vigor at work to be conditioned by the modality of telework. In this line, the modality of teleworking could produce a decline in the quality of professional relations (Vayre and Pignault, 2014) and, at the same time, a decrease in experimenting the vigor at work, by a reduction in the effect on feeling physically and cognitively active. Probably, telework is likely to involve high demands, including overtime, given the continued availability of employees (Abendroth and Reimann, 2018), lowering energy levels of workers. Thus, considering COR theory (Hobfoll, 1989, 2002), it has been found that this feedback between a labor resource, such as peer support, and other personal resources, such as vigor at work, may be affected by changing working conditions, such as the shift from face-to-face to full or hybrid telework, generated by the pandemic, affecting this feedback of resources.

Regarding the practical implications of this study, probably the abrupt and unexpected introduction of the various forms of teleworking for the protection of the health of workers and the maintenance of economic activity, due to the COVID-19, has given priority to the design of teleworking, performance, and several aspects related to results, whereas other social resources have been neglected. For that reason, when promoting teleworking conditions, it is necessary to try not only to reproduce a working environment in which the demands are similar to those of the face-to-face model but also to provide similar labor resources, such as social support. Furthermore, other aspects related to the workplace such as the conciliation possibilities should be considered. The schedule in telework conditions used to be similar to the normal one in the workplace, but without considering the difficulties at home. Thus, the conciliation work–family can be affected. As a result, innovations in teleworking, for example, "smart working," which have no specific restrictions on working hours or the workplace (Di Nicola, 2017), could provide greater flexibility and better conciliation between family and work.

However, this study also has some shortcomings. As a cross-sectional study, this study cannot indicate how the evolution of

the situation affects workers; perhaps during the pandemic, organizational changes in the modality could also produce changes in how the situation is faced. Furthermore, we considered only teleworkers due to COVID-19, but not all jobs can be done at home (Dingel and Neiman, 2020), which may produce differences. Moreover, the prevalence of telework is different depending on the productive sector and even across countries (Milasi et al., 2020). Thus, a future study should consider comparisons between and within sectors along with comparisons of telework before and during the pandemic. Moreover, if the organization does not take care of the conclusions raised in this study related to telework, it would be interesting to analyze the relationship between social support and levels of vigor, depending on the teleworking conditions (particularly in times of pandemic), considering the use of personal initiatives, such as job-crafting (Gemmano et al., 2020; Ingusci et al., 2021), as a complementary way for obtaining resources, analyzing whether they have positive implications.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee of the University of Jaén. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MP-M, DC-D, and EL-Z conceived and designed the study and drafted the manuscript. DC-D and EL-Z trained the surveyors and collected the data. MP-M performed the measurements. MP-M and DC-D processed the data, performed the analyses, interpreted the data, and helped with the references. All authors critically revised the manuscript, approved this version, and agreed to be accountable for all aspects of this research and its integrity.

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Working in the Eye of the Pandemic: Local COVID-19 Infections and Daily Employee Engagement

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The COVID-19 pandemic has drastically changed many aspects of our society and work life. This study assesses how daily variations in employees' work engagement are affected by daily variations in infection rates in employees' communities. Applying the conceptual framework of event system theory, we argue that surging COVID-19 cases have an impact on employee engagement, depending on the individual sensemaking processes of the pandemic. We assume that employee age and received leader support are key context factors for these sensemaking processes and that particularly older employees and employees who receive little leader consideration react with lower work engagement levels toward rising local COVID-19 infections in their proximity. We find support for most of our proposed relationships in an 8-day diary study of German employees, which we integrate with official COVID-19 case statistics on the county level. We discuss the implications of these results for the literature on extreme events and individual workplace behavior. Furthermore, these findings have important implications for companies and executives who are confronted with local COVID-19 outbreaks or other extreme societal events.

Keywords: COVID-19, work engagement, diary study, leadership, aging

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INTRODUCTION

The COVID-19 pandemic has turned life upside down. The rapid worldwide spread of COVID-19 caught organizations and communities off-guard. The scale of the pandemic is reflected in the exponential increase in new cases every day, requiring organizations and communities to continuously adjust work and life routines. For example, on August 1, 2020, the World Health Organization confirmed 289,321 new COVID-19 cases over the last 24 h worldwide (World Health Organization, 2020e).

From an organizational perspective, the COVID-19 pandemic can be described as an extreme, disrupted context. Such environments are "triggered by extreme events that occur outside the core activities of organizations or communities" (Hällgren et al., 2018, p. 135). We consider the day-level fluctuation of COVID-19 cases as extreme daily events since this disease results in unbearable physical, psychological, and material consequences to organizational members.

The reach of the COVID-19 pandemic raises the question if organizational members are affected in their work behavior by the extreme event of local COVID-19 case fluctuation and how organizations, and particularly their leaders, can intervene to prevent negative spillover of the external events on their employees. The current empirical literature on extreme disrupted

contexts does not provide conclusive answers to this question. Further, the disrupted context literature appears to have mainly focused on the development of temporal organizations and the role of stakeholders during disruptions (Hällgren et al., 2018), thus neglecting possible cross-level effects of extreme events on individual-level outcomes. Nonetheless, related research provides indications that acute, extra-organizational stressors, such as extreme weather or terrorist attacks, can affect individual work outcomes, e.g., absenteeism (Kivimäki et al., 1997; Byron and Peterson, 2002), burnout (Toker et al., 2015), job satisfaction, job intension, and work intensity (Hochwarter et al., 2008). Yet, the organizational behavior literature has devoted surprisingly little attention to understanding relations between extreme events, such as natural disasters or terrorism, and within-organizational consequences, considering the high frequency with which such catastrophes tend to occur (James, 2011). As a result, James (2011) calls for more empirical research on disaster and terrorism from an organizational behavior perspective.

With this study, we want to address this crucial research gap in the literature on extreme events by considering the COVID-19 pandemic context and its effects on daily employee work behavior. In particular, we focus on employee engagement, defined as "the simultaneous employment and expression of a person's 'preferred self' in task behaviors that promote connections to work and to others, personal presence (physical, cognitive, and emotional) and active, full performances" (Kahn, 1990, p. 700). Work engagement has profound implications for employees' performance and their psychological and physical well-being (Bakker et al., 2008). Contributing to personal health and business survival, engagement is, therefore, a relevant factor to be considered in an extreme, disrupted context, such as the COVID-19 pandemic. Engagement research suggests that individuals' engagement levels fluctuate heavily across days and are influenced by within-organization negative work events (e.g., making errors, working under time pressure, conflicts; Bledow et al., 2011; Demerouti and Cropanzano, 2017). Extending this line of thought, we expect that work engagement waxes and wanes in response to outside organizational events, such as daily local COVID-19 infections.

Drawing on event system theory (Morgeson et al., 2015), we propose that employees make sense of the daily number of COVID-19 cases reported in an employee's local area. Referring to classical ideas of sensemaking processes, as the conceptual backbone of the event system theory, personal, and organizational factors play a crucial role, if individuals interpret an event as salient for sensemaking and respective behavioral changes or not (Maitlis and Christianson, 2014). We thus assume that it depends on personal factors (i.e., employees' age) and organizational factors (i.e., perceived leadership support) if employees interpret surging infection numbers as a strong event that interrupts their work engagement. Specifically, we suggest that rising infection rates are particularly harmful to the engagement of older compared to younger employees, as the COVID-19 pandemic puts especially the health of older employees at risk. Furthermore, employees should be able to cope better with increasing COVID-19 infection rates, if they have a leader who shows consideration, defined as "leadership behavior that involves concern for employees' well-being, expressions of support, and displays of warmth and approachability" (Lambert et al., 2012, p. 913). Combining both contextual factors, older employees under the supervision of someone who does not care about their specific needs will typically experience the worst effect of local COVID-19 numbers on their work engagement.

To test our theoretical model, as depicted in **Figure 1**, we integrated objective information on daily local COVID-19 cases in Germany with survey data collected through a diary study over eight consecutive workdays at the beginning of April 2020. In doing so, we intend to contribute to theory and practice by answering the question of when extreme daily events at the environmental level (i.e., the daily local COVID-19 surge) may spill over into the organizational workplace by affecting individual daily work behavior (i.e., daily employee engagement). Moreover, we aim to provide insights into effective leadership behaviors that may buffer the impact of extreme events on employee work behavior, and thereby help companies to master external crises, like the Covid-19 pandemic situation and other extreme situations of natural or manmade origin.

Theory and Hypotheses Development

Event system theory (Morgeson et al., 2015) suggests that events originate at any hierarchical level—from the most molar environmental level to the most molecular individual level—and their effects can travel up or down throughout organizations. Yet, not all events will trigger changes in organizational behavior (Nigam and Ocasio, 2010), but it is the event strength reflected by the event novelty, disruption, and criticality that attracts attention and evokes behavioral change within organizations (Morgeson et al., 2015).

We propose that the daily number of local COVID-19 cases has the potential to function as a strong event as employees perceived them as novel, disruptive, and critical. Before its worldwide outbreak, the COVID-19 virus was an unknown, potentially fatal disease (World Health Organization, 2020a). *Novelty* stems from the fact that the virus suddenly emerged as a fatal disease (World Health Organization, 2020a). Therefore, the development of the infection rates was unpredictable, and most countries, such as Germany and the United States, reported new infections daily on domestic and district levels (Johns Hopkins University Medicine, 2020; Robert Koch Institut, 2020). In Germany, the novelty of the COVID-19 cases was especially striking at the beginning of April, when the number of cases skyrocketed. This exponential increase in COVID-19 cases *disrupted* work and life routines, as social distancing measures required an economic and societal shutdown, which forced employees to adjust and adapt their general and work-related behaviors (World Health Organization, 2020d,f). Finally, local COVID-19 infection rates also constitute a *critical* event through the virus's transmission mechanism. The COVID-19 virus is mainly transmitted via social contact, meaning that surging case numbers in an individual's local environment increase the risk of infection (World Health Organization, 2020b). Daily local COVID-19 cases, therefore, reflect an individual's chance to fall ill from the virus and, thus, to endure physical, psychological, and material hardship.

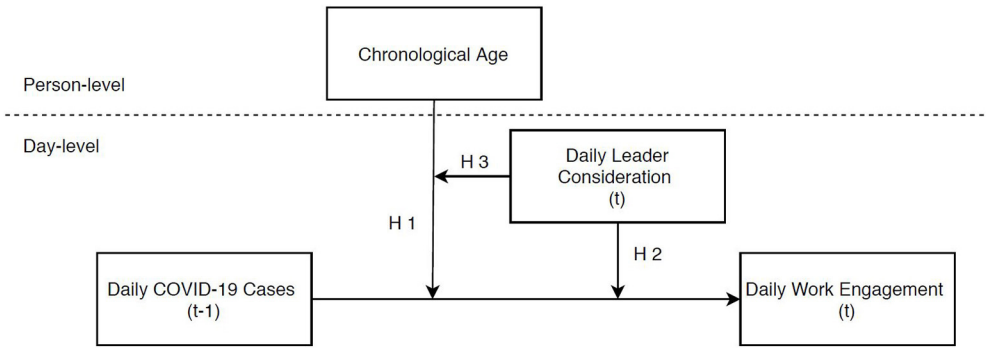

FIGURE 1 | Conceptual model.

Yet, not all employees may perceive local infection rates as being a strong event, as another core idea of the event system theory (Morgeson et al., 2015) is that organizations and organizational members reach perceptions of the urgency of a specific event through sensemaking processes (Weick, 1988, 1995). We propose that both individual characteristics (i.e., employee age) and perceived support from a direct leader (i.e., leader consideration) matter for this sensemaking process and thus trigger variation in the effect of daily COVID-19 cases on employee engagement.

Employee Age and the Effect of Local COVID-19 Cases on Work Engagement

Current statistics on COVID-19 indicate that the risk of experiencing severe physical symptoms and health impairments rises with chronological age (Centers for Disease Control Prevention, 2020). Adults over 50 years already have a significantly higher fatality rate than the average 2.3% reported worldwide (World Health Organization, 2020c). This pronounced illness susceptibility due to the COVID-19 pandemic throws the mortality of elderly employees into sharp relief (Kanfer et al., 2020). Not surprisingly, a representative survey in the United States showed that older individuals perceive a higher risk of dying from COVID-19 (Bruine de Bruin, 2021).

Given these health threats, aging employees may make sense of COVID-19 case numbers in their direct environment, as a particularly strong event encouraging them to adapt their work-related behavior accordingly. Being constantly reminded of their increased health risk by the daily COVID-19 surge, aging employees may not be able to drive their physical, cognitive, and emotional energies into their work-role performances as much as under normal circumstances (Rich et al., 2010). They are also somewhat likely to invest the "hands, head, and heart" (Ashforth and Humphrey, 1995, p. 110) in putting themselves out of risk. Therefore, aging employees may continuously engage in processing extensive COVID-19 information provided by the media to re-evaluate their courses of action based on the current state of knowledge of the disease. These considerations might include questions of whether, when, and how to continue working (Kanfer et al., 2020). Hence, they allocate a substantial amount of resources that they usually use to perform their work roles in making sense of the COVID-19 pandemic. Daily news of local COVID-19 cases is, therefore, likely to hold elderly employees from being "psychologically present, fully *there*, attentive [...] and focused in their role performances" (Rich et al., 2010, p. 619). Research on critical events (Gersick and Hackman, 1990; Morgeson and DeRue, 2006) further substantiates this notion, indicating that significant events tend to command attention, influence resource allocation, and ultimately have implications for employee performance. Consequently, we propose that the daily number of local COVID-19 cases and employees' age interact in their relation to work engagement leading to the following hypothesis:

Hypothesis 1: There is a two-way interaction between the daily number of local COVID-19 cases and employees' age on employees' work engagement such that local COVID-19 cases negatively relate to employees' daily work engagement for older employees, but the relationship becomes less negative as age decreases.

Leader Consideration and the Effect of Local COVID-19 Cases on Work Engagement

A further critical factor that affects sensemaking processes of external events, such as a pandemic gaining momentum in one's direct community, is perceived leadership behavior. Extreme contexts are environments where leadership is needed most (Hannah et al., 2009). During the COVID-19 pandemic, leaders face the challenge of leading in an extreme and volatile context (Hannah et al., 2009; Hannah and Parry, 2014). All of their followers are personally affected to some extend by the pandemic depending on the perceived strength of the event (Hannah and Parry, 2014). A strong event might occur particularly for aging employees due to the aforementioned health threats but also some of the younger or middle-aged employees confronted with increased child-care obligations (Cluver et al., 2020) or loneliness (Banerjee and Rai, 2020) may perceive a strong event.

Therefore, we argue that leaders showing a high degree of daily consideration are effective in the COVID-19 context.

Considerate leaders are empathetic and competent at sensing and subsequently satisfying their followers' needs (Judge et al., 2004). Furthermore, they are distinctly concerned about their followers' health and well-being (Lambert et al., 2012). Hence, considerate leaders are likely to support their followers' continuous sensemaking efforts helping them to "get their bearings and then create fuller, more accurate views of what is happening and what their options are" (Weick, 1988, p. 310). Followers may further feel comfortable sharing their potentially debilitating emotions with their supervisors since considerate leaders typically display high levels of warmth and approachability.

Thus, experiencing daily leader consideration, employees are likely to feel supported in their sensemaking process and emotion regulation. As a result, we argue that they can better cope with the daily number of local COVID-19 cases. Therefore, we propose that daily leader consideration empowers employees to recover their previous level of work engagement. Employees might, thus, be enabled to harness their "full self in terms of physical, cognitive, and emotional energies to work role performances" (Rich et al., 2010, p. 617) despite experiencing extreme daily events. In contrast, employees who perceive little individual support from their direct leaders might view the surge in COVID-19 infections as a strong event, thus distracting them from investing full effort into their job. Consequently, we argue that daily leader consideration behavior is effective in mitigating an adverse effect of the daily number of local COVID-19 cases on daily work engagement leading to the following prediction:

Hypothesis 2: There is a two-way interaction between the daily number of local COVID-19 cases and leader consideration on employees' work engagement such that local COVID-19 cases negatively relate to employees' daily work engagement for employees with low leader consideration, but the relationship becomes less negative as leader consideration increases.

Interplay Between Age and Leader Consideration and the Effect of Local COVID-19 Cases on Work Engagement

Integrating the prior arguments, we assume that, in the face of rising local COVID-19 cases, older employees react more favorably to received daily leader consideration compared to their younger colleagues. Older employees are likely to experience extreme emotions, such as terror, fear, and distress, due to the heightened mortality salience caused by rising infection rates in their environment (Janoff-Bulman and Frieze, 1983; Arndt et al., 1997). Consequently, they have the highest need for support from their supervisors for sensemaking that lowers their critical interpretation of the extreme health event. If they receive the needed consideration from their leader, they are less likely to interpret the local COVID-19 cases as a personally threatening event and might feel their leader effectively acknowledges and accommodates their needs (Lambert et al., 2012; Maitlis and Christianson, 2014). On the other hand, if they do not receive such support, their work engagement is likely to be most negatively affected among all employee groups. They might feel that their supervisor does not understand or care about their personally threatening situation and does not come to their aid (Lambert et al., 2012). Without support from their supervisor to cope with the critical health situation, they will allocate their resources away from work-related engagement, focusing all their efforts on sustaining their health.

In contrast, younger employees may feel less threatened by rising COVID-19 cases because their lower age indicates lower personal health risks. While they might generally react favorably to leader consideration, already moderate levels of consideration might suffice to match their needed consideration, and a further increase in leader consideration beyond this need may have a decreasing marginal impact on their engagement (Lambert et al., 2012). In consequence, we formulate the following final hypothesis:

Hypothesis 3: There is a three-way interaction among the daily number of local COVID-19 cases, employees' age, and daily leader consideration on employees' work engagement such that the buffering interaction between COVID-19 cases and leader consideration is more pronounced as employee age increases.

METHODS

Procedure and Participants

We collected the study data during the peak of the first COVID-19 wave in Germany from March 30 through April 9 (based on official government data, April 2, with 6.561 cases, the highest number of newly reported cases in spring 2020). The sample was recruited in cooperation with a survey company (Respondi), which gave us access to its online panel of participants located all over Germany. Survey participants mirrored the German working population in terms of gender structure and age distribution, based on the most recent published data from the German statistical office (Statistisches Bundesamt, 2018). Furthermore, participants were only allowed to participate if they (a) had a working contract, and (b) were currently at least partly working from home. These requirements were ensured through a presurvey. Respondents had to complete a general survey on day 1 (Monday, March 30) and then participate in eight daily surveys over the next eight workdays. We did not survey for the full 2 weeks, as the potential ninth day (April 10) was an official holiday in Germany. The daily surveys were open from 6 p.m. through 8 a.m. the next morning. Participants received incentives of 0.75€ for the general survey, 0.25€ for each daily survey, and a bonus of 1.00€, if they participated in all eight daily surveys. The initial sample at day 1 consisted of 699 participants, who were mainly male (58%), on average 44 years old, and worked 80% of their time from home. In line with prior work (e.g., Rosen et al., 2016; Gabriel et al., 2018), we retained data for participants who provided daily data for more than three workdays to assure that the momentary assessments are representative of participant's individual experiences and are not biased toward days with extreme experiences (Ohly and Gochmann, 2017). This resulted in a final sample of 388 participants who provided 2.858 daily surveys.

Measures

Age as a person-level variable was collected in the general survey on day 1. COVID-19 cases, engagement, and leader consideration were assessed on a daily level for eight consecutive workdays.

Age

The chronological age of the participants was captured in the baseline survey in years lived since birth.

Daily COVID-19 Cases

To capture daily local COVID-19 cases for every individual participating in our survey, we used the official data released by the Robert Koch Institute (RKI) in Germany. The RKI is the government's central scientific institution for disease control and prevention and provides the number of daily COVID-19 cases disaggregated at the county level. This allowed us to map officially confirmed COVID-19 cases in a county to each survey participant on a daily level using the postal code provided by the participants. On the last day of our survey, over 119,000 official confirmed cases culminated in 412 counties in Germany. By law, each laboratory-confirmed COVID-19 case has to be notified to the local public health department and transmitted to the RKI. The RKI visualizes the data and makes them easily accessible on a county-level in an online dashboard and daily situation reports (https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Gesamt.html). Because of the easy accessibility of the data and the wide coverage of case numbers by the local and national press, most individuals are aware of local COVID-19 outbreaks. We used the absolute numbers of COVID-19 cases in a county around a participant in our analysis, as absolute numbers were the dominant metric of reporting at this time. We lagged this measure by 1 day ($t - 1$) to assure that COVID-19 cases temporally proceed the outcome measure, which allows for stronger causal conclusions.

Daily Work Engagement

We assessed daily work engagement using six items from the work engagement scale by Rich et al. (2010). Following the recommendation for diary studies (Uy et al., 2010; Gabriel et al., 2019), we used a shortened version of the original scale to reduce participant fatigue and adapted the scale for day-specific assessments. Each dimension of the scale is measured with two items, for example, "Today I tried my hardest to perform well on my job" (physical engagement), "Today I was enthusiastic in my job" (emotional engagement), "Today at work, I focused a great deal of attention" (cognitive engagement). For each dimension, the two items with the highest factor leadings as reported by Rich et al. (2010) were selected. Items were rated on a five-point scale ranging from *strongly disagree* to *strongly agree*. The average coefficient alpha across the 8 days was 0.935.

Daily Leader Consideration

We used the three-item scale from Lambert et al. (2012) to measure leadership consideration, which does not confound leader behaviors and the outcomes of leader behaviors. The items asked participants for the following leader behaviors of their direct supervisor referencing to the current workday: "Acting friendly and approachable," "Acting concerned for my personal welfare," and "Acting supportive when talking to me." As such, the items measured the amount of support received from the direct supervisor. The items were assessed on a scale ranging from 1 (*never*) to 5 (*very often*). Cronbach's alpha was 0.960 on average.

Data Analysis

Given the nested data structure (i.e., days nested within persons), we tested all hypotheses using mixed-effect models in Stata SE 16. All day-level variables (i.e., COVD-19 cases, engagement, leader consideration) were treated as Level 1 (within-person) variables, and age as a person-level variable was treated as Level 2 variable (between-person) in the model. Because the nesting of individuals in counties is more a nuisance than of substantial interest for our hypotheses, we used clustered standard errors, which account for potential interdependence between observations from the same county. An advantage of using clustered standard errors is that they do not require additional assumptions about the appropriate specification of random effects for the county level (McNeish et al., 2017).

Following prior recommendations (Enders and Tofighi, 2007), we person-mean centered the Level 1 predictors. The person-mean centering of Level 1 variables effectively eliminates between-person variance and provides a pure estimate of day-level relationships between daily individual local exposure to COVID-19 cases and daily individual engagement as postulated in our hypotheses. Because person-mean centering of the Level 1 predictors removed all stable between-person differences (e.g., demographics, personality, response tendencies), such stable between-person differences could not bias our estimates and were not controlled for (Enders and Tofighi, 2007; Gabriel et al., 2019). However, as recommended (Singer and Willett, 2003), we controlled for time (with dummy variables), as the predictors and the outcome might systematically change throughout the study (e.g., due to adaption processes to the pandemic). We modeled all hypothesized day-level effects as random slopes and time as a fixed slope (for similar procedures, see Wang et al., 2011; Lanaj et al., 2021).

RESULTS

Descriptive statistics, reliabilities, and day- and person-level correlations are displayed in **Table 1**.

Before testing our hypotheses, we first inspected the intraclass correlation coefficient (ICC1) for our criterion measure, as substantial day-level variation in outcomes is a prerequisite for examining day-level relationships using mixed-effect models (Hox, 2010; Raudenbush and Bryk, 2010). An ICC1 of 0.542 for engagement indicated that 54.2% of the variance in engagement lies between-individuals and 45.8% of variance within-individuals, supporting the specification of mixed-effect models to account for the nesting of observations within-persons.

Next, we specified a model containing the direct effects of our focal variables on engagement. As presented in Model 1 in **Table 2**, we found no significant effect of daily COVID-19 cases on daily engagement ($Coef. = -0.102$; $p = 0.502$). Yet, it is noteworthy that Model 1, including a random effect for COVID-19 cases, fitted notably better than a model with a fixed slope for daily COVID-19 cases (Δ AIC $= 11.796$; likelihood ratio $= 13.80$, $p < 0.001$). The improvement in model fit indicates that the

TABLE 1 | Means, standard deviations, reliabilities, and correlations of study variables.

	Variable	Mean	*SD*	1	2	3	4
1	Age	44.887	11.923	—			
2	Engagement	3.999	0.655	0.150**	(0.935)	−0.006	0.128**
3	COVID	0.501	0.734	0.037	−0.057	—	0.002
4	Leader consideration	2.944	1.127	−0.162**	0.350**	−0.072	(0.960)

*Correlations above the diagonal are day-level correlations (N = 2,585). Correlations below the diagonal are person-level correlations (N = 388). Day-level variables were aggregated to the between-person level prior to computing person-level correlations. Because nesting of observations in persons is not accounted for significance values for day-level correlations should be interpreted with caution. Coefficient alpha averaged across all time points are shown along the diagonal in parentheses. Means and standard deviations (SD) were computed at the person-level of analysis. COVID variable is rescaled (COVID Cases/1,000). *p < 0.05 (two-tailed); **p < 0.01 (two-tailed).*

TABLE 2 | Multilevel model predicting daily engagement.

	Model 1				Model 2				Model 3			
Predictor	***Coef.***	***SE***	**95% CI**		***Coef.***	***SE***	**95% CI**		***Coef.***	***SE***	**95% CI**	
Intercept	3.597**	0.132	3.338	3.857	3.602**	0.132	3.343	3.861	3.601**	0.132	3.343	3.860
COVID	−0.102	0.151	−0.398	0.195	0.826	0.461	−0.077	1.728	0.869	0.474	−0.060	1.799
Age	0.008**	0.003	0.003	0.014	0.008**	0.003	0.003	0.013	0.008**	0.003	0.003	0.013
Leader consideration (CONS)	0.076**	0.013	0.051	0.102	0.077**	0.013	0.052	0.103	0.197**	0.052	0.096	0.298
COVID × Age					−0.021*	0.009	−0.039	−0.003	−0.022*	0.010	−0.041	−0.003
COVID × CONS					0.281**	0.087	0.110	0.451	−0.010	0.339	−0.675	0.655
Age × CONS									−0.003*	0.001	−0.005	−0.001
COVID × Age × CONS									0.006	0.008	−0.009	0.021
Time dummies	YES				YES				YES			
−2 log likelihood	5,651.386				5,640.402**				5,634.790			
AIC	5,681.385				5,674.402				5,672.791			

*N = 2,858 at the day-level and N = 388 at the person-level. Day-level predictors (COVID, CONS) were centered at each person's mean. COVID variable is rescaled (COVID Cases/1,000). Person-level predictor (Age) is uncentered. Time is dummy coded and modeled as fixed effect. Unstandardized effects are reported. Standard errors account for clustering at the regional level. *p < 0.05 (two-tailed); **p < 0.01 (two-tailed).*

effect of COVID-19 cases on engagement notably varies between observations, thereby pointing to the relevance of moderators of the relationship.

In the next step, we examined if the effect of daily COVID-19 cases in a county on daily engagement is more negative for older employees, as suggested in Hypothesis 1. The coefficient of the cross-level interaction between daily COVID-19 cases and chronological age in Model 2 is significant ($Coef. = -0.021$; $p = 0.025$). To facilitate the interpretation of the interaction, we followed recent recommendations and probed the interaction using the Johnson–Neyman technique (Preacher et al., 2006; Gardner et al., 2017). Compared with conventional simple slope tests at plus and minus one standard deviation of the moderator, the procedure allowed us to accurately determine the values of the age variable at which the effect of COVID-19 cases on daily engagement is (non-)significant. In support of Hypothesis 1, we found that daily local COVID-19 cases have a significant negative relation ($p < 0.05$) with next-day work engagement for employees older than 57.4 years, while the effect is not significant for employees younger than that. A plot of the conditional effect of COVID-19 cases on daily engagement (y axis) dependent on the age of the individual (x axis) is provided in **Figure 2**. Points for which the confidence intervals do not include zero indicate significant conditional effects.

Next, we tested Hypothesis 2, which suggests that COVID-19 cases are more negatively related to employee daily engagement when employees receive low leader consideration. The two-way interaction between COVID-19 cases and leader consideration in Model 2 is significant ($Coef. = 0.281$; $p = 0.001$). By probing the interaction using the Johnson–Neyman technique, we find that COVID-19 cases are negatively related to daily engagement for individuals with leader consideration lower than −0.9 (person-mean centered) and are positively related when individuals receive leader consideration above 1.96 (when age is fixed to the sample mean). In our sample of 388 individuals, 187 (48.196%) report at least once a consideration value below −0.9 and thus experience the negative effect of local COVID-19 cases in their daily engagement. In contrast, only 65 (16.753%) individuals in our sample report leader consideration above 1.96 at least once and thus showed increased daily work engagement in response to rising local COVID-19 cases. Generally, the interaction pattern

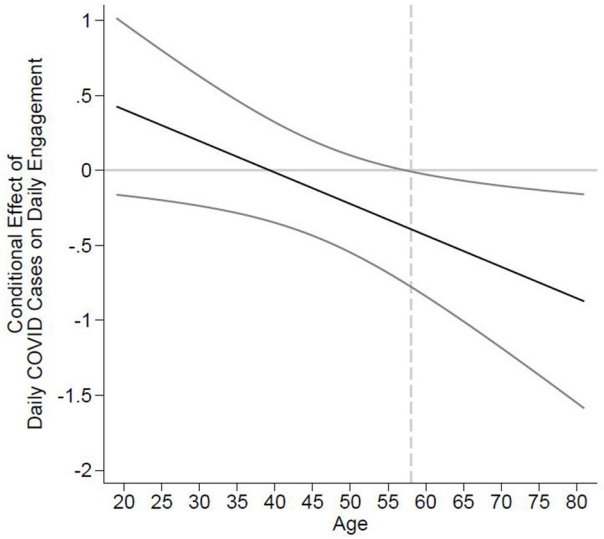

FIGURE 2 | Johnson–Neyman regions of significance for the conditional relation between daily COVID-19 cases and daily engagement at realized values of chronological age. The black line depicts the conditional effect of daily COVID-19 cases on daily engagement (*y*-axis) dependent on the value of the age moderator (*x*-axis). The curved lines are the 95% confidence intervals of the conditional effect. The dashed vertical line represents the point at which the confidence interval does not include zero marking the region of significance of the conditional effect.

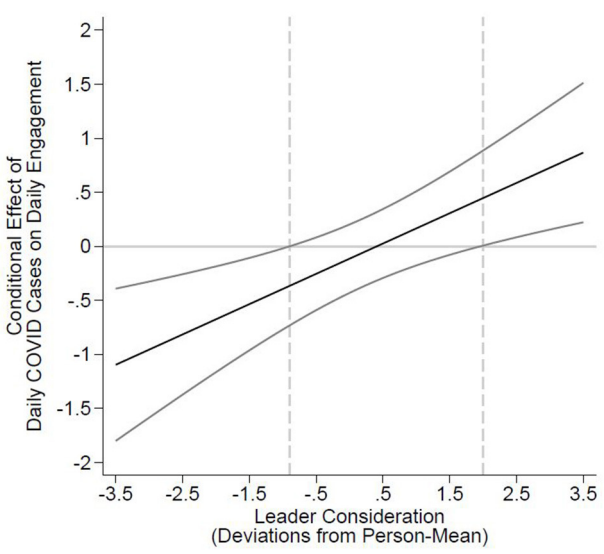

FIGURE 3 | Johnson–Neyman regions of significance for the conditional relation between daily COVID-19 cases and daily engagement at realized values of leader consideration.

supports Hypothesis 2, and the corresponding plot is provided in **Figure 3**.

In the last step, we tested if older employees' engagement is most responsive to leader consideration in times of rising COVID-19 cases. As shown in Model 3 in **Table 2**, the three-way interaction among daily COVID-19 cases, age, and daily leader consideration is close to zero and not significant (*Coef.* = 0.006; $p = 0.410$). Thus, Hypothesis 3 is not supported.

DISCUSSION

Our analyses revealed that an external crisis event, such as the COVID-19 pandemic, has implications for work-related behavior within organizations. In line with the conceptual ideas of the event system theory (Morgeson et al., 2015), we could show that strong external events have the potential to spill over into the workplace by affecting employees' work engagement. Our study, therefore, corroborates an emerging stream of research (Lin et al., 2021; Liu et al., 2021), demonstrating the explanatory power of the events system theory to account for the influence of the COVID-19 pandemic on employee work behavior.

Furthermore, our study highlights the employees' age-based vulnerability and perceived leadership support to be decisive in determining whether the emerging COVID-19 pandemic is perceived as a strong event. Both factors might affect the sensemaking processes (Weick, 1988) in the pandemic and consequently, alter employment engagement levels. In detail, we could show that, over 8 days, daily engagement was only adversely affected by newly released local infection rates, if the employees are older than 57.4 years. This tipping point seems plausible, as the German Federal Ministry of health labels individuals 60 and older the main "Risk Group" in their official communication (German Federal Ministry of Health, 2020).

Furthermore, we could show that employees only lower their work engagement based on local increases in COVID-19 cases, if they receive low levels of personal consideration from their direct supervisor. This finding adds to the literature emphasizing the critical role of leadership in extreme or crisis contexts (Hannah et al., 2009). Even contrary to our expectations, high levels of perceived leadership consideration in times of surging infection rates can increase work enagement. Interestingly, the study by Hu et al. (2020) reveals similar findings indicating that the relationship between COVID-19 induced state anxiety and job engagement becomes positive when servant leadership is higher. We would speculate that these positive effects might be achieved by effective leaders who can use the extreme emotions released on the follower side during the pandemic (Hannah et al., 2009). These leaders might be able to transfer this high arousal via sensemaking strategies and cognitively shift the followers' perspective (Foldy et al., 2008) into positive engagement.

In contrast, we did not find that employees' age and received leader consideration interact with local infection rates such that older employees have the lowest engagement if they also receive low support from their supervisor. This finding indicates that leaders should not differentiate their individual consideration behavior between age groups in pandemic crises, which is in line with other results in the literature on differentiated leadership (Wu et al., 2010; Kunze et al., 2016). The open question, however, is how adverse effects of extern COVID-19 infections on older employees' engagement can be buffered. A promising avenue for future research might be to consider the conceptual literature

that differentiates between different cognitive reflection processes that are triggered by mortality cues, such as a pandemic (Grant and Wade-Benzoni, 2009). More specifically, the core idea of this theory stream is that extreme external events cause both negative processes of death anxiety and more positive processes of death reflection. If supervisors can instill a somewhat positive process of death reflection instead of negative emotions and anxiety in their aging employees, they might be able to at least buffer the adverse effects of an external pandemic on work engagement.

Overall, our results have implications beyond the specific phenomenon of the COVID-19 pandemic for the emerging literature that links extreme external events to within-organizational processes and behavior (James, 2011; Hällgren et al., 2018). Our finding indicates that not only terrorist attacks and natural catastrophes but also health crises influence employee behavior. Furthermore, we introduce system event theory as a theoretical framework to explain such cross-level effects of disrupted environments on employee behavior.

Practical Implications

Our results have implications for executives in the current pandemic situation and beyond. Based on empirical evidence from other pandemics, it is likely that the COVID-19 pandemic will continue with multiple infection peaks, with national and regional differences (Merler et al., 2008). Companies and respective leaders have to ensure that these pandemic waves do not adversely affect the engagement of their employees and followers. High employee engagement is crucial for general firm productivity, especially in the current pandemic crisis that challenges the profitability and even the existence of many companies.

Our findings imply that companies should be sensitive to the effects of rising COVID-19 infection rates for their elderly employees, although all age groups are potentially impacted by the pandemic (Adella Halim et al., 2020). Notably, in the case of a further intensive wave of the pandemic, companies should reduce work demands on this group of employees, as the extreme external context emotionally and cognitively strains them. Of course, we cannot fully rule out that a pandemic situation might also affect younger employees, especially if they worry about potential or actual infections of their older relatives or younger employees who have medical preconditions themselves putting them at higher personal risk for a severe course of the disease.

Additionally, our results reveal that a pandemic situation requires intensive leadership behaviors. If supervisors invest in individual consideration behaviors, they can prevent negative impacts of increasing COVID-19 cases on employee engagement and, in some cases, even enable higher engagement levels. In consequence, updated leadership training programs should sensitize executives for their responsibilities during extreme events, such as a pandemic.

Limitations

Despite multiple strengths, such as repeated measurement design over eight workdays and daily COVID-19 cases as an exogenous independent variable, our research also has limitations that should be considered when interpreting the results. For example, our sample, also being representative in terms of age and gender for the German working population, was restricted to mainly white-collar workers with the potential to work remotely. In consequence, we would encourage future research to also extend this sample to blue-collar workers, who are even more at risk of catching the virus based on their physical presence at their workplace. We would expect that our observed effects of the virus vulnerability for aging employees would be even more severe in a sample of blue-collar employees working in face-to-face settings.

Additionally, our data collection took place in the first wave of the Covid-19 pandemic in spring 2020 in Germany, with relatively lower absolute infection rates than in subsequent waves. As such we would expect even stronger effects in later waves, with higher infection numbers, or in countries that were even harder affected by the Covid-19 pandemic. Thus, we recommend a replication of our findings in these settings.

Last, we focused only on age as one potential risk factor which may increase the severity of a COVID-19 and did not study other risk factors also prevalent among younger adults, such as diabetes. Based on our theoretical reasoning also younger adults with medical preconditions may reduce their engagement in response to rising local COVID-10 cases. We encourage future research to study this possibility.

Conclusion

The COVID-19 pandemic is an unprecedented situation for employees, firms, and society as a whole. Our study is among the first to show that daily events of local infection numbers do affect the work engagement of employees within organizations. In particular, aging employees, who are most at risk of getting severe health issues from the virus, significantly lower their engagement in the case of surging infection rates. Additionally, we could show that individualized leadership behavior is effective in preventing adverse impacts of a pandemic on work engagement for all age groups. Beyond the current pandemic, the results also have broader implications for the literature that links extreme external incidents with organizational behavior (Hällgren et al., 2018).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical approval was not provided for this study on human participants because for field survey studies the University of Konstanz does not require an ethical approval. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MR did the analyses and wrote parts of the paper. SZ and FK conceptualized the study and wrote parts of the paper. All authors contributed equally to this study and jointly developed the initial idea.

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The Role of Coping Behavior in Healthcare Workers' Distress and Somatization During the COVID-19 Pandemic

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Background: Constantly searching for a balance between work demands and their own physical and psychological health has challenged medical and nursing staff during the immediate wake of this COVID-19 viral epidemic leading to acute stress reactions and psychosomatic symptoms. Coping behavior might be a buffer for work-related stress in relation to mental well-being. The present study aims to evaluate the role of positive and negative stress-reducing activities on healthcare workers' mental and physical well-being.

Methods: This was a cross-sectional study using an online survey that was sent out using our network of healthcare workers at the University of Antwerp and through social media. Socio-demographic data, coping behavior with the Palliative Pallet Scale (P3), and distress and somatization using the Four-dimensional symptom checklist were collected. Surveys were completed by 1,376 participants.

Results: The results clearly showed that positive stress-reducing activities are related to fewer symptoms of distress and somatization. Providing direct care to COVID-19 patients was associated with a higher decrease of applying positive stress-reducing activities during the peak of the pandemic compared to the ideal situation. Finally, fewer symptoms of distress and somatization were associated with the following activities: reading, mind sports games, keeping a hobby collection, studying; engaging in sexual activities with your partner; cleaning the house, tidying up, working in the garden, doing household chores; exercising alone; walking, or taking a trip together with someone; exercise together with someone; watching TV, listening/playing (to) music/, playing computer games; playing a card game or other board game; and preparing something extra tasteful outside regular meals.

Conclusion: Our study demonstrated an association between concrete coping behaviors and distress and somatization in healthcare workers during the first peak of the COVID-19 pandemic. The results provide relevant and additional insights to develop and investigate interventions among others in personal leadership and resilience.

Keywords: coping, COVID-19 outbreak, healthcare workers, distress, somatization

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INTRODUCTION

At the end of December 2019, some cases of severe pneumonia of an unknown etiology in Wuhan City of Hubei province were notified at the World Health Organization (WHO) subsequently termed coronavirus disease 2019 (COVID-19). The rapid global spread throughout China and across the globe led to the declaration of COVID-19 as a global health emergency (Organization, 2020). On February 4th, 2020, in Belgium the first patient was reported to have tested positive for the Coronavirus [Federal Public Service (FPS) Health, 2020]. From early March, transmission within Belgium was confirmed and the pandemic rapidly evolved with its peak of infections around the beginning of April 2020 resulting in 1,661 new infections in 1 day (Sciensano, 2020).

Hence, this was the first time that a viral outbreak at such scale occurred in Belgium. Belgian governments tried to anticipate the pandemic by prompting the reorganization of entire hospitals in a few weeks by interrupting all elective medical activities so that intensive care capacity could be enlarged to take care of COVID-19 patients. Combined with national measures to flatten the epidemic curve to prevent the healthcare system form collapsing and to reduce hospital capacity strain (Godderis et al., 2020), intensive care occupation rose to 65% of the country's total capacity for intensive care beds (Sciensano, 2020). Furthermore, in elderly care homes across Belgium, frail elderly people were infected with COVID-19, resulting in excess mortality rates in April 2020. Because healthcare workers were confronted for the first time with a viral outbreak, many of them felt not adequately skilled to provide care in such a high-risk environment. An ongoing barometer study from our department in June 2020, the aftermath of the first viral peak in Belgium, showed that 23% of the nursing workforce inadequately used protection materials and 56% overused infection control protective equipment in the care of COVID-19 patients. These results provides insights into the gaps occurring both in terms of knowledge gaps and appropriate skill set of Belgian healthcare workers (Haegdorens et al., 2021).

Moreover, studies on past viral outbreaks demonstrated the psychological impact of infectious disease outbreaks on healthcare workers working at the frontline (Khalid et al., 2016). Working in high-risk positions, completely dressed up for preventing infection, the safety risks associated with caring for patients with a highly contagious disease, and having contact with infected people that are dying without their family being at their bedside, proved to be common causes of trauma (Wu et al., 2009). Healthcare workers were forced to make unprecedented decisions on allocating scant resources to patients in need resulting in moral challenges and moral distress (Suhonen et al., 2018; Maffoni et al., 2019). Furthermore, healthcare workers were constantly searching for a balance between work demand and their physical and psychological health (Greenberg et al., 2020). The psychological sequelae observed during the SARS and EBOLA viral outbreaks indicated acute stress reactions, including psychosomatic symptoms (Tam et al., 2004; Chew et al., 2020; Xiang et al., 2020). Commonly reported symptoms ranged from physical symptoms such as pain, to fatigue, weakness, and lethargy (Leow et al., 2005). Furthermore, nervousness and anxiety experienced by staff members are most common and the intensity varied between different epidemic stages (Liao et al., 2014), but also a high prevalence of depression, insomnia, and psychological distress were reported (Lai et al., 2020).

It is clear that during this pandemic outbreak, healthcare workers were facing significant challenges in coping with the crisis. Coping is represented as actions and thoughts that individuals use to deal with challenges in their environment (Man et al., 2020). Generally, two categories of coping mechanisms are being identified: positive coping and negative coping strategies. These coping mechanisms might provide a buffering factor between work-related stressors and mental well-being. Hence, a tendency to demonstrate more positive coping behaviors when facing adversity can be considered a feature of resilience (Van Hoek et al., 2019; Nwaogu et al., 2021). However, adaptive or positive coping behaviors might also strengthen resilience. Therefore, promoting adequate coping behaviors in healthcare workers during the COVID-19 pandemic must be given priority as a highly resilient workforce is needed to face challenges over the course of this pandemic.

Also, in the first weeks of the outbreak, numerous governmental and private organizations across Flanders (Belgium) took action to mentally support frontline healthcare workers by launching websites, webinars on self-care, providing individual coaching opportunities, etc. Although the value of effective support and training is meaningful (Maunder et al., 2006), efficient and comprehensive actions should be taken in a timely fashion to protect the mental health of medical staff. However, most of these initiatives provide advice based on existing studies on coping with stress outside a pandemic outbreak and in the general population. Because every infectious disease outbreak differs in its course and no countries are alike, each has its unique impact on the healthcare staff facing that disease (Khalid et al., 2016). Furthermore, research on de impact of coping behavior, as a possible preventive factor, and the impact of specific coping behavior on the well-being during a pandemic outbreak is sparse. Consequently, the present study aims to evaluate the role of positive and negative stress-reducing activities on healthcare workers' mental and physical well-being. As such, recommendations for healthcare organizations on strategies promoting a highly resilient workforce can be formulated.

MATERIALS AND METHODS

Study Design

This was a cross-sectional study using an online survey that was distributed *via* e-mail to our network of healthcare professionals and social media platforms such as Facebook and LinkedIn. Informed consent was provided by all participants at the beginning of the online survey. Participants were allowed to terminate the survey at any time they desired. The survey was anonymous, and confidentiality of information was assured. The American Association for Public Opinion Research (AAPOR) reporting guidelines were followed.

An online link to the survey was sent out using our network of healthcare workers at the University of Antwerp and through social media. The study included healthcare staff working in healthcare organizations across Flanders, Belgium. The data collection was performed between April 17 and 24 2020. During this period, the invitation for participants was repeated twice on social media. The questionnaire consisted of 4 parts: (1) socio-demographic data, (2) P3 palliative pallet scale, (3) 4DSQ—Distress, (4) 4DSQ—Somatization. It took about 15 min to complete the survey.

Participants

The call to participate described the aim of the study and invited eligible participants to respond and complete the survey. Inclusion criteria were working as a health care professional in Belgium and being between 18 and 65 years old. A total of 1,657 completed surveys were received. A total of 281 participants did not meet the inclusion criteria and were excluded from the analysis.

Instruments

Socio-Demographic Data

The first part consisted of several general questions, including, age, working experience, sex, marital status, children, education level, profession, place of work, and if the participant provided direct care for COVID-19 infected patients.

Palliative Behavior Scale

The P^3 "Palliative Behavior" scale (Portzky, 2015) was used to measure the specific stress-reducing activities healthcare workers used. Palliative behavior can be seen as an indicator of coping style and it reflects an activity that is aimed at stress reduction. These activities can be divided into positive (e.g., walking) and destructive (e.g., smoking) activities. It is important to find a good balance between the different activities. A lot of destructive and not very positive activities can have harmful consequences (Portzky, 2015).

The P^3 scale consisted of 18 items in terms of positive activities and 16 items in terms of destructive activities, every time with a scoring possibility from 1 (never) to 4 (very often). Participants were asked to indicate how often they had used such behavior during the past month and under ideal circumstances. The sum of all items results in a scoring range between 18 and 72 for positive stress-reducing activities and between 16 and 64 for destructive stress-reducing activities. The sub scores positive stress-reducing activities and destructive stress-reducing activities were used for the P^3 scale as well as the specific behaviors in both scales. Both the test-retest reliability (correlations ranging from 0.71 to 0.81 for destructive and positive stress reducing activities, respectively) and validity (Cronbach's alpha ranging from 0.56 to 0.57 for positive and destructive stress reducing activities, respectively) were proven acceptable (Portzky, 2015). In the present sample, Cronbach's alpha ranged from 0.64 for positive stress reducing activities and 0.44 for destructive stress reducing activities. Note however that the author of the scale explains that higher internal consistencies are not expected in this kind of scale since the questionnaire inventories different coping behaviors that a person uses to cope with stress(ors). A person who reads to relax doesn't necessarily will also use exercise to cope with stress.

4DSQ—Distress and 4DSQ—Somatization

The Four-dimensional symptom checklist is a Dutch self-report questionnaire designed to assess common psychological symptoms (Terluin et al., 2006). The questionnaire comprises 50 statements, which result in statements about four dimensions: distress (16 statements), anxiety (12 statements), depression (6 statements), and somatization (16 statements). Only the subscales distress and somatization were included in this study. The distress scale measures the kind of symptoms that people experience when they are "under stress" as a result of work pressure, psychosocial difficulties, or negative experiences (e.g., During the past week, did you feel easily irritated?). The somatization scale measure symptoms of somatic distress and somatoform disorder (e.g., During the past week, did you suffer from pain the abdomen or stomach area?). Each statement is answered using a 5-point Likert scale ranging from "1 = no" to "5 = very often, continuously." The statements should be answered with how often complaints or symptoms have occurred in the recent past. Answers are then recoded in three categories: "1 = no" is scored 0, "2 = sometimes" is scored 1, and "3,4,5 = often or more" are scored 2 (Terluin et al., 2016). This results in a score ranging from 0 to 32 for both dimensions. Normative data is available indicating that a score above 10 is considered to be a moderately increased distress or somatization possibly resulting in impending dysfunction and higher than 20 as severely increased with serious tensions with great risk of dysfunction (absenteeism); in this case stress reduction is designated (Terluin et al., 2016). Cronbach's alpha in the present study were high, 0.94 and 0.87 for the distress and somatization subscale. The 4DSQ has been extensively tested for reliability and validity. Reliability is high (coefficients generally >0.80). Factorial, criterion and concurrent validity has been confirmed and it was found to be a valid self-report questionnaire to measure the most general, most common, expression of psychological problems throughout different populations (Terluin et al., 2004, 2006, 2016).

Statistical Analysis

All analyses were done using SPSS Statistics for Mac OS version 26. Statistical significance was set at $\alpha = 0.05$. Continuous variables were tested for normality using the method described by Kim (2013) and if the absolute skewness and kurtosis were ≤ 2 and ≤ 7, respectively, we assumed normality. Sum-scores were calculated of the P3 "Palliative Behavior" scale for positive stress-reducing activities and destructive stress-reducing activities. Furthermore, we calculated the difference between the P3 "Palliative Behavior" scale sum-scores of last month with those under normal circumstances. These difference scores estimate if there were more (positive) or less (negative) stress-reducing activities compared with pre-COVID circumstances. Additionally, sum-scores of the 4DSQ-distress and -somatization were calculated and cut-off points (low, medium, and highly elevated scores) described by Terluin et al. (2006, 2008) were used in further analyses. Multiple linear regression analyses were

fitted using the backward elimination method to investigate the relation between the change in positive and negative behavior scores on distress and somatization scores. Finally, multiple linear regression models were fitted including each of the P3 behavior scale subitems and confounders with as a dependent variable the distress or somatization score. Holm's Sequential Bonferroni Procedure was used to correct our findings for familywise error rates and to avoid alpha inflation (Ludbrook, 1998).

Ethical Considerations

Data were collected taking into account European legislation regarding the "General Data Protection Regulation" (=GDPR—General Data Protection Regulation). Because this concerns a study in which only adult healthcare workers participate on their own free will and after informed consent, based on the ICH-GCP principles (https://www.ema.europa.eu/en/documents/scientific-guideline/ich-e-6-r2-guideline-good-clinical-practice-step-5_en.pdf) ethical approval was not sought for the present study. Informed consent was provided by all participants at the beginning of the online survey. Participants were allowed to terminate the survey at any time they desired. The survey was anonymous, and confidentiality of information was assured.

RESULTS

Surveys were completed by 1,376 participants, 999 respondents (72.6%) were direct care staff (see **Table 1**). Almost 9% were management staff ($N = 123$), 6.7% medical doctors ($N = 92$), and 11.8% were either supportive staff or paramedics ($N = 162$).

The majority of the sample is female (90.7%). The average age is 40.2 years, and the average work experience is 16.1 years. Over 70% are living together with a partner (and/or children) and 20% have no partner (with or without children). Over 70% have a college or master's degree. Most respondents work in a hospital (64%). Of these respondents, 80% work in an acute care hospital with almost one-fifth working on the emergency or intensive care unit and one-fifth on an internal medicine ward. Up to 69% comes into contact with COVID-19 infected patients.

There are significantly fewer females providing care for COVID-19 patients compared with the group providing non-COVID care (89 vs. 94%, respectively, $p = 0.002$). Healthcare workers providing COVID care were predominantly direct care professionals who had a higher education level compared with non-COVID care workers (see **Table 1**).

In **Table 2**, we compared normal (in ideal circumstances) with current (during the past month) palliative behavior scale scores for positive and destructive stress-reducing activities. The positive stress-reducing activity score was lower in the past month compared with ideal circumstances (mean diff. −3.8) and was more pronounced in healthcare workers providing direct care for COVID-patients (mean diff. −4.2). Additionally, the destructive stress-reducing activity score slightly increased in both groups when comparing the last month with ideal circumstances (mean diff. +0.3).

Differences in P3 behavior scores, distress, and somatization scores between demographic variables were also investigated (**Table 3**). Women showed lower distress and somatization

TABLE 1 | Sample characteristics in total and compared between COVID-19 and other caregivers.

Sample characteristics	Provided COVID-19 care		*p*-value	Total
	Yes ($n = 949$)	No ($n = 427$)		($n = 1,376$)
Age, mean (SD)	40.0 (11.5)	40.5 (10.9)	0.447	40.2 (11.3)
Working experience, mean (SD)	16.2 (11.7)	16.0 (10.9)	0.770	16.1 (11.4)
Females, % (*n*)	89.0 (845)	94.4 (403)	0.002	90.7 (1,248)
Married, % (*n*)	72.8 (691)	70.5 (301)	0.374	72.1 (992)
Has children, % (*n*)	56.4 (535)	61.1 (261)	0.099	57.8 (796)
Education level				
Undergraduate level, % (*n*)	23.4 (222)	29.3 (125)	<0.001	25.2 (347)
Bachelor level, % (*n*)	58.6 (556)	46.8 (200)		54.9 (756)
University level, % (*n*)	18.0 (171)	23.9 (102)		19.8 (273)
Profession				
Direct care (nurses, nursing aids, …), % (*n*)	78.4 (744)	59.7 (255)	<0.001	72.6 (999)
Auxiliary staff, % (*n*)	6.6 (63)	23.2 (99)		11.8 (162)
Management, % (*n*)	7.4 (70)	12.4 (53)		8.9 (123)
Physicians, % (*n*)	7.6 (72)	4.7 (20)		6.7 (92)
Place of work				
Hospital, % (*n*)	71.2 (676)	48.0 (205)	<0.001	64.0 (881)
Home care services, % (*n*)	14.8 (140)	29.3 (125)		19.3 (265)
Residential care services, % (*n*)	14.0 (133)	22.7 (97)		16.7 (230)

Percentages calculated within columns; p-values of proportions calculated with Pearson's chi-squared test and continuous variables using an independent t-test.

TABLE 2 | Comparing palliative behavior scale scores for positive stress reducing activities and destructive stress reducing activities.

	P3 positive behavior			P3 destructive behavior		
	Normal	**Current**	**Mean difference (95% CI)**	**Normal**	**Current**	**Mean difference (95% CI)**
Total ($n = 1,376$)	42.8 (5.0)	39.0 (5.7)*	−3.8 (−4.2 to −3.5)	25.0 (3.0)	25.3 (3.4)*	0.3 (0.2–0.4)
Provided COVID-19 care ($n = 949$)	43.0 (5.1)	38.8 (5.8)*	−4.2 (−4.6 to −3.8)	25.1 (3.0)	25.3 (3.5)*	0.3 (0.1–0.5)

Mean differences calculated between current scores and normal scores using a paired t-test; P3, palliative behavior scale.
*$p < 0.001$.

TABLE 3 | Comparing P3 behavior scale, distress scale, and somatization scale scores between sample characteristics.

	Change in P3 behavior scale			
	Δ positive behavior	**Δ destructive behavior**	**Distress**	**Somatisation**
Men	−3.9 (6.2)	0.3 (2.4)	14.0 (8.5)	8.5 (6.2)
Women	−3.1 (5.3)	0.5 (2.0)	11.0 (7.8)	5.6 (5.5)
p-value	0.146	0.396	<0.001	<0.001
Married: yes	−3.7 (6.2)	0.2 (2.3)	13.3 (8.4)	8.0 (6.1)
Married: no	−4.1 (5.9)	0.5 (2.7)	14.6 (8.6)	8.9 (6.2)
p-value	0.339	0.104	0.013	0.024
Children: yes	−3.4 (6.3)	0.4 (2.3)	13.6 (8.4)	8.1 (6.2)
Children: no	−4.3 (5.9)	0.2 (2.5)	13.9 (8.5)	8.4 (6.1)
p-value	0.008	0.074	0.500	0.399
Provided COVID-19 care: yes	−4.2 (6.4)	0.3 (2.4)	14.4 (8.5)	8.8 (6.4)
Provided COVID-19 care: no	−3.0 (5.6)	0.3 (2.3)	12.2 (8.1)	6.9 (5.3)
p-value	0.001	0.979	<0.001	<0.001
Education level				
Undergraduate level	−4.3 (6.2)	0.2 (2.6)	15.1 (8.3)	9.8 (6.4)
Bachelor level	−4.1 (6.2)	0.2 (2.4)	13.8 (8.5)	8.3 (6.1)
University level	−2.3 (5.7)	0.6 (2.2)	11.7 (8.1)	6.2 (5.6)
p-value	<0.001	0.050	<0.001	<0.001
Profession				
Direct care (nurses, nursing aids, …)	−4.1 (6.1)	0.2 (2.5)	14.2 (8.5)	8.7 (6.1)
Auxiliary staff	−2.4 (6.2)	0.7 (2.2)	13.4 (7.9)	7.6 (6.2)
Management	−4.9 (6.6)	0.0 (2.3)	12.9 (8.5)	7.8 (6.7)
Physicians	−2.1 (5.7)	0.8 (1.9)	10.4 (7.8)	5.3 (4.6)
p-value	<0.001	0.007	<0.001	<0.001
Place of work				
Hospital	−4.0 (6.3)	0.3 (2.4)	13.7 (8.4)	8.3 (6.1)
Home care services	−3.1 (5.6)	0.4 (2.2)	13.0 (8.7)	7.3 (5.8)
Residential care services	−4.0 (6.2)	0.2 (2.5)	14.5 (8.5)	9.3 (6.8)
p-value	0.119	0.603	0.130	0.001

Data presented as mean (SD); differences between two groups: independent t-tests; differences between >2 groups: oneway-ANOVA test; change in P3 behavior scale = (current – normal).

scores in general, however, no difference of change in positive or destructive behavior was found between men and women. Significantly lower distress and somatization scores were observed in married, non-COVID-care, higher educated, and home care healthcare workers. Personnel providing COVID-care showed a higher change (in the last month—ideal circumstances) in the positive behavior score compared with non-COVID workers (−4.2 vs. −3.0, $p = 0.001$) but no difference was observed in the destructive behavior score. We found that physicians, of all professions included in this study, showed the lowest distress and somatization scores. However, physicians demonstrated a slightly higher increase in destructive behavior compared with other professions. Management staff showed no change in destructive behavior,

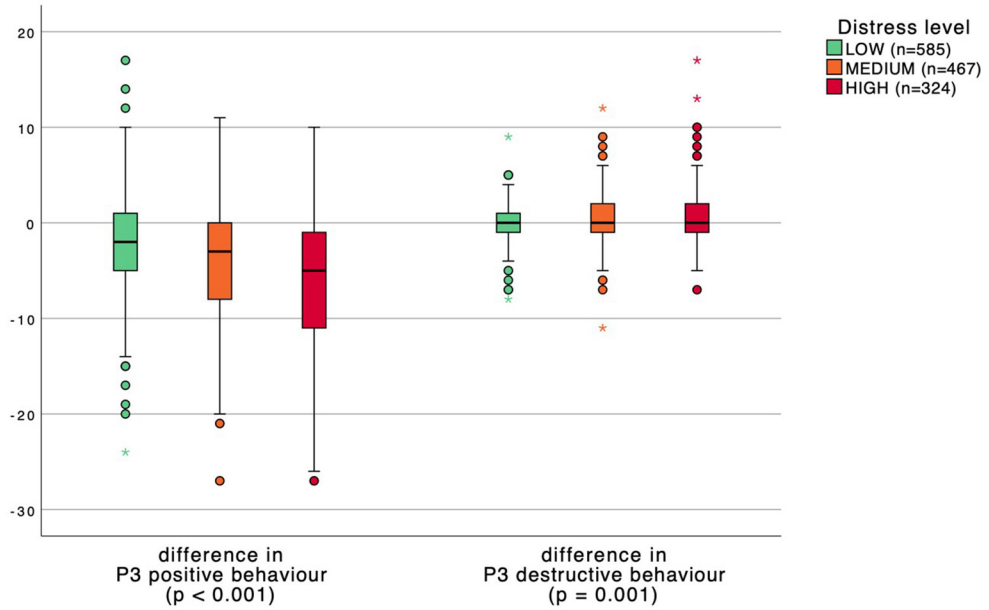

FIGURE 1 | Boxplot comparing P3 behavior scores between distress levels. *p*-values calculated with a one-way ANOVA test.

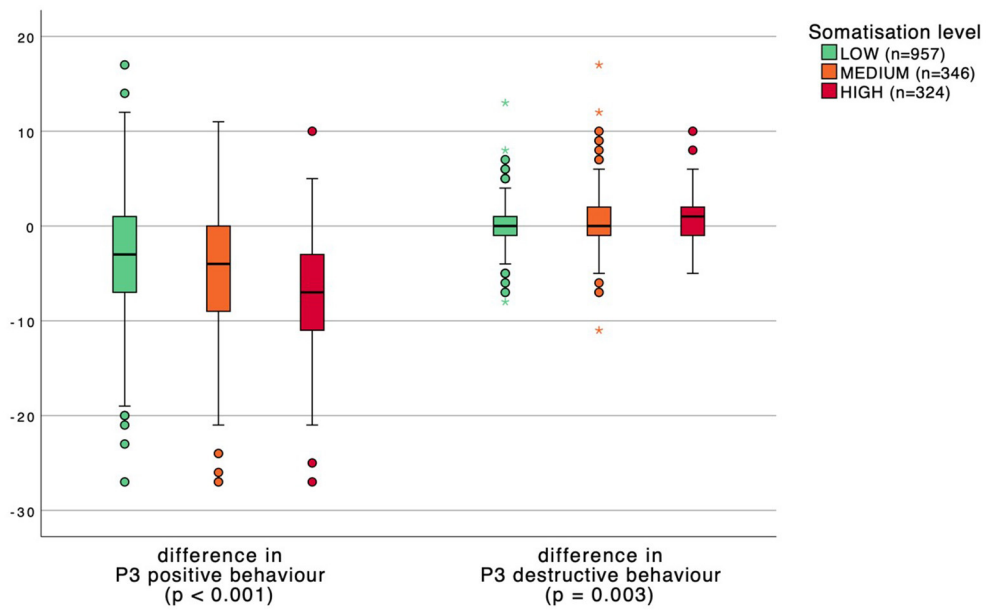

FIGURE 2 | Boxplot comparing P3 behavior scores between somatization levels. *p*-values calculated with a one-way ANOVA test.

but the positive behavior score decreased greatly compared with other professions.

Distress and somatization levels were divided into three groups: low, medium, and high. P3 behavior scores were subsequently compared between distress and somatization levels in **Figures 1**, **2**. A significant inverse relation was found between the change in P3 positive behavior scores and distress and somatization levels. Respondents with higher distress and somatization levels have a greater reduction in positive behavior. Moreover, healthcare workers with higher distress and somatization levels show an increase in destructive behavior scores although less pronounced.

Finally, we investigated the relation between the change in positive and negative behavior scores and distress and somatization, respectively, using a multiple linear regression analysis controlling for confounders in our dataset (**Tables 4**, **5**).

TABLE 4 | Multiple linear regression analysis investigating the influence of P3 behavior scores on distress.

	Unstandardized B	95% CI of B		Standardized β	*p*-value
		Lower	Upper		
Change in P3 positive behavior	−0.275	−0.346	−0.203	−0.200	< 0.001
Change in P3 destructive behavior	0.549	0.367	0.731	0.156	< 0.001
Sex (0 = Male; 1 = Female)	2.783	1.295	4.272	0.096	< 0.001
Marital status (0 = not married; 1 = married)	−1.007	−1.962	−0.051	−0.053	0.039
Providing COVID-19 care (0 = no; 1 = yes)	2.091	1.157	3.024	0.114	< 0.001
Education (0 = graduate level; 1 = undergraduate level)	1.647	0.653	2.640	0.085	0.001

n = 1,376; p-model < 0.001; Variance Inflation Factor (VIF) < 2; linear regression using backward elimination; adjusted R square: 0.086; excluded variables: profession: direct care, children: yes, place of work: residential.

TABLE 5 | Multiple linear regression analysis investigating the influence of P3 behavior scores on somatization.

	Unstandardized B	95% CI of B		Standardized β	*p*-value
		Lower	upper		
Change in P3 positive behavior	−0.023	−0.030	−0.016	−0.179	< 0.001
Change in P3 destructive behavior	0.040	0.023	0.058	0.122	< 0.001
Sex (0 = Male; 1 = Female)	0.418	0.270	0.567	0.148	< 0.001
Marital status (0 = not married; 1 = married)	−0.085	−0.177	0.008	−0.047	0.073
Providing COVID-19 care (0 = no; 1 = yes)	0.200	0.106	0.293	0.115	< 0.001
Education (0 = graduate level; 1 = undergraduate level)	0.190	0.093	0.288	0.104	< 0.001
Place of work (0 = non-residential care; 1 = residential care)	0.093	−0.007	0.193	0.051	0.070

n = 1,376; p-model < 0.001; Variance Inflation Factor (VIF) < 2; linear regression using backward elimination; adjusted R square: 0.109; excluded variables: profession: direct care and children: yes; dependent variable (somatisation score) was transformed using a natural log-transformation because of heteroscedasticity.

Regression models were fitted to the data using the backward elimination method. We found a negative relation that was statistically significant between positive behavior and distress and somatization controlled for other predictors in the models. Furthermore, we discovered a significant positive relation between destructive behavior and distress and somatization controlled for other predictors in the models.

To investigate the *unique impact of each of the positive and destructive stress-reducing behaviors* during the last month on distress and somatizations scores we fitted 68 multiple linear regression models with each of the P3 behavior scale subitems ($n = 68$) including the same confounders from previous models (see **Table 5**). Results were summarized in **Figure 3** in the form of beta coefficients corresponding with each of the 68 stress-reducing behaviors. We discovered that one positive stress-reducing activity showed an association with more distress (P3_10: "Check Facebook or other social media") and one destructive stress-reducing activity showed an negative relation with distress (P3_19: "Cleaning the house, gardening, house chores"). Furthermore, we found one positive stress-reducing activity with an association with more somatization (P3_2: "Meditation, relaxation exercises, prayer, yoga") and one destructive stress-reducing activity showed a negative relation with somatization (P3_19: "Cleaning the house, gardening, house chores"). We differentiated between activities with no, small and slightly larger association with distress and somatization and found that P3_33: "Thinking regularly about death, but without a concrete suicide plan," P3_27: "Taking sleeping tablets, or medication to calm down," and P3_29: "Going on strict diets, crash diets, or eating too much" had the greatest association with distress and somatization scores. Minimum and maximum explained adjusted R2 for regression models with Distress as a dependent variable are 3.6 and 14.6%, respectively. Moreover, minimum and maximum explained adjusted R2 for regression models with Somatization as a dependent variable are 6.1 and 10.6%, respectively. The correlation matrix between all study variables is provided in the **Appendix**.

DISCUSSION

The present study is unique as we questioned the coping behaviors of healthcare workers during the first peak of the COVID-19 pandemic in Belgium. Furthermore, the perception of ideal coping behaviors were investigated allowing a comparison of potential discrepancies. Moreover, we were able to relate coping behaviors with levels of distress and somatization. As predicted, the results clearly showed that positive stress-reducing activities were related to fewer symptoms of distress and somatization. Conversely, destructive stress-reducing activities were almost all related to higher levels of distress and somatization scores. Furthermore, we observed differences in coping behaviors in relation to demographic variables and profession. Overall, these results are in line with studies

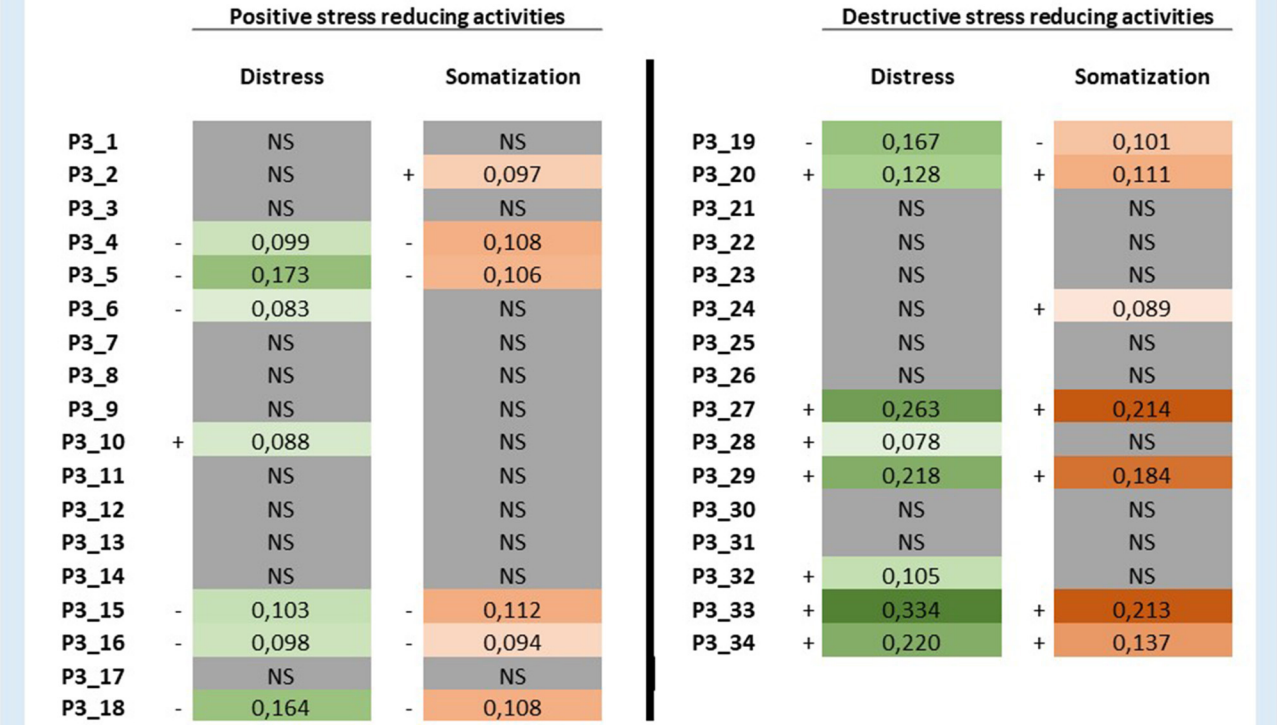

FIGURE 3 | Beta coefficients of 68 multiple linear regression models investigating the relation of each positive and destructive stress-reducing activity score during the last month on distress and somatization scores. Beta correlation coefficients from 68 multiple linear regression models (34 with distress as a dependent variable and 34 with somatization as a dependent variable). Models with distress as the dependent variable were controlled for sex, married, providing covid-19 care, education: undergraduate level. Models with somatization as the dependent variable were controlled for sex, married, providing covid-19 care, education: undergraduate level, place of work: residential care. The somatization score was transformed using a natural log-transformation because of heteroscedasticity. The maximum *p*-values designated as "significant" by Holm's Sequential Bonferroni Procedure in distress and somatization models were 0.002024 and 0.000991, respectively. NS, not significant.

investigating the impact of coping behaviors on healthcare professionals during the COVID-19 pandemic from a global perspective (Ali et al., 2020; Babore et al., 2020; Lorente et al., 2020, 2021; Salopek-Žiha et al., 2020).

Čabarkapa et al. (2020) performed a rapid review on the psychological impact of the COVID-19 pandemic including ways to address it. In their article, 13 studies considered coping strategies. Differences in coping behaviors between healthcare professionals were observed. Whereas, medical doctors appeared to be more likely to use "planning" as a coping strategy, nurses and healthcare assistants were more likely to use "behavioral disengagement" and "self-distraction." In the present study, we found significant differences in coping strategies on both positive and negative stress-reducing activities scales of the P3 between different study groups. The decrease of using positive stress-reducing activities during the peak of the pandemic compared to ideal was highest in direct care workers and managers. As for destructive behavior, the medical doctors and auxiliary staff members showed the highest increase during the pandemic peak. Furthermore, providing direct care to COVID-19 patients was associated with a higher decrease of applying positive stress-reducing activities at peak momentum as compared to the ideal situation. Overall, as frontline medical staff members experience higher emotional turmoil (Khalid et al., 2016; Cai et al., 2020) resulting from taking care of COVID-19 infected patients, it might be that healthcare workers do not always have the appropriate skills to cope with such acute stressors often leading to disengagement, avoidance, and emotional suppression. Cai et al. (2020) reported that frontline staff members believed they have the professional obligation to work long hours. Our findings are in line with existing literature suggesting that using avoidance strategies in an attempt to avoid unnecessary interactions or new COVID-19 information to escape from stressors caused by overly engaging (Eslami Akbar et al., 2015; Vagni et al., 2020; Windarwati et al., 2021).

Moreover, our study went beyond existing research as we were able to analyze the effect of each of the 34 positive or destructive stress-reducing activities used on distress and

somatization scores of healthcare workers during the first peak of the COVID-19 pandemic. These analyses revealed some interesting results. Lower distress or somatization scores are associated with the following positive stress reducing activities: "reading, brain games, hobbies, modeling, studying;" "erotic or sexual activities with a partner;" "going to the gym or doing sports, by yourself;" "going for a walk or take a little trip (in group or at least with someone else);" "going to the gym or doing sports, with someone else;" and "watching TV, listening to music/playing music, playing computer games." We discovered also one destructive stress reducing activity associated with lower distress and somatization scores (i.e., cleaning the house, tidying up, working in the garden, doing household chores). Conversely, higher symptoms of distress or somatization were associated with the following destructive stress reducing activities: "thinking regularly about death, but without a concrete suicide plan;" "Taking sleeping tablets, or medication to calm down;" "thinking about a concrete suicide plan, considering an attempt;" "going on strict diets, crash diets, or eating too much;" "eating candy or junk food;" "Self-mutilation, or other deliberate self-hurting behavior;" "using soft drugs;" and "drinking coffee/tea or caffeinated softdrinks." Finally, we found two positive stress reducing activities associated with higher distress or somatization scores (i.e., "meditation and relaxation exercises" and "using Facebook or other social network websites"). Consequently, based on these results we can recommend health care professionals during peaks in the COVID-19 pandemic crisis to engage in concrete coping behaviors aimed at behavioral activation, keeping the daily structure and distraction. On the other hand, health care workers should be warned that coping behavior aimed at avoidance is associated with more detrimental effects on their mental and physical health. Having suicidal ideations or concrete suicidal thoughts or plans on the other hand must be considered a warning sign for immediate psychological support.

Overall, these findings are in line with general research in psychology investigating the impact of different coping strategies on mental and physical well-being. Coping was in the transactional model of Lazarus and Folkman (1987) a phenomenon to manage internal and/or external stressors that are perceived to exceed their personal resources people use both cognitive and behavioral coping responses. They identified two interdependent strategies working together identified as direct action or problem-focused coping and palliative or emotion-focused coping. In this study, lower use of positive and higher use of destructive stress-reducing behaviors was associated with more detrimental outcomes on distress and somatization. This is in line with other research demonstrating that an avoidant coping style was associated with increased levels of depression, anxiety, and loneliness (Minahan et al., 2021). Moreover, our findings are in line with the stress and coping framework of Lazarus and Folkman (Lazarus and Folkman, 1984) suggesting that the relationship between stress and psychological well-being is mediated by dysfunctional coping. Due to the correlational nature of our study, it is not possible to draw causal conclusions among the variables considered, nevertheless, we believe that our findings may contribute to understand healthcare workers' stress reactions involved in a pandemic outbreak in Flanders, Belgium.

The present study has limitations to be considered when interpreting the results. First of all, we used our own network and social media to distribute the survey. Therefore, selection bias could have occurred and no response rate can be calculated. Furthermore, the use of a cross-sectional design does not allow us to infer causality for the relationships examined. Second, because we asked participants to rate their coping behaviors at present and ideal circumstances, recall bias could have influenced the results. In the future, a longitudinal study design with a well-defined study population of healthcare workers and their work conditions is recommended. Finally, the study groups (professions) were unequal in numbers. The largest group were direct care workers. Generalization to other groups must be done with caution.

Using valid survey instruments we investigated coping behavior in relation to distress and somatization in a relevant number of healthcare workers during the course of the COVID-19 pandemic. The study results provides relevant and additional insights to develop and investigate interventions among others in personal leadership and resilience. We, therefore, recommend healthcare organizations not only monitor the mental and physical well-being of their staff members but also provide a concrete list of activities on how to cope with the psychological challenges during this COVID-19 or other pandemic outbreaks. Interventions from the field of positive psychology should be challenged.

CONCLUSION

This cross-sectional study investigated the relationship of coping behavior and distress and somatization in healthcare professionals working during the COVID-19 pandemic. The results clearly showed that positive stress-reducing activities are related to fewer symptoms of distress and somatization. Providing direct care to COVID-19 patients was associated with a higher decrease of applying positive stress-reducing activities during the peak of the pandemic compared to the ideal situation. Finally, positive stress reducing activities were associated with fewer symptoms of distress and somatization. We, therefore, recommend healthcare organizations not only monitor the mental and physical well-being of their staff members but also provide interventions on how to cope with the psychological challenges during this COVID-19 or other pandemic outbreaks.

DATA AVAILABILITY STATEMENT

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found at: https://anet.uantwerpen.be/desktop/irua.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

EF, FH, EG, and PV contributed to the conception, design, analysis, interpretation of the data, and have drafted and reviewed the work. YG, MP, FS, MA, and SS have substantially revised the work and contributed to the data acquisition. All authors contributed to the article and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.684618/full#supplementary-material

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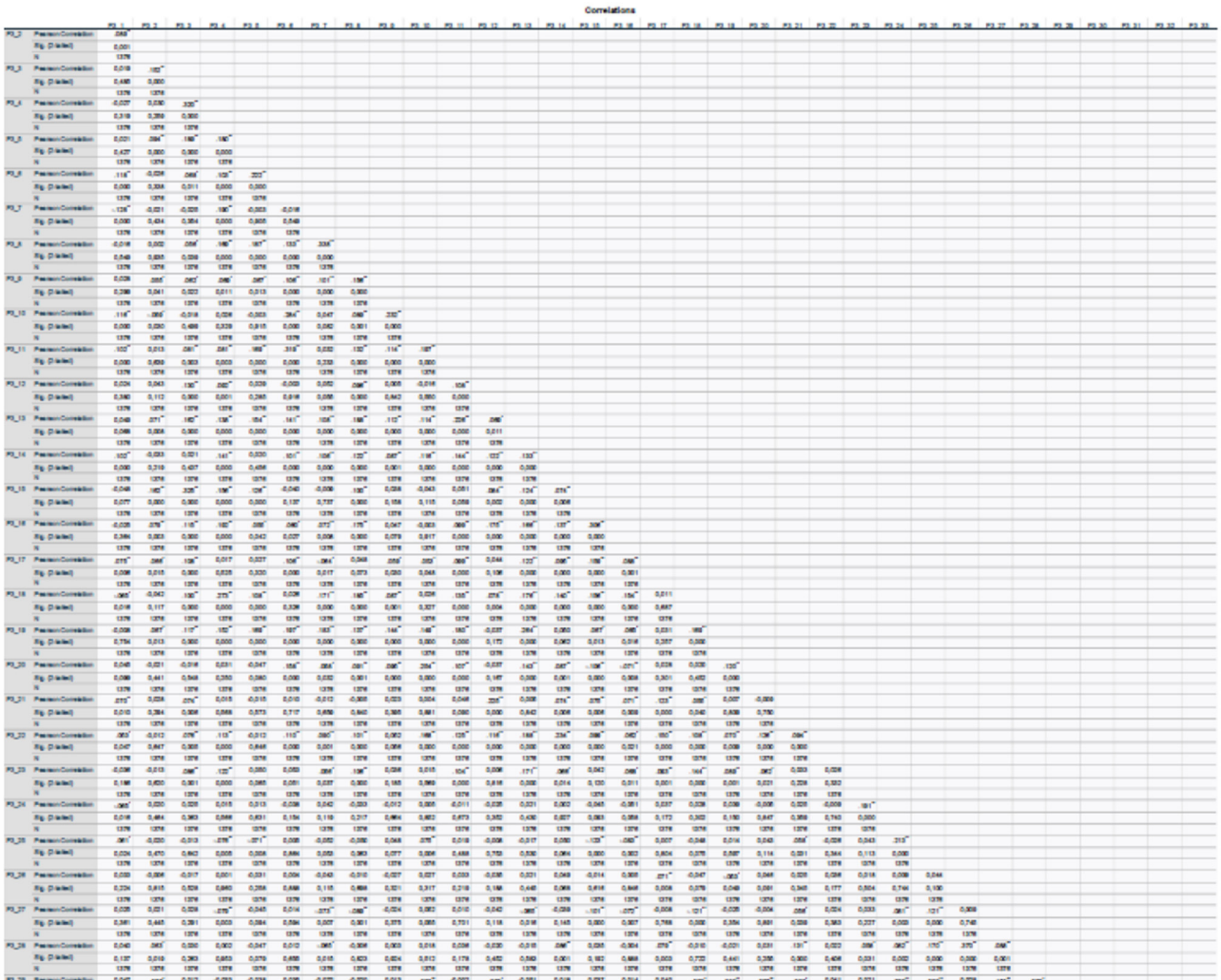
APPENDIX



APPENDIX 1: Correlation matrix between the items of the P^3 Palliative Behavior Scale.

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Job Insecurity and Job Performance: A Serial Mediated Relationship and the Buffering Effect of Organizational Justice

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The study aimed to extend the current knowledge of the relationship between job insecurity and performance. In line with traditional stress theories, work-family and burnout were hypothesized as serial mediators of the negative link between job insecurity and job performance. Also, the current study hypothesized that the association between job insecurity and the mediators [i.e., Work-family conflict (WFC) and burnout] could be buffered by perceived organizational justice among employees. Therefore, we empirically tested a moderated serial mediation model. Participants were 370 employees of an Italian multiservice social cooperative. Data were collected using a self-report questionnaire in the aftermath of the COVID-19 pandemic outbreak. The obtained results indicated that WFC and burnout mediated the association between job insecurity and job performance. Furthermore, perceived organizational justice buffered the relationship between job insecurity and WFC. Concerning job burnout, the association with job insecurity was moderated only among employees perceiving medium and high levels of organizational justice. The moderated serial mediation index provided support to the role of organizational justice in decreasing the association between job insecurity and job performance. This study delves deeper into the variables explaining the relationship between job insecurity and job performance by testing a serial process mechanism that involved WFC and burnout. Additionally, the obtained results provide suggestions to organizations and managers regarding the protective role of organizational justice to sustain employees' mental health and performance. Practical implications at the organizational and managerial level are provided, along with a focus on the actual impact of the pandemic.

Keywords: job insecurity, organizational justice, work-family conflict, burnout, performance, moderated mediation

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INTRODUCTION

Recent years and mainly the 21st century have profoundly affected the labor market worldwide. Economic, technological, societal, and political upheavals have increasingly undermined the concept of secure employment (Yeves et al., 2019). For instance, an increasing number of employees work outside the traditional workplace, just as work schedules are gradually flexible, making the boundaries

between work and personal life increasingly blurred and complex to manage (Gerstel and Clawson, 2018).

In other words, a gradual change in basic assumptions toward work-life flexibility has led to significant changes in working conditions that, in turn, have fueled greater job insecurity (Benach et al., 2014). The recent COVID-19 pandemic has further exacerbated this condition, bringing anxieties and concerns about one's professional and financial future to the surface (Wilson et al., 2020). This insecurity enhanced the level of distress and concern among workers about their job and financial futures (Menéndez-Espina et al., 2019). Also, the damage caused by the pandemic in several employment sectors and the rising levels of unemployment (Blustein et al., 2020; McKibbin and Fernando, 2020) put additional pressure on employers and organizations in terms of being both competitive and responsible for preserving the health and performance of their employees (Wilson et al., 2020; Rasdi et al., 2021). Overall, such changing working conditions require a better understanding of how employees respond to such changes and the consequences for employees' psychological and physical health and job performance.

Job insecurity is defined as the perceived fear of losing the current job for unexpected and uncontrollable events that can interrupt the continuity of one's work experience (Sverke et al., 2002; De Witte, 2005; Shoss, 2017). During the last few years, job insecurity has received significant interest from academic research due to changes in the labor market and organizational settings. Unpredictable economic environments and increased market competitiveness have led to company downsizing and reorganization, thus increasing the perceived insecurity of employees, who are worried about losing their jobs and concerned about finding new job opportunities (Sverke et al., 2002).

Furthermore, job insecurity has received growing attention due to its impact on workers' mental health, wellbeing, and organizational performance (Sverke et al., 2006; Shoss, 2017). For example, job insecurity is negatively associated with job satisfaction, organizational commitment, and wellbeing (Sverke et al., 2002; Berntson et al., 2010; Green, 2011), which indicates the stressor role of job insecurity. Furthermore, the harmful outcomes of job insecurity include burnout symptoms, a conflict between one's job role and personal life, and a significant reduction in life satisfaction (Richter et al., 2010).

In terms of work-related stress, the JD-R model (Bakker and Demerouti, 2014, 2017; Schaufeli and Taris, 2014) allows framing job insecurity as a stressful job demand that can deteriorate psychological health and individual energies if not balanced with adequate work-related resources (Mauno et al., 2007). Job insecurity may cause negative consequences in employees' wellbeing, attitudes toward their job, and behaviors at work. However, research focusing on behavioral outcomes, especially on employee performance at work, is still limited.

Meta-analytic evidence reported the negative impact of job insecurity on task performance (Sverke et al., 2002; Cheng and Chan, 2008; Gilboa et al., 2008). However, while many previous studies have concluded that job insecurity has a negative effect on task performance explicitly, some mixed empirical findings can be found (e.g., Lee et al., 2018; Debus et al., 2019; Pilipiec, 2020; Shin and Hur, 2020). The inconsistency of these findings suggests the need for a closer look at this phenomenon. Recently, Stankevičiūtė et al. (2021) found that job insecurity harmed both task performance and organizational citizenship behavior. Also, Piccoli et al. (2021) investigated the effect of job insecurity on job performance, hypothesizing a two-dimensional stressor framework where both hindrance and challenge effects were considered. The result of the two studies conducted supported the negative relationship between job insecurity and job performance.

Therefore, building on previous research findings, we developed the first hypothesis as follows:

> *Hypothesis 1 (H1)*: Job insecurity would be negatively related to job performance.

In the literature, the focus has often been on highlighting the harmful effects of job insecurity on both personal health and job attitudes and outcomes. However, the link between job insecurity and job performance is still unclear (Stankevičiūtė et al., 2021). Therefore, focusing on exploring the potential mechanisms underlying the link between job insecurity, health, and job outcomes through intermediate drivers seems to be an area of research that needs to be addressed (De Witte et al., 2016).

This focus becomes even more crucial when considering the need for managers to gain a more comprehensive understanding of the job-insecurity-performance relationship to develop organization-wide strategies that can prevent stress reactions and support individual and organizational effectiveness (Piccoli et al., 2021). Therefore, the purpose of this study was twofold: first, to provide a conceptual framework that identifies possible individual psychological mechanisms underlying the effect of job insecurity on employee performance and second, to hypothesize a possible organizational response that protects against the adverse effects of job insecurity that could recommend concrete responses for managers and practitioners.

The Mediating Role of WFC and Burnout

Gaining a deeper understanding of workers' experience of job insecurity and its consequences on psychological health and job performance has become crucial. So far, the literature has been focused on exploring the relationship between job insecurity on mental health outcomes (e.g., László et al., 2010; Griep et al., 2021) from one side, work attitudes, such as job satisfaction (Di Stefano et al., 2020), counterproductive work behavior (Van den Broeck et al., 2014), and job performance (e.g., Stynen et al., 2015) on the other side. However, there is a growing focus on exploring the underlying mechanisms of how job insecurity develops into subsequent health and behavioral effects through intermediate drivers (De Witte et al., 2016). In other words, a specific concern is to understand the conditions under which job insecurity leads to impaired performance (Di Stefano et al., 2020).

Based on the resource-based model of stress (Lazarus and Folkman, 1984), several studies have considered job insecurity a stressor that results in poor mental health outcomes. A recent meta-analysis suggested the deteriorating negative role of job

insecurity on individuals' physical and mental health (Jiang and Lavaysse, 2018). In line with these results, studies have tried to link the impact of job insecurity on job outcomes, such as performance through levels of individual wellbeing. Darvishmotevali and Ali (2020) investigated how job insecurity affects employees' subjective wellbeing and job performance in the hospitality industry. They found a mediating role of subjective wellbeing, affirming that job insecurity negatively impacts employees' job performance *via* decreasing their subjective wellbeing.

Furthermore, these results show that employees with a high level of psychological capital can cope with job insecurity. Parent-Lamarche et al. (2021) explored the mediating role of employees' wellbeing in the association between organizational conditions and job performance. Job insecurity was indirectly associated with lower professional efficacy and job performance levels through a negative association with employees' wellbeing. The results based on the stress-related mechanism highlighted the need for targeted changes in working conditions.

According to the JD-R model (Schaufeli and Taris, 2014), persistent exposure to excessive job demands (i.e., job insecurity) may trigger symptoms of emotional exhaustion that, in the long run, may result in detrimental individual and job-related outcomes (e.g., an impaired job performance). Consistent with the health-impairment process, the enduring experience of job insecurity could engender a condition of chronic emotional exhaustion (e.g., burnout) and eventually translate into harmful outcomes for individuals and their work environment, thus deteriorating job performance.

In exploring the impact of job insecurity at the individual level, previous research has focused on understanding the potential consequences in the private life sphere. Indeed, the anxiety and fears of losing a job and the related economic impact have negatively affected the work and family domains. Work-family conflict (WFC), also called work-family interference, has been defined as a type of inter-role conflict that occurs when job demands and family needs are perceived as incompatible (Byron, 2005). Empirical findings suggest that the negative relationship between job insecurity and subjective wellbeing was partially explained by a greater occurrence of WFC (Hu et al., 2018).

Previous studies provide evidence for the spillover effect of job insecurity on WFC. While investigating the long-term impact of perceived job insecurity, Rocha et al. (2006) had highlighted adverse effects on workers' mental health and their families' wellbeing, who were at risk of experiencing various stress-related problems due to the individuals' pressure faced from lack of control over their job future. Also, Richter et al. (2010) highlighted how workers who experience job insecurity also reported WFC, particularly among men. Interestingly, a recent systematic review on the consequences of job insecurity on family-related outcomes (Mauno et al., 2017) outlined the different theoretical mechanisms underlying this relationship. The relationship between job insecurity and WFC would thus be traced to direct or indirect spillover effects. Experiences and events occurring in different domains (e.g., increased workload due to fear of losing one's job) can mutually influence each other (e.g., difficulty managing family commitments, raising one's children, and marital tensions). In this sense, the job preservation motivation strategies and proactive coping strategies (Shoss, 2017; Giunchi et al., 2019) could further explain the mechanisms underlying people's active efforts in work. In other words, when faced with the possibility of losing their job, people decide to devote more attention, effort, and energy to preserving their job or developing alternative strategies, such as finding a new job. Accordingly, the risk is that people may have to take time and resources away from their family duties, thus negatively affecting the work-family balance. In other complex cases, the spillover turns into a crossover effect, in which the discomfort experienced by the worker is transferred to his/her family members in a kind of contagion (e.g., empathy). Recent studies have highlighted the potential negative impact of pandemic-induced work changes in the family environment (Fisher et al., 2020). School closures, working from home, and the need to attend to family duties are some examples that may suggest how the pandemic has severely affected the family domain, particularly in terms of time conflict where work and home hours proceed simultaneously (Rudolph et al., 2020). Against this background and in a climate of profound uncertainty about the future, work-family balance can therefore become critical to workers' wellbeing and performance.

In conclusion, while the evidence of job insecurity and WFC on individual's mental health is strong (De Witte et al., 2016; Jiang and Lavaysse, 2018; Griep et al., 2021), the implications of the relationship between job insecurity, WFC, and employee's mental health on work outcomes (i.e., job performance) still need to be clarified.

Based on the existing related theories and research, the present study assumes that the subjective experience of job insecurity and perceived actual working situation implies various employees' reactions to a similar uncertain employment condition (De Witte et al., 2015). As recently found by Piccoli et al. (2021), people can cope with uncertainty passively, with adverse effects on their health and performance, or proactively, thus finding new energy sources to improve their work performance. The results, however, showed that job insecurity does not lead to reactive coping strategies and that, therefore, the direct and indirect impacts on job performance are likely to be negative.

The evidence reported so far confirms that experiencing WFC can result from high job insecurity (Richter et al., 2010; Mauno et al., 2017). Employees who perceive a threat to their employment will react accordingly by devising strategies to safeguard their job position or seeking alternatives. In other words, if not managed appropriately, these coping strategies risk deteriorating personal resources and thus the work-family balance. Given the negative impact of both job insecurity and WFC on individuals' mental health (Mutambudzi et al., 2017; Griep et al., 2021), this study aims to advance the literature on job insecurity by hypothesizing a potential underlying mechanism in which intermediate drivers (WFC and mental health) could explain the negative impact of job insecurity on job performance. Therefore, our model hypothesized how this health-impairment process triggers coping strategies that ultimately turn out to be maladaptive (Piccoli et al., 2021), such as deteriorating workers' mental health and job performance.

Hence, the second and third hypotheses of the current study were developed as follows:

Hypothesis 2 (H2): WFC and job burnout mediate the relationship between job insecurity and job performance.
Hypothesis 3 (H3): WFC predicts burnout in the serial mediation between job insecurity and job performance.

The Buffering Role of Organizational Justice

Job insecurity has also been studied from a theoretical social exchange perspective (Shoss, 2017). Employees perceive a threat to their job position due to the perceived imbalance in their exchange relationship with the organization. In other words, job insecurity might result from the mismatch between the individual's investment in the organizational environment (e.g., performance) and the perceived fair treatment employees receive from the organization. Several studies have explored the relationship between job insecurity and psychological contract violations through the lens of organizational justice theory (Sora et al., 2010, 2021; Piccoli and De Witte, 2015). One of the core mechanisms underlying the negative impact of job insecurity on employees' wellbeing entails the breach of the psychological contract (defined as the perceived mutual obligations between two parties, the employee and the employer) and the perceived lack of fairness in organizational processes and decisions, with the latter having a greater weight in explaining the negative impact on employees' feelings of emotional exhaustion (Piccoli and De Witte, 2015).

Accordingly, Sora et al. (2021) found that job insecurity was indirectly related to self-rated performance through the three types of organizational justice, namely, distributive (the perceived equity in terms of quality of the outcomes provided by the organization), procedural (the perceived fairness on how decisions are taken, and results are assigned), and interactional justice (refers to the perceived fairness in the social exchange with the organization and managers). This study also highlighted how these relationships varied depending on the type of contract.

Informational justice is defined as the perceived adequacy of organizational and managers' strategies employed in sharing information about implemented organizational decisions, processes, and outcomes. This component of organizational justice can balance the resources lost as a consequence of job insecurity. Schumacher et al. (2020) examined how job insecurity relates to job performance based on the Conservation of Resources theory. The authors assumed a reduced impact of job insecurity on employees' performance when exposed to greater levels of informational justice. Employees reported lower levels of contextual performance and productivity during the weeks they experienced higher levels of job insecurity than usual, except where the organization had adequately informed employees of any significant upcoming changes. In the latter case, contextual performance and productivity levels remained intact.

The impact of organizational justice on how employees balance their work commitments, family duties, and responsibilities has also been studied. Indeed, work-related experiences and perceptions can negatively affect employees' life outside the workplace. Not surprisingly, several aspects of the work environment result in significant interference with the family (Grandey et al., 2007). In this sense, employees perceiving an unfair working environment where personal duties and constraints (e.g., family responsibilities) are not adequately considered could suffer from an unsatisfactory work-family balance. In line with previous research (Kyei-Poku, 2014; Sánchez et al., 2020), WFCs are more likely to occur when the organization and the way managers treat their employees are not perceived as fair. In other words, it is mainly from an interpersonal and informational perspective that the concept of organizational justice assumes its relevance with work-family balance. On the contrary, in a working environment where the organizational management pays attention to the way employees are treated and justifies their decisions by sharing information openly and transparently, employees could better manage their work demands and thus have more resources available to manage private or family commitments.

Based on the job insecurity-related literature, the concept of organizational justice has often been assumed to play a mediating role, thus explaining the underlying reason for adverse work-related behaviors (Shoss, 2017; Sora et al., 2021). However, several studies have found that organizational justice can also moderate the negative effects of job insecurity (Lee et al., 2018). For example, Silla et al (2010) highlighted how an organization perceived as fair and equal moderates the adverse effects of job insecurity on aspects, such as commitment, satisfaction, or intention to stay. Following the theoretical perspective of social exchange, Di Stefano et al. (2020) showed how a supportive organizational context moderated the relationship between job insecurity, employee-leader relationships, and job-related outcomes, such as job satisfaction and turnover intention.

Drawing on the concept of balancing job demands and resources, Bakker and Demerouti (2014) describe the direct and moderating processes that job resources can have on the health-impairment process. Several studies have showed that both personal and job resources can mitigate the impact of job demands. Also, considering the pandemic's impact on both individuals and organizational performance, some job-related and organizational factors could play a crucial role in exacerbating or moderating people's mental health (Giorgi et al., 2020).

In the present study, we sought to further advance the literature on job insecurity by investigating how the role of a perceived fair organization can moderate the stress–strain process triggered by job insecurity, thereby preserving employees' work-family relationships, mental health, and, ultimately, job performance. In this sense, drawing on the impact that organizational justice may have on the emotional and mental health of individuals and their work-family balance, the current study hypothesized a moderating role of organizational justice on the health-impairment process, which, in turn, might hamper the adverse effects of job insecurity on job performance. In other

words, perceived organizational justice might represent a contextual boundary condition (i.e., a moderator) of the indirect relationship between job insecurity and the two mediators with job performance. A moderated mediation model (**Figure 1**) was tested to examine whether the indirect effect of job insecurity on performance through WFC and burnout would be more considerable for employees who perceived a lower level of organizational fairness. Thus, we hypothesized that as:

> *Hypothesis 4 (H4)*: Perceived organizational justice would moderate the effect of job insecurity on WFC. In other words, employees perceiving a high level of organizational justice are expected to experience a lower WFC when compared to those reporting a lower level of perceived organizational justice.
> *Hypothesis 5 (H5)*: Perceived organizational justice would moderate the effect of job insecurity on burnout. To be specific, we hypothesize a more significant occurrence of burnout symptoms among employees perceiving low levels of organizational justice when compared to those characterized by a higher perception of organizational justice. **Figure 1** displays the hypothesized model.

MATERIALS AND METHODS

Procedure

Data were collected between December 2019 and January 2020 using an online questionnaire as part of a psychosocial risk assessment project among employees from an Italian multiservice cooperative. The cooperative is multi-sectoral, operating in the social and educational fields, managing cultural heritage, and communication and information. Participation in the questionnaire was voluntary.

This research study arose from the opportunity to collect data as part of a psychosocial risk assessment required by the company to comply with national legislation (d. lgs. no. 81/2008). In this sense, it was not necessary to request approval from the University Ethics Committee. However, the questionnaire's first page summarized the study's contents and goal and reported the informed consent form, emphasizing participant anonymity and information confidentiality. This document complied with personal data treatment guidelines defined by the Italian privacy law (Law Decree DL-196/2003) and the GDPR, Regulation 2016/679. Participants had to select the consent checkbox at the end of this page as a prerequisite to access the questionnaire.

The cover letter also declared that the employer would not be informed of participants' decision not to complete the survey. Concerning the ethical standards for research, the study complies with the latest version of Helsinki's Declaration (World Medical Association, 2013).

Participants

A total of 482 employees have accessed the survey link. Only questionnaires with a minimum of 70% of answers were retained. Hence, the final sample consisted of 370 employees. **Table 1** provides a general overview of sample characteristics in terms of frequencies and descriptive analyses.

Among them, 74.1% ($N = 274$) were female, and 25.7% ($N = 95$) were male.

The age of the participants ranged from 19 to 72 years old. The mean age of the working population was 38 years old ($SD = 10.03$), the mean women's age was 37.58 ($SD = 9.62$), and the mean for men was 40.17 ($SD = 10.90$). The survey also explored the job tenure of employees. On average, employees have been working for the current organization for 6 years ($SD = 5.80$), with a mean job tenure substantially equal across genders (women's job tenure $M = 6.04$ years; $SD = 5.87$; men's job tenure $M = 6.11$; $SD = 5.57$).

Concerning the job contract, most of the sample ($N = 190$; 51.4%) had a permanent part-time contract, 25.9% ($N = 96$) had a permanent full-time contract, 13.8% ($N = 51$) had a fixed-term part-time, 4.9% ($N = 18$) had a fixed-term full-time contract, and

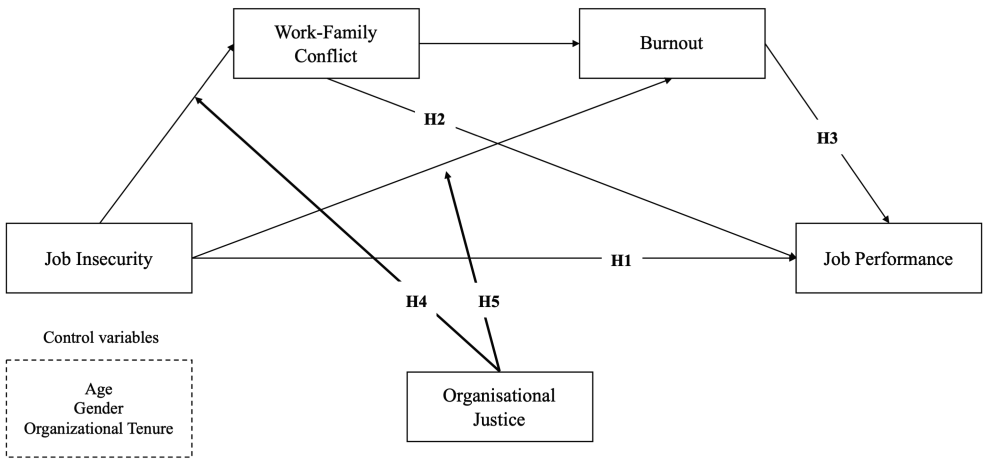

FIGURE 1 | Hypothesized moderated serial mediation model.

TABLE 1 | Sample characteristics, descriptive, and frequencies.

	Frequency	Valid percent
Gender		
Female	275	74.3
Male	95	25.7
Job contract		
Permanent (full-time)	96	26.0
Permanent (part-time)	190	51.5
Temporary (full-time)	18	4.9
Temporary (part-time)	51	13.8
Temporary (other)	14	3.8
Education level		
Primary or lower secondary school diploma	15	4.1
Post-secondary school diploma	76	20.5
University degree	222	60.0
Post-graduate degree (Master's degree, Ph.D., etc.)	57	15.4
Supervisory role		
Yes	74	20.7
No	283	79.3

the remaining 3.8% ($N = 14$) worked as seasonal or temporal employees. Following De Cuyper and De Witte (2005), in the analysis, we recoded the job contract into a binary variable (i.e., 0 = permanent; 1 = temporary). Furthermore, frequency revealed that a small number of participants (20%) held a supervisory role regarding work positions. The working population involved in the survey has a bachelor's degree (60.0%) or a higher qualification, such as a master's degree or a Ph.D (15.4%).

Measures

Socio-Demographic Characteristics

Participants' gender (categorical variable), age, and job tenure (both as continuous variables) were asked to participants at the beginning of the questionnaire. These variables were included in the analysis as cofounding variables as previous studies suggested the link of age (Yeves et al., 2019), gender (Menéndez-Espina et al., 2020), job tenure (Cheng and Chan, 2008), and job contract (De Cuyper and De Witte, 2005) with job insecurity.

Job Insecurity

We used a 5-item self-reported scale developed by Chirumbolo and Hellgren (2003) to measure job insecurity. The scale was aimed to assess participants' perceived chance of losing their job soon. Examples of items were, "I fear I will lose my job" and "I am concerned about keeping my job." Participants expressed their accordance with each item with 5-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The scale showed robust internal reliability (Cronbach's alpha = 0.81). Participants with higher scores expressed more serious concern about the chance of keeping their current work.

Work-Family Conflict

To measure WFC, we administered a 3-item scale based on the Italian work-related stress questionnaire developed to assess psychosocial risk factors and validated by Guglielmi et al. (2011). The items asked participants to state how frequently anxiety, worries, efforts, and time spent on their work negatively affect their family duties and responsibilities. Responses were provided with 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). Examples of items were, "I am so tired and stressed when I leave work that it is difficult for me to fulfill my family duties." The scale showed robust internal reliability (Cronbach's alpha = 0.89). Participants with higher scores expressed more concern about being able to meet the demands of their private life.

Job Burnout

To obtain a measure of burnout, we used the short version of the Burnout Assessment Tool developed by Schaufeli et al. (2020); Italian version: Consiglio et al., 2021). In the present study, participants replied to burnout's four core subscale dimensions: exhaustion, mental distance, cognitive impairment, and emotional impairment. Examples of items were, "After a day at work, I find it hard to recover my energy" (exhaustion), "I struggle to find any enthusiasm for my work" (mental distance), "At work, I have trouble staying focused" (cognitive impairment), "At work I may overreact unintentionally" (emotional impairment). Each item was rated with 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). We used the composite score and compared the overall mean ($M = 1.99$; $SD = 0.55$) with the statistical norms for both Flemish and Dutch employees (Schaufeli et al., 2020) revealed a general average level of burnout among the working population. The scale showed robust internal reliability (Cronbach's alpha = 0.85). Participants with higher scores reported a greater occurrence of symptoms that might suggest experiencing burnout at work.

Organizational Justice

To obtain a measure of the perceived organizational justice, we used the Italian Organizational Health Questionnaire developed by Avallone and Paplomatas (2005). Accordingly, participants reported how managers and the organization treat, evaluate, and incentivize employees answering four items. Examples of items were, "The criteria for evaluating people are fair and transparent" or "Managers treat employees fairly." Participants were asked to rate how often the scenario described by each item occur with 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The scale showed acceptable internal reliability (Cronbach's alpha = 0.78). Participants with higher scores perceived their organization as fairer and more transparent in managing and evaluating their employees.

Job Performance

The overall perceived job performance was rated using the single item proposed by Shimazu et al. (2010): "On a scale from 0 to 10, where 0 is the worst performance, and 10 is the top performance, how would you rate your overall job performance during the past 4 weeks?" with 11-point Likert scale ranging from 0 (*worst possible job performance a person could have on this job*) to 10 (*top job performance*).

Statistical Analysis

The hypothesized model was tested using the PROCESS macro v3.5 (Hayes, 2017) on SPSS (version 23). Several steps were involved in the data analysis. Firstly, we examined the variables under investigation regarding their normality, kurtosis indices, and skewness. Also, means, standard deviations (*SD*s), Cronbach's alpha, and bivariate correlation coefficients between the key variables were calculated to examine the association between all study variables (**Table 2**). Cohen's guidelines allowed us to establish the magnitude effects (Cohen, 1988) for "small" (0.10), "medium" (0.30), and "large" (0.50) correlation effects. Next, using the PROCESS macro, it was possible to test the hypothesized models, the serial mediation, and the further moderated serial mediation model. The advantage of using PROCESS is to analyze the index of moderated mediation with simple soles results (standard error, *t*-value, and value of *p*), thus deepening the understanding of the relationship between variables. The serial mediation model was quantified to determine whether WFC mediated the effects of job insecurity on job performance and whether WFC and burnout serially mediated the relationship between job insecurity and job performance.

Moreover, the model tested whether organizational justice moderated the association between simple and serial mediation effects. The moderated serial mediation model is based on three linear regression analyses (Hayes, 2015). In the first regression analysis, the first mediator (WFC) is predicted by the independent variable (job insecurity), the moderator (organizational justice), and the interaction between the independent and moderating variable (job insecurity × organizational justice). In the second regression analysis, the second mediator (burnout) is predicted by the independent variable (job insecurity), the moderator (organizational justice), their interaction (job insecurity × organizational justice), and the first mediator (WFC). Finally, in the third regression analysis, the dependent variable (job performance) is predicted by the independent variable, the moderator, their interaction, the first mediator, and the second mediator (**Figure 1**).

All variables in the model were centered before the analyses to compute the interaction terms. The interaction between the independent and moderator variables was examined with simple slope analyses (Aiken and West, 1991). In particular, the conditional effects were examined at low (mean - 1 *SD*), medium (mean), and high (mean + 1 *SD*) values of organizational justice. Indirect effects and the moderated mediation effect were assessed with 95% bias-corrected confidence intervals (CIs) based on 5,000 bootstrap samples (Hayes, 2015, 2017). This type of analysis allowed us to estimate the lower and upper CIs within which the indirect effect can be considered statistically significant (i.e., CIs different from zero).

RESULTS

Table 2 displays the means, standard deviations, internal consistencies (Cronbach's alpha), and correlations between the study variables. All variables showed satisfactory reliability, with Cronbach's alpha coefficients of 0.70 or higher.

Job insecurity was negatively correlated with gender (1 = male), job tenure, overall job performance, and organizational justice, whereas it correlated positively with WFC and burnout. As expected, organizational justice revealed a significant negative correlation with all the study variables except for job insecurity.

The hypothesized model was tested using Model 6 described by Hayes (2017), in which an independent variable (i.e., job insecurity) is directly associated with the dependent variable (i.e., job performance) and indirectly associated through a serial mediation relationship (i.e., WFC and burnout, respectively). In this sense, the model explores both the direct effect of job insecurity on job performance and the indirect effect in a serial sequence. **Table 3** displays the standardized regression coefficients, standard errors (SE), and model summary information for the hypothesized serial mediation model. In the model, age, gender, job tenure, and job contract were included as controlling variables.

Results showed a significant direct effect of job insecurity on both WFC [b(se) = 0.24 (0.05), $p < 0.001$, *CI*s (0.11;0.30)] and burnout [b(se) = 0.16 (0.03), $p < 0.001$, *CI*s (0.04;0.13)], whereas no direct effect was found on job performance [b(se) = −0.08 (0.06), $p = 0.15$, *CI*s (−0.21;0.03)]. At higher level of job insecurity, there is a significant positive association with higher level of WFC and burnout. Moreover, WFC showed a significant direct effect on burnout [b(se) = 0.61 (0.03), $p < 0.001$, *CI*s (0.31;0.40)] but no direct effect on job performance ($p > 0.05$). Burnout, in turn, revealed a significant direct and negative effect on job performance [b(se) = −0.33, $p < 0.001$, *CI*s (−1.34; −0.45)].

The analysis of the indirect effects (**Table 4**) indicated that burnout mediates the relationship between job insecurity and job performance [b(se) = 0.05 (0.02), *CI*s (−0.10; −0.02]. In other words, job insecurity reported a positive association with job burnout that, in turn, is negatively related to employees' job performance. Similarly, job insecurity is related to a greater perception of WFC, which is negatively associated with burnout and, in turn, job performance. Indeed, the serial mediation model was confirmed [b(se) = 0.05 (0.02), *CI*s (−0.08; −0.02]. The direct effect analysis revealed a non-significant relationship between job insecurity and performance, thus suggesting a full-serial mediation model.

The predictors hypothesized in the serial mediation model covered approximately 16% of job performance variance ($R^2 = 0.16$). Furthermore, the results confirm the mediating role of WFC on burnout, which, in turn, mediated the relationship between job insecurity and job performance. In other words, the greater the job insecurity, the greater the likelihood of experiencing a conflict between work and family demands. This discomfort becomes increasingly associated with burnout, which may ultimately deteriorate the employee's job performance.

The hypothesized moderated serial mediation model was tested using Model 84 described by Hayes (2017), in which the independent variable (i.e., job insecurity) is directly associated with the dependent variable (i.e., job performance) and indirectly associated through a serial mediation relationship (i.e., WFC and burnout, respectively). In addition, the relationship between the independent variable and the two hypothesized mediators

TABLE 2 | Means, *SDs*, Cronbach's alpha, and correlations of the variables used in the study ($N = 370$).

	M	*SD*	Range	1	2	3	4	5	6	7	8	9
Age	38.28	10.0	–	–								
Gender (0 = female)	0.26	–	0–1	0.11*	–							
Job tenure	6.08	5.79		0.42**	0.01	–						
Job contract (0 = permanent)	0.22	–	0–1	−0.41**	−0.02	−0.45**	–					
Job insecurity	2.36	1.07	1–5	−0.03	−0.12*	−0.16**	0.33**	(0.89)				
Work-family conflict	2.48	0.94	1–5	−0.01	−0.09	0.04	0.12*	0.14**	(0.81)			
Job burnout	1.96	0.60	1–5	0.04	0.04	0.06	−0.12*	0.20**	0.63**	(0.85)		
Job performance	8.41	1.22	1–10	0.05	−0.08	−0.08	0.07	−0.10*	−0.26**	−0.38**	–	
Organizational justice	2.52	0.80	1–5	−0.10*	−0.10	−0.16**	0.23**	−0.08	−0.29**	−0.40**	0.26**	(0.78)

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

is moderated by an external variable (i.e., organizational justice). In this sense, the model explores job insecurity's direct and indirect effects on job performance in an overall moderated serial mediation path. Organizational justice was hypothesized as a positive organizational factor that can buffer the negative effect of an uncertain labor market. **Table 4** displays the standardized regression coefficients, standard errors (SE), and model summary information for the moderated serial mediation model of job insecurity on the perceived job performance.

Table 5 presents the results of the hypothesized moderated effect of organizational justice on the multiple mediated relationship between job insecurity and job performance. The regression coefficients showed a similar pattern to the previous model, with slight effect variations. In the additional hypothesized model, organizational justice showed a negative direct effect on both the mediators (i.e., WFC and job burnout). In other words, higher level of perceived organizational justice is significantly correlated with lower level of WFC [B(se) = −0.31 (0.06), $p < 0.001$, *CIs* (−0.43; −0.19)] and lower level of burnout symptoms [B(se) = −0.14 (0.03), $p < 0.001$, *CIs* (−0.20; −0.09)].

The interaction between job insecurity and organizational justice was significant only on the first mediator (i.e., WFC) [B(se) = −0.11 (0.05), $p < 0.05$; *CIs* (−0.22; −0.01)]. Nonetheless, the conditional direct and indirect effects analysis and indices for the moderated serial mediation model supported the buffering effect of organizational justice (**Table 6**). In more detail, the analysis of the conditional direct effects of the total predictors at values of the moderator (**Table 7**) revealed a significant effect at low [B(se) = 0.24 (0.07, p < 0.001; CIs (0.11; 0.37)] and medium level [B(se) = 0.15 (0.05), CIs (0.05; 0.25)] of organizational justice. The analysis further highlighted an interesting hampering effect at medium [B(se) = 0.07 (0.02), *CIs* (0.02; 0.11)] and high level [B(se) = 0.10 (0.03), *CIs* (0.04;0.16)] of organizational justice on the relationship between job insecurity and burnout. **Figure 2** shows the conditional effects of low, medium, and high level of equity on the relationship between (1) job insecurity and WFC and between (2) job insecurity and burnout. Finally, the index of moderated mediation is a significant moderating effect of organizational justice on the serial mediation between job insecurity and job performance [B(se) = 0.03 (0.02), *CIs* (0.01; 0.06)].

These results confirmed the moderated role of organizational justice on the serial association between WFC and burnout, which mediated the relationship between job insecurity and job performance. In other words, employees reporting a high level of job insecurity combined with a low level of perceived organizational justice in their work environment reported a more significant deterioration in their job performance.

DISCUSSION

The purpose of the current study was to extend knowledge of the relationship between job insecurity and job performance and provide a theoretical framework that accounts for the underlying variables involved in this relationship and its effects. Accordingly, the general aim of this study was to explore the serial mediating role of WFC and job burnout in the relationship between job

TABLE 3 | Regression coefficients, SE, and model summary information for the serial mediation model.

	WFC (M1)			Burnout (M2)			Job performance		
	b	**SE**	***p***	***b***	**SE**	***P***	***b***	**SE**	***p***
(Intercept)	2.46	0.24	< 0.001	0.90***	0.12	< 0.001	9.73***	0.36	<0.001
Job insecurity	0.24***	0.05	< 0.001	0.16***	0.03	< 0.001	−0.08	0.06	0.15
WFC	–	–	–	0.61***	0.03	< 0.001	−0.02	0.08	0.70
Burnout	–	–	–				−0.33***	0.15	<0.001
Age	−0.10*	0.01	0.01	−0.02	0.01	0.70	0.12*	0.01	0.04
Gender (0 = female)	−0.06	0.11	0.26	0.10*	0.05	0.02	−0.08	0.14	0.14
Job tenure	0.04	0.01	0.50	0.04	0.01	0.40	−0.09*	0.01	0.11
Job contract (0 = permanent)	−0.17*	0.15	0.01	−0.06	0.07	0.22	0.06	0.19	0.31
	$R^2 = 0.07$ $F_{(5,343)} = 4.942$ $p < 0.001$			$R^2 = 0.43$ $F_{(6,342)} = 42.825$ $p < 0.001$			$R^2 = 0.16$ $F_{(7,341)} = 9.357$ $p < 0.001$		

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

TABLE 4 | Indirect, direct, and total effects of job insecurity on job performance.

	Effect	SE	95% Bootstrap CI
Indirect effect (INS→WFC→P)	−0.01	0.01	−0.04|0.03
Indirect effect (INS→B→P)	−0.05*	0.02	−0.10|−0.02
Indirect effect (INS→WFC→B→P)	−0.05*	0.02	−0.08|−0.02
Direct effect (INS→P)	−0.09	0.06	−0.21|0.03
Total effect (INS→P)	−0.11***	0.03	−0.16|−0.05

*INS, job insecurity; WFC, Work-family conflict; B, burnout; P, job performance. CI, confidence interval and SE, standard error; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ or CI does not cross zero.*

insecurity and job performance. Additionally, a further goal was to test whether organizational justice could buffer the negative association of job insecurity with WFC and burnout.

During the last decades, characterized by the growing instability resulting from the rapid socioeconomic and technological changes in the labor market worldwide, job insecurity has gained significant relevance as one of the prominent antecedents of impaired job performance (Piccoli et al., 2021). Moreover, the subjective feeling of a threat to job stability seems progressively triggered by external contextual pressures on organizations, which are increasingly forced to react quickly by changing processes, structures, and activities (Lee et al., 2018). The recent pandemic has severely strained various occupational sectors, many companies have experienced downsizing, many more have closed, and unemployment has risen dramatically (Rudolph et al., 2020). These dynamics raise crucial questions about the impact of such insecurity on job performance, given past ambiguous findings on the topic that have not helped untangle this issue (Debus et al., 2019).

The current study provided additional insights on the relationship between job insecurity and job performance, highlighting the potential mechanisms explaining how performance might be impaired due to inadequate individual and organizational responses. The obtained results suggested that job insecurity was negatively related to job performance, thus corroborating the assumption that employees repetitively exposed to a perceived threat on their job's stability (e.g., threats outside the organization) cannot carry out their work tasks successfully. Also, the indirect nature of such a relationship might be an exciting approach to adopt in future research to deepen the understanding of how job insecurity affects job performance, thus potentially overcoming the inconsistent findings gathered so far (Lee et al., 2018). How organizations respond, adapt, and react to external environment disruptions can impact the organization (e.g., procedures, sustainability, and economics) and the individual. The results of this study are even more interesting if viewed in the aftermath of the pandemic outbreak. Many have recognized the pandemic as a significant stress factor for organizations and individuals (Rigotti et al., 2021). Forced remote work may have led to experiencing the transition negatively, with feelings of technostress (Molino et al., 2020), little support from the supervisors (Vaziri et al., 2020), which in turn, may have negatively affected how people manage their family responsibilities, as our results might suggest. Based on our results, it is not unreasonable to hypothesize that levels of job insecurity may have reached unsustainable peaks during the pandemic that could have had a considerable impact on the work-family balance, ultimately deteriorating job performance. Milliken et al. (2020) also discussed that the shift to remote work during the pandemic might have dissolved the boundaries between work and family, creating new gender dynamics. Despite the greater presence of women in the sample, the hypothesized model involved both genders, suggesting how the job insecurity, already present in the aftermath of the pandemic, may have exacerbated WFC in the months that followed where both partners might have shared the working remotely together. Different needs for childcare, housework, and longer working days might suggest the need for organizational support in this direction.

Indeed, in the occupational health field, job insecurity has also been a concern of most companies and academic research due to its critical impact on employee wellbeing (Richter et al., 2014), burnout, and emotional exhaustion (De Cuyper et al., 2012; Jiang and Probst, 2017). Building on this, the present findings revealed that job burnout mediated the association between job insecurity and performance. In other words, employees perceiving the future

TABLE 5 | Regression coefficients, SE, and model summary information for the moderated serial mediation model.

Antecedent	Consequent								
	WFC (M1)			Burnout (M2)			Job performance		
	Coeff.	SE	*p*	Coeff.	SE	*p*	Coeff.	SE	*p*
(Intercept)	2.88***	0.22	<0.001	1.14***	0.12	<0.001	9.52***	0.38	<0.001
Job insecurity	0.15**	0.05	< 0.01	0.07**	0.02	< 0.01	−0.09	0.06	0.15
WFC	–	–	–	0.32***	0.02	< 0.001	−0.03	0.08	0.70
Burnout	–	–	–				−0.74***	0.14	<0.001
Organizational justice	−0.31***	0.06	< 0.001	−0.14***	0.03	< 0.001			
INS × JUS	−0.11*	0.05	< 0.05	−0.04	0.02	0.09			
Age	−0.01	0.01	0.15	−0.01	0.01	0.90	0.01*	0.01	< 0.05
Gender (0 = female)	−0.19	0.11	0.08	0.08	0.05	0.09	−0.21	0.14	0.14
Job tenure	0.01	0.01	0.90	0.01	0.01	0.60	−0.01	0.01	0.11
Job Contract (0 = permanent)	−0.24	0.15	0.10	−0.03	0.07	0.63	0.19	0.19	0.31
	$R^2 = 0.14$ $F_{(7,341)} = 7.742$ $p < 0.001$			$R^2 = 0.47$ $F_{(8,341)} = 38.259$ $p < 0.001$			$R^2 = 0.16$ $F_{(9,340)} = 10.956$ $p < 0.001$		

*INS × JUS, job insecurity × organizational justice. M1 (organizational justice on the relationship between job insecurity and WFC). M2 (organizational justice on the relationship between job insecurity and burnout); *p < 0.05; **p < 0.01; ***p < 0.001.*

TABLE 6 | Conditional direct, indirect effects, and indexes for the moderated serial mediation model.

Organizational Justice	Indirect effect (INS → WFC → JP)		Indirect effect (INS → B → JP)		Indirect effect (INS → WFC → B → JP)		Direct effect (INS → JP)		
	Effect	95% Bootstrap CI	Effect	95% Bootstrap CI	Effect	95% Bootstrap CI	Effect	SE	p
							−0.09	0.06	0.15
Low (−1 SD)	−0.01	−0.05|0.04	−0.02	−0.08|0.03	−0.02*	−0.11|−0.02			
Medium (mean)	−0.01	−0.03|0.02	−0.05*	−0.10|−0.01	−0.01*	−0.07|−0.01			
High (+1 SD)	−0.01	−0.02|0.01	−0.07*	−0.13|−0.03	−0.02	−0.05|0.01			
Index of moderated mediation	0.01	−0.01|0.03	−0.03	−0.08|0.01	0.03*	0.01|0.06			

*INS, job insecurity; WFC, WFC; B, burnout; P, job performance; CI confidence interval and SE, standard errors; *p < 0.05 or CI does not cross zero.*

TABLE 7 | The conditional direct effects of the focal predictor at values of the moderator.

Organizational justice	Direct effect (INS→WFC)			Direct effect (INS→B)		
	Effect	SE	95% Bootstrap CI	Effect	SE	95% Bootstrap CI
Low (−1 SD)	0.24***	0.06	0.11|0.37	0.03	0.03	−0.03|0.09
Medium (mean)	0.15**	0.05	0.06|0.25	0.07**	0.02	0.02|0.11
High (+1 SD)	0.06	0.07	−0.06|0.19	0.10***	0.03	0.04|0.16

*INS, job insecurity; Work-family conflict, WFC; B, burnout; CI, confidence interval and SE, standard errors.*p < 0.05; **p < 0.01; ***p < 0.001.*

of their current job position as highly uncertain also experience a more significant occurrence of burnout symptoms and, consequently, a reduced ability to perform properly at work. The mediating role of burnout agrees with earlier empirical findings that identified job insecurity as one of the most substantial hindrance stressors that deplete employees' energies and resources, thus progressively undermining employees' wellbeing (Darvishmotevali and Ali, 2020). Accordingly, the negative relationship between job insecurity and performance was mediated by burnout symptoms in the present study. As suggested by Piccoli et al. (2021), uncertainty derived from the fear of losing the job seems more likely to be experienced as a hindering stressor. From the results of the present study, a mechanism could thus be delineated whereby the emergence of a feeling of job insecurity experienced as an impeding factor is predominantly associated with negative emotions and attitudes (e.g., burnout) that may ultimately lead to behavioral withdrawal and passive coping strategies (e.g., impaired performance) rather than reactive coping strategies.

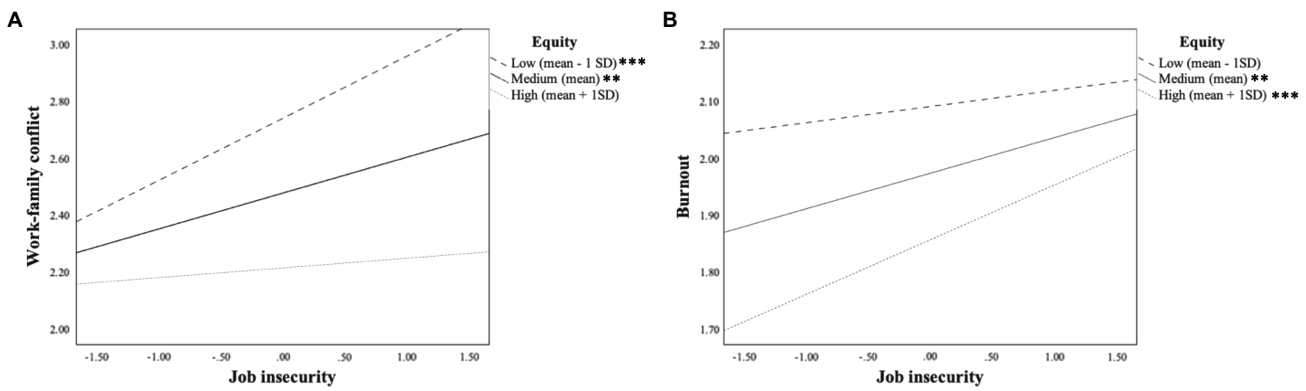

FIGURE 2 | Conditional effects of low, medium, and high levels of equity on the relationship between **(A)** job insecurity and WFC and between **(B)** job insecurity and burnout.

Our findings suggest that employees perceiving solid levels of job insecurity are more prone to experience a higher WFC, which is related to a greater occurrence of burnout symptoms and, subsequently, decreased job performance. The full-serial mediation opens interesting future research by considering the way job insecurity is experienced at home as a key mechanism influencing people's health and wellbeing, and thus indirectly their work performance. People may experience this uncertainty even more strongly given the potential negative impact on work-family balance, thus undermining the health of those involved. A vicious circle in which energy is drained, and performance is eventually reduced. In other words, this contribution could provide further insights into the underlying conceptual dimensions of work performance, considering factors located at different levels of analysis (i.e., environmental, organizational, and individual).

In detail, external environmental pressures define the potential degree of organizational instability and perceived job insecurity. It should be noted that in this sample, more than half declared to be employed with a permanent contract. Nevertheless, the hypothesized model is significant, suggesting a potentially pivotal role of the environment. Concerning this point, the organization might play a crucial role on two fronts. On the one hand, the way the organization reacts to external challenges and pressures defines its success and, conversely, the degree of insecurity perceived by its employees (i.e., job insecurity).

On the other hand, the way the organization internally manages, explains, and clarifies to employees its response to the external challenges plays a crucial role in terms of perceived organizational justice. For example, Rodwell and Gulyas (2015) highlighted how the clarity and transparency of the process behind breaches of the psychological contract allowed employees to understand the reasons for such breaches, accepting the consequences. In other words, the level of transparency or perceived fairness in the information shared and explanation given about organizational decisions are processes that organizations cannot ignore.

Especially in the face of the "new normal" emphasized by the COVID-19 pandemic, this study may suggest that even if forced to make difficult choices due to external pressures or constraints that could undermine employees' job security, the organization is perceived as fair if it puts in place clear and transparent processes to explain these choices. This can protect employees' work-family relationships and mental health and ultimately prevent reduced job performance. How the individual perceives and interprets these external pressures and the organization's strategies play a crucial role in the overall hypothesized process. The greater the perceived job insecurity, the greater the likelihood that employees will experience this situation negatively, thus creating a vicious and potentially draining cycle over time. The role of an organization perceived as fair and transparent can only mitigate the uncertainties of an unstable and sometimes unpredictable environment, as was the case during the pandemic.

In conclusion, these results show that perceived job insecurity could lead to a lower ability to manage the family role. In line with previous findings (Mauno et al., 2017), the spillover effect transfers the fear of job loss within the family context, thus promoting work-family imbalance (Nauman et al., 2020). The present study suggests further insights to the literature by highlighting how the relationship between job insecurity and performance can be influenced by a detrimental mechanism that initially propagates at the individual level, affecting the work-family balance, and later impacts the mental health of individuals. In this case, the significant serial mediation model suggests that the risk of job-related outcomes (e.g., reduced performance) cannot be excluded.

Further evidence of the current investigation involves the buffering role of organizational justice as a protective organizational factor that can weaken the WFC and job burnout experienced by those employees perceiving a significant level of job insecurity. Findings suggest that perceived high levels of organizational justice may reduce the strength of the association between job insecurity and WFC. The role that an organization and its managers can play in a climate of uncertainty becomes hugely influential in terms of its impact on employees' private lives (Kyei-Poku, 2014; Nauman et al., 2020; Sánchez et al., 2020). Indeed, in this study, the sense of being part of a fair

working environment appears to play a crucial protective role in employees' ability to balance their efforts between private and work life. In this sense, in a climate of uncertainty about own working and economic future, the possibility of relying on the management, capable of initiating positive social exchanges or available to share the criteria used to evaluate the performance of employees, seems to promote employee's ability to positively deal with such a scenario, both at work and home.

On the other hand, the current results indicate that the detrimental association between job insecurity and burnout symptoms is solid when employees perceive their organizational setting as unfair, thus characterized by an inadequate level of justice. This result contributes to the current understanding of organizational justice as a workplace characteristic related to significant outcomes regarding employees' attitudes and behaviors in the work environment (e.g., Yang et al., 2014). Consistent with previous studies, the more employees perceive an organizational environment that provides fair treatment, the less the condition of job insecurity translates into adverse individual and professional outcomes (Chirumbolo et al., 2020).

Study Limitations and Directions for Further Research

The current study has some limitations that should be acknowledged. The main weakness comes from employing a cross-sectional design to assess a serial mediation model, thus preventing the opportunity to draw definite conclusions on the causal link explaining the relationships among the study variables. Hence, future studies could replicate the hypothesized model using a longitudinal research design with different measurement time points. These data could provide robust evidence of the causal impact of perceived job insecurity on WFC, burnout symptoms, and the resulting impairment of employees' job performance, thus deepening the understanding of both the health-impairment process and the spillover effect.

An additional limitation of the current research lies on our data, which are based on self-reported measures. This choice could have enhanced the likelihood of common method variance effects among the variables under investigation (Podsakoff et al., 2003). Nevertheless, this limitation should be considered with prudence. First, recent research suggests that Common Method Bias (CMB) due to self-reports is not necessarily a problem and is sometimes overestimated (Brannick et al., 2010). In particular, WFC refers to the perceived difficulties in managing multiple demands stemming from one's roles in the work domain and private life simultaneously, thus experiencing a perceived imbalance between these life spheres (Fotiadis et al., 2019).

Similarly, job burnout represents a psychological condition characterized by severe and persistent exhaustion and related symptoms, mainly referred to as mental distancing from work and cognitive-emotional impairment. Therefore, subjective measures could be considered the most reasonable and proper way to evaluate these constructs. Furthermore, it has been noted that several methods used to tackle CMB do not have the desired effects, and none answer the question definitively (Spector et al., 2019). Nevertheless, Harman's single factor showed that one factor explained less than 50% of the variance (i.e., 27.4%), suggesting a non-significance of the CMB (Podsakoff et al., 2003). In contrast, future research that would replicate the current study design adopting objective measures of job insecurity and job performance are highly encouraged.

As a further limitation, in the present study, job insecurity was assessed exclusively in terms of quantitative job insecurity, which entails the perceived threat of losing one's job (Låstad et al., 2015). In order to extend the current findings, future research implies testing the model also including a measure of qualitative job insecurity is also highly encouraged. Qualitative job insecurity is defined as the employees' concerns over loss of valued conditions of the employment relationship, such as career development opportunities and the allocation of stimulating work tasks (Chirumbolo et al., 2020). This line of research would assess whether different facets of job insecurity exhibit a diverse impact on employees' wellbeing and work outcomes.

Moreover, the current study assessed organizational justice as an overall concept through a unidimensional scale. On the other hand, academic literature recognizes several dimensions of organizational justice: procedural, distributive, and interpersonal justice (Cropanzano et al., 2007). Future studies could delve deeper into the current results by exploring whether organizational justice's protective role could vary across different construct' components. This focus would narrow the design of organizational interventions by targeting those aspects of justice more likely to deter harmful outcomes (i.e., WFC and burnout symptoms) among employees.

Practical Implications

The obtained findings contribute to the current understanding of organizational justice's protective role and might help developing related interventions. Our results suggest that organizational justice can prevent employees' inadequate responses to job insecurity from deteriorating work-family relationships and mental health.

Accordingly, employees working in an organization that is embedded in an unpredictable environment but promotes organizational fairness are less likely to experience related harmful outcomes and more likely to adequately perform the assigned tasks (i.e., job performance). These findings suggest that organizational justice must be carefully considered in the implementation of HRM practices. For instance, companies should provide clear guidelines on the organizational goals that employees are supposed to meet and the procedures to evaluate their performance. A further strategy entails allocating suitable rewards and compensation for employees' performance as an outcome of fair and equal procedures that guarantees equal access to these rewards (Bryant and Allen, 2013). The present findings become even more interesting given the pandemic's impact on individuals and organizations. In a climate of uncertainty in which even organizations and managers may not have an adequate and ready counterstrategy to deal with the unexpected and continuous changes induced by the external context, adopting an approach based on transparency, fairness, and clarity in communication, allocation of resources and interpersonal relations could prove successful

in safeguarding the health and performance of their employees. Through role modeling, managers and supervisors might play a pivotal role in protecting the employees' work-family balance and performance. A family-friendly culture might mitigate stressors (i.e., job insecurity) and strains (Meyer et al., 2021) and increase perceived support from the organization and supervisor (French and Shockley, 2020). As Vaziri et al. (2020) suggested, organizations and managers who support and provide tips to handle the boundaries between work and home to employees (i.e., interactional justice) might prevent a lower level of job satisfaction and job performance and higher turnover intent.

Moreover, as also suggested by Giorgi et al. (2020), providing clear and rapid information (i.e., informational justice) on how to deal with the pandemic scenario and its consequences (even if hostile) about their daily job activities and their mental health may prove more effective than avoiding sharing such information. Also, providing organizational resources, such as adequate protection or equipment for working from home to all employees (i.e., distributive justice), could prove to be a compelling investment in preserving employees' mental health and performance. Stanhope and Weinstein (2021) introduced that working with employees to find the most suitable solutions and procedures to manage workload or prioritize all available resources (i.e., procedural justice) should be considered a winning strategy instead of a barrier.

These measures are crucial among workers experiencing a great fear of job loss. Organizations and management that are receptive to employees' concerns (e.g., job insecurity) become an essential strategy for maintaining a high level of employee engagement and commitment to work (Wang et al., 2015). Therefore, organizations providing a significant involvement in decision-making processes can help workers manage their uncertainty, enabling them to remain competitive and perform accordingly, particularly in complex and uncertain times as experienced nowadays. The ways organizations treat their employees during these times will have a crucial impact on their future (Rudolph et al., 2020).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available under request by the first author.

ETHICS STATEMENT

Ethical review and approval were not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

MDA and GM contributed to the conceptualization, methodology, and writing of the original draft. MDA contributed to the formal analysis. MDA, GM, and DG contributed to the investigation and writing. DG contributed to the review and editing. All authors contributed to the manuscript and approved the submitted version.

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REVIEW
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Influence of Working From Home During the COVID-19 Crisis and HR Practitioner Response

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The pandemic has changed the way people work, and more and more people are choosing to work from home (WFH). Unlike traditional work patterns, this approach has limitations and has had a significant impact on both organizations and individuals. It also brings many challenges to the work of HR practitioners. HR practitioners, as key players in strategic human resource management, need to take advantage of management innovations under the crisis to improve employees' work flexibility and effectively address the impact of working from home. This study aims to address the need for employee skill improvement, psychological stress relief, work-family balance, and company culture reinforcement from an HRM perspective because of the impact of WFH work patterns during the COVID-19 crisis.

Keywords: working from home, COVID-19 crisis, influence, HR practitioner, response

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INTRODUCTION

The recent rapid worldwide spread of a novel coronavirus infection (COVID-19 virus) has led to a severe global economic downturn (Al-Mansour and Al-Ajmi, 2020). Governments imposed total lockdown, banning non-essential travel, and requiring the closure of all non-essential activities. The strict government control measures led to many inconvenient working conditions. Traditional ways of working encountered serious challenges. The impact of COVID-19 on the global economy was similar to that of the 2008 crisis, although its long-term consequences were more severe. The impact on company performance is more pronounced in heavily impacted areas and industries, such as education and healthcare. We need to adopt a temporary COVID-19 strategy with companies responding quickly (Ahlstrom and Wang, 2020). Many companies have opted for flexible work practices, such as working from home to reduce the spread of disease and losses. During the COVID-19 crisis, most people were already using online commerce as well as work from home (WFH) and digital businesses. In response to the outbreak of the crisis, work patterns changed and the WFH model grew rapidly (Zou et al., 2020b). However, with the rise of WFH, its corresponding side effects emerged.

First, unlike traditional office models, WFH requires people to learn new online office skills along with virtual work communication skills. There may also be unplanned virtual work sessions. In addition, working from home requires attention to the confidentiality of office data to prevent leakage. This also raises the need to adapt to the new office environment, and employees' WFH skills need to be trained and strengthened.

Second, when working from home, people lack face-to-face communication with colleagues, and once problems arise at work, it is difficult to solve them quickly through online virtual communication. Online network communication to solve problems leads to increased psychological stress and anxiety. This is also extremely harmful to people's mental health.

In addition, WFH leads to the occupation of family members' space. With the new crown pneumonia epidemic, people tend to occupy family space for their own work needs. When people work at home, some family tasks, such as childcare or housework, need to be shared between them. This creates a conflict between family and work. The imbalance between work and family can negatively impact job productivity, and HR practitioners need to consider how to mitigate this conflict.

Even, once the office work style is abandoned, people tend to overlook the impact of company culture. Since working from home people can only communicate and work through the virtual space of the Internet, people tend to ignore the role of culture. In fact, in times of crisis, the effect of culture cannot be neglected, and HR practitioners should take various measures to guide the role of culture.

The study found that while WFH has some advantages during this phase, it also has different effects on people, such as conflicts with family from taking up home space, inability to adapt to telecommuting, and lack of support from leaders or co-workers, but the following four areas are the objective and rationale of this study's discussion.

1. Employees who Working From Home (WFH) face a home-based work environment where they need to learn special office skills.
2. WFH can make people feel isolated and can also lead to psychological stress.
3. During an outbreak, home-based employees often face conflicts between caring for their families and working.
4. Home-based employees often ignore the potential incentives of culture under the COVID-19 crisis.

Therefore, based on the impact of WFH on the above four aspects, this study proposes corresponding support measures from the perspective of human resource management.

LITERATURE REVIEW

Person-Environment (P-E) Fit Theory

The theory of person-environment fit, first proposed by Lewin in 1951 (Kahana et al., 1980), considers the positive benefits of person-environment matching for individuals. People adapt to changes in their environment (e.g., those who choose to WFH due to a pandemic) and reap the greatest benefits, such as avoiding the risk of contracting COVID-19 (Chung-Yan, 2006). In the wake of the new coronavirus outbreak, many academics and HR practitioners have been thinking about how to adopt flexible work arrangements (FWAs), such as WFH, as a more appropriate way of working.

Different aspects of the P-E fit model have been extensively studied by several scholars, and the person-environment fit can be subdivided into the person-vocation fit (P-V fit), person-job fit (P-J fit), person-group fit (P-G fit), and person-organization fit (P-O fit). From the division of these four concepts, it can be seen that the fit between the individual and the work environment should not only be in harmony with the organization at the macro-level, but also harmony with the work team at the micro-level, and most importantly, with one's work (Cable and Derue, 2002; Ahmad, 2012).

The P-V fit is like the P-J fit, but the difference between the two is that the P-V fit tends to be more of a professional skills match. Without the professional skills required for the job, individuals cannot fully adapt to the work environment and thus constrain themselves, and the specialized skills needed by WFH require home-based workers to develop appropriate job skills, such as office skills and communication skills. These skills are different from those required for office work. New training models (online virtual) and content need to be provided.

Person-job fit refers to the idea that people meet the needs of their work, but they also derive satisfaction from their work. When individual satisfaction is not achieved, anxiety, stress, and psychological breakdowns can occur.

Person-group fit focuses on the need for harmony between the team and the work environment, and between the individual and the team, in order to achieve optimal work results. Employees who WFH are far from face-to-face interaction in the office; they are more likely to communicate online. It is important to know how to build online virtual teams. However, they also face another challenge: the "family and work imbalance." In fact, in the WFH model, people spend more time with their families (another fun and challenging "team"). How family relationships are managed is also a way to support WFH.

Person-organization fit is an indication of the alignment of individual and organizational goals. Specifically, it means that the individual and the organization are aligned in terms of culture and values. The degree of personal and organizational culture fit directly affects the performance of employees. The pandemic brings about a shift in the way people work as well as get used to working from home. But they often ignore the importance and role of culture. Organizations need to consider how to strengthen the role of culture under WFH.

Several studies have shown that there should be consistency between HRM practices and P-E fit, especially in the context of COVID-19. By integrating strategic HRM with P-E, HRM practices and policies support P-E fit and thus gain competitive advantage for the firm.

> *Hypothesis 1*: The P-E fit model can be used to produce satisfactory results for organizations and individuals in a pandemic crisis. The application of the model can also explain and support HRM in addressing the impact of the WFH model on job skills, stress, family, and culture.

Crisis Management During a Pandemic

A crisis is a situation that affects a company's organizational sustainability, performance, and ultimately threatens its viability.

Managers are concerned that crises can negatively affect different types of businesses at any time and place, as in the case of the new crown pandemic crisis. In the workplace, crisis management is an effective response to a crisis at work – discrimination, physical injury, emotional harm, or some type of natural disaster. Implementing crisis management requires managers to understand what people need and how they can help.

Crisis management can be a challenging task, especially in an organization's human resources department (HRD). HRD plays an important strategic role in crisis management, yet it is rarely described and analyzed in the literature (Christina and Fotios, 2015). Indeed, from a practical perspective, crisis management has been a neglected area of HRM, despite the growing recognition of the impact of different crises on performance outcomes. It is recommended that an effective crisis management team (CMT) be established to address issues of concern throughout the organization (Blythe, 2004). As a member of the CMT, the HR director is responsible for providing leadership to the company and its employees during a crisis event (COVID-19).

From the perspective of HR managers, a crisis-driven HR strategy is more effective. They believe that it is much easier to manage employees during a crisis than to manage other resources. The design of crisis management processes requires a high level of strategic integration between job skills, stress relief, work-family balance, and corporate culture (Wang et al., 2009).

The approach to crisis management used by HR should be different from that used by other functions. HR leaders address organizational crises through crisis management preparedness, including improving job skills, balancing work and family, relieving psychological stress, and strengthening culture (Lockwood, 2005).

> *Hypothesis 2*: COVID-19 has a serious impact on the survival of the company, and the crisis management awareness of HR practitioners can reduce the impact of the crisis in four aspects: work skill improvement, psychological stress relief, family-work balance, and cultural role.

IMPACT OF WFH ON ENTERPRISES, EMPLOYEES, AND HR PRACTITIONERS

Impact on Businesses

The new crown pneumonia pandemic caused widespread devastation in countries around the world. Tens of millions of people were infected; the economy was in recession and many people lost their jobs. Governments implemented many controls. These measures slowed the spread of the epidemic and some businesses were severely damaged.

A number of studies on the impact of the COVID-19 crisis on companies can draw preliminary conclusions about crisis management in companies. Companies in all industries, large and small, had to adapt their business models to changing environmental conditions within a short period of time. New crown pneumonia affects all corporate characteristics, including working methods, corporate performance, and corporate culture. After quickly responding to the new crown pneumonia crisis, they made a series of strategic adjustments to ensure the survival of the business.

1. The problem faced by the company is that the skills of the employees are not sufficient for the WFH pattern. The company needs highly skilled employees to carry out their work, but the office work skills of the past are no longer sufficient to meet the company's needs.
2. The psychological stress caused by WFH to employees has a negative impact on the achievement of corporate goals.
3. This conflict cannot be avoided due to the replacement of office space with home space. The company needs to consider sacrificing home space to meet the work needs of employees.
4. The role of corporate culture is significantly weakened by the loss of physical distance contact.

Some agile companies have adopted strategies that include flexible HRM policies and practices, which are effective in the short term, but in the present and post-COVID-19 era crisis impact, companies need to focus on diversity and long-term HR strategy research.

Impact on Employees

During the COVID-19 pandemic, the homes of employees suddenly became the main place of economic activity. Many countries have used their homes as a buffer against economic downturns and have taken action to support this WFH (Jenkins and Smith, 2021). We argue that businesses and governments see housing as a supporting pillar for economic development. Even employers who offer work-at-home jobs can be seen as an effective way to deal with the epidemic. It takes everyone – managers, employees, and their families – to adapt.

Advances in technology have made it possible for people to WFH, and this has affected the way people, especially staff. It has also benefited some companies during the difficult times of the pandemic. Companies have adopted the WFH model, relying on modern technology to reduce the corresponding regulatory costs (White, 2019).

Work from home can improve performance due to its flexibility. Employees can decide when and where to work. Many employees are satisfied with the flexibility they get from the WFH model. Working from home can also improve performance because there are no interruptions, employees have fewer breaks, and there is no contact with co-workers (Garg and Rijst, 2015).

However, some people use their home as a free workplace that can be used inexpensively in an emergency (e.g., COVID-19) but neglects its function as a place to live. As a result, employees are faced with corresponding challenges and problems:

First, the model requires upgrading employees' WFH work skills. This demand for WFH is driving the digitization of human work at an alarming rate due to the explosion of

COVID-19 (Savi, 2020). Employees need to work and communicate online, which requires special skills, such as new office skills and online communication skills. However, some specific industries, such as low-skilled services, cannot adopt this model. In addition, network accessibility and online task suitability can affect the feasibility of the model.

Second, internal psychological stress. Research has shown that a lack of social support and the feeling of working alone can lead to loneliness (Rook, 1985), and also to stress (Liu and Guo, 2007). Some individuals are more stressed during a pandemic because they are unable to communicate their anxiety to others. In addition, with uncertainty about the future, such as layoffs, pay cuts, and bankruptcies, employees experience a serious increase in internal stress. Further studies also found that employees' psychological stress also has a direct negative impact on hiring commitment (Ali and Kakakhel, 2013; Velnampy and Aravinthan, 2013).

Third, employees who WFH often have conflicts between taking care of their families and their jobs during an epidemic. Telecommuters work longer hours than those who work in formal offices, which is a major reason for work-family imbalance. Their work style is flexible so they have unlimited access to online offices (Song and Gao, 2020); this model also breaks down the boundaries between work and non-work. It reduces the company's need for office space but increases the employees' need for living space because of the need for extra rooms to WFH (Behrens et al., 2021). In addition, when some employees need to take care of their families, their families may stay at home while they are working (Kara et al., 2021). Employees expect a dedicated workspace at home with fewer distractions from family members, which is associated with a better work-family balance (Allen et al., 2021).

Finally, the role of culture is weakened. In WFH situations, the functions embodied in corporate culture are weakened, such as leadership culture and cooperative culture. The manager's ability to control and supervise subordinates is also affected. In addition, managers may be concerned about the impact of working from home on contracts and employee reputation. Unlike traditional office work, this model reduces opportunities for intimate psychological interactions while reducing face-to-face communication. While information and communication technology (ICT) can facilitate online interaction and collaboration with colleagues, they lack the enthusiasm for face-to-face interaction, which is seen as key to developing closer social relationships (Vayre and Pignault, 2014). Failure to address the lack of interpersonal interaction can ultimately lead to employees feeling disconnected from the corporate culture and work environment (Marzban et al., 2021; Wilson, 2021).

Impact on HR Practitioners

In the field of human resource management, it has long been recognized that employees feel frustrated and stressed in situations of danger or uncertainty, such as COVID-19 (Kumar et al., 2021). The stress caused by an outbreak can provide HRM practitioners with constructive insights to help them assess opportunities and developments in an environment of threat and uncertainty. As the company continues to adjust its HR policies and practices in the face of COVID-19, it will be crucial to understand how these outbreaks affect employee P-E fit, and how to address dangerous misfits. The pandemic has had a serious impact on HRM policies and practices in different industries. The prominent impact is manifested in a series of challenges for HR practitioners as a result of the shift in work patterns.

1. What training approaches and innovative training content do HRM adopt for the WFH model where work skills differ from the traditional office requirements of the past?
2. How can HRM consider mitigating the increased internal stress of home-based workers, which is damaging to both individual and organizational performance?
3. How can HRM consider developing a more reasonable work-family balance plan, given the negative impact of workplace conflicts with families?
4. As one of the important promoters of corporate culture, how can HR practitioners enhance the role of culture in the new work model?

Not surprisingly, the COVID-19 pandemic has forced HR professionals to rethink and redefine their roles as organizations begin to adapt to the way people work (Nutsubidze and Schmidt, 2021).

> *Hypothesis 3*: Organizations may adopt the WFH work model in the event of a pandemic, but it presents four unprecedented challenges for companies, individuals, and HR practitioners. In the face of the crisis and challenges, HR management needs to respond and react accordingly.

HR PRACTITIONERS' REACTIONS TO THE IMPACT OF WFH

The main impacts during WFH are job skill requirements, psychological stress, conflict with family, and WFH culture. HR practitioners need to provide feedback and strategies to these impacts.

Upgrading WFH Skills: Innovative Training Content and Methods

During the pandemic, employees lost their motivation to advance in their careers because they were working from home too long. They needed to develop the knowledge and skills to thrive in their current environment. As remote workers become more interested in improving their capabilities, HR practitioners should take the lead in organizing relevant skills training to meet employees' desire to learn and grow. Predictably, when employees WFH, they will be trained to improve their performance and support the company's growth in the post-pandemic era (Caligiuri et al., 2020).

Countless practical examples show that HRM has developed strategies to overcome the disadvantages of the pandemic. These strategies, such as innovations in training methods and content, contribute to improving employees' competencies, maintaining their motivation, and reducing their psychological stress (Gigauri, 2020; Zou et al., 2020a).

Human resource management increasingly draws inspiration from online virtual training designs. When working from home, employees can learn a wide range of skills through online courses (Hamouche, 2021). To meet the needs of their own continuous development in a pandemic situation, HR departments are conducting training needs surveys and coordinating with other departments to design online training courses. It is conceivable that online virtual classes in the future will become the new normal for training in the era of the new pneumonia crown (Alhat, 2020).

In addition to the usual vocational skills training, the ongoing crisis has created new training needs, such as ICT. In particular, ICT can also be used to train recruits in work and collaboration skills. Many companies now see the need to prepare for a long-term pandemic as standard work content decreases and the WFM model remains intact. Currently, improving employee skills through training is the most effective use of time (Hamouche, 2021). This is driving a growing demand for technology-driven training programs around the world.

Often, many employees must use computers and the Internet while working from home. Human resource practitioners value the need for information security training. Employees who WFH should receive basic training on cybersecurity hazards and how to effectively prevent information risks and avoid leaks of private company data.

Alleviate Psychological Stress Caused by WFM

According to the principle of personal preference in economics, not everyone wants to WFH (Perrigino and Raveendhran, 2020). The work-family conflict caused by WFH is a major source of stress for employees and has a negative impact on their psychological health (Sharma et al., 2016); this imbalance can lead to managers' negative perception of WFH and affect their beliefs; and pressure from professional groups can also affect HR practitioners' idea of working from home. HR practitioners can take some appropriate measures to alleviate this stress.

Psychologists believe that a home-friendly workplace can help reduce employee stress and depressive symptoms (Shepherd-Banigan et al., 2016). Based on a cost–benefit analysis, we believe that improved work-family relationships can influence organizational goals, such as improved organizational performance and corporate reputation. HR practitioners should play an important role in establishing such a workplace. Although employees WFH, HR practitioners can develop family-friendly work programs, interact with employees and their families, and show concern for employees during the COVID-19 crisis. The program usually consists of a "supportive family-friendly program" and a "supportive family management team," which represents HRM efforts to help employees balance work and family responsibilities (Thomas and Ganster, 1995).

HR practitioners can provide stress relief training, such as stressor analysis, threat and infection risk prevention, mental health in WFH, and work-family balance. To reduce the risk of infection in face-to-face training, HR can provide online virtual training.

In addition, the sustainability of HRM policies and practices plays an important role in reducing employee dissatisfaction and job stress. Important HRM policies related to employees include compensation and benefits, performance evaluation, promotion, and transfer. With the impact of the pandemic, the sustainability of these policies helped to alleviate the mental stress and job slack of the work-at-home employees.

One Support: Work-Family Balancing

Some companies affected by new coronary pneumonia have had to adopt flexible working practices to reduce the risk of an outbreak. According to various analyses, WFH can help employees balance career development and work. It can also reduce commuting time and companies can save on office costs by having smaller office spaces (Gajendran and Harrison, 2007). However, WFH has a significant impact on the work-home balance (Perrigino and Raveendhran, 2020). WFH often blurs the boundaries between work and home roles (Schieman and Young, 2010). Even people who WFH are not satisfied with the distribution of family tasks after working for a long period of time. Long working hours and occupying home space also increase the likelihood of work–family conflict (Solís, 2016). We believe that helping employees achieve work-life balance should be a key part of HR practices and strategies if it ensures optimal employee satisfaction, rather than leaving them feeling dissatisfied, exhausted, and stressed.

Research has found that work–family conflict is more correlated with work schedule flexibility when working from home. In fact, WFH is divided into traditional (typical "9–5" working hours) and non-traditional (irregular working hours; Duxbury et al., 1996). Non-traditional WFH has a high degree of flexibility in terms of work schedule, which is different from traditional work hours. When developing WFH policies, HR practitioners should fully consider the individual preferences of WFH employees, based on the different characteristics of WFH employees (Golden, 2012). Based on individual preferences, HR policies should allow telecommuters to flexibly schedule their working hours to meet their individual needs. Flexible work schedules for non-traditional WFH can alleviate work–family conflicts during a pandemic.

In addition, the potential for work–family conflict increases with longer work hours. During the COVID-19 pandemic, telecommuters used their home space as an office. Unlike traditional office work, they spent more time on work without realizing it (Dockery and Bawa, 2020). The relatively less time spent with family members undoubtedly leads to strong work-at-home conflicts. Even some telecommuters work hard on weekends and holidays. Long hours of WFH can increase family unhappiness and stress, which can affect the family

atmosphere (Song and Gao, 2018). HR practitioners should consider a policy of not working long hours when developing work schedules. An effective HR policy can alleviate the excessive work hours caused by remote workers who work too many hours at home.

Finally, the assignment of family tasks is particularly important for home-based work balance. Indicators of family functioning include perceptions of the quality of relationships and the degree of equity in how family tasks are shared within the family. These indicators of family functioning are used to indicate the extent of work–family conflict (Bankwest Curtin Economics Centre, Curtin University School of Economics et al., 2017). Family members will perceive that the division of responsibilities within the family is fair and reasonable, and rationality will influence the relationships between family members. Companies, especially human resource practitioners, should provide employment assistance programs for remote workers during the pandemic, including family member relationship management, reconciliation of family and work responsibilities, and post-conflict resolution.

Cultural Reinforcement in the WFH Model

Corporate culture is a complex network of corporate norms, organizational vision, and member attitudes with specific group characteristics. It can be reinforced through training, punishment, rewards, etc. (Kuchinke, 1999). Culture needs to be adapted to the environment external to the organization, especially in the context of the new crown pandemic crisis. As the impact of the pandemic crisis expands and the psychological stress of work-at-home employees increases, corporate culture will become a focus of attention for managers or HR practitioners.

If HR practitioners want to reduce the disruption of WFH and improve WFH arrangements, they should create a WFH culture with high execution and low barriers. HR practitioners need to focus on the following areas:

When selecting and hiring talent during a pandemic, HR needs to focus on whether these individuals are a good fit for the company culture. P-E fit theory states that individuals will choose companies when their ideas align with the organization's culture, WFM model, and development philosophy. Newly hired employees still need to receive initial culture training from the company.

Because of the pandemic, working from home requires a more collaborative spirit. Remote workers enhance communication and collaboration with each other through virtual organizations. Despite their different backgrounds and lack of face-to-face interaction, a collaborative culture is more likely to emerge in the WFH model (Borkovich and Skovira, 2020; Singh and Kumar, 2020).

Research has shown that leadership is a culture-specific element. HR practitioners should have some leadership in times of crisis to help their companies survive the crisis. We believe that HR practitioners with strong leadership skills are able to identify and effectively deal with cultural conflicts in different work models. Several studies have concluded that leadership culture in crisis enables employees to successfully deal with the effects of crisis (Colville and Murphy, 2006). In the current work model, managers with leadership skills are able to meet employees' expectations and guide the company through the effects of the pandemic.

An overly idealized employee culture, such as high performance and high results orientation, can lead to cultural barriers during WFH. The perception is that leaders want employees to work properly in the office, and when they WFH, managers cannot directly supervise them or communicate face-to-face about their performance. This is why employees do not want to WFH (Lott and Abendroth, 2019). HR practitioners should encourage managers to rationally evaluate the performance of employees who WFH through an online evaluation system. In addition, work-from-home support programs for HR practitioners can help reduce the cultural barriers in the WFH model.

FUTURE RESEARCH DIRECTION

Work from home will continue to have an impact on business and work. In addition to the recommendations, the study has already provided, there are some theoretical and practical studies on the HR side that need to be strengthened in the current and post-pandemic era: Organizations use E-HR in the WFH model to help HR practitioners work more efficiently; during the pandemic, traditional offline HR operations were replaced by online work. Virtual online HR management is required to complete recruitment and staffing; unlike office workflow, HR practitioners need to optimize job responsibilities and workflow for employees working from home; and the impact of the crisis has led to a more popular relationship-oriented HR system. This system brings employees tighter together with the organization and brings a strong organizational commitment; in a pandemic situation, a period HR strategy should be developed to help the organization overcome the crisis; and corporate social responsibility helps companies to improve performance and better position themselves during the pandemic.

LIMITATIONS

The study needs to strengthen the literature citations. Though the study reviews a range of literature and what we have reviewed is current and relevant, the recommendations need to be bolstered by the previous literature. In addition, this paper only analyzes the effects of WFH on people during COVID-19 and should compare the effect before the COVID-19 outbreak. Therefore, the study needs to compare and analyze the influence from the timeline.

In the future, we also need to consider: Does WFH still widespread in the post-COVID-19 era? If there are still many companies using the WFH model, what is the impact on people at that time?

CONCLUSION

COVID-19 has affected the lives of many people. To prevent the future spread of this pandemic, many organizations have had to change their traditional ways of working. The advent of WFH has brought some convenience, but as the impact of the pandemic has deepened, it has also had certain effects on organizations, employees, and HR practitioners that will continue in the post-pandemic era. Through a discussion of the relevant literature, this study argues that during the COVID-19 crisis, when people were working from home, our managers, especially HR practitioners, needed to address issues, such as job skills enhancement, employee stress under the crisis, work-family imbalance, and corporate culture reinforcement. Focusing on these issues has benefits for both organizations and individuals, especially in the current crisis. Future research will also need to consider the implications of this work model in the post-COVID-19 era.

AUTHOR CONTRIBUTIONS

ZC contributed to conception and design of the study. He also contributed to manuscript revision, read, and approved the submitted version.

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Leading Innovative Work-Behavior in Times of COVID-19: Relationship Between Leadership Style, Innovative Work-Behavior, Work-Related Flow, and IT-Enabled Presence Awareness During the First and Second Wave of the COVID-19 Pandemic

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Aim: The present study contributes to the conversation on remote (home) working, leadership, and innovation in times of COVID-19 by examining the mediating role of work-related flow in the relationship between empowering and directive leadership, on the one hand, and innovative work-behavior, on the other, and the moderating role of IT-enabled presence awareness in two lockdown periods during the pandemic.

Method: We employed PLS-SEM analysis to analyze the perceptions, experiences, and behaviors of a group of employees (N = 257) regarding the study's core variables during two phases of the COVID-19 pandemic (summer 2020 and autumn 2020).

Results: In line with expectations, in the earlier phase of the pandemic, empowering leadership had both a positive direct and indirect relationship with innovative work-behavior via work-related flow, whereas directive leadership only had a negative direct relationship with innovative work-behavior. In the second phase, however, empowering leadership only had a positive indirect relationship with innovative work-behavior, running via work-related flow. Moreover, directive leadership was both directly and indirectly negatively related to innovative work-behavior, via work-related flow. In contrast to our expectations, IT-enabled presence awareness did not play a moderating role in these relationships in any phase.

Discussion: Our findings underline the importance of empowerment in sustaining innovative work-behavior, particularly in intense and enduring remote work contexts, as this can amplify employees' ability, motivation and opportunity to generate, share and implement novel ideas. In remote work contexts, empowering leadership can particularly foster innovation indirectly via work-related flow, which was also shown to be an increasingly important underlying mechanism across time periods. Directive leadership, in contrast, can reduce work-related flow and, therefore, hinder innovation.

Our study did not find evidence for the moderating role of employees' perceptions of IT-enabled presence awareness.

Conclusion: We conclude that regardless of the IT-quality, the leadership style chosen plays an important role in innovative work-behavior in remote work-contexts, particularly in view of the divergent effects of empowering and directive leadership on work-related flow in enduring and intense remote work contexts.

Keywords: innovative work-behavior, empowering leadership, directive leadership, work-related flow, IT-enabled presence awareness, COVID-19 pandemic, telework, remote working

INTRODUCTION

In compliance with the social-distancing regulations imposed by national governments to avoid the spread of the COVID-19-virus, many employees continued their regular work activities while working remotely using information and communication technologies (IT). The sudden shift toward homeworking forced many organizations to improvise and to develop new work routines to virtually serve customers and to collaborate with others inside and outside the organization. This shift also demanded employees to engage in *innovative work-behaviors* (Janssen, 2000) to make the best of the situation and to even flourish in the rapidly changing work environment. According to Janssen (2000), innovative work-behavior can be defined "as the intentional creation, introduction and application of new ideas within a work role, group, or organization, in order to benefit role performance, the group, or the organization" (p. 228). Innovative work-behavior, however, may not be that easy in remote work-contexts, as employees' reliance on technology to facilitate their collaboration increases (Gibson and Gibbs, 2006).

Leadership is shown to be a crucial factor in innovative work-behavior as leaders shape the working environment, allocate resources, and influence employees' innovative work-behaviors by controlling, motivating, and inspiring them (Lee A. et al., 2020). The importance of leadership may even be amplified by the current COVID-19 pandemic, as employees who are forced to work virtually might not know how to act and need guidance to adapt to the new work-situation (Carnevale and Hatak, 2020; Montani and Staglianò, 2021). The question, therefore, arises how leaders have responded to the new situation, as virtual working may have changed the relationships between leaders and employees, and among employees, since it is harder to control and motivate employees directly (Peters et al., 2016).

Not all leaders may have adapted similarly to the changing work conditions following the COVID-19 pandemic (Bajaba et al., 2021). Some leaders may have seized the opportunity to allow their employees to raise ideas to find solutions for occurring problems and may have shifted decision-making power, autonomy, and accountability to their employees by embracing *empowering leadership* (Ahearne et al., 2005). The increased job autonomy that employees may experience resulting from this change in leadership behavior may have helped them to explore novel and creative ideas and enhance innovative work-behaviors (Lee A. et al., 2020). Other leaders, however, may have shifted to micromanagement to compensate for the loss of direct control in virtual work-settings, as this resolves ambiguity and uncertainty among leaders and employees and provides clear guidelines (Stoker et al., 2019). In contrast to empowering leadership, *directive leadership* centralizes decision making, which implies that the formal leader issues instructions and commands to employees and assigns collective goals (Pearce and Sims, 2002).

Up until now, however, it is not clear which leadership response is best in crisis situations, such as the COVID-19-pandemic. It can be argued that directive leadership, in response to a crisis, might prove to be effective in the short run, but can also be detrimental to innovative work-behavior in the longer run (Somech, 2005; Stoker et al., 2019). Given that the COVID-19 pandemic presents an unprecedented challenge to managing today's workforce, there is a knowledge gap in the extant literature on how and to which extent empowering and directive leadership influence employees' perceptions of their innovative work-behavior. In a similar vein, there is a lack of insight into the extent to which these relationships change (Lee A. et al., 2020) after a prolonged time of working remotely. Related to that, it can be questioned what the underlying mechanism is that links different leadership approaches to innovative work-behavior, and to what extent the relationships with this mechanism changes in strength over time.

Regarding the underlying mechanism, it can be pointed out that innovative work-behavior is highest when employees enjoy their work, are intrinsically motivated, and are fully absorbed in it (Maqbool et al., 2018). The state of consciousness that fits these three conditions can be referred to as *flow* (Csikszentmihalyi, 1975). Applied to work situations, this is referred to as *work-related flow* (Bakker, 2008). It is not clear, however, whether and to what extent both directive leadership and empowering leadership can foster innovative work-behavior via enhanced work-related flow and how this potential mediating role of work-related flow differs across different periods of time in remote work situations during the COVID-19-pandemic.

Moreover, the mediating role of work-related flow in the relationship between leadership and innovative work-behavior may be contingent on the quality of communication between employees with the leader and with peers. The lack of physical co-presence in the case of homeworking may indirectly have consequences for employees' innovative work-behavior (Gibson and Gibbs, 2006). More specifically, it is known that IT-mediated communication during homeworking tends to hinder the communication richness in comparison with

face-to-face communication (Martins et al., 2004). With modern technologies, however, the quality of digital communication may come close to that of face-to-face communication. This implies that employees' perceptions of so-called *IT-enabled presence awareness* (Malhotra and Majchrzak's, 2012, 2014; Lim, 2018), that is, the degree to which the quality of virtual communication is perceived by employees to equal that of face-to-face communication, can be an important boundary condition affecting the relationship between leadership and work-related flow. Moreover, it is not clear whether the moderating role of perceived IT-enabled presence awareness in the relationship between leadership and work-related flow is affected by the duration of the COVID-19-regulations that demand employees to work from home.

In view of the gaps presented above, the present study aims to contribute to the conversation on leadership and innovation by examining the mediating role of work-related flow between empowering and directive leadership and innovative work-behavior in times of COVID-19, and the moderating role of IT-enabled presence awareness on the relationship between leadership and work-related flow. Furthermore, we examine possible differences herein between two time periods during the COVID-pandemic that vary regarding the duration and intensity of homeworking. The contributions of analyzing our moderated mediation model to the extant literature are multiple: First, we contribute to the conversation on the relationship between leadership and innovative work-behavior by investigating two leadership styles: empowering and directive leadership (Lorinkova et al., 2013). Second, we examine the change in these relationships across time, which is especially interesting in times of the COVID-19 pandemic in which homeworking policies are constantly prolonged (Bajaba et al., 2021). In view of this, we investigate the influence of empowering and directive leadership on individual employees' innovative work-behavior at two moments in time (Lee A. et al., 2020). Third, we add to the literature on work-related flow (Bakker, 2008) by investigating the potential mediating role of work-related flow in the relationship between empowering and directive leadership, and innovative work-behavior. Fourth, by comparing two episodes in the COVID-19 pandemic, we examine the influence of the mediating role of work-related flow in these relationships in the context of working from home. Fifth, we contribute to literature on home-based working (Martins et al., 2004; Peters et al., 2016) and leadership (Cortellazzo et al., 2019) by investigating the potential moderating role of IT-enabled presence awareness (Lim, 2018) on the relationships between empowering and directive leadership, on the one hand, and work-related flow on the other. Sixth, by comparing two episodes in the COVID-19 pandemic, we examine whether the influence of IT-enabled presence awareness is contingent on the duration and intensity of the homeworking practice in which routines, cognitions, and behaviors may have changed.

This study is structured as follows. Based on the literatures on innovative work-behavior, leadership, work-related flow, and IT-enabled presence awareness, a set of hypotheses is developed. Subsequently, the study's data and methodology are outlined. Then, the results of the study are presented and, subsequently, discussed in the light of our theoretical framework and methodology. In conclusion, the study's limitations and implications for scholarly research and management practice are presented.

THEORY AND HYPOTHESES

Innovative Work-Behavior During the COVID-19 Pandemic

The COVID-19 pandemic has completely shifted the circumstances in which organizations operate. An organization's capability to innovate is, therefore, particularly important during this time, not only to ensure its short-term survival, but also its long-term positioning (Montani and Staglianò, 2021). Innovation on an organizational level is largely driven by the innovative work-behavior of its own employees (Liu et al., 2017) and their perceptions thereof (Janssen, 2000). Innovative work-behavior consists of three behavioral tasks: idea generation, idea promotion, and idea realization (Janssen, 2000). However, the restrictions and stringencies that have been imposed by national governments to avoid the risk of infection with the coronavirus may have affected employees' innovative work-behaviors (Kapoor et al., 2021). Aside from the communication challenges that arise resulting from remote working (Martins et al., 2004), employees may feel uncertain due to the changes caused by the pandemic which may have hampered their innovative work-behavior (Montani and Staglianò, 2021).

Empowering Leadership and Innovative Work-Behavior

In the current COVID-19 pandemic, many leaders are challenged to engage with their employees remotely and create a supportive working environment that allows them to thrive (Contreras et al., 2020). Empowering leaders seek to achieve this through enhancing employees' levels of job autonomy and responsibility by sharing information about the organizational direction and the meaningfulness of the employee's work therein, while involving them in decision making (Lorinkova et al., 2013; Martin et al., 2013). According to Sardeshmukh et al. (2012), one of the primary benefits of remote working is increased job autonomy, which enhances employees' work engagement. Once employees experience more meaningfulness, autonomy and decision latitude, this may also benefit their innovative work-behavior (Scott and Bruce, 1994; Amabile and Pratt, 2016). In a similar vein, Cheong et al. (2019) notes that empowering leadership aims to enhance employees' development of higher competencies and confidence in their own abilities. Due to this, employees may feel motivated to freely explore new ideas and increased engagement in creative processes (Zhang and Bartol, 2010). Rao Jada et al. (2019) argue that empowering leadership can enhance innovative work-behavior, particularly through increased knowledge sharing. Knowledge sharing may be especially important during the COVID-19 pandemic to support decision making in organizations (Lee Y. et al., 2020).

Based on the account above, it can be argued that empowering leadership will grant employees more decision power and job autonomy (Lorinkova et al., 2013), show them what their work means to strategic direction of their organization (Ahearne et al., 2005; Martin et al., 2013) and express confidence in their own abilities which will drive them to accept more responsibility (Cheong et al., 2019). This enhances their motivation and perceived opportunities to enact innovative work-behavior, also when working from home. Hence, we propose the following hypothesis:

H1: Empowering leadership has a positive direct relationship with innovative work-behavior.

Directive Leadership and Innovative Work-Behavior

Directive leaders aim to reduce ambiguity and increase process efficiency by structuring the work of their employees and providing them with clear goals (Pearce and Sims, 2002; Lorinkova et al., 2013). Conversely to empowering leadership, directive leaders attempt to maximize the performance of their employees by centralizing decision power (Stoker et al., 2019). This type of leadership may be beneficial in times of crisis to manage uncertainty and avoid loss of performance (Yun et al., 2005; Stoker et al., 2019). In relation to innovative work-behavior, however, directive leadership might prove to be rather detrimental (Somech, 2005). Innovative work-behavior is fueled through leader-member exchange and when employees experience greater decision latitude and autonomy, this will benefit their innovative work-behavior (Scott and Bruce, 1994). Directive leadership might negatively relate to these attributes (Stoker et al., 2019) and, therefore, might provide an environment in which employees struggle to be innovative due to a lack of freedom to explore and bring forth new ideas. Therefore, we propose the following hypothesis:

H2: Directive leadership has a negative direct relationship with innovative work-behavior.

The Mediating Role of Worked-Related Flow in the Relationship Between Leadership and Innovative Work-Behavior

While flow might be experienced through a wide array of activities (Csikszentmihalyi, 1975), Bakker (2008) examined flow in the context of work activities and presented a three-dimensional conceptualization of work-related flow: pleasure, intrinsic motivation, and absorption. Generally, flow seems to be beneficial for creativity and innovative behaviors, since intrinsically motivated persons tend to be learning oriented, cognitively flexible, and willing to take risks (Amabile et al., 2005). This is echoed by the work of Maqbool et al. (2018) who argue that work-related flow can enhance innovative work-behavior, as employees benefit from the increased intrinsic motivation, enjoyment, and absorption in their ability to create and promote new ideas. Another benefit is that higher degrees of work-related flow can lead to higher energy and allow employees to recover energy quicker (Demerouti et al., 2011). This might be exceptionally relevant in the current situation, as the restrictions imposed in response to the COVID-19 pandemic could impede employees' energy levels and, therefore, their innovative work-behavior (Montani and Staglianò, 2021).

Aside from the direct effect of work-related flow on innovative work-behavior, leadership may also relate to innovative work-behavior indirectly via work-related flow. Empowering leadership, for instance, can increase employees' intrinsic work-motivation, one of the dimensions of flow, and creativity (Bakker, 2008; Zhang and Bartol, 2010). A study by Peters et al. (2014) shows that when employees feel empowered (experience more job autonomy, work from home and experience coaching leadership), they experience more work-related flow. From a self-determination perspective, Hon and Chan (2013) demonstrate that empowering leaders can foster intrinsic motivation, one of the dimensions of work-related flow (Bakker, 2008), among followers, resulting in their ability to create novel ideas being enhanced (Zhang and Bartol, 2010). Higher flow levels could positively relate to the degree to which employees shape their role to their own competencies and preferences (Bakker and Van Woerkom, 2017). Based on these arguments, we propose the following hypothesis:

H3a: Work-related flow (partly) positively mediates the positive relationship between empowering leadership and innovative work-behavior.

Directive leadership, on the other hand, may decrease the degree of work-related flow, as it removes autonomy through issuing instructions (Stoker et al., 2019). While directive leadership may support work-related flow by providing clear goals (Quinn, 2005), the issuing of instructions on how to approach one's work (Pearce and Sims, 2002) may decrease employees' autonomy and, hence, intrinsic motivation to seek new innovative solutions in their work (Scott and Bruce, 1994) and decrease their work engagement during homeworking (Sardeshmukh et al., 2012). Similarly, directive leadership can limit employees' opportunities in their work to create a better job-fit, thereby risking lower degrees of work-related flow (Bakker and Van Woerkom, 2017). While acknowledging the evidence of a potential positive effect of directive leadership on work-related flow, we argue that this leadership style negatively correlates to employees' ability and motivation to be innovative. Therefore, we propose the following:

H3b: Work-related flow (partly) negatively mediates the negative relationship between directive leadership and innovative work-behavior.

The Moderating Role of IT-Enabled Presence Awareness in the Relationship Between Leadership and Work-Related Flow

While the concept of remote (home) working is not new, it has seen a tremendous growth over the past year, resulting from the lockdown measures (Contreras et al., 2020). This increase has implications for how concepts such as leadership

(Contreras et al., 2020), work-related flow (Peters et al., 2014), manifest themselves and are interrelated. In a remote work context, both employees and their leaders need to be accessible online to interact (Malhotra and Majchrzak's, 2014). IT-enabled presence awareness gives employees the sense that their leaders and their teams are accessible and available to engage and collaborate with (Malhotra and Majchrzak's, 2014; Lim, 2018).

When employees experience high degrees of IT-enabled presence awareness, they perceive their empowering leaders to be accessible and reachable through the provided technical channels (Lim, 2018). In this case, they will experience higher degrees of access to their leaders' encouragement and support while being able to rapidly ask for feedback and clarification on instructions they receive, which may enhance their work-related flow (Peters et al., 2014; Lim, 2018; Wang and Shaheryar, 2020). Whilst empowering leadership can enhance employees' work-related flow in remote work contexts (Peters et al., 2014), once employees experience low IT-enabled presence awareness, they may feel a diminished accessibility to the encouragement and support of their leaders (Malhotra and Majchrzak's, 2014; Lim, 2018). Subsequently, they may experience lower absorption and motivation in their work (Peters et al., 2014). After all, prior studies on the relationship between empowerment of employees and their work-related flow have emphasized the importance of the relationship between the leader and the employee, as being one of mutual trust (Peters et al., 2014; Wang and Shaheryar, 2020).

Directive leadership entails leaders providing employees with goals, instructions on how to approach these goals and reprimand when work is not up to par (Pearce et al., 2003). When employees experience high degrees of IT-enabled presence awareness, they perceive their leaders to be accessible and reachable through the provided technical channels (Lim, 2018). In this case, they will experience higher degrees of access to their leaders' encouragement and support while being able to rapidly ask for feedback and clarification on instructions they receive, which may enhance their work-related flow (Peters et al., 2014; Lim, 2018; Wang and Shaheryar, 2020). However, when employees feel that their opportunity to ask for clarification on given instructions and feedback on their work is diminished due to low IT-enabled presence awareness they may experience a higher risk for misinterpretations that may result in reprimand or damage the trust that leaders place in them (Malhotra and Majchrzak's, 2014; Lim, 2018). Therefore, they may experience less work-related flow (Peters et al., 2014). Hence, we conjecture the following moderation hypotheses:

H4a: Perceived IT-enabled presence awareness will positively moderate the direct relationship between empowering leadership and work-related flow, such that this relationship will be stronger for employees who perceive higher levels of IT-enabled presence awareness than for employees who perceive lower degrees of IT-enabled presence awareness.

H4b: Perceived IT-enabled presence awareness will negatively moderate the direct relationship between directive leadership and work-related flow, such that this relationship will be weaker for employees who perceive higher levels of IT-enabled presence awareness than for employees who perceive lower degrees of IT-enabled presence awareness.

The Relation of Time to the Relationships Between Leadership, Work-Related Flow, IT-Related Presence Awareness and Innovative Work-Behavior

According to Bandura (1995), "innovations demand heavy investment of effort over a long period with uncertain results" (p. 13). Hence, it is important to consider the implications of leadership on innovative work-behavior over multiple moments in time (Lorinkova et al., 2013; Lee A. et al., 2020). The demand for more sophisticated research designs becomes especially prominent in the light of the COVID-19 pandemic, as influences of leadership choices in response to the crisis (Stoker et al., 2019) are being unveiled at this very moment (Bajaba et al., 2021). The benefits of empowering leadership and directive leadership for employee performance may especially become clear in the long-term, depending on the employees' growth in their competencies and responsibility (Lorinkova et al., 2013).

The direct relationship of empowering leadership with innovative work-behavior does not only stem from more autonomy, trust and involvement, but also from leaders who are sharing knowledge, meaningfulness and providing confidence in the employees' capabilities to be innovative in the light new work situation (Ahearne et al., 2005; Martin et al., 2013; Montani and Staglianò, 2021). These latter two attributes of empowering leadership might have been especially important for innovative work-behavior in the earlier phases of the COVID-19 pandemic when employees might have been more unsure how to respond to the new work situation and rely more on their leaders' knowledge and support (Carnevale and Hatak, 2020). However, as time progressed and the COVID-19-measures are prolonged and intensified, employees perceiving empowering leadership might become more self-confident and proactive (Coun et al., 2021) in the new way of working and their role and responsibilities toward innovation (Lorinkova et al., 2013; Cheong et al., 2019). Hence, while they may continue to experience empowering leadership, they may rely less on their leaders' support in providing meaningfulness to their work in relation to the (new) organizational direction (Ahearne et al., 2005) to display adequate innovative work-behavior in comparison to the earlier phases of the pandemic.

At the same time, the indirect relationship between empowering leadership and innovative work-behavior via work-related flow may have become stronger as employees have grown more competent and confident with taking responsibilities in the light of new strategic goals, perhaps as a result of longer exposure to empowering leadership while working from home (Lorinkova et al., 2013; Cheong et al., 2019). In a similar vein, employees that experience empowering leadership in the second phase of the COVID-pandemic may also have had the time to shape their role to better fit with their intrinsic motivation, enhancing their work-related flow (Bakker and Van Woerkom, 2017). This may imply that they will feel more able and motivated to take the opportunity to pursue challenges, such as displaying

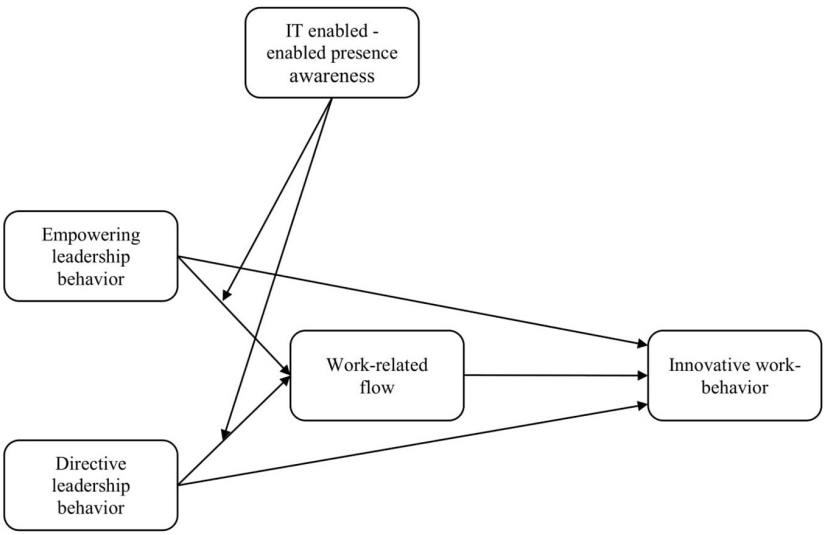

FIGURE 1 | Hypothesized relationships in the conceptual model.

innovative work-behavior (Scott and Bruce, 1994; Bandura, 1995). Based on this account, the following hypotheses were developed:

H5a: The strength of the positive direct relationship between empowering leadership and innovative work-behavior will be weaker across time (T2 in comparison with T1).

H5b: The strength of the positive indirect relationship between empowering leadership and innovative work-behavior via work-related flow will be stronger across time (T2 in comparison with T1).

In the case of directive leadership, employees are granted less autonomy and responsibility and do have less insight into the strategic direction of the organization in comparison to empowering leadership. Therefore, when subject to higher degrees of directive leadership, employees may engage less in task learning and may develop less psychological empowerment and confidence in their competencies (Lorinkova et al., 2013). As the relationship between leader and employee is important for the development of competencies that support innovative work-behavior (Scott and Bruce, 1994), employees' innovative work-behavior during the COVID-19 pandemic could be increasingly negatively directly influenced by directive leadership as time passes.

In a similar vein, employees may also experience lower levels of work-related flow due to having had less opportunity to craft their job to their competencies and intrinsic interests (Bakker and Van Woerkom, 2017), therefore, creating an increasingly unfavorable environment for employees' innovative work-behavior (Scott and Bruce, 1994; Zhang and Bartol, 2010). This would hint at a stronger indirect relationship between directive leadership and innovative-work-behavior via work-related flow.

H5c: The strength of the negative direct relationship between directive leadership and innovative work-behavior will be stronger across time (T2 in comparison with T1).

H5d: The strength of the negative indirect relationship between directive leadership and innovative work-behavior via work-related flow will be stronger across time (T2 in comparison with T1).

While the restrictions to avoid infection with the coronavirus decreased the communication richness within the workforce (Martins et al., 2004; Garro-Abarca et al., 2021), employees who work from home and are not co-located may adapt to the new technology and ways of working as time passes (Majchrzak et al., 2000). According to Axtell et al. (2004), relations between employees working together through technology-enabled communication could adapt and be equal to face-to-face if granted enough time. A study conducted on a new virtual team that worked on creating an innovative product (Majchrzak et al., 2000), showed that after an initial period of misalignments, employees adapted to the use of technology succeeded in their work. When employees become more familiarized with the use of new technologies and collaborating from different locations over time, it could be argued that they will rely less on their leaders' behaviors to guide them in their work-related flow. According to Bakker and Van Woerkom (2017), employees may enhance work-related flow through self-determination strategies that are supported by their leaders. Based on these arguments, we expect that employees adapt to the new ways of IT-enabled working over a prolonged time working from home in the pandemic, therefore, weakening the potential influence of IT-enabled presence awareness on the relationships between the leadership styles and work-related flow.

H5e: The strength of the moderating influence of IT-enabled presence awareness on the direct relationship between empowering leadership and work-related flow will be weaker across time (T2 in comparison with T1).

H5f: The strength of the moderating influence of IT-enabled presence awareness on the direct relationship between directive leadership and work-related flow will be weaker across time (T2 in comparison with T1).

Figure 1 depicts the hypothesized relationships in the conceptual model.

MATERIALS AND METHODS

Sample

Data was gathered by utilizing an online questionnaire, aimed to derive perceived experiences of the respondents. The original sample consisted of 377 respondents who were invited to fill out a survey in the period July–August 2021 which represented the First Wave (T1) and who were asked to complete the same survey in the period November-December 2021 which represented the Second Wave (T2). Out of these 377 only 257 respondents completed the survey completely during the second wave. Hence, these 257 respondents were used to compare the First Wave and the Second Wave. The surveys were collected using a personal network and a virtual work consultancy bureau. A descriptive analysis was conducted to show a more sophisticated view on the sample, which is depicted in **Table 1**. Also, a *T*-test was conducted to see whether the actual working hours at home on a weekly basis differed in the First Wave in comparison with the Second Wave. A significant difference was found to be lower between actual working hours at home in the First Wave (M = 30.23; SD = 9.19) and the actual working hours at home in the Second Wave (M = 33.66; SD = 8.60). This difference was significant ($t(246) = 51.67$, $p < 0.000$), indicating that during the Second Wave more hours (3.63) were worked at home. As depicted in **Tables 1–3**, some respondents didn't fill out all items of the survey. After a first inspection we replaced all missing data points with the mean value of all remaining data points per column (i.e., indicator or variable). We chose for this as mean replacement has the benefit not to alter the sample size and the mean value of variables in the sample (cf. Hair et al., 2014).

Measures

All constructs in the proposed model were based on reflective multi-item scales. The instruments used consisted of measures for the research constructs as described in this section. As the interest within this research lies in measuring the general influence between these constructs, we used the combined subscales from which they are composed.

Empowering Leadership

Empowering leadership was measured using the validated questionnaire of Ahearne et al. (2005). The questionnaire is comprised out of four multi-item subscales (enhancing the meaningfulness of work, fostering participation in decision making, expressing confidence in high performance and providing autonomy). A five-point Likert's scale, where 1 represented "strongly disagree" and 5 represented "strongly agree" was used. An example item we used is the following: "My manager helps me understand how my objectives and goals relate to that of the company".

Directive Leadership

Directive leadership was measured using Pearce et al. (2003) dimensions for directive leadership behavior: assign goals, instruction and command, and reprimand. We used a shorter version of the scale which included one item for each of the subscales. Items for this construct were measured through a five-point Likert's scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." An example item included is: "My team leader gives me instructions about how to do my work".

Work-Related Flow

Work-related flow was measured according to the scales developed by Bakker (2008), which constituted absorption, intrinsic motivation and work enjoyment. In line with the study of Bakker (2008) we used a seven-point Likert's scale, where 1 represented "never" and 7 represented "always." An example item for this construct is: "I work because I enjoy it".

We measured *IT-enabled presence awareness* by using the three-item measure as described by Malhotra and Majchrzak's (2012, 2014). We used a five-point Likert's scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." An example item for this measurement is: "The digital technology makes me feel as if I am present in the same location as my colleagues (even when they are not)".

To measure individual *innovative work-behavior* we used Janssen's (2000) validated questionnaire. The three scales (idea generation, idea promotion and idea realization) that constitute the questionnaire include nine items in total. We used a five-point Likert's scale, where 1 represented "never" and 5 represented "always" through which respondents indicated how often they experienced the statements. An example item we used for idea generation is: "I create new ideas for difficult issues".

Procedure

Preparation tests were conducted using SPSS version 27, to ensure the data was sufficiently prepared before the actual analysis. Descriptive and frequency analyses were conducted to gain a better perspective about the characteristics of the sample.

This research utilizes a PLS-SEM analysis (version 3.3.3 Smart PLS) to check the validity, reliability and factor loading of the data (Ringle et al., 2015). Although, the sample of 257 respondents was shown to be normally distributed, a bootstrapping method in PLS-SEM was utilized to increase the predictive power of the sample (Hair et al., 2014).

RESULTS

Model Characteristics

First, the reliability of the outer model for each of the waves were examined. As shown in **Tables 2**, **3**, the reliability scores were all deemed acceptable. The scales for all the constructs are shown

to be reliable in terms of indicator validity since the Cronbach Alphas passed the threshold value of 0.70 as given by Hair et al. (2014). After verifying the composite validity of the constructs, they were checked for convergent validity.

In order to have enough convergent validity the Average Variance Extracted (AVE) needs to exceed the value of 0.50 (Fornell and Larcker, 1981). As, empowering leadership (AVE: 0.42), work-related flow (AVE: 0.48) and IT-enabled presence awareness (AVE: 0.40) demonstrated insufficient convergent validity according to the Fornell and Larcker criterion, we increased convergent validity by deleting items. The items with the least factor loadings were removed first with checking whether the remaining items still provided a proper representation of the overall construct. Analyses with the PLS-algorithm were step by step repeated to increase sufficient reliability, convergent validity and discriminant validity (cf. Ringle et al., 2015). Henceforth, one item (item 7) was deleted of the empowering leadership variable to have adequate reliability and convergent validity. Furthermore, two items (items 1 and 3) were deleted of the work-related flow variable. Finally, one item (item 1) was deleted of the IT-enabled presence awareness variable. No items were deleted of the innovative work-behavior and directive leadership variable as these variables demonstrated enough reliability and convergent validity.

The final examination is focused on assessing the discriminant validity of the constructs for each of the two waves, by examining and comparing the AVEs of each respective construct with the inter-construct correlations in the model. Thereby, determining for each latent variable shared greater variance with its own measurement items or with the other constructs (Fornell and Larcker, 1981; Chin, 1998). When comparing the square roots of the AVE's for each respective construct with the correlations between the constructs in the model, it can be seen in **Tables 4**, **5** that none of the correlations exceeds the value of the square root of the AVE. Therefore, it can be concluded that all constructs can be considered sufficient in terms of both reliability and validity.

TABLE 1 | Descriptive overview of the sample.

			Innovative work-behavior	
	N	%	Mean	*SD*
Gender				
Male	116	45.14%	3.29	0.62
Female	131	50.97%	3.15	0.61
Unknown/missing	10	3.89%		
Age categories				
<31	14	5.45%	3.46	0.59
31–40	49	19.07%	3.15	0.65
41–60	161	62.65%	3.22	0.6
above 60	21	8.17%	3.29	0.55
Unknown/missing	12	4.66%		
Domestic situation				
Live-in partner/no live-in children	71	27.63%	3.18	0.55
Live-in partner/live-in children	121	47.08%	3.23	0.6
Single parent/live-in children	18	7.00%	3.45	0.62
Single parent/no live-in children	35	13.62%	3.18	0.75
Unknown/missing	12	4.67%		
Relation				
Yes	192	74.71%	3.27	0.71
No	53	20.62%	3.21	0.58
Unknown/missing	12	4.67%		
Industry				
Municipal City	55	21.40%	3.37	0.67
Government	120	46.69%	3.08	0.54
Food Industry	22	8.56%	3.24	0.56
University	23	8.95%	3.27	0.76
Housing cooperative	19	7.39%	3.43	0.69
Other industries	18	7.01%	3.56	0.53

Model Estimations

This subsection covers the inner model evaluation and estimates for each wave. Bootstrap t-statistics were used for testing the significance of the path-coefficients (Anderson and Gerbing, 1988). This bootstrapping was performed with 5000 subsamples, with a bias-corrected bootstrap, utilizing a 95% significance at a two-tailed test. First, an estimation of the direct effects of

TABLE 2 | Construct descriptive statistics First Wave.

First Wave	*N*	Theoretical range	Actual range	Mean	*SD*	Cronbach's Alfa	AVE
Empowering leadership	244	1.00–5.00	1.13–5.00	3.64	0.65	0.87	0.52
Directive leadership	247	1.00–5.00	1.00–5.00	3.1	0.74	0.72	0.63
IT-enabled presence awareness	256	1.00–5.00	1.00–5.00	3.26	0.92	0.78	0.65
Work-related flow	248	1.00–7.00	1.36–6.55	4.32	0.87	0.89	0.5
Innovative work- behavior	249	1.00–5.00	1.33–5.00	3.22	0.62	0.92	0.6

TABLE 3 | Construct descriptive statistics Second Wave.

Second Wave	*N*	Theoretical range	Actual range	Mean	*SD*	Cronbach's Alfa	AVE
Empowering leadership	234	1.00–5.00	1.13–5.00	3.55	0.72	0.90	0.57
Directive leadership	235	1.00–5.00	1.00–5.00	3.12	0.72	0.70	0.59
IT-enabled presence awareness	256	1.00–5.00	1.00–5.00	3.19	0.88	0.70	0.68
Work-related flow	243	1.00–7.00	1.82–6.55	4.20	0.89	0.91	0.61
Innovative work- behavior	246	1.00–5.00	1.33–5.00	3.21	0.63	0.92	0.61

TABLE 4 | Correlations first wave and the square root of the Average Variance Extracted (in bold).

First wave	Empowering leadership	Directive leadership	IT-enabled presence awareness	Work-related flow	Innovative work-behavior
Empowering leadership	**0.72**				
Directive leadership	0.27**	**0.79**			
IT-enabled presence awareness	0.11*	0.09**	**0.81**		
Work-related flow	0.33**	−0.02	0.05	**0.71**	
Innovative work- behavior	0.20**	−0.19**	0.08	0.33**	**0.78**

*Significance correlations: **p < 0.01, *p < 0.05.*

TABLE 5 | Correlations second wave and the square root of the Average Variance Extracted (in bold).

Second wave	Empowering leadership	Directive leadership	IT-enabled presence awareness	Work-related flow	Innovative work-behavior
Empowering leadership	**0.75**				
Directive leadership	0.33**	**0.77**			
IT-enabled presence awareness	0.06	0.12**	**0.83**		
Work-related flow	0.39**	−0.070	0.12*	**0.73**	
Innovative work- behavior	0.14*	−0.23**	0.08	0.38**	**0.78**

*Significance correlations: **p < 0.01, *p < 0.05.*

TABLE 6 | Structural direct relationships with path coefficients (γ) for the first wave (T1) and second wave (T2).

First wave vs. Second wave	Coefficient (γ) Wave 1	Coefficient (γ) wave 2	SD Wave 1	SD Wave 2	*P*-Value Wave 1	*P*-Value Wave 2	Hypotheses
Empowering leadership – > Innovative work-behavior	0.18	0.09	0.08	0.08	0.02	0.23	H1, H5a
Empowering leadership –> Work-related flow	0.35	0.48	0.06	0.06	0.00	0.00	H4a
Empowering leadership x IT-enabled presence awareness –> Work-related flow	0.05	0.05	0.07	0.07	0.46	0.50	H4a, H5e
Directive leadership –> Innovative work-behavior	−0.23	−0.24	0.09	0.06	0.01	0.00	H2, H5c
Directive leadership –> Work-related flow	−0.12	−0.25	0.12	0.07	0.33	0.00	H4b
Directive leadership x IT-enabled presence awareness –> Work-related flow	0.09	0.13	0.09	0.08	0.28	0.09	H4b, H5f

TABLE 7 | Structural indirect relationships with path coefficients (γ) for the first wave (T1) and second wave (T2).

First wave vs. Second wave	Coefficient (γ) Wave 1	Coefficient (γ) Wave 2	SD Wave 1	SD Wave 2	*P*-Value Wave 1	*P*-Value Wave 2	Hypotheses
Empowering leadership –> Work-related flow –> Innovative work-behavior	0.10	0.16	0.03	0.04	0.00	0.00	H3a, H5b
Directive leadership –> Work-related flow –> Innovative work-behavior	−0.03	−0.08	0.04	0.03	0.39	0.01	H3b, H5d

directive leadership and empowering leadership directly and via work related flow on innovation showed that the model for the First Wave explained a variance (R^2) of 0.17 for innovative work-behavior and a variance (R^2) of 0.14 for work-related flow. For the Second Wave innovative work-behavior demonstrated a variance (R^2) of 0.19 and work-related flow a variance (R^2) of

0.23. Furthermore, an estimation of model fit was made with a Standardized Root Mean Square Residual (SRMR) which is the commonly used model fit indicator in PLS-SEM analysis (cf. Hair et al., 2014; Ringle et al., 2015), showing a value of 0.08 for the First Wave and for the Second Wave separately which are in accordance with the criterion set by Hu and Bentler (1998). Henceforth, the model displayed good model fit. We used the results of the First Wave to test hypotheses 1, 2, 3a, and 3b.

Second, to test the mediation effect of work-related flow in the model, we calculated the indirect effects of directive leadership and empowering leadership via work-related flow on innovative work-behavior using the PLS-SEM algorithm (Hair et al., 2014). Lastly, we examined the moderation effect of the construct IT-enabled presence awareness on the relation between empowering leadership and work-related flow, and on the relation between directive leadership and work-related flow using the PLS-SEM algorithm as well. In the **Tables 6**, **7** the results are depicted.

Hypothesis 1

Hypothesis one is supported as a positive relationship was found between empowering leadership and innovative work-behavior and was furthermore shown to be significant ($\gamma = 0.18$, $p < 0.05$, $R^2 = 0.17$).

Hypothesis 2

The second hypothesis, which suggests a negative relationship between directive leadership and innovative work-behavior, demonstrated to be negative and significant. Therefore, the hypothesis is supported by the analysis ($\gamma = -0.23$, $p < 0.01$, $R^2 = 0.17$).

Hypothesis 3a and 3b

Hypotheses 3a and 3b suggested a mediating effect of work-related flow on the relationship between empowering leadership and innovative work-behavior (H3a) and on the relationship between directive leadership and innovative work-behavior (H3b). H3a was supported as the indirect effect of empowering leadership on innovative work-behavior via work-related flow demonstrated to be significant ($\gamma = 0.10$, $p < 0.00$, $R^2 = 0.17$). H3b was not supported as the indirect effect of directive leadership on innovative work-behavior via work-related flow demonstrated to be not significant ($\gamma = -0.03$, $p = 0.39$, $R^2 = 0.17$).

Hypothesis 4a and 4b

The fourth hypotheses suggested a moderating effect of IT-enabled presence awareness as well on the relationship between empowering leadership and work-related flow as on the relationship between directive leadership and work-related flow. H4a was not supported as the moderating effect of IT-enabled presence awareness on the relation between empowering leadership on work related flow demonstrated to be not significant ($\gamma = 0.05$, $p = 0.46$, $R^2 = 0.14$). H4b was also not supported as the moderating effect of IT-enabled presence awareness on the relation between directive leadership on work-related flow demonstrated to be not significant ($\gamma = 0.09$, $p = 0.28$, $R^2 = 0{,}14$).

Figure 2 depicts the conceptual model of the first wave. Full arrows indicate significant relationships while dotted arrows indicate not significant relationships.

Hypotheses 5a, 5b, 5c, 5d, 5e, and 5f

Hypothesis 5 encompasses six hypotheses which focuses on the specific time related effects on the direct and indirect relations in the model looking at the differences in the coefficient (γ) and its significance between the First Wave (T1) and the Second Wave (T2). For H5a support was found as the relationship between empowering leadership and innovative work-behavior was not significant in the Second Wave ($\gamma = 0.09$, $p = 0.23$, $R^2 = 0.19$), while this relationship was significant in the First Wave ($\gamma = 0.18$, $p < 0.05$, $R^2 = 0{,}17$). For H5b support was found as the coefficient ($\gamma = 0.16$, $p < 0.00$, $R^2 = 0.19$) of the indirect relationship between empowering leadership and innovative work-behavior via work related flow increased in comparison with the First Wave ($\gamma = 0.10$, $p < 0.00$, $R^2 = 0.17$). For H5c support was found as the relationship between directive leadership and innovative work-behavior became more significant in the Second Wave ($\gamma = -0.24$, $p < 0.00$, $R^2 = 0{,}19$) in comparison to the First Wave ($\gamma = -0.23$, $p < 0.01$, $R^2 = 0.17$). For H5d support was found as the indirect relationship between directive leadership and innovative work-behavior via work related flow demonstrated to become significant ($\gamma = -0.08$, $p < 0.01$, $R^2 = 0.19$) while this relation showed to be not significant in the First Wave ($\gamma = -0.03$, $p = 0.39$, $R^2 = 0.17$). H5e was not supported as also the moderating effect of IT-enabled presence awareness on the relationship between empowering leadership and work-related flow demonstrated not to be significant ($\gamma = 0.05$, $p = 0.50$, $R^2 = 0.23$) in the Second Wave, just as in the First Wave ($\gamma = 0.05$, $p = 0.46$, $R^2 = 0.14$). H5f was not supported as also the moderating effect of IT-enabled presence awareness on the relationship between directive leadership and work-related flow demonstrated not to be significant ($\gamma = 0.13$, $p = 0.09$, $R^2 = 0.23$) in the Second Wave, just as in the First Wave ($\gamma = 0.09$, $p = 0.28$, $R^2 = 0{,}14$).

Figure 3 depicts the conceptual model of the second wave. Full arrows indicate significant relationships while dotted arrows indicate not significant relationships.

DISCUSSION

Employing a data set of 257 employees, the present study aimed to contribute to the conversation on leadership and innovation by examining the mediating role of work-related flow between empowering and directive leadership and innovative work-behavior in times of COVID-19 and the moderating role of IT-enabled presence awareness in these relationships. Furthermore, we examined how these relationships differ across time. Below, we will discuss the study's main findings and contributions in the light of theory. We conclude by discussing its limitations and implications for research and management practice.

The Relationship Between Empowering and Directive Leadership on Innovative Work-Behavior

In line with expectations, we found that empowering leadership during the earlier phases of the COVID-19 pandemic was positively related to innovative work-behavior. This finding corroborates with previous empirical studies on

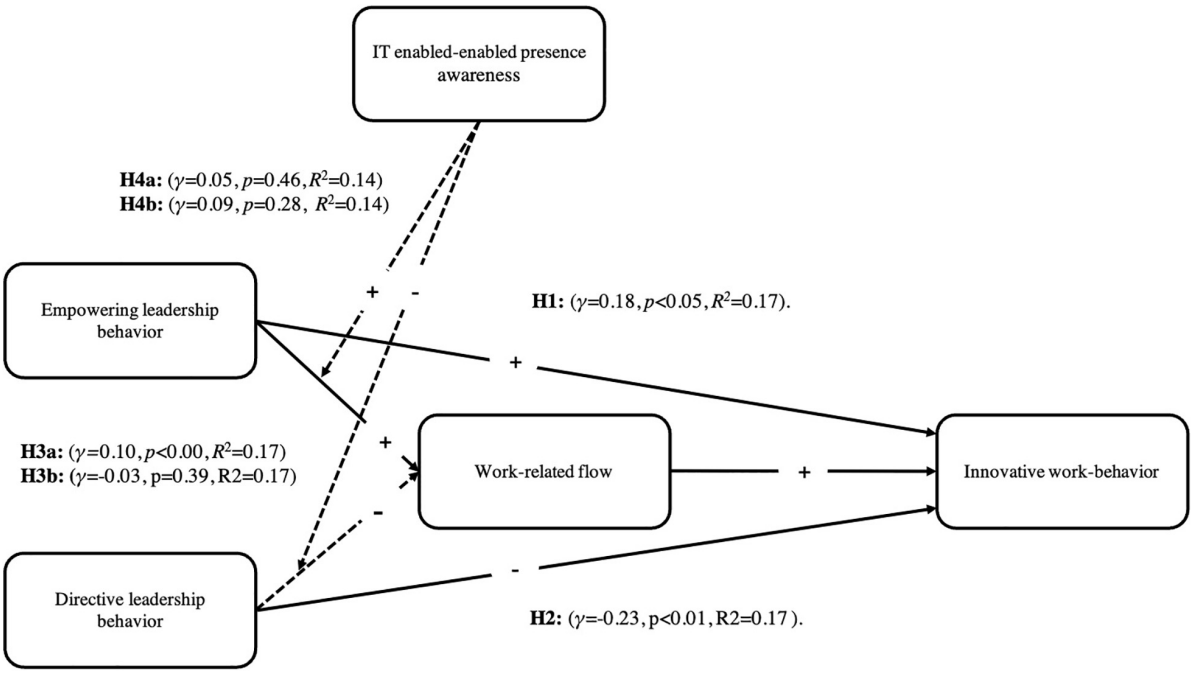

FIGURE 2 | Significant and non-significant relationships of the conceptual model in the first wave.

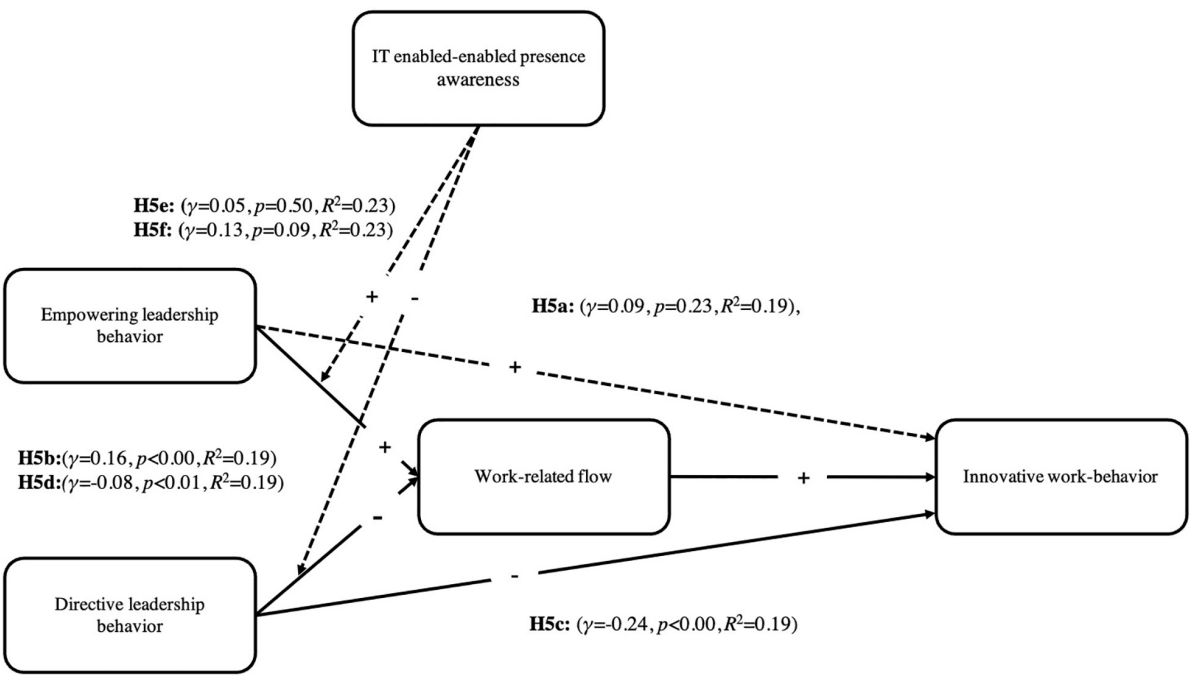

FIGURE 3 | Significant and non-significant relationships of the conceptual model in the second wave.

leadership and innovative behavior (Scott and Bruce, 1994; Zhang and Bartol, 2010). The COVID-19 pandemic challenged leaders to create an engaging work environment where employees feel supported and are enabled to perform to the best of their abilities, despite their inability to meet with them face-to face (Contreras et al., 2020). Empowering leadership grants employees with more latitude to approach their work and encourages participation in decision making, which expresses confidence in the employees' abilities (Martin et al., 2013). Moreover, empowering leadership provides guidance in the

strategic direction of the goals of the entire organization and the meaningfulness of the employees' work in these goals (Ahearne et al., 2005). This supports employees directly in their individual innovative work-behavior (Scott and Bruce, 1994; Amabile and Pratt, 2016) and might be especially important in the first phase of the pandemic, when employees might have been less sure on how to respond (Montani and Staglianò, 2021).

In line with our expectations, we found that directive leadership during the initial phases of the COVID-19 pandemic negatively influenced innovative work-behavior. This finding chimes with the work of Somech (2005), who argued that directive leadership has a potential detrimental effect on employees' innovative behavior. While directive leadership was shown to benefit initial task performance by focusing employees' attention on executing their specific tasks (Lorinkova et al., 2013), this can be different in case of innovative behavior where the need for autonomy to explore new ideas and solutions is imperative (Zhang and Bartol, 2010). Based on our findings, it can be argued that the lack of decision latitude and autonomy that employees may experience as a result of directive leadership (Stoker et al., 2019) can have hampered their innovative work-behavior as they experienced scarce opportunity to explore new ideas (Scott and Bruce, 1994).

Our findings regarding the relationships of empowering and directive leadership with innovative behavior during the initial phases of the COVID-19 pandemic extend the leadership literature (Lorinkova et al., 2013; Stoker et al., 2019; Contreras et al., 2020; Bajaba et al., 2021) by providing insights into how both leadership styles influence employees' behavior during a crisis, such as the COVID-19 pandemic, which required intensive remote homeworking. During the initial phases of a crisis, some leaders might have shown a proclivity to become more directive to reduce ambiguity (Stoker et al., 2019). However, our study suggests that in the early phase of the pandemic, empowering employees by emphasizing the meaningfulness of their work in relation to the organization's strategic direction, expressing confidence by broadening their responsibilities and decision power, and giving them more freedom to explore novel ideas (Ahearne et al., 2005; Martin et al., 2013) fostered more idea generation, promotion, and realization (Janssen, 2000).

The Mediating Role of Worked-Related Flow in the Relationship Between Leadership and Innovative Work-Behavior

In line with expectations, we found that the relationship between empowering leadership and innovative work-behavior during the initial phases of the COVID-19 pandemic was partly mediated through work-related flow. This outcome chimes with a study by Peters et al. (2014) who argued that when homeworkers are empowered, they experience more work-related flow. Subsequently, work-related flow can result in more autonomous motivation and absorption in work, which enhances creativity and innovative work-behavior (Hon and Chan, 2013; Maqbool et al., 2018). Our study underlines the importance of work-related flow as a (partial) mediator between empowering leadership and innovative behavior amongst employees who are intensively working from home.

Contrary to our expectations, however, we did not find significant evidence for the proposed negative indirect relationship between directive leadership and innovative work-behavior via work-related flow during our First Wave of data collection. A possible explanation for this outcome could be that even though directive leaders may have aimed to influence the performance of employees (Lorinkova et al., 2013), this did not enhance employees' absorption, enjoyment, and motivation during work (Bakker, 2008). Hence, leaders that initially focused on reducing ambiguity through issuing commands and assigning goals as a response to the changing working conditions during the COVID-19 pandemic (Stoker et al., 2019) seem to have been less successful in influencing employees' intrinsic abilities and mental state through work-related flow (Bakker, 2008).

The Moderating Role of IT-Enabled Presence Awareness in the Relationship Between Leadership and Work-Related Flow

Our analyses did not provide evidence for the proposed moderating role of IT-enabled presence awareness on the relationship between leadership and work-related flow during the initial phases of the COVID-19 pandemic. A possible explanation for this outcome could be that presence awareness among remote workers could be influenced by characteristics of the existing relationship with their co-workers (Gruenfeld et al., 1996; Malhotra and Majchrzak's, 2014; Lim, 2018) and other contextual factors (Lim, 2018). For example, when employees have been acquainted before the COVID-19 pandemic and, therefore, must cross few so-called 'knowledge boundaries,' their shared context might already provide presence awareness (Hinds and Mortensen, 2005). In that case, the degree of IT-enabled presence awareness does not impact the relationship between the perceived leadership style and work-related flow. In a similar vein, Lim (2018) acknowledges that some aspects of leadership behavior may be suitable to be conveyed via asynchronous information technology (such as email) and not necessarily via the pathway of IT-enabled presence awareness. Hence, there might have been factors that influenced the experience of employees experienced presence awareness, which we did not include in our research and explain the not significant result.

The Relation of Time to the Relationships Between Leadership, Work-Related Flow, and Innovative Work-Behavior

Besides providing insight into the mechanisms that influence innovative work-behavior during the initial phases of the COVID-19 pandemic, we also found significant evidence of temporal effects as the relationships between leadership, work-related flow and innovative work-behavior may differ across different phases.

Regarding empowering leadership, we did find a weaker direct relationship with innovative work-behavior during the second phase compared to the first phase, however, the relationship was

not significant Contrarily, the indirect relationship between these two constructs via work-related flow was stronger in the second phase compared with the first phase. These outcomes indicate that as time passes, empowering leadership remains important, but relates to innovative behavior increasingly via work-related flow as an underlying mechanism. This could be explained by employees feeling more comfortable with the new situation, their organization's response to the changing environment and their work, than during the earlier phase in the pandemic (Montani and Staglianò, 2021). Therefore, they may rely less on the guidance of their leader in meaningfulness of their work and encouragement to partake in decision making (Ahearne et al., 2005). Instead, they draw more upon the autonomy and intrinsic motivation provided by empowering leadership to fuel their work-related flow. These results corroborate with Lorinkova et al. (2013) who argue that the positive effects of empowering leadership over time lie in that it facilitates the development of employees' competencies and build confidence in their own abilities to take of broader responsibilities as a result of being empowered (Cheong et al., 2019). As the new ways of working resulting from the COVID-19 pandemic was prolonged, employees who receive emotional support, encouragement (Hon and Chan, 2013) and freedom to shape their work situation to their own preferences (Bakker and Van Woerkom, 2017) also experience more work-related flow which enhanced their innovative work-behavior (Scott and Bruce, 1994).

Interestingly, in the second phase of the COVID-19 lockdown which intensified homeworking, we observed (more) negative relationships between directive leadership and innovative work-behavior, both directly and indirectly, via work-related flow. The direct relationship was stronger both in terms of strength and significance. This may indicate that when the leadership style does not provide employees with greater decision latitude and autonomy, this will negatively affect employees' innovative work-behavior (Scott and Bruce, 1994). In a similar vein, our study indicates a negative relationship between directive leadership and work-related flow and, subsequently, innovative work-behavior. Possibly, employees experiencing directive leadership during the COVID-19 pandemic received little support and opportunity to develop their competencies (Lorinkova et al., 2013). In other words, directive leaders that likely prefer issuing commands without much input from the employees themselves might not provide employees with enough autonomy for them to experience engagement in their work-activities (Bakker and Van Woerkom, 2017; Stoker et al., 2019). Consequently, employees are less likely to experience work-related flow (Bakker, 2008; Bakker and Van Woerkom, 2017), which can come at the expense of their innovative work-behavior.

Summarizing, our study strongly shows enhancing employees work-related flow through empowering leadership behavior to sustain innovative work-behavior during the COVID-pandemic. Directive leadership, in contrast, can reduce work-related flow and, therefore, hinder innovation. This outcome is an important contribution to the scholarly and societal debates on how to ensure innovative behavior, also during the COVID-19 pandemic (Montani and Staglianò, 2021).

The Relation of Time to the Moderating Role of IT-Enabled Presence Awareness in the Relationship Between Leadership and Work-Related Flow

Regarding IT-enabled presence awareness, the results also showed no significant evidence of its moderating role in the relationship between leadership and work-related flow during the second measurement. This result is at odds with the extant literature that advocates the influence of IT-enabled presence awareness in a remote work context (Malhotra and Majchrzak's, 2014; Lim, 2018). However, the companies in our study may have matured in their use of informational technology over the past years, and many employees, while being challenged with lower communication richness, were already familiar with the use of IT-facilitated communication (Garro-Abarca et al., 2021) before the COVID-19 pandemic. This may explain why IT-enabled presence awareness did not play a significant role in the relationship between leadership and work-related flow in both phases of the lockdown due to the COVID-19 pandemic.

Moreover, misalignment between employees that can be resolved by easier access to IT-solutions that enable clear communication often stems from different contexts in which individual employees operate and their knowledge thereof (Hinds and Weisband, 2003). Probably, respondents in our sample already had a shared context with their colleagues (Hinds and Mortensen, 2005), for which we did not control in our analysis.

Limitations and Suggestions for Future Research

Despite its contributions, the present study was also subject to various limitations. First, while our cross-sectional research design sheds light on the relationships between our study's core variables at two phases in the COVID-19 pandemic and changes herein, we did not investigate the causal relationships over time. While research on the long-term effects of leadership on innovative behavior during the pandemic is still ongoing (Bajaba et al., 2021), based on the results of our study, we encourage scholars to adopt similar or longitudinal research designs.

Second, our sample is heterogeneous and unbalanced in terms of occupational groups and industry. Therefore, the representability of our sample is limited. Future research could consider using a larger sample that is more balanced in respondents' characteristics, which would increase their outcomes' generalizability.

Third, regarding a possible moderating influence of IT-enabled presence awareness on the relationships between leadership, and work-related flow our study did not find significant relationships despite prior research ascribing an important role to the construct in home-based working (Majchrzak et al., 2000; Malhotra and Majchrzak's, 2014; Lim, 2018). Decreasing communication richness during the COVID-19 pandemic, however, has been an important challenge within organizations (Garro-Abarca et al., 2021). Future

studies could include and control more contextual factors that might explain employees' perceptions regarding IT-enabled presence awareness, such as shared team contexts (Hinds and Mortensen, 2005), degree of familiarity between members prior to working from home (Gruenfeld et al., 1996), alternative IT channels through which leadership behavior can be conveyed (Lim, 2018), and differences in geographic contexts (Hinds and Weisband, 2003).

Fourth, while empowering and directive leadership are important leadership styles in both 'normal' contexts (Lorinkova et al., 2013) and during crises (Stoker et al., 2019), many more leadership styles could be studied. For example, shared leadership (Pearce and Sims, 2002) might be an interesting avenue for future research to discover how empowered teams develop leadership capabilities as they are provided with autonomy and support (Ahearne et al., 2005).

Managerial Implications

Aside from previously discussed theoretical implications, our study also contributed knowledge that is relevant for practitioners. First, while it is understandable for leaders to tighten to leash and become more directive in their leadership behavior when employees are working remotely (Stoker et al., 2019), we encourage leaders to empower employees through support and autonomy instead. By focusing on empowering leadership in the beginning phases of working from home, leaders can bring employees to take up broader responsibilities by expressing confidence in their work, causing them to experience work-related flow more frequently and encourage innovative work-behavior.

Second, based on the increasingly imperative role of work-related flow in the relationship between leadership and innovative work-behavior as observed in this study, we recommend employees to focus on increasing work-related flow experience to fuel their long-term ability to generate, promote and implement novel ideas. According to Bakker and Van Woerkom (2017), employees can use four self-determination strategies to facilitate work-related flow experiences: self-leadership, job crafting, designing work to be playful, and focusing on using of their known strengths.

CONCLUSION

This study unveiled the importance of leadership behavior to foster innovative behavior during the COVID-19 pandemic. By showing the positive direct relationship between empowering leadership and innovative work-behavior, and the negative direct relationship between directive leadership and innovative work-behavior, we shed more light on which (initial) leadership behaviors are most beneficial in a lockdown, such as the one caused by the coronavirus (Stoker et al., 2019; Bajaba et al., 2021). Moreover, our research underlined the importance of work-related flow in sustaining innovative work-behavior for employees who are working remotely. Initially, it showed that empowering leadership can foster work-related flow (Bakker, 2008) which can amplify innovative behaviors. Moreover, in the context of working from home during the COVID-19 pandemic, the importance of work-related flow in the relationship between leadership and innovative work-behavior only seemed to have increased after a prolonged time working from home. Empowered employees may have developed more confidence in their own abilities and autonomy and, therefore, work-related flow sustained their innovative behavior (Lorinkova et al., 2013). The mediating role of work-related flow also became stronger as it also mediated the negative effect of directive leadership on innovative behavior. As individual innovative work-behavior of employees, and their perceptions thereof (Janssen, 2000), are driving innovation on an organizational level (Liu et al., 2017), we enhanced our understanding of the influence of individual and organizational implications of the COVID-19 pandemic.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors contributed to the conception and design of the study. MC and PP collected the data. PP conducted the data cleaning. MC, RE, and PP worked on the initial conceptualization of the research. RB did additional data-cleaning and analyzed the data in PLS-SEM. RE wrote the first draft of the manuscript. MC, PP, and RB supervised the study. All authors reviewed and edited the manuscript. All authors contributed to the manuscript revision and read and approved the submitted version.

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Don't Call It Smart: Working From Home During the Pandemic Crisis

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The recent COVID-19 pandemic and related social distancing measures have significantly changed worldwide employment conditions. In developed economies, institutions and organizations, both public and private, are called upon to reflect on new organizational models of work and human resource management, which - in fact - should offer workers sufficient flexibility in adapting their work schedules remotely to their personal (and family) needs. This study aims to explore, within a Job Demands-Resources framework, whether and to what extent job demands (workload and social isolation), organizational job resources (perceived organizational support), and personal resources (self-efficacy, vision about the future and commitment to organizational change) have affected workers' quality of life during the pandemic, taking into account the potential mediating role of job satisfaction and perceived stress. Using data from a sample of 293 workers, we estimate measurement and structural models, according to the Item Response Theory and the Path analysis frameworks, which allow us to operationalize the latent traits and study the complex structure of relationships between the latent dimensions. We inserted in the model as control variables, the socio-economic and demographic characteristics of the respondents, with particular emphasis on gender differences and the presence and age of children. The study offers insights into the relationship between remote work and quality of life, and the need to rethink human resource management policies considering the opportunities and critical issues highlighted by working full-time remotely.

Keywords: COVID-19, JD-R model, work from home, personal resources, quality of life

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INTRODUCTION

The COVID-19 has posed an unprecedented challenge to the global workforce. The lockdown experience and the prolonged confinement due to the persistence of the circulation of the virus, has determined important upheavals and transformations that have involved people and collective subjects at various levels. The pandemic has certainly acted as a powerful accelerator in the change of work and organizational processes and practices, pushing towards a rapid reconfiguration of the usual working objects, and the overcoming of traditional work-life boundaries. This sudden acceleration towards a much more intense use of remote work, although forms of smart working were being experimented in the Italian working context, has caught organizations and workers unprepared to manage this passage, considering the scarcity of alternative managerial models, guidelines, and policies recommending how to best move from the emergency response of the

labor market to the diffusion of the virus, to a medium-long term solution of good integration of remote working into conventional work arrangements. Basically, what millions of Italian workers have witnessed and experienced in the last 16 months has been working from home or working remotely, without the necessary tools that configure a job that can be defined remotely or smart (Ripamonti et al., 2020). Furthermore, working from home has meant for many workers, especially in periods of isolation or partial confinement, to face a complete overlap between work and private life, and the acceptance of the loss of their role boundaries to cope with health emergency (Duffy, 2020). Work-related demands have invaded the family domain, at a time when the private domain has required immense effort in terms of childcare, housework, and family responsibilities (Vaziri et al., 2020). This situation has a particularly large impact on working parents and has produced a notable emotional impact on the general population, with important symptoms of anxiety, stress, and depression (Kang et al., 2020; Wang et al., 2020). To the authors' knowledge, there are currently no studies in Italy that have explored the psychological implications of working from home, in terms of its effect on the perception of quality of life, although there are studies that have explored other factors related to remote work on the well-being of workers (Manuti et al., 2020; Molino et al., 2020; Ingusci et al., 2021; Ramaci et al., 2021; Valenti et al., 2021; Zammitti et al., 2021). The individual's perception of quality of life can be defined, at least in part, as the cognitive appraisal of the distance between one's standards, expectations, and goals, and the perceptions of the results achieved in the various domains of life (such as work, family, friendship), but also achieved in the past and achievable in the future (Rice et al., 1985). The quality of life is linked to interpersonal relationships on and outside of the job and can be considered crucial resources to managing stress in the workplace (Nappo, 2020). The stringent requests to change behaviors and lifestyles to contain the spread of the pandemic and the radical change in how people work (remotely and from home) have probably impacted people's perception of quality of life. Using the JD-R theoretical framework (Demerouti et al., 2001; Schaufeli and Bakker, 2004; Bakker and Demerouti, 2007), the study aims to explore some specific job demands (i.e., workload, social isolation) and organizational and personal resources particularly significant in this moment (i.e., perceived organizational support, self-efficacy, vision about future, and commitment to organizational change) that may have influenced the quality of life during the lockdown and partial confinement phase, and to what extent some conditions (i.e., job satisfaction, perceived stress) have exerted a mediating effect.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Demands and Resources in the Time of the Coronavirus

Literature offers different psychological models that clarify how work stress impacts the quality of life. For this study, we have chosen the Job Demands-Resources (JD-R) Model (Bakker and Demerouti, 2007), which classifies specific risk factors associated with job stress into two main categories: job demands and job resources. The Bakker and Demerouti (2007) job demands–resources model (JD-R model) is a transactional model that has been used to examine a variety of working environments or professions and assumes the simultaneous occurrence of job demands and job resources. Job demands are defined as "physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills" (Bakker and Demerouti, 2007, p. 312). Bakker and Demerouti (2007) further defined job resources as "physical, psychological, social, or organizational aspects of the job that are either functional in achieving work goals, reducing job demands and the associated physiological and psychological costs, or [in] stimulating personal growth, learning, and development" (p. 312). The JD-R model is an effective lens for examining the dynamic relationship between stress and resilience during the COVID-19 pandemic. This model has undergone revision (Demerouti et al., 2001; Bakker and Demerouti, 2007). Its revised version (Bakker and Demerouti, 2007), which is used in the current study, is improved over the previous version by considering internal resources called 'personal resources' (Xanthopoulou et al., 2007; Bakker and Demerouti, 2017; Taris et al., 2017). Personal resources may are conceptualized as strengths or characteristics that contribute to individuals' optimal functioning (Youssef and Luthans, 2007). An advantage of the JD-R model (Bakker and Demerouti, 2007) is that it is responsive to demands in a variety of contexts and has the flexibility to incorporate variables that are unique or relevant to a specific context. Working from home during the COVID-19 pandemic certainly helped manage social distancing and consequently helped control the spread of the virus (Di Domenico et al., 2020; Kawashima et al., 2020). However, most organizations lacked a formal smart working policy and were not prepared for a general shift to remote working (Carnevale and Hatak, 2020; Rudolph et al., 2021). Working full time remotely was undoubtedly an unprecedented event for organizations and employees, who were forced, given the situation, to rethink and reorganize their work. As this is an unprecedented situation, there are no researches that have focused in the past on "mandatory," full-time remote work. Furthermore, working from home full-time implies new and different demands and job resources, even the nature of existing demands and resources changes when work is brought home from the workplace for an ongoing period. Although a myriad of factors could potentially contribute to the quality of life of employees during the current pandemic, specific variables within three main categories were examined in the present study: job demands, organizational-job resources, and individual resources. Moreover, given the large body of research on remote working (e.g., Konradt et al., 2003; Grant et al., 2013), it can easily be assumed that workers necessarily placed to work remotely have faced psychological challenges and risks, due to different management of tasks, relationships, time dedicated to working and workspace.

Job Demands Working at Home During a Pandemic: Workload and Social Isolation

Recent studies have shown that employees in remote working tend to work longer and harder (Kelliher and Anderson, 2010; Felstead and Henseke, 2017). In the pandemic scenario, remote working is no longer sensitive to employee preferences, flexible in time and space, but on the contrary, it is mandatory, and employees have no choice but to work full time from home. Wu and Chen (2020) for example have found that working from home not only increases employees' workload, but also they constantly lose productivity due to stress and pressure. While the study by Kunze et al. (2020) highlighted that switching to work from home has tended to increase workloads, resulting in exhaustion. Furthermore, it can be hypothesized that people may be asked to work extra hours in the absence of commuting (Jamal et al., 2021) and that they may be involved in activities that depend on technological tools that are not always efficient or with which people can feel insecure, incapable, not able to use them (Ingusci et al., 2021). Finally, the implementation of remote work has led to an overlapping of work and family roles for a prolonged time and in the home environment, generating, in many cases, the need to manage a greater workload (Couch et al., 2021). Several studies of previous quarantine episodes have shown that psychological stress reactions may emerge from the experience of physical and social isolation (Brooks et al., 2020). Social isolation has often been put forward as the biggest disadvantage of remote working with more serious effects in the case of full-time remote working since it highly curtails opportunities for social interaction among employees (Golden et al., 2008; Morganson et al., 2010). Previous studies underlined that social isolation is generally associated with lower life satisfaction (Harasemiw et al., 2018; Zheng et al., 2020), higher levels of depression, and lower levels of psychological wellbeing (Cacioppo and Cacioppo, 2014; Coutin and Knapp, 2017; Harasemiw et al., 2018; Lee and Cagle, 2018; Usher et al., 2020). As already mentioned, working from home was necessary to ensure physical distancing in order to reduce the spread of COVID-19. However, this has intensified workers' perceptions of being socially isolated. Several studies have highlighted how social isolation can negatively affect both mental and physical health and the overall quality of life of people (Cava et al., 2005; Berg-Weger and Morley, 2020; Brooks et al., 2020; Smith and Lim, 2020; Usher et al., 2020; Clair et al., 2021). The present study has considered workload (Brammer and Clark, 2020) and social isolation (Windeler et al., 2017) as the two relevant job demands in this working scenario conditioned by the pandemic situation. In light of the above, in this study, we hypothesized that:

H1. There exists a direct and positive relationship between job demands viz. workload (H1a), social isolation (H1b), and the employees' perceived stress.

H2. There exists a direct and negative relationship between job demands viz. workload (H2a), social isolation (H2b), and the employees' job satisfaction.

Job Resource Working at Home During a Lockdown: Perceived Organizational Support, Self-Efficacy, Vision About the Future, Commitment to Change

Job resources refer to those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving work goals; reduce job demands and the associated physiological and psychological costs; stimulate personal growth, learning, and development. Hence, resources are not only necessary to deal with job demands, but they also are important in their own right. As literature highlighted, job resources may be located at different levels: at the organization at large, at the interpersonal and social relations, at the organization of work, and at the level of the task (Bakker and Demerouti, 2007). In this exceptional situation, we imagined that the perception of feeling supported by one's organization in managing new ways of working was an important resource capable of helping people to balance personal and professional life compromised by the pandemic situation. In fact, when employees receive resources, which they value high, it develops a positive perception for organizational support and they feel obligated towards the organization (Eisenberger et al., 2002; Rhoades and Eisenberger, 2002). This is the reason why in this study we hypothesized that organizational support could be a resource that might influence the quality of life. JD-R traditionally focuses on characteristics of the job as demands and resources. However, recent research moves toward considering also the role of the individual as a "job crafter" (Bakker et al., 2012; Hakanen et al., 2017; Petrou et al., 2017), because individuals bring personal resources to bear on the work situation (Bakker et al., 2012; Xanthopoulou et al., 2012; Huang et al., 2016; Grover et al., 2017). Personal resources are aspects of the self that are generally linked to resilience and refer to individuals' sense of their ability to control and impact their environment successfully (Xanthopoulou et al., 2007, pp. 123–124). Thus, in light of above, personal resources can be important determinants in facilitating a process of adaptation to the new working conditions (Hobfoll, 1989; Judge and Cable, 1997) and the acceptance of a so radical change in working practices. Personal resources can form stronger positive evaluations about themselves (Xanthopoulou et al., 2007) and this could make it easier to cope with adverse or difficult working conditions (such as the one we are experiencing). In other words, personal resources can determine how people perceive the work circumstances they are experiencing and react positively to them (Judge and Cable, 1997; Judge et al., 2000). If we apply this reciprocity perspective to the JD-R model, we can expect employees who perceive themselves to be self-effective (Bandura, 2010) and who can see beyond what is happening, having a more future-oriented time perspective (Ginevra et al., 2016), to focus more on working resources than on job demands and, as a result, they will experience lower levels of stress and higher levels of job satisfaction. Individuals with high self-efficacy select challenging tasks and higher goals, invest more effort, recover more quickly and persist longer (Bandura, 1997). Thus, self-efficacy is a crucial personal resource in coping with the challenges and demands in difficult and changing situations. Also, vision about the future can

be considered as a personal resource because it has to do with the individual ability to code and distinguish the current emergency condition from the presumable and desirable restoration of a state of new stability towards which to strive, and to be taken as an objective in the medium term, often referred to as the "new normal" in public discourse. This would allow them, despite the difficulties, to maintain a good quality of personal life. Furthermore, in light of the timely request to switch from one working model (traditional) to another (remote), we felt that the commitment to change could be an important organizational resource in this situation. In fact, according to Meyer and Herscovitch (2001), commitment to change can be considered as a mindset that binds an individual to a course of action deemed necessary for the successful implementation of a change initiative. Therefore, in this study, we hypothesized that:

H3. There exists a direct and negative relationship between organizational and individual job resources viz. perceived organizational support (H3a), self-efficacy (H3b), vision about the future (H3c), commitment to change (H3d), and the employees' perceived stress.

H4. There exists a direct and positive relationship between organizational and individual job resources viz. perceived organizational support (H4a), self-efficacy (H4b), vision about the future (H4c), commitment to change (H4d), and the employees' job satisfaction.

H5. There exists a direct and positive relationship between individual job resources viz. self-efficacy (H5a), vision about the future (H5b), commitment to change (H5c), and the employees' perception of quality of life.

Perceived Stress and Job Satisfaction as Mediators Between Demands and Job Resources on the Quality of Life

The overlap between the antecedents of work stress and job satisfaction suggests that their mapping within the JD-R model should provide a means of benchmarking to identify the main influences on both phenomena simultaneously (McVicar, 2016). In the work context, perceived stress refers to the feeling of not being able to cope with work demands (Hobfoll, 1989; Lee and Ashforth, 1996). We can define stress as the depletion of the emotional and mental energy needed to do the job (Moore, 2000). Although job demands are not essentially negative, they can lead to stress due to the high efforts required to meet them (Sardeshmukh et al., 2012) and employees can feel stressed when perceived resources are inadequate to meet job demands (Wright and Cropanzano, 1998). While job satisfaction is an affective (emotional) response by an individual concerning his/her job that results from a comparison of actual outcomes with those that are expected, wanted, and needed (Griffin et al., 2010). Job satisfaction refers to pleasurable psychological experiences, which can lessen or eliminate some of the negative job demands. Those with high satisfaction may look forward to work and may be less troubled by strains from the job. Under the JD-R model, considering the pandemic scenario and the radical change in work, due to forced full-time work from home, these constructs should mediate the relationship between job demands and resources and people's perceived quality of life. In light of above, we hypothesized that:

H6. Perceived stress mediates the relationship between job demands viz. workload (H6a), social isolation (H6b), and the employees' perception of quality of life.

H7. Perceived stress mediates the relationship between organizational and individual job resources viz. perceived organizational support (H7a), self-efficacy (H7b), vision about the future (H7c), commitment to change (H7d), and the employees' perception of quality of life.

H8. Job satisfaction mediates the relationship between job demands viz. workload (H8a), social isolation (H8b), and the employees' perception of quality of life.

H9. Job satisfaction mediates the relationship between organizational and individual job resources viz. perceived organizational support (H9a), self-efficacy (H9b), vision about the future (H9c), commitment to change (H9d), and the employees' perception of quality of life.

METHOD

Survey Data and Indicators

To test the hypotheses described we use data on Italian workers who, after receiving an invitation via social media (facebook), volunteered have been participate to an online survey by self-completing a questionnaire administered in July 2020. The anonymity of subjects was guaranteed according to the General Data Protection Regulation and the Helsinki Declaration (World Medical Association, 2013). Before completion of the questionnaire, individuals provided their informed consent. Data were computed in an aggregated manner without any possibility to identify the personal information of subjects. The anonymized questionnaire, which could be filled in about 20 min, contained a module investigating socio-economic and demographic characteristics and a module with questions focused on gathering information on job demands and resources, stress, job satisfaction and quality of life. Only workers who were forced to work from home during the Covid19 pandemic "great lockdown" were eligible to participate to the survey. A total of 293 Italian individuals aged 45.1 years old (s.d. 7.8), of which 73.7% are women, participated to the survey. Summary statistics are reported in **Table 1**. The level of education among participants is very high (79.2% of them has a bachelor/master or a post graduate degree); about 56.7% of them work in the public sector. Approximately half of the respondents (51%) has no children, while about 17.4% of them has children in pre-scholar age (under 6 years old); 22.9% has children in scholar age (6–18), and 8.5% has older children.

Measures

The following validated scales have been adopted in order to operationalize job demands and job-organizational

TABLE 1 | Scale information (n = 293).

Type of variable	Indicator role in Path Analysis	Scale	# item	# reversed items	# categories	Cronbach's alpha
Endogenous	Outcome	Quality of life	8	0	5	0.85
Endogenus	Mediator	Job satisfaction	4	1	7	0.89
Endogenous	Mediator	Stress	10	5	5	0.83
Exogenous	Job demand	Workload	10	1	5	0.89
Exogenous	Job demand	Social isolation	10	0	7	0.94
Exogenous	Job resource	Organizational support	8	4	5	0.9
Exogenous	Job resource	Vision about the future	19	4	5	0.95
Exogenous	Job resource	Self efficacy	10	0	5	0.9
Exogenous	Job resource	Commitmentto change	18	11	5	0.87

and individual resources components and to assess the hypotheses advanced.

To evaluate *workload* construct we used 10 items extracted from three different tools measuring job stressor and strain. Specifically, Interpersonal Conflict at Work Scale (ICAWS) (Spector and Jex, 1998) that consists of 4 items rated on a 5-point Likert scale was employed. In addition, were used 5 items rated on a 5-point Likert scale from the Quantitative Workload Inventory (QWI) developed by Spector and Jex (1998). Finally, to measure time availability, we utilized one item from the Organizational Constraints Scale (OCS; Spector and Jex, 1998) that assesses the constraints areas discussed in Peters and O'Connor (1980).

Workplace Isolation Inventory, developed by Marshall et al. (2007), was used to measure two sub-dimensions, physical and informational isolation. It consists of 10 items selected and adapted from the original Workplace Isolation Inventory. Participants answered on a 7-point agreement scale (from 1 = strongly disagree to 7 = strongly agree). The physical isolation scale includes items such as "I am isolated from others at work," instead, informational isolation scale is based on items such as "I often miss the opportunity to meet key people whom I work with."

To measure *perceived organizational support*, we utilized the format for the 8-item Survey of Perceived Organizational Support Scale (SPOS) developed by Eisenberger et al. (1986). The scale includes 8 items rated on a 7-point agreement scale (from 0 = strongly disagree to 6 = strongly agree). Examples of items are "The organization really cares about my well-being," or "The organization takes pride in my accomplishments at work."

Commitment to Organizational Change Scale, (Herscovitch and Meyer, 2002), was used to assess the commitment to organizational change. The instrument consists of 18 items rated on a 5-point agreement scale (from 1 = strongly disagree to 5 = strongly agree) that provides a score of affective commitment, continuance commitment and normative commitment. Participants answered on items such as "I believe in the value of this change," or "I feel a sense of duty to work toward this change."

The Italian version of the *General Self-Efficacy Scale* (GSE) was used to assess self-efficacy construct. The scale, developed by Sibilia et al. (2019), includes 10 items rated on a 5-point agreement scale (from 1 = strongly disagree to 5 = strongly agree). A typical item is: "Thanks to my resourcefulness I can handle unforeseen situations."

To measure the vision about the future we used the *Vision About the Future Scale* (VAF) developed by Ginevra et al. (2016). Participant answered on 19 items, rated on a 5-point Likert scale (from 1 = it does not describe me at all to 5 = it describes me very well), which assess hope, optimism and pessimism.

As mediator variables, we considered job satisfaction and perceived stress.

Job satisfaction was measured using the Brief Overall Job Satisfaction measure II developed by Judge et al. (1998). The scale is composed by 5 items rated on a 7-point agreement scale (from 1 = strongly disagree to 7 = strongly agree). The perception of satisfaction concerning the current job of the respondents was assessed using items such as "On most days I am enthusiastic about my work," or "I consider my job rather unpleasant."

Perceived stress was measured using the Italian 10-item version of the Perceived Stress Scale (IPSS-10) developed by Mondo et al. (2019). The scale measures thoughts and feelings related to stressful events through 10 items rated on a 5-point Likert Scale (from 0 = never to 4 = very often). Example of items are "in the last month, how often have you been/felt nervous and stressed?" or "in the last month, how often have you been/felt you were on top of things?".

In this study, we explore quality of life of working individuals, using the definition proposed by the World Health Organization (WHO), which describes it "as an individual's perception of their position in life in the context of culture and of the value systems in which he lives and in relation to his goals, expectations, standards and concerns." This definition corresponds perfectly to the multidimensional concept we aim to measure. In particular, in this study we use the 8-point version of the WHO Quality of Life Index (also referred to as EUROHIS-QOL 8 index) that collects information on eight fundamental areas, which are particularly relevant in this study because they inspect domains such as general quality of life, general health status, energy for everyday life, ability to perform daily activities, self-esteem, personal relationships, financial hardship, and living conditions, as shown in **Table 2** (for additional details, see Nosikov and Gudex, 2003). Each item has a 5-point response format on a Likert-scale to rate the respondents' level of satisfaction in each domain. The EUROHIS-QOL 8 index is derived from the WHOQOL-BREF (26 items), which, in turn, is a shorter version of the original

instrument, the WHOQOL-100, which is suitable for clinical and general population. It was proposed by the EUROHIS project with the goal of creating a common instrument to be used for quality of life comparisons between national cultures and within countries, overcoming the drawbacks of scales that were based on a narrow definition of "well-being" and that were not able to mix together both health and non-health determinants of quality of life. Rasch analysis, confirmatory and exploratory factor analyses were used to derive items that showed the best overall fit for a single factor (see Power, 2003 for further details). The psychometric properties of the EUROHIS-QOL 8-item index in terms of its reliability, convergent and discriminant validity, and in terms of its cross-cultural performance have been proved also by Schmidt et al. (2006) and by Schiavolin et al. (2015) in a study on adult Italian patients. The final index used to capture quality of life in our study is obtained using the posterior predictions of the person location parameters of the EUROHIS-QOL 8-item scale. Higher scores indicate better quality of life.

For all scales used in the analysis, negative items with respect to the direction of the name of the scale have been reversed, so that higher values of the operationalized variables signal a higher position of the respondents on the latent trait the scale intends to measure (e.g., higher values on the Perceived stress scale signal a worse position of respondents with respect to stress). Informations on the scale characteristics and on their degree of reliability are reported in **Table 3**. As shown by the high values of the alpha Cronbach coefficient, which varies between 0.83 to 0.95, all scales show a satisfactory level of reliability.

Empirical Approach

In this study, we investigate the relationship between a specific set of job demands and resources on (health and non-health related) quality of life of workers at the time of the "great lockdown" imposed in Italy during the Covid-19 pandemic in 2020. Job demands and resources might influence the quality of life either directly or indirectly through their effect on perceived stress and job satisfaction, which, in turn, affect the quality of life. In addition, the disease itself and the non-pharmacological measures adopted to contain the virus might have influenced individuals' perception of their roles in society, in the family, and in the workplace. We propose a two-step analysis that consists of a measurement approach for the operationalization of the latent traits and a path analysis to test the hypotheses described in **Figure 1**. The selection of this two- steps procedure was imposed by the low sample size that did not allow us to proceed with a Latent Path Regression Analysis. In Step 1, we use the Item Response Theory (IRT) to operationalize the latent variables for quality of life, a set of job demands and resources, perceived stress, and job satisfaction for which we have collected information using an *ad hoc* survey. IRT produces estimates of respondents' location on the latent traits by considering the different characteristics of the categorical items composing each scale. IRT modeling approach (Baker and Kim, 2004; de Ayala, 2009) is one of the most complete measurement method for the development, refinement, and validation of scales when information is gathered by multi-item binary or categorical scales.

For ordered categorical items the Graded Response Model (GRM) (Samejima, 1969) is widely adopted since it is the natural extension of the most flexible model for binary responses, known as the two-parameter logistic model, 2PL, (Birnbaum, 1968). In its general formulation, GRM specifies the probability that respondent i (i = 1,. . ., n) provides a responses at least equal to k (k = 1,. . ., L) to an item j (j = 1,. . ., M) as follows:

$$P\left(Y_{ij} \geq k \mid \theta_i, \tau_{jk}, \alpha_j\right) = \frac{e^{\alpha_j(\theta_i - \tau_{jk})}}{1 + e^{\alpha_j(\theta_i - \tau_{jk})}}$$

TABLE 2 | EUROHIS-QOL 8-items in a sample of Italian workers interviewed during the Covid19 pandemic great lockdown (n = 293).

Items	Mean	St. dev.	Item test correlation	Cronbach's alpha (-j)
How would you rate your quality of life	3.874	(0.832)	0.762	0.819
How satisfied are you with your health	3.819	(0.890)	0.651	0.836
Do you have enough energy for everyday life	3.935	(0.827)	0.790	0.814
How satisfied are you with your ability to perform your daily activities	3.659	(0.996)	0.547	0.851
How satisfied are you with yourself	3.874	(0.841)	0.745	0.822
How satisfied are you with your personal relationships	3.788	(0.838)	0.774	0.817
Have you enough money to meet your needs	3.778	(0.984)	0.661	0.835
How satisfied are you with the conditions of your living place	3.911	(0.986)	0.634	0.839

TABLE 3 | Summary statistics (n = 293).

Variable	Mean	Std. Dev.	Min	Max
Quality of life	0.000	1.987	−6.950	4.553
Job satisfaction	−0.085	3.879	−11.498	6.912
Perceived stress	0.000	1.154	−3.019	3.156
Social isolation	0.000	1.980	−4.737	4.689
Workload	0.000	0.995	−2.681	2.849
Self-efficacy	−0.001	1.754	−4.287	3.355
Vision about future	−0.001	2.210	−6.560	5.566
Commitment to change	0.000	1.279	−4.132	3.125
Perceived organizational support	0.000	2.037	−5.308	4.998
Female	0.737	0.441	0	1
Age	45.150	7.935	25	65
Age squared (/100)	21.013	7.267	6.25	42.25
Married	0.727	0.446	0	1
Children (0–6)	0.174	0.380	0	1
Children (6–18)	0.229	0.421	0	1
Children (18 and older)	0.085	0.280	0	1
University degree	0.792	0.407	0	1
Employed in public sector	0.567	0.496	0	1

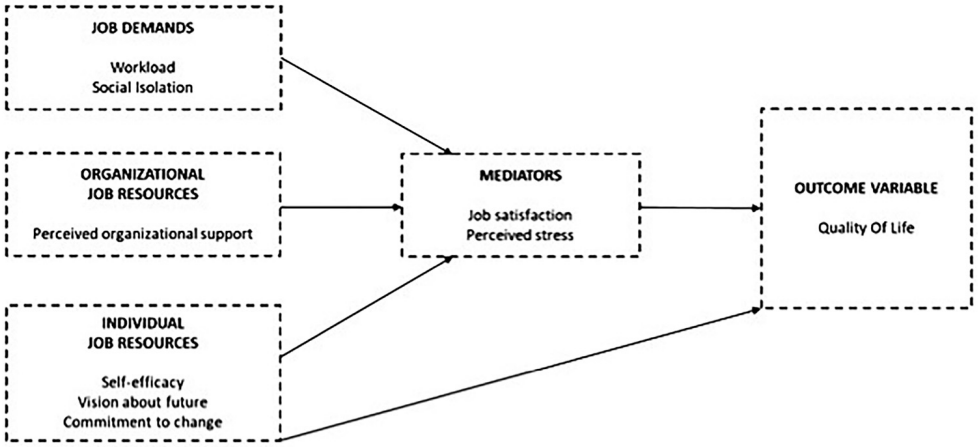

FIGURE 1 | Hypothesized conceptual framework. A hybrid model for Quality of Life in a Latent Path Analysis framework.

for k = 1,. . ., L–1, where τ_{jk} is the item-category (threshold) parameter of item *j* category *k*, α_j is the discrimination parameter and θ_i is the person parameter which is shared by responses to each scale provided by the same individual. The greater θ_i the higher the probability that respondents cross category *k* of item *j*, whereas the greater τ_{jk}, the higher is the minimum required level of latent trait required to respondents in order to cross it. When $\theta_i = \tau_{jk}$ this probability is equal 0.5. The model has been estimated using the routine SEM for Generalized Linear Mixed Models in Stata, which treats person parameters as random intercepts which follow a normal distribution ($\theta_i \sim N(0,\sigma^2)$) and τ_{jk} and α_j as fixed effects. The model has been estimated using Maximum Likelihood with adaptive Gauss–Hermite quadrature. A different parametrization of the equation 1 is used in the routine SEM in Stata which is implemented for structural equation models (see Acock, 2013; StataCorp, 2021). The estimate of individual position on the latent trait θ_i related to each single scale is obtained at posterior using empirical Bayes means predictions of the latent traits.

In Step 2, we estimate the structural part of the model using a Path analysis, which allows us to uncover the pathways from the JD-R variable to quality of life, disentangling the effects that run through the mediators, and explicitly account for respondents' heterogeneity in socio-demographic characteristics (Acock, 2013; Finch and French, 2015). Our approach models the relationships between exogenous and endogenous variables by specifying a series of sequential regression equations, where mediators are dependent variables in auxiliary equations and predictors in the main equation for quality of life. The advantage of using this approach is that the effects of the exogenous variables on the outcome variables can be estimated considering both direct and indirect effects, where the latter depend on specific mediating variables (the so-called "partially mediated model"). The sign and size of the "path coefficients" are used to assess the strength of the estimated relationships and can be better interpreted as standardized slopes through the use of a correlation coefficient *r* (which ranges in interval −1; 1) when the attention is focused on the strength of the linear relationship between exogenous and endogenous variables. In this work, we estimate a "hybrid" specification of the path model, that shares the features of "a fully mediated model," where the exogenous variable affects the endogenous outcome variable only through the mediators, and a "partially mediated model" as described above. Model fit is assessed using the Root Mean Squared Error Approximation (RMSEA) statistics, a goodness of fit measure which compares the observed (satured model) and the estimated (S hypothesized model) variance-covariance matrix in terms of deviance by accounting for the effective sample size and introducing a penalization factor which advantages more parsimonious models (Kline, 2015). Values of the RMSEA ≤ 0.05 highlight good model fit and thus support the advanced hypotheses, whereas a general convergence in the literature can be found in judging poor values of RMSEA greater than 0.08, and unacceptable models with RMSEA greater than 0.10.

RESULTS

The analysis has been carried out on the whole sample ($n = 293$) and, for comparative purposes, on the subsample of women ($n = 216$). Both samples support the model described in **Figure 1**. Results are reported in **Supplementary Tables 1, 2**.

The RMSEA indexes show a good level of model fit (0.05 and 0.02 for the subset of women and the whole sample, respectively). The r-squared coefficient of determinations (Bentler and Raykov, 2000) show, for both samples, that the set of predictors in the three equations explain about 57–58% of the share of variability in quality of life, about 55–59% of the variability in stress and 37–41% of the variability in job satisfaction. The overall model coefficient of determinations signals, that about 74–76% of the variability in quality of the life, is explained by the exogenous and mediating variables. All coefficients of determinations are larger for the women subgroup. The sign and the size of the slope coefficients support the hypotheses advanced. In our "hybrid" model, job satisfaction and perceived stress have a partially

mediating effect when the block of predictors considered in the analysis are socio-demographic and individual job-resource covariates (supporting hypotheses H6: H9), where the latter factors have a total effect on quality of life that can be disentangled into a direct and indirect effect (supporting hypothesis H5). Furthermore, job satisfaction and perceived stress fully mediate the effects of job-demands and perceived organizational support on quality of life (supporting hypotheses H6 and H7), meaning that total and indirect effects coincide. Job-resources such as vision about the future, self-efficacy, and commitment to change have a positive effect on our measure of quality of life (supporting hypothesis H5). Specifically, self-efficacy and commitment to change have significant indirect effects on quality of life (H7b, H7d). Both are negatively associated with similar strength with perceived stress ($r = -0.18$; -0.16 in the whole sample and $r = -0.14$; -0.15 in the women subsample), whereas self-efficacy positively influences job-satisfaction ($r = 0.15$ and 0.20 in the two samples). Only commitment to organizational change, and vision about the future have a significant total effect on quality of life outcome endogenous variables. Vision about the future is the predictor with the strongest association with quality of life ($r = 0.56$). The indicators of job demand and organizational support used in the analysis influence quality of life only through the mediators (supporting hypotheses H1, H2, H3a and H4a combined with H7a and H9a). Isolation and total workload increase perceived stress (supporting hypothesis H3). Workload exerts a certain effect only through perceived stress ($r = 0.17$ in the whole sample and $r = 0.19$ in the women subsample), while organizational support contributes to a better quality of life only by means of its influence on job satisfaction ($r = 0.32$ in the whole sample and $r = 0.36$ in the women subsample). Overall, findings suggest that an increase in job demands – which is very likely to have occurred during the lockdown – has a negative impact on quality of life. As expected, the two mediator variables have a relevant and opposite influence on quality of life, with a stronger negative effect of stress ($r = -0.39$ in the whole sample and $r = -0.40$ in the women subsample) with respect to the positive impact of job satisfaction ($r = 0.14$ in the whole sample and $r = 0.19$ in the women subsample) (supporting hypotheses H5:H9). As shown by the women subsample estimation, results seem to be mainly driven by female workers. In general, socio-demographic characteristics mostly influence quality of life through their effects on stress and job satisfaction. Education, however, shows a direct beneficial effect: individuals with a university degree report a better quality of life. On average, having children younger than 18 years old has a positive effect on perceived stress ($r = 0.10$; 0.11 in the whole sample and 0.13 in the women subsample). For women the presence of children in pre-scholar age (0–6) also significantly reduces reported job satisfaction ($r = -0.11$).

DISCUSSION

The aim of this study was to explore, within a Job Demands-Resources framework (Bakker and Demerouti, 2007), whether and to what extent job demands (workload and social isolation), organizational job resources (perceived organizational support) and individual job resources (self-efficacy, vision about the future, and commitment to organizational change) have affected workers' quality of life during the pandemic, taking into account the potential mediating role of job satisfaction and perceived stress. It also enhances our understanding of the effects of job resources and job demands on the individuals' wellbeing that worked from home during the pandemic. First of all, the results provide evidence on how logistical and organizational change has passed on the perceived quality of life, in terms of satisfaction with one's performative capacity and ability to resist and manage stress, precisely because the pandemic state of exception has redefined the overall workload, in the space-time overlap of domestic and professional tasks. As expected, job resources and demands are largely associated with stress and job satisfaction (supporting hypotheses H2-H4), and these in turn, mediate the effect of job demands and resource on quality of life (supporting hypotheses H8-H9). Overall, our findings suggest the importance that promoting job satisfaction and preventing work stress may have in fostering wellbeing and promoting quality of life, especially during a pandemic. The level of work stress, and its consequences, can be reduced and prevented by identifying its main sources, with a positive effect on both individual and organizational wellbeing. Managers and job analysts should identify which situations are most likely to trigger stress, identify the main sources of stress, during pandemic and in remote work, and plan ad hoc actions. Job satisfaction is an important positive dimension of wellbeing at work (Rothmann, 2008). Understanding the predictors of job satisfaction contribute to the improvement of wellbeing in times of pandemics. To improve job satisfaction, HRM practices and policies should be linked to job design. Job design is the analysis, and variation of the content, structure, and environment within which jobs and roles are placed in the social, physical, and organizational context (Morgeson and Humphrey, 2008). So, job design is related to individual, group, and organizational outcomes (Morgeson and Humphrey, 2006) such as job satisfaction. In remote work, and especially in a period of crisis such as the pandemic, job design could be a tool to be implemented with a view to preventing and safeguarding wellbeing. Furthermore, to improve job satisfaction it is necessary to take into account the work of Truxillo et al. (2012) who, by examining the possible joint effects of age and job characteristics, offer guidelines to improve job satisfaction. Our findings also suggest taking into account gender and the presence of minor children. Starting from their literature survey, we propose to act on the following dimensions to increase job satisfaction in working from home: autonomy, task variety and significance, skill variety and specialization, interdependence, social support and feedback. Above all, there must be opportunities to give and receive accurate feedback and support from the organization. The actions and interventions described above can also act on the job demands considered in the study, workload, and social isolation, which most likely were increased during the lockdown, which negatively impacted the quality of life (see hypotheses H1, H6 and H7). For these reasons, as also reported by Bulińska-Stangrecka and Bagieńska

(2021), in pandemic times, it could also be useful to create spaces for interaction. The relevance of perceived organizational support, as a job resource, appears to be decisive for discussing the relationship between organization and employees, in the specific case of pandemic management. During the COVID-19 pandemic, many organizations have implemented full-time remote work for their employees in response to the health crisis. Consequently, more extensive remote work support was needed in organizations (e.g., information technology support, timely information, relevant work materials) (Chong et al., 2020; Fernandez and Shaw, 2020) not only to accept such a radical change in working practices but also to cope with working conditions that are not always easy (e.g., overlapping work – family tasks; difficult workload management) (Mäkiniemi et al., 2021). In addition, our findings suggest that individual job-resources (vision about the future, self-efficacy, and commitment to change) have a positive direct (see hypothesis H5) and indirect effect (see hypothesis H3 and H4) on the quality of life. Specifically, self-efficacy and commitment to change have significant indirect effects on quality of life as they are negatively associated with perceived stress (see hypotheses H7b and H7d). Furthermore self-efficacy positively influences job satisfaction (see hypothesis H4b). It can therefore be said that confidence in one's abilities is not only positively associated with satisfaction (Judge and Larsen, 2001), but more generally leads people to minimize stress (Grau et al., 2001) (see hypothesis H3b). Given our findings, it would appear that employees who are confident in their ability to cope with change are not only better equipped to contribute to the change process, and to manage the stress of change (Cunningham, 2002), but also more satisfied (Judge et al., 1998) (see hypothesis H3d) and this in turn positively affects their evaluation of quality of life (see hypotheses H5c and H7d). Both commitment to change, and vision about the future, also have a significant total effect on the quality of life (see hypotheses H5b, H5c, H7c, H7d, H9c and H9d). As for the commitment to change, it is likely that the positive influence on the perception of quality of life is related to the fact that change is perceived as a process necessary to manage the reorganization of one's work and lifestyle in general, because of restrictions due to the pandemic. As well as temporal perspective, namely the capacity to project oneself towards the future even in conditions of strong "*presentification*" imposed by the general crisis, is crucial for interpreting the impact of the pandemic upheaval on the work and personal front, and therefore on the perceived quality of life. However, the extreme uncertainty with which the exit from the state of exception was treated in the public management of the pandemic, sometimes with time horizons of a few weeks between one wave and the next, marked by a series of government decrees, has generated a state of perennial uncertainty that has greatly compromised the ability of individuals to plan and project forward, generally triggering the phenomenon of "pandemic fatigue" illustrated by the literature (World Health Organization (WHO), 2020; Patel et al., 2020; Saladino et al., 2020). In fact, once the perception of the state of emergency as temporary and well defined in its contours has ceased, also the request to be able to equally temporary adapt themselves in terms of additional efforts on a personal and work level has missed its point and meaning. So, when the condition of instability has become more and more undefined with respect to the future, it may have given way to anomic drifts and therefore also to a greater perception of stress in relation to one's own performativity. Therefore, the results of our study confirm that the dynamics of dyscrasia in the comparison between the instantaneous state of emergency and the medium-term goal of a recovery of stability have been amplified by a framework of fragmented, uncertain and variable information during the different phases of pandemic management, with respect to which individual resources of greater or lesser commitment to change may have made a difference. Finally, the existing literature has highlighted the asymmetrical impact of the pandemic emergency on men and women also in the Italian labor market (see e.g., Del Boca et al., 2020, 2021). Our analysis highlights a slightly larger effect for women, with respect to the whole sample, of workload and having young children on perceived stress, and of organizational support, self-efficacy and having children in pre-scholar age on job satisfaction. The gender factor is expressed through a clear process of collision between private care responsibilities and professional functions that has invested most women, drawing on the contents of their "*moral*" careers marked by a priority presence on the domestic front and a complementary one on the working front, thus exasperating them both. In conclusion, although the existing literature has extensively explored the JD-R model and highlighted the effectiveness of personal resources to cope with the efforts required by the job, the psychological and socio-economic consequences generated by the policy response to the pandemic motivate new interest on the topic, especially in the organization-employees relationship. The pandemic has requested organizations to rethink their management logic, pushing them to abandon old managerial models, based on power and control, to embrace a more open and flexible model that focuses not only on innovation and knowledge but also on workers' wellbeing and quality of life.

PRACTICAL IMPLICATIONS

It seems important to emphasize that the results achieved in this study suggest some practical implications for human resource management. In light of what stressed in the discussion, it would be necessary for organizations to begin to tackle the issue of human resource management more incisively, adopting a more inclusive and differentiated approach to support all employees, and considering the employees' different needs to better balance personal and work life. In the conditions of uncertainty caused by COVID-19, it is necessary for organizations to anticipate and detect potential risks and problems due to the radical change in both the way of working and the workplace, guaranteeing workers constant and diversified support that allows them to bring ahead of the objectives and the same levels of productivity, but at the same time protect them from the risk of losing

wellbeing. In line with the study's findings of Manuti et al. (2020) it is crucial, within this scenario of important changes in the relationship between employees and organization, to refocus the centrality of the human resource management function within organizations, redefining policies and practices for people management in order to support employees in facing this very difficult moment of uncertainty, further exacerbated by the fear of the prolongation and consequences of the COVID19 pandemic, on health and on the future. As already highlighted by other studies (see for example Feng and Savani, 2020), our results point to some gender difference in the perception of workload and in the detrimental effect of the presence of minors at home on both work stress and job satisfaction. Thus suggesting that working from home could become a new factor influencing gender gaps in work-related outcomes. Therefore, it is increasingly necessary for organizations to consider the possibility of differentiated effects of remote working on different segments of the workforce. It should be noted that, due to the quarantine and isolation measures imposed to contrast the COVID-19 pandemic, the level of anxiety, stress and psychological problems of employees is increasing, thus calling for the development of strategies to improve the physical and mental health of employees as well as mechanisms of communication and support (Gómez et al., 2020). Physical and mental health is the cornerstone of both job satisfaction and effective employee performance (Chanana, 2020; López-Cabarcos et al., 2020; Su et al., 2021), and affects people's quality of life in general.

LIMITATIONS

The present study has different limitations. In the absence of longitudinal, or even retrospective, data on respondents, we cannot address the issue of individual unobservable heterogeneity that might simultaneously affect the individual propensity to be stressed, unsatisfied with work, and quality of life. Nonetheless, our analysis provides an accurate description of the relationships between JDR controls and quality of life, taking into account the role played by the mediators. In addition, it is foreseeable that other lockdown periods will occur, as on the other hand has happened so far in 2021, therefore it can be expected that working remotely on the one hand will become easier as people get used to the new ways of working. Nonetheless, for some employees, the situation may worsen due to the inability to cope with the new demands of the job. Therefore, a longitudinal study could be useful to better understand perceptual differences of remote working and their impact on quality of life. Because our sample represents only employees working in Italy, this study suffers a lack of generalizability. Future studies may analyse the effect of other job demands and resources, which are specific to different geographic areas and jobs. The present study is based on the JD-R model; future studies may adopt some other framework or may further build on demands and resources mentioned in the present study. The present study is based on self-reported data from employees and hence a future study may endeavor a holistic study by taking perceptions of managers as well.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

All authors developed the research project and collected the data. BB, SD, EC, and CC worked on the literature. BB developed the theoretical background. SB and IS performed methods and data analysis. BB, EC, SB, CC, and SD worked on the conclusions and practical implications. BB, SB, and IS reviewed the manuscript. SA reviewed the references.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpsyg.2021.741585/full#supplementary-material

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BRIEF RESEARCH REPORT
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Care Ethics Management and Redesign Organization in the New Normal

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The pandemic period has placed the organizations in a state of great tension. It has generated a situation of confusion, lack of rules, and production-related criticalities that have called into question the very existence of many productive realities. This article aims to highlight the dimensions of care and ethics put in place by HR managers in COVID-19. The objective that animated the authors have focused on the HRM level of medium and large companies in Italy to highlight the protective actions toward people and the organization in the period COVID 19, highlighting what were the ethical values and actions of care put in place. In this article, we wanted to give voice to managers (N = 45, including 21 women and 24 men, aged between 40 and 55 years old) who had management tasks in their organizations by asking them to tell us how they dealt with the challenges imposed by the emergency. In the research, we start from a way of understanding workplaces understood as a "process of ongoing social relationship" within which the HR function is dedicated to the care of the quality of relationships. HR managers have to manage a complex role of mediating between the interests of people and employers by trying to find good mediations.

Keywords: human resources, new normal, COVID-19 pandemic, care ethic management, qualitative studies

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INTRODUCTION

The pandemic period has placed the organizations in a state of great tension. It has generated a situation of confusion, lack of rules, and production-related criticalities that have called into question the very existence of many productive realities. These difficulties were compounded by sometimes contradictory and unclear government communication. As a recent study (Salem et al., 2021) shows, in times of crisis, government support and clear communication are critical ingredients in dealing with an emergency such as a pandemic. In the Italian context, many managers of large companies reported a lack of clear stance from national and regional authorities. Organizations had to position themselves, especially in the first phase of the pandemic, by deciding on priorities and where to devote more resources and efforts.

The changes introduced by the pandemic have radically changed many of the anchors that qualified the job place. The most crucial difference is undoubtedly related to the worker-workplace relationship. The pandemic has forced everyone to work at home, and this

trend will continue even after the emergency is over. The pandemic has forced everyone to work at home, and this trend will continue even after the crisis has ended. This change requires a radical rethinking of the relationship with the workplace since a fundamental link between workers and workplaces has been broken, calling into question people's place attachments to their workplaces. In the literature, the construct of place attachment is related to the possibility of implementing prosocial behavior and pro-environmental behavior (Ramkissoon, 2020a,b). This forced management to rethink what kind of support they could put in place to ensure that their organization continued to function as effectively as possible.

Companies, therefore, have introduced new ways of working, increasing the use of artificial intelligence (Vergine et al., 2019), rethinking a new reorganization of workspaces (Crowley et al., 2020) and increasingly using remote working (Green et al., 2020; Sadovyy et al., 2021).

This article highlights how managers gave meaning and embellished "care" during the spread of the COVID-19 pandemic. Since work is understood as a process of ongoing social relationships, the study attempts to contribute to the development of research on the "ethics of care" and caring relationship at work, which is still at the beginning (Islam, 2013; Fassauer, 2019). HR managers are particularly suitable for investigating care in work organizations, mediating between the firm's interests and people's wellbeing. Many research studies have testified to recurring difficulties reconciling these two stakes (Azambuja and Islam, 2019). Polarized situations are often created where conflicts arise, and managers are involved in contradictory requests and dilemmas, difficult to reconcile. Among the other roles, HR managers are the ones who are more related to the difficulty of balancing "care" and "control" in the workplace. Several authors have investigated what HR roles are more associated with care (see, for instance, Ulrich, 1996). The emotional labor related to caring (O'Brien and Linehan, 2014), to date, there is still a lack of research about the management's subjective view of care and the perceived dilemmas and challenges implied in their caring efforts in different contexts and situations. The COVID-19 spread has highlighted the need for people care in many contexts and has pushed managers even further toward this direction by raising new awareness about this topic. Our conviction is that the ways managers handled the emergency might have consequences in the medium and long term.

In this article, we wanted to investigate how HR managers dealt with the challenges imposed by the COVID-19 emergency and how they related such actions to the concept of "care." This investigation could help highlight challenges, contradictions, opportunities, and threats for the future (Vergine et al., 2019).

In the study, researchers interviewed 45 HRM asking questions about how work changed during the pandemic. The researchers also investigated how workers were supported during the emergency. In their narratives, managers made explicit the "implicit theories" that guided them to caring actions in times of crisis.

Managers' narratives have been treated through an interpretive and hermeneutic approach where accounts rely on subtlety and sometimes taken-for-granted ideas about the nature of workplace relationships and responsibilities with others (Scaratti et al., 2014; Filstad et al., 2019; Cunliffe and Ivaldi, 2021). We, therefore, collected multiple interpretations and values around "caring" issues that helped compose a multifaceted and nuanced picture of HRM efforts in the pandemic.

One critical theme emerged. It is related to different objects of "caring:" work, people, and organization. These three objects seemed closely associated with how HMR perceived their role in their organization and prioritized their efforts during the pandemic. Within each of the three objects, managers, therefore, highlighted further challenges due to several perceived contradictions, which recall the well-known HR dilemma between "caring" vs. "control;" business vs. people "survival." We hypothesize that such contradictions and the ways managers face them might significantly impact the HR role in the future. The report, therefore, ends up with some reflections and indications for further investigation in the field.

THE HRM "ETHICS OF CARE"

In the present report, we ground our reflections in the ethics of care approach (Gilligan, 1982; Fassauer, 2019; Tomkins and Bristow, 2021). This highlights as a framework for guiding and evaluating action and interaction, especially between those who wield power (e.g., managers) and those in need or trouble. A care ethical path to management practices focuses on how an action or intervention will affect particular people in particular circumstances ahead of the abstract criterion of whether it is right or wrong or the instrumental criterion of whether "it works." Caring is about considering what "matters," rather than what "works" in a given situation.

This approach focuses on what Gherardi and Rodeschini (2016) calls the "doing" of care, a local focus on the social environment in which situated actions take place, rather than a universal and normative approach based on abstract claims. Therefore, the "ethics of care" is embedded (Cunliffe and Ivaldi, 2021): behaviors that are embedded in managers' work practices and that express how ethical values are acted out in everyday choices.

As a final aspect, the ethics of care approach does not assume managers to be agents who autonomously and rationally decide their course of actions. Still, it considers management as a relational activity, organized around the possibility of being responsive to others' voices and being influenced by the diversity of desires and interests at play (Gilligan, 1995). In this sense, management "caring" might be open to tensions, contradictions, and dilemmas that must be reflexively considered and handled.

The ethics of care perspective helped us investigate how managers addressed the COVID-19 crisis and the implicit assumptions that moved them. The supportive actions that were put in place in the pandemic expressed managers' ethical values and orientations and how these helped them handle emerging contradictions. From these assumptions, managers organized their agenda, everyday activities, and how they accounted for them.

SAMPLE AND METHODOLOGY

The researchers interviewed 45 managers, including 21 women and 24 men. The managers interviewed are all university graduates, aged between 40 and 55 years old. The sectors they belonged to were manufacturing, IT, and services. Public companies were not included in the sample. The following diagram details the type of organizations involved in our Italian context (**Table 1**):

The respondents were given a narrative interview outline that primarily touched on the following points:

- Effects of COVID on HR management policies.
- Proposed projects to support people.
- Management priorities over the next 12 months.
- Reconfiguration of how we work with other functions.

The interviews were recorded and disgorged, and we obtained a 380-page corpus, that is. The interview analysis methodology was guided by content analysis (Braun and Clarke, 2006). The researchers independently coded the data corpus. After this step, the study team activated a process of calibrating the codes associated with each. The identified codes were then aggregated into clusters of themes that are discussed in this article.

RESULTS

The results were organized by identifying some core themes (as represented in **Figure 1**); all the references to the concept of "caring" were grouped into three different categories, representing three different levels/objects of care: people, work, and organization.

We will now describe the results in detail.

CARING ABOUT PEOPLE

In this first category are the narratives of managers who, in the pandemic period and in the reorganization that follows, were focused on safeguarding the possibility that people could work in an acceptable state of well-being (Raya and Panneerselvam, 2013). The issues governing their managerial activity centered on helping people contain the time they worked remotely, modulating the commitment over time, and providing support to have a sustainable life-work balance (Koinig and Diehl, 2021). In these narratives, two main challenges emerged.

The first was linked to the encroachment of work into private life, and the second was linked to the balance that people had to build again in a work mode played less and less in presence.

First Challenge: The Perception of Work Time Between Comfort and Encroachment

The reconfiguration of workers' time led to a strong sense of ambivalence in managers' accounts. On the one hand, there was the perception of a great advantage of remote working because it favored the management of work in workspaces that were considered comfortable, close to one's home, in an environment that protected the worker from the fatigue of commuting. From home, there were all the comforts needed to make the worker feel comfortable. In this way, managers could devote a lot of attention to sharing with their collaborators, thus strengthening their relationship:

> *"The great thing about remote working is that it doesn't force you to clock out, and it increases the employee-manager relationship. One of the phenomena is that this way of working is increasing the quality of performance. Now people don't have to come to the office but only to share what they need to share with their managers."*

HRMS also reported another aspect of remote-working. In their accounts, workers were often identified using adjectives that denoted the fatigue in their lives' immanence of work. People told of "encroachments" of the work that had slowly taken over all the private space of the worker. Every area of life was conquered by online meetings and by cell phones, portable PCs that made managers and employees constantly available.

> *"Management must put in place strategies to protect employees' spaces from containing the phenomena of stress and depersonalization related to the perception of "occupation of one's home."*

Second Challenge: Polarization Between Well-Being and Worker Burnout

HRM described the corporate population often using the term "polarization" between profiles used to self-determine their work and those who found it very difficult to organize themselves without external guidance (Rodríguez-Cifuentes et al., 2020). The firm's population was described as divided between people who, in essence, were already accustomed to working with significant autonomy and profiles for whom remote operations represented a destabilizing novelty.

> *"In some people, there is a slowdown from a responsiveness standpoint. They probably suffer from not being in a constant physical and relationship context with colleagues, and they are slowed down intellectually. Others have become very concrete and high performers because they work in a more relaxed context for them, and it depletes their capacity."*

Managerial actions were about supporting people by strengthening their ability to manage the reconfigured work relationship. In this category of narratives, the interviewees proposed actions ranging from coaching to rethink the relationship between oneself and one's work, training centered on time management, and offering psychological support to support individuals in reviewing their relationship with work. The level of managerial action was the individual, and the possibility of affecting the broader class of the group or organization did not seem to be represented.

TABLE 1 | The type of organizations involved.

	Textile industry	Chemical industry	Industrial equipment	Energy industry	Telecommunication	Metal working	Total
First level managers	5	4	5	6	3	2	
Second level managers	4	3	4	5	2	2	
	9	7	9	11	5	4	45

CARING ABOUT WORK

In this category, there are narratives of managers who assumed that the pandemic changes altered the very nature of work. Here again, two main challenges emerged.

First Challenge: Between Efficiency and Loss of Creativity

The polarity efficiency vs. creativity expresses a considerable challenge that impacted on HRMs' concerns. Interviewees described remote work with adjectives that denoted the greater concentration and precision provided by working without being disturbed by office dynamics. Working at the times and in the most pleasant spaces helped have higher individual performances. However, all HRM reported that remote working made it much more complex and sterile where it was necessary to achieve creative outcomes and generate new products or ideas.

> *"In this hybrid operation, we've lost a few pieces in terms of coordination. If you have one part of the team in the office, you communicate more with that part without worrying about absentees. Fully virtual meetings also work well in terms of efficiency man on in terms of creativity. On the other hand, if meetings are done in a hybrid way, they don't work well, and they don't work that well."*

FIRST CHALLENGE: BETWEEN INCREASED COMMITMENT AND POSSIBLE RETENTION OVER TIME

HRM in the interviews reported that they had seen an increased workers' engagement with working remotely. Each seemed to be committed in a real battle to cope with the demands of the business, the household tasks that were "closer" remotely. Such commitment appeared self-imposed to show off to bosses who were not as close as before. In the explosion phase of the pandemic, this attitude of strong engagement was also functional in putting more resources into play to help the work and workers' productivity stay "afloat." However, managers' questions started to be: "how long can this phase of increased engagement last?" In a long time, productivity could be lowered and work depowered by such a long-lasting resource-consuming effort.

> *"The emergency has led to the company not taking charge of work-at-home situations, but that can't last. You have to regulate even from the social point of view to how I can work from home. There are personal situations at home that are very complex to live with. The extra performance and reactive to a new working condition."*

As can be noted, HR managers in this category perceived themselves as "guarantors of the quality of work itself." thus trying to re-create the conditions for the work to get done. The unit of analysis of their action was the work, like a time/space system resulting from the joint effort of several people and needing to be coordinated in a new way for safeguarding its productivity and sustainability.

CARING OF ORGANIZATIONS

In this third category, the caring efforts concerned the organization as a "complex social subject." The reconfigured and fragmented work, the acceleration of new technologies, and the latest psychological contract between people and the firm called the survival of organizations into question. The most pressing issues on this level were the possible end of the trust between person and organization and the extreme stress on corporate identity/culture.

Two main challenges were here posited:

First Challenge: Between Autonomy and Possible Loss of Corporate Identity

This theme referred to the possible loss of moments of exchange between employees that are the foundation of any organizational culture/commitment. Informal interactions between people, the lack of coffee machine work, preambles at meetings, and follow-up comments were described as the forge of the "cultural backbone" of the organization. The pandemic period and the following phase confirmed that organizations would continue to provide a good deal of remote white-collar work. The interviews highlighted this trend as a possible source of risks related to the possibility of transmitting and reinforcing organizational cultures.

> *"Companies there are exogenous networks from the organizational structure. Connections and exchanges are created that are the organizational backbone. Remote working will lose that dimension, which comes from the coffee machine and from lunches together."*

Second Challenge: Between Trust and "Panoptic" Control

Finally, the theme of control emerged strongly; the unstructured work put managers at a dangerous crossroads. On the one hand, the new reconfigured work, managed by distance, imposed an evident change in personnel management: from control in the presence to delegation and trust. In many cases, this new perspective gave rise to a contrary reactive movement that raised remote surveillance of people (Yaghi et al., 2020). Here then

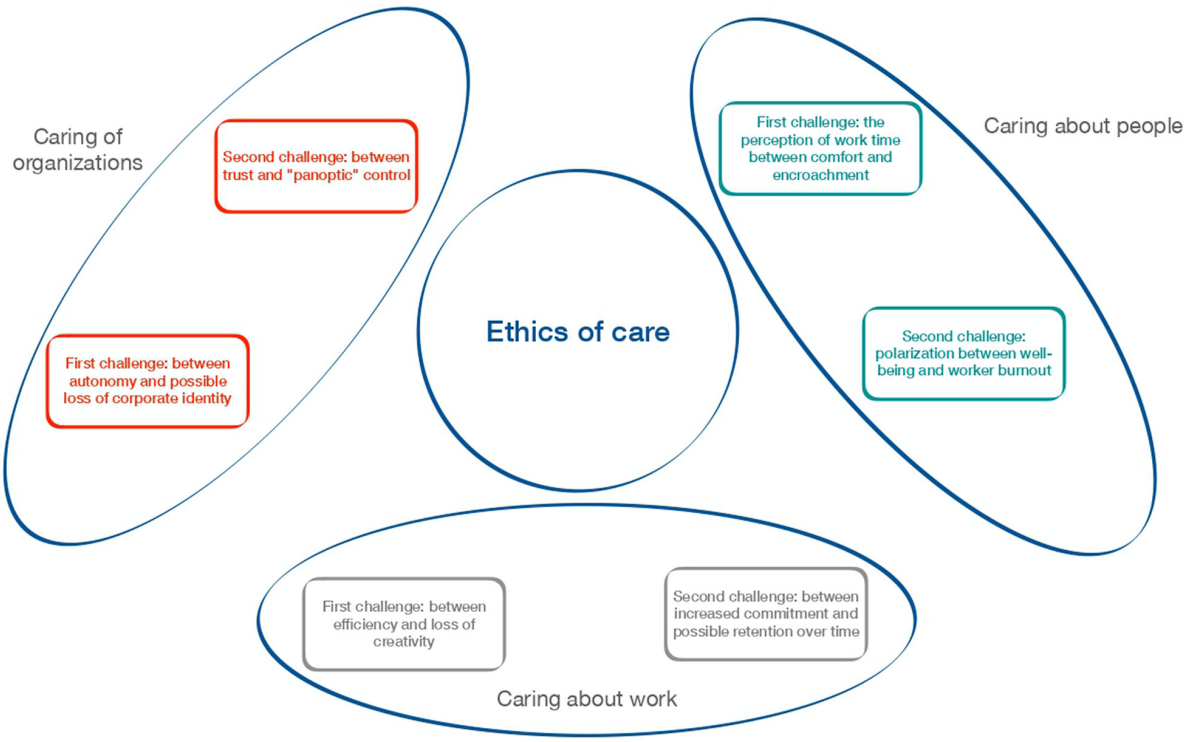

FIGURE 1 | Ethics of care.

appeared new forms of control as the monitoring of bytes downloaded from pc of the collaborators, monitoring their presence on the business networks that made it possible, the telephone used during working hours to control more than to exchange information.

> *"On the company network, when one is connected, you see the little green light, and then as a boss, I am comfortable. I also asked if you could track bytes downloaded during working hours. So, I have presence and productivity under control!"*

In this third category, thus, managers found themselves taking care of the organizational plan, its identity and values, and its survival. The unit of action here was the "organizing" processes, and managers played the roles of controllers, socialization facilitators alternatively, and coaches trusting in their collaborators more than before.

CONCLUSION

The three "clusters" of care highlighted in the interviews showed how human resource managers had difficulty containing the situation's complexity in the pandemic and post-pandemic context.

The challenge of keeping work, people, and organizations together is an ongoing one and is based on three forces which we will list below. The job of managers is expressed primarily in their ability to protect the interconnections among these three levels. The most challenging HR managers interviewed was specifically this ability to "take care" of the interactions between the three levels, work organization and people (Giancaspro et al., 2021). Extreme difficulty in holding these divergent goals together emerged in the interviews. We explain this difficulty by hypothesizing three perhaps that generate this difficulty.

First Force

Pressure in turbulent contexts. The perception we have had is that the pressure exerted on managers pushes them to some concrete, extremely simplifying style of thinking that does not allow them to realize the complexity of organizational life (Yaghi et al., 2020). The force given by corporate life leads to focus attention on just one prevalent theme of the three identified. This tension can make it difficult for managers to safeguard the needs of workers, starting with the possibility of creating a balanced environment where the well-being of workers can be protected. The concept of the healthy leader in our study sample was hardly made present in everyday managerial action. Therefore, some authors' calls to interpret the healthy manager's role (Raya and Panneerselvam, 2013; Koinig and Diehl, 2021) seem to remain as good wishes that have not been fully realized in organizational practice.

Second Force

The role of professional sub-cultures. The sectorial culture that develops in organizations does not help build a multi-perspective view that considers the complexity of reality. Professional affiliations lead people to focus their gaze on the issue that

identifies their professionalism. In this study, we interviewed all HR managers. However, we know that within the HR world, there are professional sub-cultures to which people belong that influence the way they work. To identify the significant professional sub-cultures in the HR world, we can refer to the well-known Ulrich (1996) scheme that identifies four principal roles: Employ Champion, Administrator, Changing manager, HRBP. We noticed that HR people are strongly conditioned by the professional culture linked to their role in the interviews. Those in planning and budgeting are more focused on the issue of organizational survival and labor costs. HRBPs who are much closer to line managers highlighted the importance of quality of work issues. HRs focused on the People Advocate role expressed more attention to people retention and resilience. Each of these three professional roles, in other words, interpreted the topic of ethics from their professional perspective.

Third Force

The role of organizational culture. Organizational cultures impose priorities and generate sensitivities in managers. Thus, some cultures are more focused on costs and leave people's well-being in the background.

Technocratic cultures are susceptible to innovation and quality of work. Organizations that are mainly focused on the well-being of their employees tend, instead, to devote resources and time to increase the quality of life within them (Di Fabio et al., 2016).

The intertwining of these dimensions generates different forms of embedded ethics in organizational practices (Mihalache and Volberda, 2021). At a paradigm shift, the ethics of care for managers is of primary interest to put the worker at center stage, safeguarding competitiveness and the survival of the dignity of work and organizational sustainability. It is necessary to support the development of multi-perspective managerial thinking that can deal with the complexity of reality rather than the simplifying revision that emphasizes the poles of attention in the management of organizational life. However, it is necessary to be aware of the intertwined dimensions, generating different configurations of ethics practices in organizations to do this.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

SR, SP, and LG contributed to the conception and design of the study and organized the database. SP wrote the first draft of the manuscript. RZ and SD wrote sections of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

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BRIEF RESEARCH REPORT
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Organizational and Job Resources on Employees' Job Insecurity During the First Wave of COVID-19: The Mediating Effect of Work Engagement

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The world of work has been severely affected by the COVID-19 pandemic due to the high instability observed in the labor market, bringing several new challenges for leaders and employees. The present study aims to analyze the role of organizational and job resources in predicting employees' job insecurity during the first wave of the COVID-19 outbreak, through the mediating role of work engagement. A sample of 207 Portuguese employees participated (Mean age = 45 years old, SD = 9.92), of which 64.7% were women. Data was collected using an online survey, including self-report measures of organizational resources (perceived organizational support), job resources (performance feedback and job autonomy), job insecurity, and work engagement. Data showed that job and organizational resources negatively influenced job insecurity. Moreover, work engagement was a significant mediator of the relation between performance feedback (facet of job resources) and job insecurity. Findings suggest that investing in job and organizational resources can act as protective factors to minimize feelings of job insecurity. Likewise, leaders should foster work engagement among employees to help them balance the relation between these resources and job insecurity, especially in crisis situations. Overall, this study takes a new, underexplored perspective, theoretically bridging organizational and job resources with job insecurity and work engagement during a time of great uncertainty, such as the COVID-19 pandemic.

Keywords: COVID-19, organizational support, performance feedback, job autonomy, job insecurity, work engagement, well-being in the workplace

INTRODUCTION

The COVID-19 outbreak has had significant impacts on society and businesses at a global level. Particularly for the organizational sectors, the pandemic has caused disruptions in the activities and operations of almost every business and/or organization (McKibbin and Fernando, 2020). According to Ramkissoon (2020) COVID-19 pandemic will allow researchers to test behavior

change through adoption of pro-social and pro-environmental behaviors and better understand both pandemic moment and pos pandemic crucial changes from both, individuals and society.

This worldwide crisis represents a financial threat to organizations, raising feelings of job insecurity among employees and affecting their work and psychological well-being (Hamouche, 2020). Thus, several changes have been occurring in the daily work lives of employees that not only worsen the demands of work, but also highlight the importance of providing and/or acquiring organizational and job resources that can contribute to their perception of job insecurity. The main goal of the present study is to analyze the role of organizational and job resources in predicting job insecurity during the first wave of COVID-19 pandemic, through the mediating effect of work engagement.

LITERATURE REVIEW

Job Insecurity

Economic changes and crises make people more concerned about their jobs (De Witte, 2005). Among the various definitions of job insecurity, we highlight the perception of the inability to maintain the desired work situation (Greenhalgh and Rosenblatt, 1984) and the feeling of threat that employees feel of becoming unemployed (De Witte, 2005). There seems to be a consensus in the literature that job insecurity is subjectively perceived by employees. Such implies that the same event can be interpreted differently by several people. For example, in an organization that is in the process of being laid off, there may be employees who feel more or less threatened by the situation depending on their perception of job insecurity.

Some authors defend that job insecurity is a multidimensional concept. Borg and Elizur (1992), for instance, argue that, on one hand, there is a cognitive dimension of job insecurity associated with the belief that employees are likely to be dismissed in the future (e.g., "I will be fired"), and on the other hand, an affective dimension associated with the emotional burden (e.g., "I am concerned about being fired"). Conversely, Hellgren et al. (1999) defend that job insecurity comprises a quantitative labor insecurity dimension, concerning the continuity of employment (e.g., "will I continue to perform this function in the future") and a qualitative labor insecurity dimension, regarding the continuity of different work aspects (e.g., "will I keep my salary" or "will I continue to work the same hours"), with the latter not directly implying dismissal. Hence, as Vander Elst et al. (2014, 2016) suggest, job insecurity can be defined as the employees' feelings (e.g., of fear or worry) that their job is at risk, associated with the undesired possibility of losing their current job in the future. Shoss (2017) stresses that the increasing attention given to this construct is aligned with the technological, economical, and political changes observed over the past few decades that have left many employees feeling insecure about the future of their jobs.

Job insecurity is a stressor that causes job dissatisfaction (Rosenblatt et al., 1999), burnout (Ismail, 2015), and higher levels of anxiety and heart disease (Burchell, 1994) in employees. Similarly, De Witte (1999) demonstrated that people with greater levels of job insecurity also exhibit lower levels of mental health, equivalent to levels observed in unemployed people, which indicates that feeling insecure in the workplace can be as detrimental as being unemployed. The negative impact of job insecurity (for the individual or household) on mental health during COVID-19 has been highlighted in recent literature, namely in United States young adults (18–26 years; Ganson et al., 2021). Moreover, job insecurity also negatively affects other important variables, such as organizational commitment (Buitendach and De Witte, 2005) and performance (Schreurs et al., 2012).

In a normal context, that is, outside the pandemic situation, the pinpointed ways to mitigate the adverse impact of job insecurity include, but are not limited to, employing Human Resources (HR) practices to help reduce the unpredictability of the future in the workplace. Parker et al. (1997) demonstrated that the use of explicit communication with employees about organizational changes leads to a lower perception of job insecurity. Greenberg and Lind (2000) take a step further by showing that merely communicating is not enough. Employees must also be encouraged to participate in the organizational decisions, so that they can feel a greater control over their future at work, especially in a context of rapid changes and/or crisis, as observed in the outbreak of COVID-19. It is also interesting the fact that employees with permanent contracts are more negatively affected by job insecurity than employees on temporary contracts (De Cuyper and De Witte, 2009). This suggests that employees with greater work stability are those who are most affected by the fear of losing it. In other words, even though their contracts protect them against it, the fear of losing their job is higher when working conditions are more stable.

Nowadays, employees around the world are experiencing growing uncertainty about their future employment due to the pandemic situation. As demonstrated, living under the chronic threat regarding the continuity of their job has adverse consequences. Considering the current reality, it is necessary to explore other mitigating factors of this process besides HR practices, which is the main goal of the study. In the same line of thought, another objective is to analyze potential protective factors for job insecurity, such as organizational resources (e.g., perceived organizational support) and job resources (e.g., job autonomy), as suggested by previous studies (e.g., Jiang et al., 2021), from the theoretical perspective of job demands and resources.

Perceived Organizational Support

The perception of organizational support is a type of organizational resource that might ease the negative effects of job insecurity (POS; Morgan, 2018). POS is conceptualized as the extent to which employees believe that their organization and leaders value their contributions and care about their well-being (Eisenberger et al., 1986; Shore and Wayne, 1993; Lee and Peccei, 2007), thus fulfilling their socio-emotional needs (e.g., self-esteem and emotional support) in the workplace (Rhoades and Eisenberger, 2002; Kim et al., 2016).

Van Woerkom et al. (2016) showed that POS can buffer the negative effects of job demands, which in their study

were the workload and emotional demands facets. Additionally, Rhoades and Eisenberger (2002) found that job security can be considered a facet of POS, in situations where the employers wish to keep an employee in the organization. As Morgan (2018) showed, POS is an optimal choice as a resource due to its well-established relationship with job (in)security and its similarities with other job resources.

Job Resources

The central idea of the Job Demands-Resources (JD-R) model (Demerouti et al., 2001) is that working conditions, which are specific to every occupation and/or labor function, can generally be classified as either job demands or job resources (Bakker and Demerouti, 2007). Hence, the JD-R model can be applied to various occupational settings in order to analyze the consequences of specific work environments on employees' well-being and work outcomes. Job demands can be described as the physical, psychological, social, or organizational aspects of the job that require continuous physical or mental effort that are associated with certain physiological and psychological costs (Demerouti et al., 2001). It can also be defined as the physical, psychological, social, or organizational aspects of the job that can positively contribute to the achievement of work goals, reduction of job demands and its related costs, or stimulation of personal growth and development (Demerouti et al., 2001), such as job autonomy and POS. According to Demerouti et al. (2001), the main pathogenic health indicator within the JD-R model is burnout. In contrast, as a salutogenic health indicator, Schaufeli et al. (2002) introduced the concept of work engagement. The JD-R model comprises two causal – essentially independent – processes, namely the health impairment process and the motivational process. Job resources play a motivational role by stimulating work engagement and positive organizational outcomes, such as performance or organizational commitment (Bakker and Demerouti, 2017; Lesener et al., 2019).

The JD-R model is an uncommonly used theoretical framework to examine job insecurity (Mauno et al., 2007), but nonetheless represents a promising framework to study the effects of job insecurity on individual and organizational outcomes (Schaufeli, 2016). Although the JD-R model has been expanded and can be used to explain a wide variety of organizational phenomena, research has yet to fully attempt to integrate the job insecurity literature in this model (Morgan, 2018). Previous studies have shown that the contextual factors, like job insecurity in the workplace, can be considered as challenges for employees (Lu et al., 2014). In fact, the resources employed as an attempt to deal with the job demands associated with job insecurity can be physical, such as a supplementary income to address the economic vulnerability, or psychological, such as fostering employees' POS to offset their decreased trust in the organization (Morgan, 2018). Based on this perspective, employees with high levels of job insecurity would highly benefit from the resources made available to them.

Work Engagement

Work engagement, based on the Theory of Self-determination (Deci and Ryan, 1985), is a positive and satisfactory state of mind in relation to work, which is characterized by vigor, dedication, and absorption. It implies a sense of accomplishment that also involves a positive cognitive state and persists over time, revealing a motivational and social nature (Schaufeli et al., 2002).

Studies carried out in the organizational context indicate that employees with a higher level of work engagement are highly motivated and achieve better outcomes at work (Bakker et al., 2008). As a result, work engagement can show opposite effects of burnout, as per example, higher job satisfaction, more organizational commitment and organizational citizenship behaviors, and better job performance (Bakker et al., 2008; Nahrgang et al., 2011).

A study developed by Galanti et al. (2021), highlighted some job demands and resources that may affect negative (work stress) and positive (work engagement and job productivity) outcomes of employees' remote work. The observed results showed that work engagement could decrease based on social isolation and family-work conflict. Job demands of remote work can significantly decrease productivity and work engagement. Managers, HR officers, and workers engaged in remote activities should consider family work conflict, social isolation, and distracting work environments as potential obstacles and job autonomy and self-leadership as potential enablers of working from home (WFH) engagement.

THE CURRENT STUDY

The purpose of this study, aligned with the motivational process of the JD-R model, is to examine the influence of job and organizational resources on job insecurity, and the potential mediating effect of work engagement in this relation. For the purpose of the study, POS will be considered as an organizational resource, and performance feedback and job autonomy will be included as facets of job resources. Based on the presented literature review, we hypothesize that:

H1: Job resources negatively affect job insecurity.

H2: Organizational resources negatively affect job insecurity.

H3: Organizational and job resources negatively affect job insecurity, and this relation is mediated by work engagement.

METHODOLOGY

The data collection and analysis for this study were conducted using a transversal and quantitative study design.

Sample

A non-probabilistic method was used to select a convenience sample. A total of 207 Portuguese employees participated, of which 64.7% (n = 134) were women, aged between 20 and 65 years, with an average of 44.68 years (SD = 9.92). Of the total, 35.7% of the respondents had a master's degree (n = 74;

35.7%). The majority of the participants were employed in organizations in the tertiary sector (n = 183; 88.4%). The type of organizations were public institutions (n = 58; 28.0%), private companies (n = 18; 8.7%), national private companies (n = 66; 31.9%), multinational companies with headquarters in Portugal (n = 5; 2.4%), and multinational with headquarters abroad (n = 13; 11.1%).

During the first lockdown in Portugal that started in March 2020, the majority of the participants changed their labor situation to telework (n = 110; 53.1%), was given a layoff (n = 11; 5.3%) or was dismissed (n = 2; 1.0%). Of the remaining participants, 31.4% did not suffer any change in their employment situation (n = 65) and 9.2% (n = 19) started working under other conditions (e.g., on leave for family assistance, working 2 weeks in telework and 2 weeks on-site, or given a partial layoff). Regarding the working schedules during this period, 65.2% (n = 135) of the participants reported no changes.

Instruments

The questionnaire was organized in two main sections. The first, related to sociodemographic and socio-academic characteristics, asked participants for information regarding their gender, age, and education level. The second section integrated the following four self-report measures:

The Job Insecurity Scale (JIS; De Witte, 2005) is an 8-item measure that varies on a five-point Likert scale between 1 – "totally disagree" and 5 – "totally agree." The higher the score, the greater the insecurity felt by employees about their work. Both the original scale and the one implemented in this study presented a Cronbach α greater than 0.8. This measure reflets two dimensions: quantitative labor insecurity, linked to the concern about loss of function or employment; and qualitative labor insecurity, associated with the concern about negative changes in function or employment. In this study, a single factor version was used, based on the psychometric evaluation of the scale across five European countries (Vander Elst et al., 2014). Accordingly, the obtained adjustment values allowed for the use of the one-dimensional structure ($\chi 2/df$ = 10.107; $p < 0.00$; CFI = 0.755, IFI = 0.757; RMSEA = 0.255; SRMR = 0.115).

The Job Resources Questionnaire (Lee et al., 2017) is composed of 14 items measured on a five-point Likert scale, ranging from 1 – "never" to 5 – "always." The original scale presented between acceptable and good internal consistency across all dimensions, namely job autonomy (α = 0.85), performance feedback (α = 0.88), and technology resources (α = 0.67). In this study, the Cronbach α coefficient values showed a greater variation between dimensions: job autonomy (α = 0.91), performance feedback (α = 0.88), and technology resources (α = 0.52). As the observed value for technology resources was below acceptable, this facet of job resources was removed from the following analysis. Considering the remaining two facets (i.e., job autonomy and performance feedback), the overall scale presented a good reliability value (α = 0.91). In this study, the adjustment value for this structure was good ($\chi 2/df$ = 3.190, $p < 0.00$; CFI = 0.908, IFI = 0.909; RMSEA = 0.103; SRMR = 0.064).

The Perceived Organizational Support Scale (Eisenberger et al., 1986) is an 8-item measure scored in a seven-point Likert scale, varying from 1 – "strongly disagree" to 7 – "strongly agree." The Portuguese version (Santos and Gonçalves, 2010) was used in this study. Both the original scale and the Portuguese version presented an internal consistency above 0.78, which was an improvement over the 0.7 validity reported by Nunnally (1978). In this study, the adjustment value of this structure was acceptable ($\chi 2/df$ = 9.349, $p < 0.00$; CFI = 0.808, IFI = 0.809; RMSEA = 0.244; SRMR = 0.144).

The Utrecht Work Engagement Scale (UWES-3; Schaufeli et al., 2019) was adopted in this study, based on face validity, theoretical reasoning, and earlier feedback from respondents. As such, three items were used, one for each dimension of work engagement: vigor ("at my work, I feel bursting with energy"), dedication ("I am enthusiastic about my job"), and absorption ("I am immersed in my work"). Regarding the reliability of the scale, the Cronbach α coefficient for this study was acceptable (α = 0.76).

Procedure

An online questionnaire was developed through the Survey Monkey platform and shared through social media. The questionnaire was active between May and June 2020, with the application of the instrument lasting an average of 15 min.

The study was approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Porto (2020/07-10b). Respondents were informed of the anonymous and confidential nature of their participation and data. Their participation was voluntary and there were no rewards given, monetary or otherwise.

Data Analysis

The data was analyzed using the IBM SPSS program (version 26.0) and JASP (version 0.14). The conducted analysis were (a) descriptive statistics, including computing means, standard deviations, skewness, and kurtosis (when appropriate); (b) *Pearson* correlations; and (c) mediation. The confidence intervals were calculated using the bias corrected bootstrap given that the sampling distribution of the indirect effect was asymmetric (Biesanz et al., 2010).

To reduce the influence of common method bias in our study (Podsakoff et al., 2003) we used two different approaches. The first approach focused on designing instruments that emphasized anonymity and confidentiality of responses and that used different instructions to create psychological separation between sets of variables. The second approach consisted in applying statistical control by performing a principal component analysis with varimax rotation with all variables, which allowed us to examine the variance of the common method. It is recommended that the first factor explain less than 50% to ensure that common method variance does not represent a problem in the study. The Harman test was successfully performed in all studies to ensure the dimensionality of all variables and resistance to the effects of the common method (Podsakoff et al., 2003).

RESULTS

Regarding job resources, after the organizational resource facet POS (M = 4.46; SD = 1.46), job autonomy revealed the highest mean result (M = 3.93; SD = 0.948); whereas job insecurity revealed a mean below the central point of the scale (M = 2.29; SD = 0.784). Results are summarized in **Table 1**.

No significant differences were found regarding the socio-demographic variables. As such, these were not controlled in the model test.

In **Table 2**, using bootstrap confidence intervals, it can be observed a mediation effect in this model: the 95% CI of the indirect effect is [−0.057, 0.014; −0.208, −0.012; −0.024, 0.014].

The total effects estimates confirmed that organizational and job resources were negatively and significantly associated with job insecurity. The indirect effects correspond to the effect that the independent variables (IVs; organizational and job resources) exert on the dependent variable (DV; job insecurity) through the mediator variable (work engagement). Regarding the significance of the indirect effects, results showed that one out of four bootstrap confidence intervals did not contain zero, meaning that, with a 95% confidence, work engagement was a significant mediator of the effects of organizational (i.e., POS) and job resources (i.e., job autonomy and performance feedback) on job insecurity (see **Figure 1**).

These results provide an interesting view into the process by which work engagement could be interpreted as a protective factor, reinforcing the balance between organizational/job resources and job insecurity.

DISCUSSION

The COVID-19 outbreak has caused an unprecedented crisis for all industries worldwide (Jung et al., 2021). Until recently, particularly in Europe, many countries were experiencing a second or third lockdown in the time span of a year, with economies struggling to survive during these difficult times. The COVID-19 health and economic crisis has also brought a rise in people being unable to cope with their existing medical conditions and other issues such as alcohol, uncertain, job insecurity (Ramkissoon, 2020, 2021).

Since 2020, many studies were promptly dedicated to the physical and psychological consequences of the COVID-19 exposure (Converso et al., 2021). Studies show (e.g., Vander Elst et al., 2015; Falco et al., 2021) that organizations should support employees with a view to the right to disconnection and physical and mental recovery. The same pattern can be seen in some organizations that appear to be losing their competitive edge and failing to meet their previous performance levels. At the employees' level, these changes often evoke feelings of job insecurity, even more in a crisis situation (De Cuyper et al., 2020). The purpose of this study was to examine the explanatory contributions of organizational and job resources on job insecurity and the potential mediating role of work engagement in this relation.

Both H1 (i.e., job resources negatively affect job insecurity) and H2 (i.e., organizational resources negatively affect job insecurity) were fully corroborated. Moorman (1991) argues that when the work environment is cordial, employees will remain in the organization for longer periods. It is not surprising that the opposite effect can also be observed when the work environment is not healthy, possibly representing an influencing factor for job insecurity (Abesubomi, 2018). This notion is in line with the results, supporting the first two hypotheses. Besides, these findings are also coherent with the Conservation of Resources Theory (COR; Hobfoll, 2001). The COR theory focuses on protecting and obtaining resources, as resources are important in that they have value in themselves, but also because they serve to generate and obtain other resources. In fact, this theory assumes that when resources are lost, there is a possibility of further losses (i.e., loss spirals), with resources being weakened to meet future needs, and, therefore, negative consequences may appear. However, the opposite effect can also happen (i.e., gains spirals), as people can become motivated to invest in resources and recover and/or acquire new resources (Hobfoll, 2001). In relation to the results obtained in this study, one may assume that the presence of resources, that is, organizational and job resources, may reinforce employees' positive working perceptions and have them be less influenced by certain stressors, such as job insecurity. It is important to highlight that the values observed in the tested model revealed a balance between theoretical purposes and practical observed values. The reference values presented in the literature refer to models with excellent fit, which does not mean that slightly lower values should be excluded (Marsh et al., 2004), and the combination of values should be considered and not the exclusion by indicators below excellent. In addition to statistical criteria, the decision must consider theory and practice (Howieson, 2008).

From a theoretical perspective, work engagement has contributed to the field of positive psychology by increasing knowledge on the health-promoting potential that job and personal resources hold for employees and how it can increase their optimal functioning (Quiñones et al., 2013). Aligned with this notion, H3 was partially confirmed, as work engagement was a significant mediator of the relation between one out of three studied resources (i.e., performance feedback) and job insecurity. Furthermore, in line with this results, recent literature (e.g., Schreurs et al., 2012; Falco et al., 2021) showed that safety systems, communication and participation in decision-making buffered the relationship between the perceived risk of being infected at work and emotional exhaustion; at same time, those characteristics of the job that can help workers to reduce or manage the risk of infection should be strengthened.

This study contributes to the literature in two relevant ways. First, as we are still attempting to deal with the COVID-19 pandemic crisis, it highlights the importance of minimizing the insecurities that people are experiencing, with job insecurity being one of the possible, most likely affected dimensions. The results revealed that organizational (i.e., POS) and job (i.e., performance feedback and job autonomy) resources can be important protective factors for the negative consequences of

TABLE 1 | Means, standard deviations, and bivariate correlations of the variables in study.

	Mean	SD	Skewness	Kurtosis	1.	2.	3.	4.	5.
(1) POS	4.46	1.463	−0.413	−0.247	–				
(2) Resources: autonomy	3.93	0.948	−1.037	0.687	0.504**	–			
(3) Resources: feedback	3.65	0.754	−0.627	0.734	0.573**	0.661**	–		
(4) Engagement	5.03	1.132	−0.520	0.581	0.354**	0.429**	0.547**	–	
(5) Job insecurity	2.29	0.784	0.784	−0.254	−0.402**	−0.225**	−0.243**	−0.263**	–

***< 0.001.*

TABLE 2 | Direct, indirect, and total effects of variables in study.

	Estimate	Std. error	*z*-value	*p*	95% Confidence Interval	
					Lower	Upper
Direct effects						
Resources-autonomy→ insecurity	−3.180	0.092	−0.003	0.997	−0.181	0.180
Resources-feedback→ insecurity	0.092	0.130	0.706	0.480	−0.163	0.347
Resources-org. support→ insecurity	−0.259	0.055	−4.699	<0.001	−0.366	−0.151
Indirect effects						
Resources-autonomy→ engagement → insecurity	−0.022	0.018	−1.208	0.227	−0.057	0.014
Resources-feedback→ engagement → insecurity	−0.110	0.050	−2.203	0.028	–	–
Resources-org. support→ engagement → insecurity	−0.005	0.010	−0.516	0.606	−0.024	0.014
Total effects						
Resources-autonomy→ insecurity	−0.022	0.093	−0.239	0.811	−0.204	0.160
Resources-feedback→ insecurity	−0.018	0.124	−0.149	0.881	−0.260	0.224
Resources-org. support→ insecurity	−0.264	0.056	−0.472	<0.001	−0.373	−0.154

Delta method standard errors, bias-corrected percentile bootstrap confidence intervals, ML estimator.

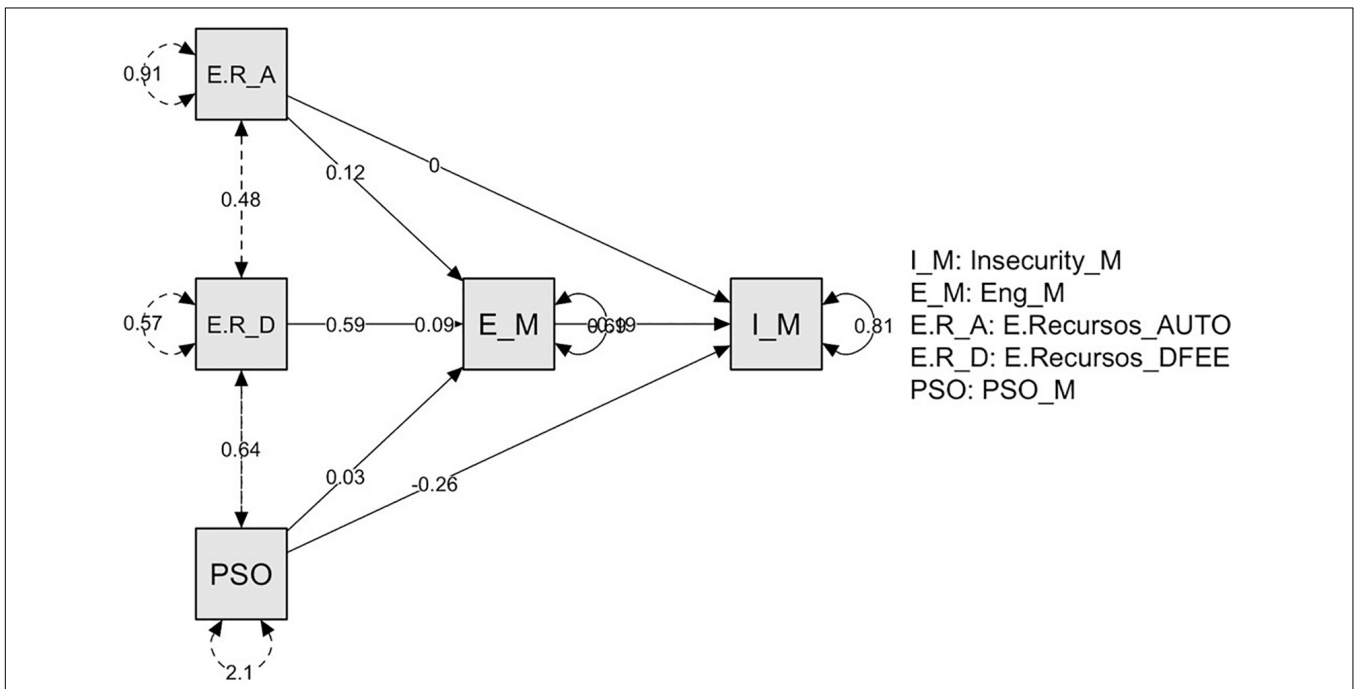

FIGURE 1 | Mediation model of the variables under study. E.R_A: resources autonomy; E.R.D: resources feedback; PSO: perceived organizational support; E_M: job engagement; and I_M: job insecurity. Solid lines indicate statistically significant relations, and dashed lines indicate statistically non-significant relations (0.05).

job insecurity. Moreover, these resources have a particularity, reinforced by this study's findings. First, POS and performance feedback always have positive effects on employees, and, as such, they should be highly considered by HR management policies; and second, the job autonomy resource should be carefully managed. It is important that every employee is able to feel efficient and intrinsically motivated, but high levels of autonomy can have the opposite effect, and, therefore, employees might feel abandoned. It is also central to take in consideration that employees who feel that their jobs are at risk may choose to ignore critical safety policies (Probst and Brubaker, 2001). This is particularly relevant given the highly contagious nature of COVID-19 and its associated health risks, and that recent studies have stressed that Portuguese HR professionals have focused on interventions targeting employees' health and safety, including reinforcing the protection measures in the workplace (Gonçalves et al., 2020; Brandão et al., 2021).

A number of potential limitations in this study should be considered. First, the cross-sectional and non-experimental design does not allow causal inferences between the variables under study. Despite this, the analyses revealed important associations among these variables that should be considered in future studies. Second, some questionnaires, despite the good psychometric characteristics, aren't adopted to Portuguese population and it could affect the observed results. Third, the characteristics of the sample do not allow for generalizing the inferences. Nevertheless, the present study presents important theoretical and practical contributions, as previously highlighted. Additional research, however, is needed to further explore the associations between organizational and job resources, work engagement, and job insecurity. In particular, future studies should consider including other resources (e.g., personal resources as part of the basic psychological needs), as well health outcomes (e.g., performance and absenteeism). Finally, longitudinal research is crucial to understand how organizational and job resources affect the job insecurity over time, particularly 1 year after living and attempting to adapt to the COVID-19 pandemic.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Porto (2020/07-10b). The ethics committee waived the requirement of written informed consent for participation.

AUTHOR CONTRIBUTIONS

JV: conceptualization of the study and performed the statistical analysis. RM: wrote the first draft of the manuscript. SG: conceptualization of the study, organized the database, and wrote sections of the manuscript. IS, AV, RM, and CB: conceptualization of the study and wrote sections of the manuscript. All authors read and approved the final version of the manuscript.

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BRIEF RESEARCH REPORT
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Working as a Healthcare Professional and Wellbeing During the COVID-19 Pandemic: Work Recovery Experiences and Need for Recovery as Mediators

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Considering the high impact strain that the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has put on medical personnel worldwide, identifying means to alleviate stress on healthcare professionals and to boost their subjective and psychological wellbeing is more relevant than ever. This study investigates the extent to which the relationships between the status of working in healthcare and the subjective and psychological wellbeing are serially mediated by work recovery experiences and the need for recovery. Data were collected from 217 Romanian employees (44 health professionals and 173 employees from other domains) using a cross-sectional design with self-report instruments, during the first stage of the nationwide lockdown. The results of the serial mediation analyses revealed that working in the medical field is indirectly related to subjective and psychological wellbeing through the following: (i) mastery experiences and (ii) mastery experiences as an antecedent of the need for recovery. As such, our findings indicate that (i) working in the medical field is, in fact, linked to healthcare professionals' subjective and psychological wellbeing, and they provide some input on (ii) how recovery experiences and the need for recovery intervene in these relationships. Based on these findings, theoretical, methodological, and practical implications were suggested, and future research directions were proposed to maximize healthcare professionals' wellbeing.

Keywords: healthcare professionals, recovery from work experiences, need for recovery, psychological wellbeing, serial mediation, emotional wellbeing

INTRODUCTION

Literature shows that, in normal circumstances, healthcare professionals report longer working hours, less time spent in leisure activities, and shorter amounts of sleep, as compared to an average adult in other working environments (Cranley et al., 2016). What has been happening in hospitals all around the world for the past 2 years, due to the coronavirus disease 2019 (COVID-19)

pandemic, has been far from "normal circumstances." Medical staff is generally used to working under high-intensity conditions, and, therefore, they may have a higher psychological capacity to deal with the job strains associated with an epidemic (Teng et al., 2020) as compared to other professionals. However, the COVID-19 pandemic has increased the pressure on medical staff enough that such individual psychological resources have been stretched to the extreme. Stress levels, fatigue, burnout, and mental health problems among medical personnel have been shown to increase during the pandemic (Sagherian et al., 2020; Sasangohar et al., 2020), especially severe in its initial stages (Lai et al., 2020; Xu et al., 2020). This was true both for frontline medical staff (those working directly with patients with COVID-19) and for those working on their regular wards for uninfected patients (Wu et al., 2020). The extra strain of fear for loved ones, or being away from them, has added to the emotional pressures of their daily lives. In this context, there was less time for basic rest, i.e., let alone for the opportunity to engage in other activities they used to find comfort in, before the pandemic.

In their effort-recuperation model, Meijman and Mulder (1998) suggested a dynamic relationship between work-related effort and the potential positive or negative emotional, cognitive, and behavioral effects it has on an individual's health and wellbeing. These symptoms of increased effort can be reversed or recuperated either during the same workday or the following night through a mechanism of replenishing one's resources. This process is called work recovery, and it implies changes in physiological and psychological strain levels, as a result of leisure activities and non-work experiences that reduce strain and replenish resources (Sonnentag and Fritz, 2018). The key then to maintaining employee wellbeing is to ensure that resources are being promptly replenished at the end of a workday.

There has been consistent research interest in recovery mechanisms and ways to unwind from work demands in the last decade (Sonnentag and Fritz, 2018). However, recent studies emphasize the need to look into distinct work recovery-related constructs, in general, and work recovery experiences, in particular, within the specific context of healthcare professionals (Rus et al., 2020; Sonnentag et al., 2022). In their study, Rus et al. (2020) integrated the existing literature on work recovery in healthcare settings and offered an argument on how involvement in work recovery experiences could play an important role in maintaining healthcare professionals' wellbeing and buffering the negative effects of increased job strain and continued effort.

Work recovery experiences are not equivalent to a specific activity *per se* but rather to the psychological experience of that activity, which leaves the individual feeling rejuvenated and energetic (Sonnentag and Fritz, 2007). Among the many potential such recovery experiences, four such experiences play an important role, namely, psychological detachment, relaxation, mastery experiences, and control (Sonnentag and Fritz, 2007). Psychological detachment implies refraining from work-related activities, thoughts, and emotions, once the workday is done (Sonnentag and Fritz, 2018). Relaxation involves a state of low mental and physical exertion (Sonnentag and Fritz, 2018). Mastery refers to involvement in off-job activities that provide challenging experiences and learning opportunities in other fields than one's work domain (Sonnentag and Geurts, 2009). Control describes the degree to which a person can decide which activity to pursue during leisure time, as well as when and how to pursue this activity (Sonnentag and Fritz, 2007).

According to the broaden-and-build theory (Fredrickson, 1998, 2001), positive emotions play an important role in increasing the frequency with which individuals take part in recovery experiences after work. Positive emotions can temporarily broaden an individual's perspective; they create affordances for accessing a larger pool of ideas and activities, which in turn generate and build upon the individual's emotional and cognitive resources. This process creates an upward positive spiral, which would suggest that positive emotions are maintained through these recovery experiences and would continue to afford new opportunities for recovery of personal resources (Fredrickson and Joiner, 2018). Consequently, employees would more likely take on a proactive attitude toward uncovering ways to replenish their resources both at work and outside of it. However, in the absence of such a positive spiral, when the work effort increases to an extent where individuals do not take the time or have the energy to look for and take part in recovery experiences, we expect a constant level of perceived strain, lack of energy, and feelings of overload. The extent to which work generates a need to recuperate has been conceptualized as the *need for recovery* (van Veldhoven and Broersen, 2003). Hence, the need for recovery is indicative of short-term work fatigue, and it is considered an aspect of impaired wellbeing (Sonnentag and Fritz, 2007).

Wellbeing is not a one-dimensional construct. In his theory on positive mental health, Keyes (2002) distinguishes three wellbeing dimensions. Emotional wellbeing includes satisfaction and happiness with life and positive affect. Psychological wellbeing refers to the extent to which people thrive in their personal lives. Similarly, social wellbeing is a measure of an individual's satisfaction with their social life (Robitschek and Keyes, 2009).

In the last decade, consistent research was dedicated to the need for recovery and recovery mechanisms and ways to unwind from work demands in relation to wellbeing (Sonnentag and Fritz, 2018; Wentz et al., 2020; Steed et al., 2021). These studies focus mainly on emotional or subjective wellbeing (Sonnentag et al., 2022). At present, there are no studies that integrate distinct work recovery-related concepts and multiple dimensions of wellbeing as an indicator of positive mental health, although the literature includes such a call for research (Steed et al., 2021). In line with the trend in recent literature to call for a systemic approach to the research of wellbeing and burnout (Montgomery et al., 2019), we argue that future work should look into multiple dimensions of wellbeing (Keyes, 2002) and the ways in which they are affected by both needs for recovery and recovery experiences.

The COVID-19 pandemic has emphasized the role of healthcare professionals in facing and overcoming a worldwide crisis. With higher levels of strain and solicited effort, there is an urgent need to look into work recovery-related constructs, such as work recovery experiences and the need for recovery, within the specific context of healthcare professionals (Rus et al., 2020). Considering the high costs of job strain and burnout

on the healthcare professionals' wellbeing and health and on organizational outcomes such as patient safety (Blasche et al., 2017), understanding how to increase wellbeing is imperative.

Considering the new strains that COVID-19 has imposed on the physical, emotional, and cognitive resources of healthcare professionals, we propose that the opportunities afforded to them to take part in work recovery experiences are limited, and hence the resource replenishment process after work is also impaired, resulting in an increased need for recovery and impaired emotional and psychological wellbeing.

Building on previous empirical research (Mohd Fauzi et al., 2020; Alexiou et al., 2021) and theoretical studies (Sonnentag et al., 2022), we consider that healthcare professionals compared to employees from other occupations will report low involvement in work recovery experiences such as psychological detachment, relaxation, mastery, and control and a high level of need for recovery after work. Moreover, the low involvement in the four recovery experiences will result in a high need for recovery after work (Bennett et al., 2017; Steed et al., 2021). Empirical works reveal that the doctors' high need for recovery leads to intense self-reported health outcomes and poor workplace wellbeing indicated by low life satisfaction, high psychological stress, and low career success (Sun et al., 2021). We thus expect that in the context of the COVID-19 pandemic, the healthcare workers' wellbeing will suffer. In line with previous calls for investigating specific relationships between work recovery variables and different dimensions of wellbeing (Rus et al., 2020; Steed et al., 2021), we adopted Keyes's (2002) distinction between emotional and psychological wellbeing to investigate the impact that working in healthcare has on both through work recovery experiences and need for recovery.

Previous findings show that when healthcare professionals are involved in off-work recovery experiences such as psychological detachment, relaxation, mastery, and control, their emotional and psychological wellbeing will be enhanced. For instance, Singh et al. (2016) found that the use of recovery experiences was associated with less exhaustion and psychosomatic symptoms as indicators of psychological wellbeing. Steed et al.'s (2021) meta-analysis revealed that all four recovery experiences were positively related to employees' mental wellbeing (e.g., low anxiety), the experiences of state affect, life satisfaction, and psychosomatic wellbeing. We expect a similar impact of work recovery experiences on psychological wellbeing as an individual's optimal functioning in life. Based on the previous research (Wentz et al., 2020), a reduced need for recovery derived from involvement in these off-work recovery experiences will contribute to a high emotional and psychological wellbeing. Thus, we hypothesized as follows:

> H1: Recovery experiences of psychological detachment, relaxation, mastery, and control and need for recovery jointly mediate the relationship between working in healthcare and emotional wellbeing.
>
> H2: Recovery experiences of psychological detachment, relaxation, mastery, and control and need for recovery jointly mediate the relationship between working in healthcare and psychological wellbeing.

MATERIALS AND METHODS

Participants

This study was part of the larger COVID-19 IMPACT project[1], which is an international online survey conducted in 78 countries/regions worldwide exploring the behavioral and psychological impacts of COVID-19 (Dias Neto et al., 2021).

We reported on the data of 217 participants from the Romanian dataset. In our sample, 44 participants (20.28%) were health professionals, while the rest of 173 (79.72%) were employed in other domains. No data on the healthcare professionals' status in terms of directly working with patients with COVID-19 were collected. Participants' age ranged between 20 and 63 years (M = 31.69, SD = 8.18). Most of them were females (133 participants, 61.29%), and, in one instance, they did not report the gender (46%). Almost half of the participants reported that they were undergraduates (45.16%), and 77 participants (35.48%) have a master's and/or Ph.D. degree. Less than 20% of the participants reported that they only had a high school diploma or were enrolled in an undergraduate program. The inclusion criterion was the age of at least 18 years. The participants voluntarily participated in this study.

Measures

The status of working in healthcare was measured with the following item: Do you work in healthcare (as a physician or nurse)? (0 = no vs. 1 = yes).

The Recovery Experience Questionnaire (Sonnentag and Fritz, 2007) measured the following after work recovery experiences: psychological detachment (e.g., "I did not think about work at all"; α = 0.93), relaxation (e.g., "During time after work, I kick back and relax"; α = 0.90), mastery (e.g., "I learned new things"; α = 0.93), and control (e.g., "I feel like I can decide for myself what to do"; α = 0.94). Each recovery experience was measured using four items. Participants indicated their level of agreement on what they do during leisure time using a five-point Likert scale (1 = I do not agree at all, 5 = I fully agree).

Need for recovery after working time was measured with ten items from van Veldhoven and Broersen's (2003) scale. In line with previous studies (e.g., Sonnentag and Fritz, 2007), the original measurement scale of the items (yes/no) was modified into the following Likert scale: 1 = never, 2 = sometimes, 3 = often, and 4 = always. Participants indicated the extent to which they felt the aspect presented in each statement at the end of the workday during the COVID-19 pandemic ("After the evening meal, I generally feel in good shape"; α = 0.89).

Emotional wellbeing was measured with three items (α = 0.86) from the Mental Health Continuum Short Form (Keyes, 2009). In addition, six items from this instrument measured psychological wellbeing in terms of self-acceptance, environmental mastery, positive relations with others, personal growth, autonomy, and purpose in life (α = 0.88). Each dimension of psychological wellbeing was measured with one item. Participants rated the frequency of every feeling in the past month on a 6-point Likert scale (0 = never, 1 = one time or two times a month, 2 = about

[1]https://ucy.ac.cy/acthealthy/en/covid-19-impact-survey

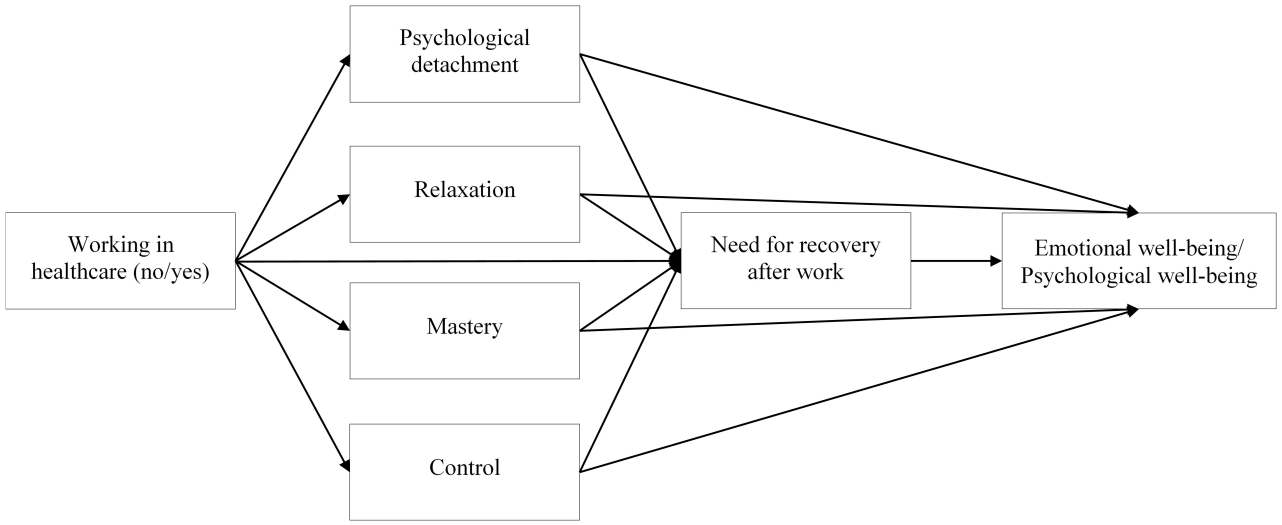

FIGURE 1 | Working model.

one time a week, 3 = two or three times a week, 4 = almost every day, and 5 = every day).

The mean score was considered for each of the scales used. A high scale score indicates a high level of the construct measured.

Procedure

All the participants provided informed consent before completing the online survey in Google Form. Data were collected from April 15 to May 15, 2021, during the nationwide lockdown. The online survey was distributed by the research team to organizations, students, and academic staff through emails and on social networking websites (e.g., Facebook).

RESULTS

Data Analysis

To test our hypotheses, two serial mediation analyses were conducted using IBM SPSS Macro PROCESS version 3.5 (Hayes, 2018). We tested a customized model (**Figure 1**), starting from model 80 (the direct effect of X on Y was set to 0), with the bootstrap technique on 5,000 samples at 95% CI. As the outcome variable, the first mediation analysis considered emotional wellbeing, and the second one, psychological wellbeing. In both analyses, age was included as a covariate as research has shown that it is related to work recovery experiences (Virtanen et al., 2019) and wellbeing (Lawrie et al., 2019).

Descriptive Analysis

Descriptive statistics (means and SDs), *r* Bravais-Pearson's correlations, and McDonald's (ML) ω reliability coefficients are included in **Table 1**. All the correlations between the variables were consistent with the theorized pattern of relationships, with the exception of the relationships between working in healthcare, on the one hand, and psychological detachment ($r = -0.12$, $p > 0.05$) and need for recovery after work ($r = 0.09$, $p > 0.05$), on the other hand. All the scales had the McDonald's (ML) ω reliability coefficient higher than 0.70.

Hypothesis Testing

In the two tested models, the coefficients depicting the paths from working in healthcare (no/yes) to work recovery experiences and need for recovery and from recovery experiences to need for recovery were identical. In this sense, results of the mediation analyses revealed that participants working in healthcare reported lower levels of relaxation (β = −0.41, 95%CI [−0.76; −0.05]), mastery (β = −0.44, 95%CI [−0.79; −0.07]), and control (β = −0.39, 95%CI [−0.75; −0.03]) compared to employees in other domains (**Table 2**). Working in healthcare was not significantly associated with low psychological detachment (β = −0.31, 95%CI [−0.70; 0.09]) and need for recovery (β = 0.06, 95%CI [−0.14; 0.26]).

Psychological detachment, relaxation, and control were not significantly associated with the need for recovery (β = 0.01, 95%CI [−0.09; 0.10]; β = −0.09, 95%CI [−0.22; 0.03]; β = −0.11, 95%CI [−0.22; 0.00]). Only a high level of mastery was related to a low need for recovery after work (β = −0.13, 95%CI [−0.22; 0.00]).

In addition, psychological detachment, relaxation, and control were not significantly related to emotional wellbeing (β = 0.11, 95%CI [−0.05; 0.27]; β = −0.02, 95%CI [−0.25; 0.21]; β = −0.06, 95%CI [−0.24; 0.11]). Instead, mastery was positively related to emotional wellbeing (β = 0.21, 95%CI [0.07; 0.37]). A high need of recovery after work was related to a low emotional wellbeing (β = −0.58, 95%CI [−0.81; −0.33]).

Similar results were obtained regarding the relationships between work recovery experiences, need for recovery after work, and psychological wellbeing. Specifically, psychological detachment, relaxation, and control were not

TABLE 1 | Descriptive statistics (means and SDs), *r* Bravais-Pearson's correlations, and McDonald's ω reliability coefficients (*N* = 217).

Variable	M	SD	1	2	3	4	5	6	7	8
1. Working in healthcare (no/yes)	–	–	–							
2. Psychological detachment	3.20	1.22	−0.12†	(0.93)						
3. Relaxation	3.67	1.03	−0.15*	0.71***	(0.91)					
4. Mastery	3.59	1.07	−0.14*	0.33***	0.52***	(0.93)				
5. Control	3.87	1.03	−0.14*	0.48***	0.70***	0.63***	(0.94)			
6. Need for recovery	2.06	0.62	0.09	−0.25***	−0.39***	−0.42***	−0.43***	(0.89)		
7. Emotional wellbeing	3.44	1.06	−0.01	0.22***	0.27***	0.36***	0.26***	−0.44***	(0.87)	
8. Psychological wellbeing	3.15	1.12	0.03	0.22***	0.33***	0.45***	0.36***	−0.37***	0.69***	(0.88)

†$p < 0.10$; *$p < 0.05$; ***$p < 0.001$.

significantly related to psychological wellbeing (β = 0.05, 95%CI [−0.11; 0.20]; β = 0.03, 95%CI [−0.25; 0.28]; β = 0.07, 95%CI [−0.13; 0.28]). High mastery was related to a high psychological wellbeing (β = 0.31, 95%CI [0.16; 0.47]). Also, need for recovery was negatively correlated with psychological wellbeing (β = −0.30, 95%CI [−0.55; −0.06]).

TABLE 2 | Results of the main effect analysis (*N* = 217).

Path	β	SE	LLCI	ULCI
Common in Model 1 (Emotional wellbeing as outcome) and Model 2 (Psychological wellbeing as outcome)				
Working in healthcare (no/yes) → Psychological detachment	−0.31	0.20	−0.70	0.09
Working in healthcare (no/yes) → Relaxation	−0.41	0.18	−0.76	−0.05
Working in healthcare (no/yes) → Mastery	−0.44	0.19	−0.79	−0.07
Working in healthcare (no/yes) → Control	−0.39	0.19	−0.75	−0.03
Working in healthcare (no/yes) → Need for recovery	0.06	0.10	−0.14	0.26
Psychological detachment → Need for recovery	0.01	0.04	−0.09	0.10
Relaxation → Need for recovery	−0.09	0.07	−0.22	0.03
Mastery → Need for recovery	−0.13	0.05	−0.23	−0.03
Control → Need for recovery	−0.11	0.06	−0.22	0.00
Model 1: Emotional wellbeing as outcome				
Psychological detachment	0.11	0.08	−0.05	0.27
Relaxation	−0.02	0.12	−0.25	0.21
Mastery	0.21	0.08	0.07	0.37
Control	−0.06	0.09	−0.24	0.11
Need for recovery	−0.58	0.12	−0.81	−0.33
Model 2: Psychological wellbeing as outcome				
Psychological detachment	0.05	0.08	−0.11	0.20
Relaxation	0.03	0.13	−0.25	0.28
Mastery	0.31	0.08	0.16	0.47
Control	0.07	0.11	−0.13	0.28
Need for recovery	−0.30	0.13	−0.55	−0.06

Hypothesis 1

Although the total indirect effect of working in healthcare on emotional wellbeing was significant (β = −0.20, 95%CI [−0.38; −0.04]), at the individual level, only two paths were significant (**Table 3**). Among the recovery experiences considered, only mastery significantly intervenes between working in healthcare and emotional wellbeing (β = −0.09, 95%CI [−0.21; −0.01]). The other recovery from work experiences do not mediate the relationship between working in healthcare and emotional wellbeing (psychological detachment, β = −0.03, 95%CI [−0.12; 0.02]; relaxation, β = 0.01, 95%CI [−0.10; 0.13]; control, β = 0.02, 95%CI [−0.05; 0.12]). In addition, the need for recovery did not act as a mediator between working in healthcare and emotional wellbeing (β = −0.04, 95%CI [−0.16; 0.08]). Only mastery and need for recovery jointly mediated the relationship between working in healthcare and emotional wellbeing (β = −0.03, 95%CI [−0.08; −0.002]). The other paths were not statistically significant. Thus, our first hypothesis received partial empirical support.

Hypothesis 2

Regarding the effect of working in healthcare on psychological wellbeing, results indicate a significant total indirect effect (β = −0.25, 95%CI [−0.44; −0.07]; **Table 3**). Only two paths were statistically significant. Specifically, mastery was a mediator in the relationship between working in healthcare and psychological wellbeing (β = −0.14, 95%CI [−0.30; −0.02]). Psychological detachment, relaxation, control, and need for recovery did not significantly intervene between working in healthcare and psychological wellbeing (β = −0.02, 95%CI [−0.09; 0.04]; β = 0.01, 95%CI [−0.13; 0.12]; β = 0.03, 95%CI [−0.13; 0.06]; β = 0.02, 95%CI [−0.09; 0.05]). Also, jointly with the need for recovery, they did not mediate the relationship between working in healthcare and psychological wellbeing. Only mastery and need for recovery jointly intervened in the relationship between working in healthcare and psychological wellbeing (β = −0.02, 95%CI [−0.05; −0.0002]). Thus, the second hypothesis was partially empirically supported.

DISCUSSION

We explored how the four recovery experiences (i.e., psychological detachment, relaxation, mastery, and control)

TABLE 3 | Total and individual indirect effects of working in healthcare on emotional and psychological wellbeing through work recovery experiences and need for recovery (N = 217).

	Emotional wellbeing				Psychological wellbeing			
Path	**b**	**SE**	**LLCI**	**ULCI**	**b**	**SE**	**LLCI**	**ULCI**
Total indirect effect	−0.20	0.09	−0.38	−0.04	−0.25	0.09	−0.44	−0.07
Working in healthcare (no/yes) → Psychological detachment	−0.03	0.04	−0.12	0.02	−0.02	0.03	−0.09	0.04
Working in healthcare (no/yes) → Relaxation	0.01	0.05	−0.10	0.13	−0.01	0.06	−0.13	0.12
Working in healthcare (no/yes) → Mastery	−0.09	0.05	−0.21	−0.01	−0.14	0.07	−0.30	−0.02
Working in healthcare (no/yes) → Control	0.02	0.04	−0.05	0.12	−0.03	0.05	−0.13	0.06
Working in healthcare (no/yes) → Need for recovery	−0.04	0.06	−0.16	0.08	−0.02	0.04	−0.09	0.05
Working in healthcare (no/yes) → Psychological detachment → Need for recovery	0.00	0.01	−0.02	0.02	0.00	0.01	−0.01	0.01
Working in healthcare (no/yes) → Relaxation → Need for recovery	−0.02	0.02	−0.07	0.01	−0.01	0.01	−0.04	0.01
Working in healthcare (no/yes) → Mastery → Need for recovery	−0.03	0.02	−0.08	−0.002	−0.02	0.01	−0.05	−0.0002
Working in healthcare (no/yes) → Control → Need for recovery	−0.03	0.02	−0.07	0.003	−0.01	0.01	−0.05	0.00

as antecedents of the need for recovery act as mediators in the relationship between working in healthcare and different dimensions of wellbeing (i.e., emotional and psychological wellbeing). The research model was found to have a full mediation effect both in the case of emotional and psychological wellbeing. However, this effect was carried out mainly by mastery and mastery as an antecedent of the need for recovery. Mastery experiences as off-job activities that distract from the job by providing challenging experiences and learning opportunities in other domains. It seems only they can reduce participants' desire for being temporarily relieved from demands in order to recuperate and to replenish their internal resources. By offering opportunities for experiencing competence and proficiency, mastery experiences generate directly, and indirectly through need for recovery high happiness, positive emotions, satisfaction with life in general (i.e., emotional wellbeing), and optimal functioning in private life (i.e., psychological wellbeing).

These findings highlight the crucial roles of mastery as recovery from work experience and the need for recovery in linking working in healthcare with emotional and psychological wellbeing. At present, no empirical research integrated the off-work recovery experiences, need for recovery, and different dimensions of wellbeing in healthcare professionals, despite the recent calls in the literature on this topic (Rus et al., 2020; Steed et al., 2021). Compared to previous research, by focusing on the emotional and psychological dimensions of wellbeing, we also considered the positive side of healthcare professionals' wellbeing during the COVID-19 pandemic (Lai et al., 2020; Liu et al., 2020; Rossi et al., 2020; Caldas et al., 2021; Wang et al., 2021).

Our data shows that psychological detachment, relaxation, and control as work recovery experiences were not the significant predictors of the two dimensions of global wellbeing. It is possible that these relationships are mediated by domain wellbeing (Newman et al., 2014), such as workplace-related psychological wellbeing (Parker and Hyett, 2011).

The fact that healthcare professionals in our sample reported lower levels of recovery experiences compared to other professionals is in line with other recent studies that showed that medical personnel enjoys limited recovery experiences to recover from their job demands during the COVID-19 pandemic (Mohd Fauzi et al., 2020). As healthcare professionals did not report higher levels of need for recovery than other professionals, we expect that may be due to intervening variables such as occupational calling. Recent research shows that occupational calling is a critical psychological driving force that keeps healthcare professionals (i.e., nurses) focused and motivated despite tremendous challenges (Zhu et al., 2021).

Our study contributes to the literature on work recovery experiences by answering the call from Rus et al. (2020) to investigate the antecedents of work recovery experiences specifically in healthcare professionals. By examining the need for recovery and different dimensions of wellbeing as potential outcomes of work recovery experiences, we added empirical evidence to the small body of research investigating the benefits and pitfalls of work recovery experiences in healthcare professionals compared to other occupations. In addition, we offered empirical evidence that the four work recovery experiences, although they are positively associated, are empirically distinctive. By focusing on the need for recovery as a specific aspect of impaired wellbeing (Sonnentag and Fritz, 2007) and the emotional and psychological wellbeing as the dimensions of positive mental health (Keyes, 2002), this study provides an integrative understanding of the healthcare professionals' wellbeing. In addition, it extends the current knowledge on different mediating paths through which the status of working in healthcare relates to emotional and psychological wellbeing.

This study provides additional information about the contexts where recovery experiences need for recovery and wellbeing research takes place. Although healthcare contexts provide an area of high interest when studying these concepts separately, little of the published research integrate them with a sample of professionals, in general, and even less with healthcare professionals (Dai et al., 2020), particularly from Eastern Europe.

Our findings have several implications for practice. Top management should consider improving work in healthcare as our findings revealed that healthcare professionals report lower levels of relaxation, mastery, and control after work compared to employees from other work domains. As

Bennett et al. (2017) meta-analysis showed both work characteristics and after-work recovery play an important role in determining employee wellbeing, mainly emotional wellbeing. Healthcare professionals should be encouraged to experience mastery in order to reduce their need for recovery and to increase both emotional and psychological wellbeing. They should engage in activities such as social, creative, physical, and low-effort activities that facilitate recovery experiences (de Jonge et al., 2018), especially mastery (Tuisku et al., 2016). As shown, recovery experiences including mastery can be increased through training (Siu et al., 2014).

Our study has several limitations. First, there was an imbalance between the percentage of the healthcare professionals included in the sample (20.28%) and that of the employees working in other fields (78.72%). Second, the healthcare professionals participating in our study derived from more than one organization. We did not collect data on the type of organizations from which the participants were derived. During the nationwide lockdown, only some hospitals and clinics were approved to take care of the patients infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is possible that not all healthcare professionals dealt with the challenges imposed by the COVID-19 outbreak at their workplaces. Future studies should consider larger representative samples.

Our self-reported cross-sectional data prevent us from inferring causal relationships. Building on previous research (Janicke et al., 2017), it would be interesting to use research designs that adopt a within-subject approach and permit consideration of feedback loops or bidirectional causal influences between the variables.

We did not include the social dimension of wellbeing from Keyes's (2002, 2009) model. Furthermore, we considered the global scores of psychological wellbeing although Keyes's (2009) model reveals that both social and psychological wellbeing has multiple dimensions. It is possible that different recovery from work experiences and the need for recovery tap differently into distinct dimensions of social and psychological wellbeing. In addition, other recovery experiences such as meaning and affiliation (Newman et al., 2014) can be studied in relation to different dimensions of wellbeing.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the Local Legislation and Institutional Requirements. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

CR, CV, CO, AK, and MK: designing study. CR, CO, and AG: literature review and data analysis. CR, CO, AB, CV, AK, and MK: discussing the results. CR and CO: writing the manuscript. All authors contributed to the article and approved the submitted version.

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