

**Working in Person During the COVID-19 Pandemic:
The Job Demands and Resources of Reopening the Economy**

by

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Abstract

This study investigated the effects of working in person during the COVID-19 pandemic on perceived job demands and resources for employees. The job demands-resources (JD-R) model of employee stress indicates that workplace stressors can result in various negative employee outcomes when not adequately buffered by job resources. We extended this model to working in person during the COVID-19 pandemic. We posited that two job demands related to working in person during the pandemic (i.e., the perceived risk of transmitting the disease and job insecurity) would directly influence employee stress. Moreover, we expected that these added job demands would negatively impact employee well-being when organizations do not provide adequate resources to mitigate the risk of disease transmission. Through the lens of pandemic, we contended that any workplace in which employees are susceptible to transmitting the disease may be considered a high-risk environment. Applying previous literature of occupational stress in high-risk workplaces, we discussed how the current health crisis in the United States may increase burnout for employees. To this end, we proposed a model of employee well-being, on which we conducted a path analysis to determine how working in person during the COVID-19 pandemic impacts one's occupational stress and burnout. Analyses indicated that our proposed model did not possess good fit. However, results supported the overall notion that job demands resulting from an increase in perceived risk of the pandemic does indeed increase general work stress, which in turn, increases employee burnout. Implications for reducing the harmful effects of job demands by providing resources which mitigate risk are discussed.

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Working in Person During the COVID-19 Pandemic

COVID-19 and Employment in the United States

Coronavirus disease (SARS-CoV-2) was first documented in the United States in January 2020, with the first reported death following in February (CDC, 2020). In addition to catalyzing a major public health crisis, COVID-19 brought damage to the U.S. economy that will likely last well beyond the pandemic. This is perhaps best demonstrated by the astounding number of Americans that have lost their jobs or transitioned to working from home (i.e., telecommuting). Throughout April and May of 2020, 36 million Americans filed claims for unemployment benefits, bringing the unemployment rate to a staggering 15.7 percent (Cohen & Hsu, 2020; U.S. Department of Labor, 2020). In April of 2020 alone, the United States saw a 13.1% reduction of its entire workforce (20.38 million employees). 87.7% of these workers indicated that they are on “temporary layoff” (U.S. Bureau of Labor Statistics, 2020). Furthermore, 38% of small business owners do not anticipate reopening until after 2020 (Bartik et al., 2020).

In addition to the massive job loss, an estimated 34% of all U.S. jobs transitioned to telecommuting in April 2020 (Brynjolfsson et al., 2020). For many workers, telecommuting is not an option, and these “essential” workers continued performing their jobs in person (Benhamou & Piedra, 2020). The implementation of telecommuting procedures requires many organizational resources, and many jobs simply cannot function remotely (e.g., leisure and hospitality, construction; Dey, Frazis, Loewenstein, & Sun, 2020). In particular, the healthcare and customer service industries (e.g., food service, retail trade), where social contact is part of the job, make up a large portion of these jobs (Hawkins, 2020; Dey, Frazis, Loewenstein, & Sun, 2020). Moreover, several industries where workers must perform their jobs in close proximity and under conditions of poor hygiene have reported high infection rates (i.e., Meat and Poultry

Processing Facilities; Dyal, 2020). Workplaces that require high amounts of social contact are at particular risk to transmit the disease between coworkers and potentially customers, especially when organizations do not provide workers with the proper equipment and procedures to mitigate such risk. As such, media outlets have documented cases of SARS-CoV-2 having been transmitted at work (CDC, 2020), leading many employees to remain reluctant towards performing their job in person (Smith, 2020). Because of the financial crisis and lack of job mobility opportunities, employees may experience an implied coercion to keep working despite their worries which may increase stress. In the next sections, we outline a model for employee stress through perceived job demands and resources that illustrate how concern about the transmission of COVID-19 and job insecurity might indirectly lead to employee burnout.

Stress and the Job Demands-Resources Model (JD-R Model)

Many researchers conceptualize stress in the workplace as an “unpleasant emotional experience associated with elements of fear, dread, anxiety, irritation, annoyance, anger, sadness, grief, and depression” (Motowidlo, Packard, & Manning, 1986, p. 618). Organizations often seek to relieve stress for their employees, as job stress may reduce job performance and increase withdrawal behaviors such as absenteeism and anticipated turnover (Jamal, 1984). Additionally, previous research shows that mitigating job stressors is an important factor in maintaining employee well-being (Jamal, 1999). Numerous job characteristics can cause workplace stress, including physical working conditions (Matthews, Cottingham, Talbott, Kuller, & Siegel, 1987) and the emotional demands of abusive supervision (Wu, Hu, & Yang, 2013). Broadly defined, stressful workplace experiences can influence various negative employee outcomes including both physical health (e.g., heart disease, see House, 1974) and job performance (Motowidlo, Packard, & Manning, 1986). Moreover, many researchers separate stressful events and job

characteristics (i.e., “stressors”) from their physical manifestations known as occupational strains (Sonnentag & Frese, 2003). From this perspective, stressors are simply conditions that evoke strain, which then can influence negative outcomes and employee well-being.

Several theories exist related to occupational stress and its impact on employee performance and work attitudes. The conservation of resources (COR) model states that perceptions of stress increase when employees feel they lack the adequate resources to maintain function in their jobs (Hobfoll & Shirom, 2000). In addition to resources, an important aspect of occupational stress is the perceived control an employee has over her/his job conditions (Karasek, 1979). Stressful situations often arise when employees do not feel they can control the difficult aspects of their jobs. Another major contributor to employee stress and strain is the perceived demand that a job requires including workload and physical demands (Karasek et al., 1998). In the current study, we focused on a theory of occupational stress which takes into consideration both the demands of one’s job and the perceived resources that can alleviate those demands.

The job demands-resources model (JD-R) is a model of employee well-being in which employee strain results from a lack of equilibrium between perceived job demands and job resources (Bakker & Demerouti, 2007). This model provides more flexibility in explaining how job characteristics (e.g., burnout, organizational commitment) can impact employee well-being through a perceived lack of “balance” between two characteristics. Job demands are “those physical, psychological, social, or organizational aspects of the job that require sustained physical and or psychological (cognitive and emotional) effort or skills” (p.312). Job resources are “those physical, psychological, social, or organizational aspects of the job that are either/or: functional in achieving more goals; reduce job demands and the associated physiological and

psychological cost; stimulate personal growth learning and development” (p.312). The JD-R model supplanted previous theories regarding negative health outcomes resulting from a lack of equilibrium such as the imbalance of job demands and perceived control (Karasek, 1979) as well as the imbalance of effort and reward (Siegrist, 1996). The JD-R model provides a more comprehensive perspective of how a perceived imbalance impacts job stress. For instance, both the demands-control and effort-reward models can be incorporated into the JD-R model by expanding our understanding of demands (i.e., both physical and psychological effort) and resources (e.g., perceived control, support, or rewards; Bakker & Demerouti, 2007).

In the JD-R model, perceived job demands and resources interact to predict employee strain and motivation. Specifically, job demands directly impact strain, and job resources directly impact motivation; which in turn, influence organizational outcomes (Bakker & Demerouti, 2007). This model fits with previous conceptualizations that stressors are events or conditions which evoke strain. This includes one’s environmental conditions such as performing a job around others during a pandemic. In fact, some research posits that environmental stressors correspond to job demands in the JD-R model (Demerouti et al., 2001). When job resources do not sufficiently buffer job demands, employees lose motivation to overcome the strain, and the lack of equilibrium negatively influences job outcomes.

As represented by the JD-R model’s broad approach, many types of job demands exist and may contribute to employee strain. Some research has separated job demands into two distinct categories: job hindrances and job challenges (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). Job hindrances are those demands which impair employee health and prevent optimal functioning such as workload and emotional demands. In contrast, job challenges are those stressors which are perceived as challenging but also stimulating. This study focused on

job hindrances associated with working in person during the COVID-19 pandemic as well as resources necessary to buffer the negative effects of those demands. In the current study, we investigated the extent to which working in person during the COVID-19 pandemic may contribute negatively to employee well-being. Using the job demands-resources model (JD-R Model; Bakker, Demerouti, & Verbeke, 2004), we examined how two specific job demands related to COVID-19 can impact employee stress, especially when not buffered by appropriate organizational resources to mitigate risk. Specifically, we sought to explain how perceived risk of the pandemic and job insecurity may contribute to occupational stress and strain and indirectly impact employee burnout.

The COVID-19 pandemic provides a unique lens to look at perceptions of safety at work. Previous research already links safety behavior in organizations with perceptions of demands and resources (for example, see Hansez & Chmiel, 2010). Moreover, research on high-risk occupations demonstrates that employees may perceive health risks as a job demand and positive perceptions of safety climate as a job resource (Nielsen, Mearns, Matthiesen, & Eid, 2011). We extended this notion by positing that COVID-19 makes every workplace where employees must remain in physical contact with each other a high-risk environment. As such, the first job demand related to COVID-19 that we analyzed was the perceived risk of exposure and transmission of the disease. For employees who perceive the pandemic as hazardous, in-person working conditions will act as job demands and may add stress to their well-being. Organizations can provide support to employees during COVID-19 in the form of enforcing safety behavior to reduce the transmission of the disease such as the wearing of personal protective equipment (PPE; Cirrincione et al., 2020). Previous research denotes the effectiveness of behavioral

interventions on safety in high-risk workplaces such as in manufacturing plants (Grindle, Dickinson, & Boettcher, 2000).

We anticipated that perceiving a high risk of transmitting COVID-19 at work would act as a job demand and impact employee well-being through an increase general work stress. Research shows that perceptions of risk relate to emotional processing, particularly to feelings of “dread” (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978), an emotion which can act as a stressor in the workplace (Motowidlo, Packard, & Manning, 1986) Moreover, risk perceptions of one’s work environment as being unsafe may increase employee stress and strain (Rundmo, 1992). This effect exists specifically with employees’ risk perceptions of transmitting a disease at work during an epidemic (Koh et al., 2005). Clearly, the risk perceptions of working under unsafe conditions have the potential to increase employee stress. Previous research on the JD-R model supports this notion where working conditions impact job demands (Berntson, Wallin, & Härenstam, 2012), particularly in occupations that require high amounts of social interaction, such as healthcare and customer service (Bakker, Schaufeli, Sixma, Bosveld, & Van Dierendonck, 2000; Morris & Feldman, 1996). Importantly, both of these fields contain a high frequency of workers considered “essential” since the onset of the COVID-19 pandemic (“Advisory Memorandum”, July 12, 2020). We expected that perceptions of risk associated with COVID-19 would induce a negative emotional response for those working in person during the pandemic, and consequently, impact general work stress.

Hypothesis 1a (H1a): The perceived risk of COVID-19 will be positively related to general work stress

Additionally, we anticipated that working in person during the pandemic would increase the demand of job insecurity. The COVID-19 pandemic has negatively impacted the U.S. economy by creating massive job loss and early signs of economic recession (Gangopadhyaya & Garrett, 2020). During times of economic recession, employee perceptions of job insecurity often increase and negatively impact well-being through anxiety and depression (Burgard, Kalousova, & Seefeldt, 2012; Burchell, 2011). Job insecurity acts as a job demand in several applications of the JD-R model (for example, see Schaufeli & Taris, 2014), and previous research shows that recession-related stressors directly impact employee strain and have the potential to lower job satisfaction (Jones, Sliter, & Sinclair, 2015). Due to the economic uncertainty associated with working an in-person job during the pandemic, we expected that higher levels of job insecurity would increase work stress.

Hypothesis 1b (H1b): Job insecurity will be positively related to general work stress

Additionally, the negative outcomes of working during COVID-19 may vary according to one's work environment. In other words, employees in jobs that require greater social contact should experience exacerbated negative outcomes due to COVID-specific job demands (i.e., perceived risk and job insecurity). Previous research shows that one's working environment can impact job demands (Zapf, Knorz, & Kulla, 1996), and poor working conditions may increase feelings of exhaustion (Friedman, 1991). We expected that employees would view their social task demands (i.e., job tasks that require high amounts of in-person social interaction) as a poor working condition during a pandemic. As such, we anticipated that these social task demands would moderate the relationship between COVID-19 job demands and general work stress such

that the relationship would be stronger for jobs requiring more direct social interaction. We expected this moderating effect to exist for both aspects of COVID-19 job demands (i.e., perceived risk and job insecurity).

Hypothesis 2a (H2a): The “social task demands” of a job will moderate the relationship between perceived risk of COVID-19 and general work stress such that the relationship will become stronger as social task demands increase

Hypothesis 2b (H2b): The “social task demands” of a job will moderate the relationship between job insecurity and general work stress such that the relationship will become stronger as social task demands increase

In the following sections, we outline how the increased job demands associated with working in person during the COVID-19 pandemic have the potential to negatively impact work outcomes. Specifically, we will look into the influence of job demands and resources on employee burnout. The job demands and organizational procedures imposed during the COVID-19 pandemic have the potential to uniquely affect this variable through an increase in work stress.

The JD-R Model and Burnout

Researchers who developed the JD-R model initially sought to predict employee burnout (Demerouti et al., 2001). Historically, many thought of burnout as a type of stress only incurred by those who perform “people work”, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment (Jackson & Maslach, 1982). The JD-R model expanded the categorization of all working conditions into two main categories (i.e., job demands and

resources) in order to link each category with a factor in a new conceptualization of burnout (Demerouti et al., 2001). Specifically, the JD-R model of burnout consists of two dimensions: exhaustion and disengagement, in which job demands positively predict exhaustion and resources negatively predict disengagement. Research supports that work stress significantly impacts emotional exhaustion in employees (e.g., Gaines & Jermier, 1983). Moreover, when job resources do not adequately buffer job demands, then those demands can lead to symptoms of withdrawal and disengagement (Demerouti et al., 2001). The JD-R model also expanded the relevance of burnout to occupations beyond the human services (i.e., “people work”). Several studies involving the JD-R model demonstrate that burnout can manifest in virtually any work context (e.g., Demerouti et al., 2001; Bakker, Demerouti, & Euwema, 2005; Demerouti, Mostert, & Bakker, 2010).

In the current study, we analyzed how job demands indirectly increase burnout for employees working in person during the COVID-19 pandemic, when not adequately buffered by available resources. As stated previously, our focus concerned measuring COVID-19 job demands in two ways: through perceived risk and job insecurity. We hypothesized that both of these job demands impact employee well-being by increasing work stress, which in turn, increases burnout. Numerous studies link work stress with employee burnout and exhaustion (e.g., Rothmann, 2008; Enzmann, Schaufeli, Janssen, & Rozeman, 1998). Moreover, both perceived risk in high-risk working conditions and job insecurity can also influence employee burnout (Day et al., 2009; Ismail, 2015). Consistent with the JD-R model, both perceived risk and job insecurity predict the exhaustion dimension of burnout better than they predict the disengagement/depersonalization dimension (Day et al., 2009; Tilakdharee, Ramidial, & Parumasur, 2010). We expected that when job demands resulting from working in person during

the COVID-19 pandemic increase general work stress, this increased stress would impact employee burnout.

Hypothesis 3 (H3): General work stress will be positively related to burnout

The JD-R model categorizes job resources into two types: organizational and social (Demerouti et al., 2001). In the current study, we examined how organizational policies as well as social support at work can contribute to buffering the adverse effects of COVID-19 job demands. To do this, we examined the role of occupational safety on working conditions during the COVID-19 pandemic. The potential transmission of COVID-19 while working in person creates a higher-risk work environment, and as mentioned previously, employees working in high-risk occupations often view management's commitment to safety as a job resource (Hansez & Chimel, 2010). Supervisor support in high-risk occupations can reduce emotional exhaustion and increase safety compliance (Li, Jiang, Yao, & Li, 2013). Moreover, social support at work may moderate the relationship between stress and burnout such that the relationship diminishes when social support is high (Etzion, 1984). One meta-analysis on job safety outcomes determined that a supportive environment was the most predictive job resource in terms of reducing burnout in high-risk environments (Nahrgang, Morgeson, & Hofmann, 2011). Furthermore, the promotion of employee health and safety is a key factor in increasing well-being within organizations (Grawitch, Gottschalk, & Munz, 2006). Clearly, many employees experience increased levels of stress due to their high-risk work environments, and these stressful job demands can induce burnout. The previous literature demonstrates that by providing social

support and maintaining a commitment to safety, organizations can help ameliorate the harmful effects of stress in high-risk environments.

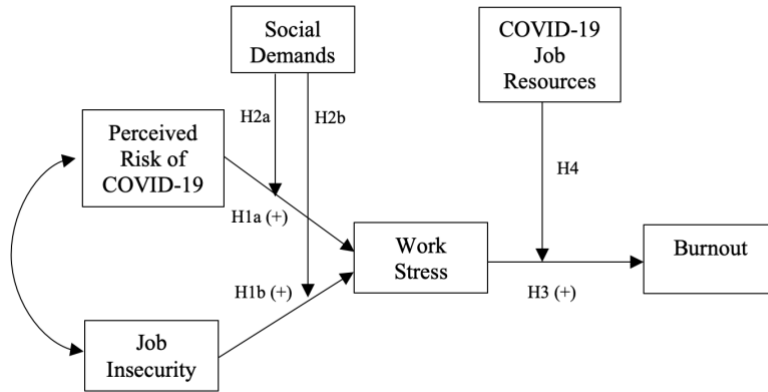
We posited that although job demands related to COVID-19 will increase employee burnout through work stress, organizations who provide resources to prevent the transmission of the disease as well as a social support system will buffer these harmful effects. Specifically, our study concerned measuring social support in the form of supervisor compliance with safety precautions. This perceived support should buffer the harmful effects of work stress on employee burnout. Thus, we expected that COVID-19 job resources would moderate the direct relationship between work stress and burnout. The U.S. Centers for Disease Control and Prevention outline many guidelines by which employers can help prevent transmission in the workplace including identifying common areas where close contact is prevalent and making sure all employees are included in communication plans (2020). We expected that even when risk perceptions of COVID-19 and job insecurity translate into increased stress, the positive perception that workplace safety resources are in place would help prevent this stress from inducing employee burnout.

Hypothesis 4 (H4): COVID-19 job resources will moderate the relationship between general work stress and burnout such that the relationship will decrease as job resources increases

Please see below for Figure 1, which provides a visualization of our proposed model as well as the paths delineating all subsequent hypotheses.

Figure 1

Proposed model for path analysis



Method

Participants

200 participants participated in the first part of study on Amazon Mechanical Turk (MTurk; mturk.com), and 159 participants were retained over both study timepoints. We used Cloud Research to recruit participants on MTurk and distribute surveys online (Litman, Robinson, & Abberbock, 2016), all of which were hosted on Qualtrics. Participants had to be at least 18 years old, employed in the United States, and currently working at least 20 hours per week in person during the COVID-19 pandemic (i.e., not working remotely or telecommuting). The final sample (i.e., $n = 159$) was 70.4% male with a mean age of 37.01 years old ($SD = 10.66$). The breakdown of participant race/ethnicity was as follows: 56.4% White/Caucasian, 27.7% Black or African American, 9.4% Hispanic or Latino, and 4.4% Asian. 59.1% of the sample had a Bachelor's degree. The most represented industries of employment were 'mining, quarry, and oil and gas extraction' (16.4% of the sample), 'manufacturing' (12.6%), and 'management of companies and enterprises' (11.9%).

Procedure

The study took place over two timepoints, one week apart. In the first timepoint, participants responded to questionnaires regarding their job demands during COVID-19 (i.e., perceived risk of COVID-19 and their perceptions of job insecurity), the social demands of their job, job resources during COVID-19 as well as questions related to the participant's demographics and type of job. One week later, participants were invited via Cloud Research to participate in the second part of the study. Within this second timepoint, participants responded to questionnaires regarding their perceptions of burnout as well as their general job demands and

resources prior to the COVID-19 outbreak. Participants were compensated \$1.50 for completing the first part of the study and an additional \$2.50 for completing the second part of the study.

Design

The study had a multi-part research design over two timepoints in which participants responded to various questionnaires. All participants responded to all questionnaires; therefore, there was no between-subjects comparison. All study variables were within-subjects and measured on an ordinal (i.e., Likert-type) scale, with the exception of one item in the “COVID-19 Risk Perception” questionnaire. Please see below for details on each of the questionnaires.

Materials

Participants completed all questionnaires online via Qualtrics. Because the surveys were administered remotely, multiple attention checks were embedded throughout the questionnaires to ensure sufficient responses. Participants responded to all items using a 5-point Likert-based scale, except where otherwise specified.

Social Task Demands

Participants indicated the social task demands of their job by responding to 20 items adapted from various dimensions of occupational requirements assessment from O*NET (Peterson et al., 2001). Specifically, the scale contains items adapted from the Work Activities Questionnaire (WAQ) and Work Context Questionnaire (WCQ) to reflect our scenario working in person during the COVID-19 pandemic. Some of these items have been adapted in previous research to measure individual job requirements of interacting with the public (for example, see Grandey, Kern, & Frone, 2007). Participants indicated the importance of various activities and contexts to the performance of their current jobs. The adapted wording of items reflects activities performed while working in person during the COVID-19 pandemic. An example item is

“Performing for people in person or dealing directly with the public. This includes servicing customers in restaurants and stores or receiving clients or guests.” Participants responded to 16 of the 20 items with the following scale anchors: “not important at all”, “fairly important”, “important”, “very important”, and “extremely important”. Two of the items ask participants the frequency with which they perform a specific task. An example is “How frequently does your current job require public speaking (one speaker with an audience)?”. Participants responded to these items with anchors ranging from 1 = never to 5 = every day. Another item instructs participants “Please indicate how much contact with others (face-to-face) is required to perform your job”. Participants responded to this item using the following anchors: “no contact with others”, occasional contact with others”, “contact with others about half the time”, “contact with others most of the time” and “constant contact with others”. The remaining item asks participants to “Please indicate how physically close to other people you are when you are performing your current job”. Participants responded to this item using the following anchors: “I don't work near other people (beyond 100 ft.)”, “I work with others, but not closely (e.g., private office)”, “Slightly close (e.g., shared office)”, “Moderately close (at arm's length)”, and “Very close (near touching)”. The reliability for this measure was $\alpha = 0.93$, indicating high internal consistency. Please see Appendix A for full measure.

COVID-19 Job Demands

To measure an individual's job demands of working in person during COVID-19, participants responded to two adapted inventories. The first scale indicates participants' levels of COVID-19 risk perception and the second scale indicates levels of job insecurity. Please see Appendix B for all COVID-19 job demands items.

COVID-19 Risk Perception. To measure perceived risk of COVID-19, participants responded to a 4-item measure adapted from Setbon and Raude (2010) which measured individual perceived risk of A/H1N1v (i.e., “swine flu”) in France. For the proposed study, A/H1N1v was adapted to COVID-19 and France was changed to the United States. An example item is “How worried are you about the COVID-19 pandemic?” Participants responded to three of the items on an 11-point Likert scale. For the example item, the 11-point scale ranged from 1 = “not worried at all” to 11 = “extremely worried”, with 6 = “moderately worried”. The scale anchors for the other two items strongly resemble this example and measure the seriousness and level of personal risk associated with the pandemic. For these 3 items, the Cronbach’s α level was 0.84. The remaining item is “What proportion of the United States could get the disease during the pandemic” Participants responded to this item by inputting a percentage value between 0% and 100%.

Job Insecurity. Participants indicated their level of job insecurity using three items from the Job Demands-Resources Scale (Rothman, Mostert, & Strydom, 2006) that specifically measure perceptions of job insecurity. An example item is “Do you need to be more secure that you will keep your current job in the next year?”. The 3 items were measured on a scale from “never” to “always”. For this measure, Cronbach’s $\alpha = 0.87$.

General Work Stress

To measure participants’ perceptions of stress, participants responded to the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). For this measure, the beginning of each question was adapted from “In the last month” to “While working during the pandemic”. The scale contains 14 items measured on the scale from “never”, to “always”. An example item is

“While working during the pandemic, how often have you felt nervous and ‘stressed’?” For this measure, Cronbach’s $\alpha = 0.85$. Please see Appendix C for the full measure.

COVID-19 Job Resources

Participants indicated the job resources associated with working in person during COVID-19 using an adapted form of the Group-Level Safety Climate inventory (Zohar & Luria, 2005). This 16-item scale contains items adapted to fit our context of working in person during COVID-19. These items measure the extent to which one’s direct supervisor adequately promotes occupational safety and provides support in high risk working conditions. The scale contains three content themes: active practices, proactive practices, and declarative practices. An example item is “My direct supervisor insists that we wear equipment that helps prevent the transmission of COVID-19 when working on shared devices.” Participants responded to all items on a scale from “strongly disagree” to “strongly agree”. The internal consistency for this scale was Cronbach’s $\alpha = 0.97$. Please see Appendix D for all items in this scale.

Demographics and Job Type

During the last questionnaire of the first timepoint, participants responded to various items concerning their general demographic information (e.g., age, gender, level of education), as well as in what type of job they are employed (e.g., construction, educational services). Please see Appendix E for all items concerning demographics and job type.

Burnout

Participants indicated their level of burnout using the Oldenburg Burnout Inventory (OLBI; Demerouti, Mostert, & Bakker, 2010). The OLBI contains 16 items and measures burnout across two factors: exhaustion and disengagement. An example item reflecting exhaustion is “There are days when I feel tired before I arrive at work”. An example item

reflecting disengagement is “Overtime, one can become disconnected from this type of work”. Participants responded to all items on a 4-point Likert-based scale with the following anchors in order from 1 to 4: “strongly disagree”, “slightly disagree”, “slightly agree”, “strongly agree”. For this scale, Cronbach’s $\alpha = 0.87$. Please see Appendix F for all 16 items.

General Job Demands and Resources

Lastly, to ensure that our observed effects were truly the result of perceived demands and resources while working in person during the COVID-19 pandemic, it was important to control for extraneous variables. This includes controlling for the potential that one’s perceptions of general job demands and resources (i.e., perceptions before COVID-19) may erroneously contribute to variance in our analyses. Thus, it was imperative we analyze the effects of COVID-19 in isolation from previous perceptions of work demands and resources. To do this, participants indicated their general job demands and resources (i.e., not COVID-related), and we used these data as control variables. Participants responded to items related to their perceptions of general job demands and resources prior to the COVID-19 using the Job Demands-Resources Scale (Rothman, Mostert, & Strydom, 2006) with adapted instructions that preface: “For the following items, please consider what your job was like *before* the outbreak of COVID-19 and social distancing.” An example item is “Did you work under time pressure?”. Participants responded to all 39 items using a 4-point Likert-based scale with the following anchors from 1 to 4: “never”, “sometimes”, “often”, “always”. The Cronbach’s α for general job demands and job resources were 0.85 and 0.95, respectively. Please see Appendix G for this scale.

Results

To compute variables, we created average scores on all variables for each participant. For example, to compute a variable for “general work stress” for each participant, we averaged together her/his responses on all items on this scale, creating one variable reflecting the mean of all 14 items. First, we present a correlational analysis for all variables (see Table 1 for correlations). Consistent with our hypotheses, perceived risk of COVID-19 and job insecurity both significantly correlated with work stress ($r = 0.44$ and $r = 0.34$, respectively; $p < .001$). Additionally, both of these job demands positively correlated with social task demands ($r = 0.52$, $p < .001$ for both relationships). Also consistent with our hypotheses, burnout was positively associated with work stress ($r = 0.63$, $p < .001$) and negatively associated with COVID job resources ($r = -0.51$, $p < .001$). Lastly, work stress and COVID job resources were negatively related ($r = -0.24$, $p < .001$). Taken together, these findings provide support for our general expectations that both stress and burnout tend to increase as job demands increase and decrease as job resources increase.

Next, we present results from the path analysis on the proposed model (see Figure 1 for model), including effect sizes for each path as well as fit indices for the overall model. All analyses were conducted using either R Studio with the ‘lavaan’ software package (Roseel, 2012) or SPSS using the PROCESS macro (Hayes, 2017).

Table 1

Correlations between study variables

Variable	1	2	3	4	5	6	7
1. Social Task Demands	-						
2. COV. Risk Perception	.52*	-					
3. Job Insecurity	.52*	.61*	-				
4. Work Stress	.24*	.44*	.34*	-			
5. COV. Job Resources	.37*	.17*	.19*	-.25*	-		
6. Burnout	.04	.28*	.19*	.63*	-.41*	-	
7. Gen. Job Demands	.57*	.54*	.43*	.46*	.05	.42*	-
8. Gen. Job Resources	.40*	.16*	.21*	-.24*	.61*	-.51*	.17*

* indicates relationship is significant at $p < .05$

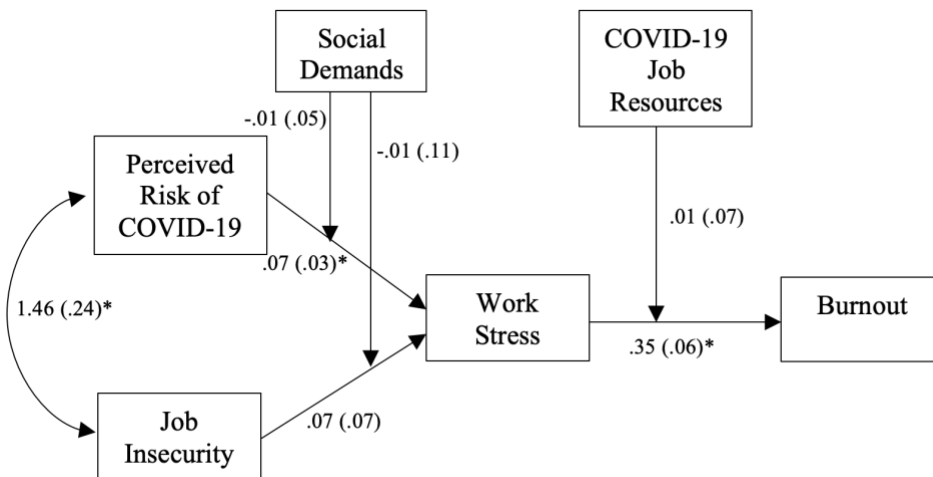
We conducted a path analysis on the proposed model by delineating each path of the model in R Studio and analyzing the standardized regression coefficients. For each path of the model, we controlled for general job demands and job resources (i.e., prior to COVID-19) by inputting these variables as separate covariates. Additionally, we determined the significance of mediating and moderating variables by analyzing indirect and interaction effects, in accordance with the proposed model paths. For all analyses, we employed a bootstrapping resampling technique with 1000 iterations.

The path analysis yielded several fit indices, all of which indicated the model did not possess good fit. First, the Chi-Square significance test yielded a significant result, $X^2(42, N = 159) = 447.43, p < .001$, indicating that the null hypothesis of equality between the predicted model and observed data should be rejected. The comparative fit index (CFI) and the Tucker-Lewis index (TLI) also indicated poor fit, with values of 0.42 and 0.25, respectively. Moreover, the root mean square error of approximation (RMSEA) was 0.25 [90% CI: 0.23, 0.27], which is well above the accepted threshold of good fit. Potential explanations for poor model fit will be

elaborated as we analyze the individual paths below as well as in the discussion section. Please see Figure 2 for the analyzed model including standardized path coefficients.

Figure 2

Analyzed model with standardized path coefficients



*indicates significant at $p < .05$

Note. Effects represent standardized regression coefficients with standard error in parentheses

Hypothesis 1a stated that the perceived risk of COVID-19 will positively impact general work stress. This direct effect was significant, while controlling for job insecurity and general job demands and resources, $\beta = 0.07$ ($SE = 0.05$), $p = .02$. Thus, hypothesis 1a was supported.

Hypothesis 1b stated that job insecurity will positively impact general work stress. Although the correlation between these two variables was significant ($r = 0.34$, $p < .001$), this direct effect was not significant once the model included perceived COVID-19 risk and general job demands and resources, $\beta = 0.07$ ($SE = 0.07$), $p = .30$. Thus, hypothesis 1b was not supported.

Hypotheses 2a and 2b posited that social task demands will moderate the relationship between both types of COVID-19 job demands (i.e., perceived risk and job insecurity) and work stress, such that the positive relationship would increase in magnitude as social demands increase. Neither the interaction term for social demands and perceived risk of COVID nor the interaction term for social demands and job insecurity were significant in predicting work stress [$\beta = -0.01$ ($SE = 0.05$), $p = .89$ and $\beta = -0.01$ ($SE = 0.11$), $p = .93$, respectively], indicating no moderation effects. Thus, hypothesis 2a and 2b were not supported.

Hypothesis 3 stated that general work stress will positively impact burnout. This relationship was significant in the path analysis, while controlling for general job demands and resources, $\beta = 0.35$ ($SE = 0.06$), $p < .001$. Thus, hypothesis 3 was supported. Moreover, the indirect effect of perceived risk of COVID-19 predicting burnout through work stress was also significant (0.02 , $SE = .01$, $p = .04$). Therefore, work stress successfully mediated the relationship between COVID-19 risk and burnout.

Lastly, hypothesis 4 stated that COVID-19 job resources will significantly moderate the relationship between work stress and burnout, such that the relationship will decrease as job resources increases. In the path analysis, the interaction term for COVID-19 job resources and work stress did not significantly predict burnout $\beta = 0.10$ ($SE = 0.07$), $p = .17$. Thus, there was no significant moderation, and hypothesis 4 was not supported.

Discussion

Because several of our proposed paths were not significant, the fit indices indicated that the proposed model should not be accepted in its current form. However, there remain many findings from this study that support our hypotheses and explicate the effects of the COVID-19 pandemic on occupational safety and employee well-being.

Consistent with the JD-R model of occupational stress (Bakker & Demerouti, 2007), our results suggest that demands resulting from performing one's job in person during the COVID-19 pandemic do increase employee stress. The current study operationalized COVID-19 job demands through two variables: perceived risk of the pandemic and job insecurity. Both of these variables significantly predicted work stress individually (see Table 1 for correlations). However, when both variables were included the model along with controlling for general job demands and resources, only the perceived risk of COVID remained a significant predictor of work stress (see Figure 2 for model with path coefficients). It is important to note that there existed high levels of shared variance between perceived COVID risk and job insecurity ($r = .61, p < .001$), and this strong relationship most likely suppressed job insecurity from adding unique variance towards the prediction of work stress. Regardless, these findings do support previous literature in the notion that perceptions of health risks in organizations can be conceptualized as job demands and may negatively impact worker well-being by increasing stress (Nielsen, Mearns, Matthiesen, & Eid, 2011).

Additionally, we hypothesized that as social task demands increase, the positive relationship between COVID-19 job demands and work stress would also increase. Although social task demands did significantly correlate with risk perceptions of COVID-19, job insecurity, and work stress (see Table 1 for correlations), we did not find support that these social

demands moderate the relationships between these variables. Because of these significant correlations, it is clear that social task demands are an important predictor of work stress during the pandemic. Therefore, a reconceptualization of social task demands is needed to ensure its appropriate role in the hypothesized model. Specifically, it may be the case that the social task demands contribute directly to COVID-related job demands (i.e., perceived risk) instead of moderating the relationship between demands and work stress. Through this new lens, the condition of having to work in close proximity to others during the pandemic would increase an employee's perceived risk of transmitting the disease. These hazardous working conditions would serve as an additional job demand, influencing the negative effects on work stress and eventual burnout. As mentioned, previous research has already treated poor working conditions as a job demand in the JD-R model (Berntson et al., 2012), and it could be hypothesized that social task demands during a pandemic have a direct role in impacting employee well-being, rather than moderating one. This reconceptualized model will be further addressed in the section on future directions.

Importantly, work stress that resulted from the increase in perceived risk of COVID-19 did significantly increase burnout. This is consistent with previous literature's findings that job demands increase likelihood of burnout by increasing employee stress (Demerouti, 2001). This study extended previous findings on occupational safety by positing that during a health crisis, such as a pandemic, every workplace in which employees must work in close proximity becomes a high-risk work environment. As such, the increased job demands related to the pandemic may indirectly increase burnout through stress. This assertion was supported not only by the significant relationship between work stress and burnout in the proposed model, but also by the significant mediation of work stress between perceived COVID risk and burnout. Indeed, those

who perceived the pandemic as being more hazardous also experienced increased levels of stress at work, and in turn, increased levels of burnout. It is important to note that we obtained these findings while controlling for general job demands and resources (i.e., pre-COVID). Therefore, we can confidently infer that these effects of increased work stress resulted from specifically COVID-related job demands, and not the general demands of one's job.

Based upon the JD-R model, we anticipated that COVID-19 job resources (i.e., positive perceptions of workplace safety and supervisor support) would buffer the relationship between work stress and burnout. Indeed, COVID-19 job resources did negatively correlate with both work stress and burnout (see Table 1 for correlations). However, COVID resources did not significantly moderate the relationship between stress and burnout in our path analysis. One potential explanation for this is the strong positive relationship between COVID resources and general job resources. Because these two variables share a large amount of variance and both significantly correlate with work stress, COVID resources may not add incremental variance in predicted work stress when the model controls for general job resources. We conducted a hierarchical regression analysis which supported this view: adding COVID-19 resources as an independent variable to a simple regression of general job resources predicting work stress yielded no significant change in R^2 [$F(1, 156) = 2.71, p = .102$]. Therefore, we can infer that consistent with previous literature, job resources do have the potential to reduce work stress and burnout. However, it is not clear from our findings that providing specific COVID-related job resources buffer the effects of job demands beyond the job resources that were in place prior to the pandemic.

The findings from this study provide contributions in both theory and practicality. First, by establishing perceived risk of the COVID-19 pandemic as a job demand and significant

predictor employee stress, we help advance the flexible and comprehensive nature of the JD-R model. This adds not only to research on job outcomes (i.e., burnout) but also occupational health and safety. This study focused on two facets of job demands during a pandemic: risk perceptions and job insecurity, both of which the current study demonstrated positively relate to employee stress. By analyzing how these two variables negatively impact various work outcomes in the COVID-19 context, we help elucidate how the repercussions of working in person during a pandemic manifest by decreasing employee well-being.

Limitations and Future Directions

One limitation of the current study is that the COVID-19 pandemic has been an ongoing crisis with many fluctuations in both prevalence of cases and employment trends. As such, the current study was only able to capture effects from this crisis at one specific time, and our findings may not generalize completely to other timepoints during the pandemic. However, this issue is mitigated by the fact that we collected our data at a key point during the pandemic's progress. We conducted this study in late summer 2020, during which the United States saw an early peak in the daily number of COVID-19 cases (daily cases began to decline in early fall 2020 before spiking in the late fall and early winter; The COVID Tracking Project, 2021). Because we were able to capture people's perceptions of working during the pandemic at a pinnacle time, our findings should accurately represent how the severity of the pandemic influenced workers' risk perceptions. Future research should seek to extend these findings in other high-risk contexts, such as those with biological or chemical hazards [e.g., healthcare (Walton & Rogers, 2017); waste management (Tsydenova & Bengtsson, 2011)]. Analyzing burnout outcomes through the lens of the JD-R model in new high-risk environments will further shed light on the harmful effects of perceived health risks on employee well-being as well as the

benefits of increasing supervisor commitment to safety. Ideally, workplaces will be more prepared for the next health crisis after persevering through this pandemic. However, by continuing to analyze the effects of job demands and resources under hazardous working conditions, we can gain further insight into reducing the employee stress and strain associated with risking one's health to perform her/his job.

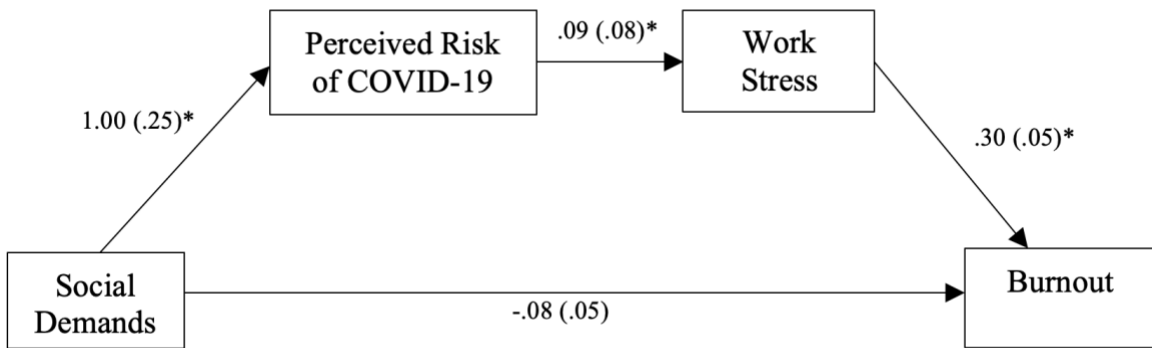
Another potential limitation of this study is that our data was collected over only two timepoints, even though the proposed model entails three sequential stages. Because of this, we are limited in making causal inferences between the study's observed effects. However, it is important to note that one main feature of this study is the impact of work stress during the pandemic on employee burnout, and these two variables were collected at different time points (i.e., stress at timepoint 1 and burnout at timepoint 2). Therefore, this direct effect is bolstered by temporal precedence, and we can be more confident that this key finding does coincide with the proposed directionality of the model.

Additionally, the current study only investigated two job demands associated with COVID-19 (i.e., perceived risk and job insecurity), and others may exist. In fact, it can be argued that although this study hypothesized social task demands to be a moderator between job demands and work stress, these social task demands may actually exacerbate a worker's perceived risk of COVID and act as a job demand. After all, previous literature has shown that one's work environment can influence job demands (Zapf, Knorz, & Kulla, 1996) and negatively impact well-being (Friedman, 1991). Based upon the relationship between the variables in this study, it could be proposed that social task demands influence burnout sequentially through the mediators of perceived COVID risk and work stress. In other words, social task demands during a pandemic may increase one's perceived risk of COVID-19, which in turn increases work stress,

and eventually burnout. A sequential mediation analysis using the current study's data supports this model (see Figure 3 for mediation model with significant path coefficients). Analyses from this model yielded significant indication of mediation, with an indirect effect = 0.03 [95% CI: 0.01, 0.05]. Future research should seek to replicate this finding by collecting data longitudinally over four timepoints. If supported, this could provide a novel lens to analyze the effects of social task demands within the JD-R model.

Figure 3

Sequential mediation model



*indicates significant at $p < .05$

Note. Effects represent standardized regression coefficients with standard error in parentheses

Conclusion

The findings from this study indicate that working in person during the COVID-19 pandemic can have negative effects on employee well-being. Specifically, working in person introduces added job demands in the form of risk perceptions of transmitting the virus as well as job insecurity. Through the job demands-resources model (Bakker & Demerouti, 2007), these COVID demands have the potential to increase employee stress, which can eventually result in increased levels of burnout. With the exception of job insecurity, we found support for these effects, even while controlling for general job demands and resources (i.e., those which were ongoing before the pandemic). Also consistent with the JD-R model, COVID-related job resources, such as organizational safety precautions and supervisor commitment to safety, were negatively related to both work stress and burnout. These findings not only help further the comprehensiveness of the JD-R model by applying it in a new context, but also bridge theory between occupational safety and work outcomes. By treating every workplace in which employees must interact in close proximity during the pandemic as a high-risk work environment, this study helps solidify previous research on the effects of poor working conditions on worker well-being.

Implications and practical applications from this study can help guide future research on the impacts of COVID-19 as well as help shape organizational policy in regard to preparation for future health crises. Our findings strongly suggest that working in person during the COVID-19 pandemic can be conceptualized as similar to working in other high-risk work environments. As such, organizations should take precautions to ensure these increased job demands do not negatively impact well-being. Despite our moderation analyses not aligning with our expectations, our findings still support the notion that providing employees with the proper job

resources is key in reducing stress and eventual burnout, including risk-mitigating policies and necessary support from supervisors.

In conclusion, this study reveals a troubling current state of employee attitudes and stress during the COVID-19 pandemic and offers insight into potential alleviations. Findings indicate that employees who must work in person during the pandemic undergo increased stress resulting from a perceived risk of transmitting the disease. To improve work well-being, organizations can support these workers by providing the necessary resources to combat the virus and maintain a commitment to safety.

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Table 1

Correlations between study variables

Variable	1	2	3	4	5	6	7
1. Social Task Demands	-						
2. COV. Risk Perception	.52*	-					
3. Job Insecurity	.52*	.61*	-				
4. Work Stress	.24*	.44*	.34*	-			
5. COV. Job Resources	.37*	.17*	.19*	-.25*	-		
6. Burnout	.04	.28*	.19*	.63*	-.41*	-	
7. Gen. Job Demands	.57*	.54*	.43*	.46*	.05	.42*	-
8. Gen. Job Resources	.40*	.16*	.21*	-.24*	.61*	-.51*	.17*

* indicates relationship is significant at $p < .05$

Figure 1

Proposed model for path analysis

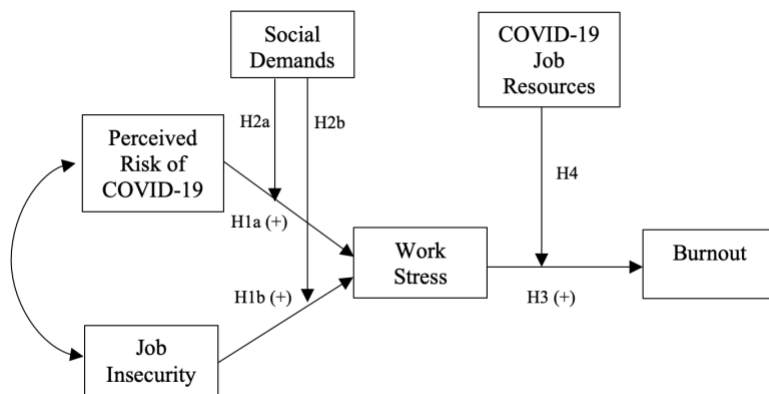
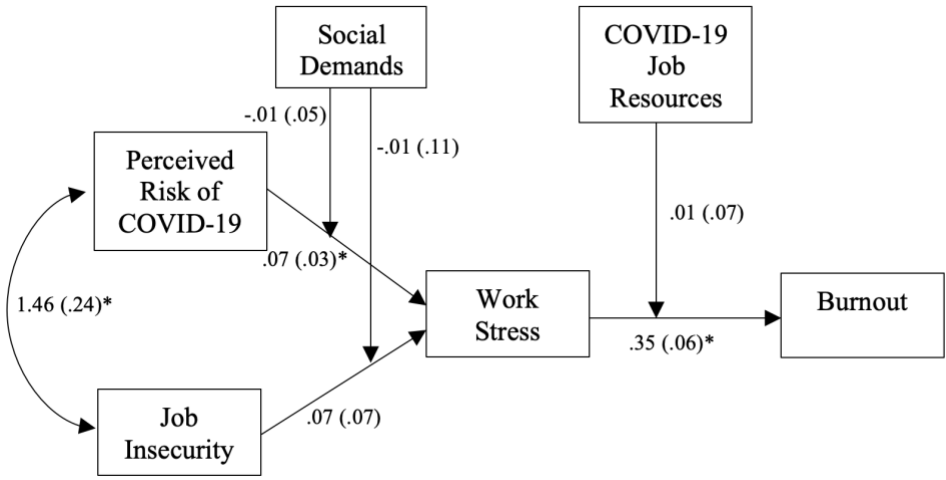


Figure 2

Analyzed model with standardized path coefficients

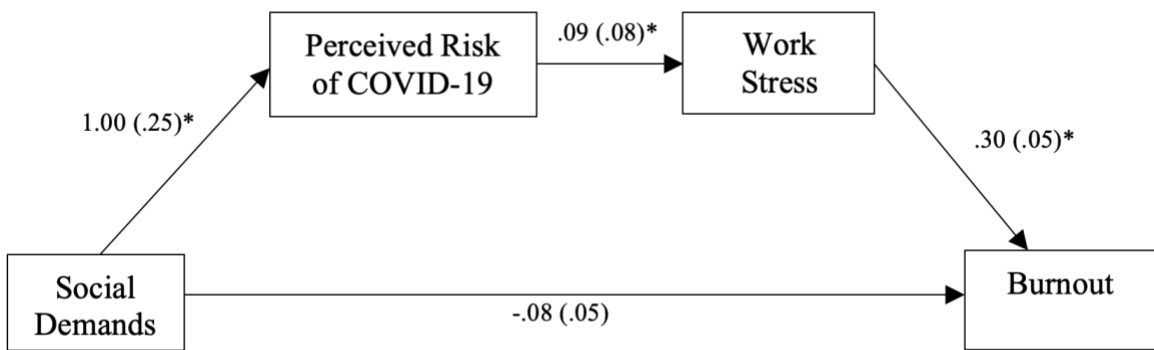


*indicates significant at $p < .05$

Note. Effects represent standardized regression coefficients with standard error in parentheses

Figure 3

Sequential mediation model



*indicates significant at $p < .05$

Note. Effects represent standardized regression coefficients with standard error in parentheses

Appendix A

Social Task Demands Scale

Adapted from the O*NET WAQ and WCQ (Peterson et al., 2001). The original scale and number for each item is listed in parentheses. Items 1-16 are measured on a 5-point Likert scale from “Not Important at All” to “Extremely Important”.

1. In-person interactions that require you to deal with external customers (as in retail sales) or the public in general (as in police work). (Item 8 in WCQ)
2. Communicating in person with people outside the organization, representing the organization to customers, the public, government, and other external sources. (Item 27 in WAQ)
3. Performing for people in person or dealing directly with the public. This includes servicing customers in restaurants and stores or receiving clients or guests. (Item 32 in WAQ)
4. Communicating with and providing information to supervisors, coworkers, and subordinates in person. (Item 26 in O*NET Work Activities Questionnaire)
5. Communicating in person to develop constructive and cooperative working relationships with others and maintain them over time. (Item 28 in WAQ)
6. Providing in-person personal assistance, medical attention, emotional support, or other personal care to others such as coworkers, customers, or patients. (Item 29 in WAQ)
7. Convincing others in person to buy merchandise/goods, or to otherwise change their minds or actions. (Item 30 in WAQ)
8. Handling complaints, settling disputes, resolving grievances or otherwise negotiating with others in person (Item 31 in WAQ)
9. Coordinating the work and activities of others on an in-person basis. (Item 33 in WAQ)
10. Encouraging and building mutual trust, respect, and cooperation among team members on an in-person basis. (Item 34 in WAQ)
11. Training and teaching others on an in-person basis, including identifying educational needs and developing formal educational or training programs. (Item 35 in WAQ)
12. Providing guidance and direction to subordinates on an in-person basis, including setting performance standards and monitoring performance. (Item 36 in WAQ)
13. Identifying the developmental needs of others and coaching, mentoring, or otherwise helping others to improve their knowledge or skills on an in-person basis. (Item 37 in WAQ)
14. Providing consultation and advice to management or other groups on an in-person basis (Item 38 in WAQ)
15. In-person interactions that require you to work with or contribute to a work group or team to perform your current job. (Item 7 on WCQ)
16. In-person interactions that require you to coordinate or lead others in accomplishing work activities (not as a supervisor or team leader). (Item 9 on WCQ)

Items 17-18 are measured on a 5-point Likert scale from “Never” to “Everyday”.

17. How often does your current job require face-to-face discussions with individuals and within teams? (Item 1 on WCQ)

18. How frequently does your current job require public speaking (one speaker with an audience)? (Item 2 on WCQ)

Item 19 is measured on a 5-point Likert scale from “No contact with others” to “Constant contact with others”.

19. How much contact with others (face-to-face) is required to perform your current job? (Item 6 on WCQ)

Item 20 is measured on a 5-point Likert scale from “I don’t work near other people (beyond 100 ft.” to “Very close (near touching)”.

20. How physically close to other people are you when you perform your current job? (Item 21 on WCQ)

Appendix B

COVID-19 Job Demands Scales

Perceived Risk of COVID-19 Scale was adapted from Setbon and Raude (2010).

1. How worried are you about the COVID-19 pandemic?
2. How serious do you think the COVID-19 pandemic is?
3. What proportion of the population of the United States could get the disease during the pandemic?
4. How high do you think is your personal risk of getting the disease during the pandemic?

Job Insecurity items adapted from Rothman, Mostert, & Strydom, 2006 and measured on a 5-point Likert-based scale from “Never” to “Always”.

1. Do you need to be more secure that you will still be working in one year’s time?
2. Do you need to be more secure that you will keep your current job in the next year?
3. Do you need to be more secure that the next year you will keep the same function level as currently?

Appendix C

Work Stress

Work Stress items adapted from Cohen, Kamarck, and Mermelstein (1983) and measured on a 5-point Likert-based scale from “Never” to “Always”.

1. While working during the pandemic, how often have you been upset because of something that happened unexpectedly?
2. While working during the pandemic, how often have you felt that you were unable to control the important things in your life?
3. While working during the pandemic, how often have you felt nervous and “stressed”?
4. While working during the pandemic, how often have you dealt successfully with irritating life hassles? (reverse scored)
5. While working during the pandemic, how often have you felt that you were effectively coping with important changes that were occurring in your life? (reverse scored)
6. While working during the pandemic, how often have you felt confident about your ability to handle your personal problems? (reverse scored)
7. While working during the pandemic, how often have you felt things were going your way? (reverse scored)
8. While working during the pandemic, how often have you found that you could not cope with all the things that you had to do?
9. While working during the pandemic, how often have you been able to control irritations in your life? (reverse scored)
10. While working during the pandemic, how often have you felt that you were on top of things? (reverse scored)
11. While working during the pandemic, how often have you been angry because of things that happened that were outside of your control?
12. While working during the pandemic, how often have you found yourself thinking about things that you have to accomplish?
13. While working during the pandemic, how often have you been able to control the way you spend your time? (reverse scored)
14. While working during the pandemic, how often have you felt difficulties were piling up so high that you could not overcome them?

Appendix D

COVID-19 Job Resources Scale

Adapted from Group-Level Safety Climate inventory (Zohar & Luria, 2005) and measure on a 5-point Likert-based scale from “Strongly Disagree” to “Strongly Agree”.

1. My direct supervisor makes sure we receive all the equipment needed to prevent the transmission of COVID-19.
2. My direct supervisor frequently checks to see if we all are all obeying the safety rules regarding personal protective equipment and proper distancing.
3. My direct supervisor discusses how to improve safety and prevent the transmission of COVID-19.
4. My direct supervisor uses explanations (not just compliance) to get us to act safely and prevent the transmission of COVID-19.
5. My direct supervisor emphasizes procedures that help prevent the transmission of COVID-19 when we are working under pressure.
6. My direct supervisor frequently tells us about the hazards of transmitting COVID-19 in our work.
7. My direct supervisor refuses to ignore rules that help prevent the transmission of COVID-19, even when work falls behind schedule.
8. My direct supervisor is strict about maintaining procedures that help prevent the transmission of COVID-19, even when we are tired or stressed.
9. My direct supervisor reminds workers who need reminders to work safely during COVID-19.
10. My direct supervisor makes sure we follow all the rules to prevent the transmission of COVID-19 (not just the most important ones).
11. My direct supervisor insists that we wear equipment that helps prevent the transmission of COVID-19 when working on shared devices.
12. My direct supervisor says a “good word” to workers who follow the procedures to prevent the transmission of COVID-19
13. My direct supervisor is strict about maintaining procedures that help prevent the transmission of COVID-19, even at the end of the shift when we want to go home.
14. My direct supervisor spends time helping us learn to prevent symptoms of COVID-19 before they arise.
15. My direct supervisor frequently talks about ways to prevent the transmission of COVID-19 throughout the work week.
16. My direct supervisor insists we wear our protective equipment to prevent the transmission of COVID-19, even if it is uncomfortable.

Appendix E

Demographics and Job Information Scales

Job Industry list is derived from O*NET (“browse by industry”).

1. What is your age? (write-in)
2. What is your gender? (write-in)
3. What is your race/ethnicity? (write-in)
4. What is the highest level of education you have achieved?
 - a. Did not graduate high school
 - b. High school diploma or GED
 - c. Associate’s Degree
 - d. Bachelor’s Degree
 - e. Graduate or Professional Degree
5. Please indicate your previous work status (before working in person during COVID-19).
 - a. Temporarily unemployed
 - b. Telecommuting (i.e., worked from home)
 - c. I have continued to work in person throughout the COVID-19 pandemic
 - d. Other
6. Please indicate the title of your job. (write-in)
7. In what type of industry do you work?
 - a. Accommodation and Food Services
 - b. Administrative and Support Services
 - c. Agriculture, Forestry, Fishing, and Hunting
 - d. Arts, Entertainment, and Recreation
 - e. Construction
 - f. Educational Services
 - g. Finance and Insurance
 - h. Government
 - i. Healthcare and Social Assistance
 - j. Information
 - k. Management of Companies and Enterprises
 - l. Manufacturing
 - m. Mining, Quarry, and Oil and Gas Extraction
 - n. Other Services (Expect Public Administration)
 - o. Professional, Scientific, and Technical Services
 - p. Real Estate and Rental and Leasing
 - q. Retail Trade
 - r. Transportation and Warehousing
 - s. Utilities
 - t. Wholesale Trade
 - u. Other

Appendix F

Burnout Scale

Items are taken from the OLBI (Demerouti, Mostert, & Bakker, 2010) and are measured on a 4-point Likert-based scale from “Strongly Disagree” to “Strongly Agree”.

1. I always find new and interesting aspects in my work.
2. There are days when I feel tired before I arrive at work. (reverse scored)
3. It happens more and more often that I talk about my work in a negative way. (reverse scored)
4. After work, I tend to need more time than in the past in order to relax and feel better. (reverse scored)
5. I can tolerate the pressure of my work very well.
6. Lately, I tend to think worse at work and do my job almost mechanically. (reverse scored)
7. I find my work to be a positive challenge.
8. During my work, I often feel emotionally drained. (reverse scored)
9. Overtime, one can become disconnected from this type of work. (reverse scored)
10. After working, I have enough energy for my leisure activities.
11. Sometimes I feel second by my work tasks. (reverse scored)
12. After my work, are usually feel worn out and weary. (reverse scored)
13. This is the only type of work that I can imagine myself doing.
14. Usually, I can manage the amount of my work well.
15. I feel more and more engaged in my work.
16. When I work, I usually feel energized.

Appendix G

General Job Demands and Resources (before COVID-19) Scale

Items are adapted from Rothman, Mostert, and Strydom (2006) and measure on a 4-point Likert-based scale from “Never” to “Always”.

1. Did you have too much work to do?
2. Did you work under time pressure?
3. Did you have to be attentive to many things at the same time?
4. Did you have to give continuous attention to your work?
5. Did you do you have to remember many things in your work?
6. Were you confronted in your work with things that affected you personally?
7. Did you have contact with difficult people in your work?
8. Did your work put you and emotionally upsetting situations?
9. Did you have enough variety in your work?
10. Did your job offer you opportunities for personal growth and development?
11. Did your work give you the feeling that you could achieve something?
12. Did your job offer you the possibility of independent thought and action?
13. Did you have freedom in carrying out your work activities?
14. Did you have influence in the planning of your work activities?
15. Could you participate in the decision about when a piece of work must be completed?
16. Could you count on your colleagues when you came across difficulties in your work?
17. If necessary, could you ask your colleagues for help?
18. Did you get on well with your colleagues?
19. Could you count on your supervisor when you came across difficulties in your work?
20. Did you get on well with your supervisor?
21. In your work, did you feel appreciated by your supervisor?
22. Did you know exactly what other people expected of you in your work?
23. Did you know exactly for what you were responsible?
24. Did you know exactly what your supervisor thought of your performance?
25. Did you receive sufficient information on the purpose of your work?
26. Did you receive sufficient information on the results of your work?
27. Did your direct supervisor inform you about important issues within your department/organization?
28. Were you kept adequately up-to-date about important issues?
29. Was the decision-making process of your organization clear to you?
30. Was it clear to you whom you should address within the organization for specific problems?
31. Could you discuss work problems with your direct supervisor?
32. Could you participate in decisions about the nature of your work?
33. Did you have a direct influence on your organizations’ decisions?
34. Did you think that your organization pays good salaries?
35. Could you live comfortably on your pay?
36. Did you think you were paid enough for the work that you did?
37. Did your job offer you the possibility to progress financially?
38. Did your organization give you the opportunity to follow training courses?

39. Did your job give you the opportunity to be promoted?