Relationship between stress due to COVID-19 pandemic, telecommuting, work orientation and work engagement: Evidence from India

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Abstract

The purpose of the present study is to examine the effect of stress induced by coronavirus (COVID-19), telecommuting, and work orientation on work engagement among employees in the Information Technology (IT) sector. Using a structured survey instrument, data were collected from 285 respondents from four cosmopolitan cities in the southern part of India—Chennai, Coimbatore, Tiruchirappalli, and Madurai using a structured instrument. The hierarchical regression results reveal that (i) stress induced by COVID-19 was negatively related to work engagement, (ii) work orientation is positively associated with work engagement, and (iii) telecommuting is positively associated with work engagement. The results also reveal that (i) telecommuting weakened the relationship between stress induced by COVID-19 and work engagement and (ii) strengthened the positive relationship between work orientation and work engagement. These results are consistent with Job Demands and Resources (JDR), Conservation of Resources Theory (COR), and Career Construction Theory (CCT). The study highlights the importance of telecommuting as a strategic move on the part of the companies to reduce stress and enhance work engagement. Considering the global pandemic situation, employees in the IT sector would find it comfortable to work from their homes and contribute their best for the success of organizations. The present study also suggests ways for the organizations to promote work engagement and remain committed to performing during stressful situations like a global pandemic. The theoretical and practical implications are discussed.

Keywords
Perceived stress due to COVID-19, telecommuting, work orientation, work engagement

Introduction

The sudden and unprecedented outbreak of coronavirus (COVID-19) brought paradigmatic changes in the socioeconomic and business environment worldwide. The initial alarm bell that rang sometime in December 2019 went unnoticed until it adversely affected over 220 countries resulting in a total death toll of over 3.8 million (Worldometers, 2021). In addition to creating a panic situation regarding health, COVID-19 has evoked substantial psychological, physical, and professional challenges in all the industries at the global level (Achterberg et al., 2021; De et al., 2020; Nath et al., 2021). The pandemic has increased the demand for front-line workers, employees in essential services (safety and security forces), and the information technology (IT) sector. The physical and psychological pressure and uncertainty in the labor market has been so unexpected that many developing countries, such as India were unprepared to face the pandemic. On the other hand, developed countries (USA, UK, Japan, Canada, Australia, and other European countries) had the in-built infrastructure to adjust to the new work environment created by the pandemic and successfully adapted to the challenging situation.

The present study aims to unravel the impact of stress caused by the COVID-19 global pandemic on employee work engagement, especially in the Indian context. When the global pandemic spread, several countries imposed mandatory lockdowns for a relatively long period, thus connecting individuals and organizations through online platforms. In India, too, because of lockdowns and social distancing, organizations require the employees to work from their homes (WFH). The academic institutions (schools, colleges, and universities) shifted their teaching from face-to-face to online, organizations conducting operations in virtual platforms, and gradually employees are getting adjusted to this “new way of work-life.”

Following the COVID-19 pandemic, it is imperative to examine how changing work style has affected employee work engagement, especially in the IT sector. Most
importantly, how the stress caused by COVID-19 and the strategies employed by organizations to bring normality to the workplace influence an individual’s career path, career flexibility, and advancement. As an adage says: “blessing in disguise,” individuals interested in a career advancement tends to take opportunities stemming from crises. During the last 18 months, several research papers have been published all over the world about various aspects—health-related, environment-related, business-related, consumer-related, and COVID-19 has been “buzzword” of the present century (Davidescu et al., 2020; Nath et al., 2021; Pedrozo-Pupo et al., 2020; Yan et al., 2021). Several researchers have examined the effect of COVID-19 on the online shopping motives of consumers (Koch et al., 2020; Loxton et al., 2020), impulse buying (Ahmed et al., 2020; Naeem, 2021), job crafting (Svicher and Fabio 2021), work-life balance, and job stress (Irawanto et al., 2021), tourism (Jaipuria et al., 2021), and performance of students in educational institutions (Gopal et al., 2021).

However, the research focusing on the impact of COVID-19 among the employees in the information technology (IT) sector, particularly in the Indian context, was understudied.

**Research gap and the rationale for the present study in the Indian context**

The present study examines the relationship between global pandemic-induced stress, telecommuting, work orientation, and work engagement of remote employees. During the pandemic and lockdowns, many business organizations worldwide have laid off thousands of workers, causing severe unemployment problems, and India is not an exception. For example, over nine million people lost their jobs in India (Jaipuria et al., 2021). The outbreak of COVID-19 has resulted in an increase in the number of infected cases throughout the world, including India; governments at the state and center have implemented various measures to prevent the further spread of the virus. These measures include mandatory lockdowns, social distancing, working from home, staying at home, and maintaining self-quarantine. These have resulted in colossal loss of profits to businesses, and to survive, the only strategy they had was heavy downsizing. For example, several migration laborers lost their jobs in the construction industry as the real estate property builders could not afford to pay them because the work had come to a standstill. While some people lost their jobs, others had no alternative than to work from home. At the same time, the demand for first-line workers and employees in the IT industry has increased manifold. Unfortunately, the technological infrastructure needed to work from home is lacking, thus causing additional stress to employees. As the organizations and employees did not have enough time to prepare for new setups and arrangements, they did not have any alternative other than to adjust to whatever resources they had.

In this scenario, the present study focuses on how individuals shape their career paths in organizations by aligning their soft skills to meet the demand from supervisors and by remaining flexible and adaptive (Jung and Takeuchi, 2018). Some forms of workplace flexibility include telecommuting, working from home, which existed earlier during flu season, bad weather, and crises. Now, workplace flexibility is expected to continue for a long time because of COVID-19 pandemic. Before the global pandemic, telecommuting was available to individual employees as an option, whereas employees were forced into telework without any preparation time during the pandemic. Unsurprisingly, employees were not given enough time to make home-based telework nearly for a long time. However, to our knowledge, there is a shortage of studies concerning the effect of COVID-19 on work engagement, especially in the context of changing work climate. To bridge the gap, the present study has the following research questions:

**RQ 1:** What is the effect of stress caused due to COVID-19 global pandemic, telecommuting, and work orientation on employee work engagement?

**RQ 2:** Does telecommuting reduce the negative impact of COVID-19 on work engagement and increase the positive effects of work orientation on work engagement?

This study makes five significant contributions to stress and work engagement literature. First, in the present conditions of the global pandemic, the work culture in many organizations worldwide has changed. The present study examines the stress caused by the COVID-19 global pandemic on employees’ work engagement. The adverse impact of the worldwide pandemic on work engagement, though expected, adds to the literature on stress and work. When work engagement, which is a positive psychological state, is adversely affected, productivity in organizations suffers. As evidenced in this study, aligning with findings from similar studies on the impact of the global pandemic, COVID-19 has harmful consequences. Second, this study found that if employees focus on their work while managing the health concerns of the global pandemic, it contributes to work engagement. Given the nature of the global pandemic crisis, the employees need to adopt a positive attitude towards work and see that productivity does not fall short of expectations. Third, to counter the negative impact of the crisis on work, organizations’ employees’ telecommuting a resilient strategy. This study reported that the positive association between telecommuting and work engagement contributes to the growing literature on stress and work. Fourth, in addition to the direct positive effect of telecommuting, the moderating effect of telecommuting in mitigating the ill-effects of COVID-19 on work engagement, as found in this study, is a pivotal contribution to the literature. Further, telecommuting strengthens the relationship between work orientation and work engagement, thus providing a solution to combat crises. In developed countries, telecommuting existed during the pre-pandemic, and moving to work from home (WFH) became very easy. In developing countries like India, infrastructure does not have the capability for the organizations to move to WFH. The pandemic created a window of opportunity for implementing telecommuting so that work is not interrupted. Fifth, the simple conceptual model we developed in this research contributes to the literature on stress and work, underscoring the importance of telecommuting.
Literature review and the variables in the present study

Perceived stress due to COVID-19

Organizational scholars have exhaustively researched job stress (Sauter and Murphy, 1995; Shinn et al., 1984). Previous researchers documented that job stress is an occupational hazard that has deleterious consequences on individuals’ physical health, mental and psychological health, work performance, and job satisfaction (Maslach & Leiter, 2008). Clinical psychologists identified several physical, psychological, behavioral, and biological determinants of stress (Schneiderman et al., 2005). Stress causes include heavy workload, long working hours, working under dangerous conditions, and emotional problems such as anxiety, anger, and low self-esteem. While these are job-related work stressors, one new source of stress has been added to the list of stressors, that is, pressure due to COVID-19. As mentioned earlier, the outbreak of a global pandemic has become a threat to the existence of humankind, and it has adversely affected the physical and mental health of the world population. Clinical scientists argue that the impact of social distancing and quarantine caused by the pandemic on the mental health of individuals is significant; and a higher incidence of depression, posttraumatic stress disorder and anxiety disorders in the patients admitted to intensive care units, front-line healthcare workers, and families of infected patients (Polšek, 2020). There is unanimity among researchers that the COVID-19 outbreak is considered as a potential stressor resulting in emotional disturbances (Pedrozo-Pupo et al., 2020; Yan et al., 2021), anxiety (Li-cacoet et al., 2020), and adverse health and well-being of individuals (Achterberg et al., 2021; Liu et al., 2021). Initially originating in Wuhan, China, the COVID-19 has officially declared a global pandemic on 11 March 2020, and subsequently, several countries in the world have imposed lockdowns and social distancing (Cucinotta and Vanelli, 2020). The global pandemic caused significant stress to populations worldwide (Bao et al., 2020). For example, in China, around 110 million people reported stress (Wang et al., 2020), and in Italy, 16 million people said that they experienced acute stress (Mazza et al., 2020). Similarly, several countries reported that the people experienced moderate to severe anxiety caused by the global pandemic.

The COVID-19 induced stress has essential ramifications in the lives of people. It is essential to study how individuals and organizations adapt to the challenges during the pandemic. At the organizational level, the managers introduced changes in the work climate and required the employees to ‘stay home and stay safe’ and at the same time work from home. There was a sudden change in the demands from employers, and individuals were almost forced to adapt to the conditions.

Telecommuting

Also known as telework or teleworking, telecommuting represents remote working (away from offices). Telecommuting is one of the flexible working policies of organizations and one of the new ways of working that is being practiced for over a decade. Employees used to work remotely on some days, whereas they performed their duties in office locations on some other days. Remote working was purely optional, and the managers and employees collectively decided when to work remotely and when to work face-to-face in offices. But during the global pandemic, there was no other choice for managers and employees but work remotely. Thus, telecommuting has been a necessity rather than a choice, and organizations worldwide switched to telecommuting; dual-career parents were forced to work from home (Feng and Savani, 2020). As World Health Organization (2020) reported, the global pandemic has resulted in unprecedented changes in people’s lives across the globe. Telecommuting refers to employees communicating with their offices, customers, and others by telephones and emails and conducting business only online (Hornby et al., 2011). Telecommuting has become a standard mode of work across all sectors in the global pandemic. In telework, employees are primarily self-reliant in their efforts to overcome challenges and work productively to the satisfaction of their supervisors. The impact of the global pandemic on various workforce levels are visible, and the variety, volume, velocity, and value of the work has increased in alarming proportions (Chang et al., 2021). More notably, as work from homes has become a norm rather than an exception, the organizations have shifted to digital mode and provided digital infrastructure to handle the heavy workload (Akala, 2020; Khetarpal, 2020). The digital transformation requires adopting a digital workforce mindset, especially for the employees who are not habituated to telecommuting. It is predicted that the post-COVID world would have contactless interfaces, strengthened digital infrastructure, telemedicine, online shopping, digital events, and increased reliance on robots (Marr, 2021).

Work orientation

Work orientation is concerned with how individuals perceive their work in life and find the meaning of work (Fossen & Vredenburgh, 2014). Work orientation is tri-dimensional, and individuals differ in their work orientation (Bellah et al., 1985). The three dimensions of work orientation are job orientation, career orientation, and calling orientation (Pitacho et al., 2019). Individuals who view work from a “job orientation” angle focus on the material benefits of performing work. These individuals are driven by extrinsic motivations and focus on financial rewards. Individuals who view work from “career orientation” tend to see work as a career advancement. These individuals aspire to increase the organizational hierarchy and enjoy increased power, status, and prestige (Wrzesniewski, 2003). The third dimension is that some individuals who see work as “calling orientation” have a life mission and are more oriented towards self and emphasize the intrinsic motivation to derive happiness and a sense of self-fulfillment (Duffy and Dik, 2013). For example, most of the novel writers see work as a life mission with which they were destined and be identified, and in this process, they make personal and financial sacrifices (Bunderson and Thompson, 2009). Thus, work orientation is three-dimensional, viz., job dimension, career dimension, and calling dimension. Depending on their goals, individuals
work orientation (i) to satisfy their financial needs and motivated by extrinsic factors, (ii) to satisfy their career goals and motivated by intrinsic factors, and (iii) to satisfy their life goals of happiness and self-fulfillment. It is exciting to note the linkages between these dimensions. For instance, job orientation leads to career orientation, which leads to calling intention of life satisfaction. In organizations, career advancement is accompanied by an increase in financial reward, and hence individuals who see their work as a job can also eventually enjoy progress in their careers. The direct positive relationship between the three dimensions of work orientation has been documented by researchers (Pitacho et al., 2019). The effect of the work orientation of employees on work engagement during the global pandemic is studied in this research.

**Work engagement**

Employee engagement at work is “a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002: 74). Engaged workers exhibit high dedication to complete given tasks on scheduled time. Previous researchers found that work engagement is positively associated with creativity, performance, citizenship behavior, and client satisfaction (Bakker, 2017; Schaufeli and Bakker, 2004). This is because individuals who are high on work engagement show enthusiasm and get immersed in work until they complete given tasks. Though individuals differ in their level of work engagement, depending on their personality characteristics and behavioral strategies, studies have shown that work engagement has positive outcomes (Bakker et al., 2014). Some of the antecedents of work engagement include job redesign, job resources, personal resources of individuals in terms of cognitive abilities, leadership style, and organizational climate (Alfes et al., 2013; Breevaart et al., 2014; Holman and Axtell, 2016). Work engagement is different from organizational engagement in the sense that the former focuses on the psychological state of an individual while fulfilling a task (Wefald and Downey, 2008), whereas later reflects an individual’s focus on full work performance by investing physical, cognitive, and emotional energies (Rich et al., 2010). Early scholars on organizational behavior found that engaged employees are affectively connected to their tasks and experience a stable condition of positive energy, whereas the disengaged employees feel emotionally detached from their tasks and experience tiredness, cynicism, and burnout (Baker et al., 2014; Hobfoll, 1989).

**Theoretical background and development of hypotheses**

The theoretical framework for the present research comes from three sources viz., Job Demands and Resources (JDR) model (Schaufeli and Bakker, 2004), Conservation of Resources Theory (COT) (Hobfall, 1989), and Career Construction Theory (CCT) (Savickas, 2005).

According to JDR, two sets of variables: job resources and job demands, influence the work of individuals. Job resources include physical, social, psychological, and organizational resources available to employees to achieve their work goals. Job resources help the employee in personal learning and development and help them in career growth. On the other hand, job demands refer to physical, social, and psychological efforts the employees are required to complete tasks. The presence of needs and absence of available resources result in adverse consequences such as burnout, absenteeism, low commitment, job dissatisfaction (Maslach and Leiter, 2008). JDR is relevant to the present study because it was documented in the literature, those job resources are positively related to work engagement and job demands were negatively related to job engagement (Bakker and Demerouti, 2007). Job demands include high work pressure (for example, due to global pandemic) and emotional needs (due to adjustment of change in the work style), leading to disengagement and low job satisfaction. On the other hand, job resources such as performance feedback, social support, support from peers and citizenship behaviors lead to work engagement and employee commitment (Demerouti and Bakker, 2011).

Another theory relevant to the present study is the Conservation of Resources (COR) (Hobfall, 1989). The basic tenet of COR is that individuals acquire and conserve resources for survival. When individuals feel the threat of loss of resources, they try to gain resources to survive, and if they cannot gain resources, they face stressful situations. Thus, individuals attempt to obtain and retain personal, social, and material resources to meet stressful challenges (Hobfall et al., 2018). COR emphasizes the objectively stressful nature of events and posits that resource loss is more potent than resource gain.

Further, when the resources are exhausted, individuals tend to go to the defensive mode or become aggressive. The COR theory is relevant to the present study in a sense; the global pandemic created a situation of severe resource losses to the individuals, and to survive, they need to invest in acquiring resources. For example, faculty who were habituated to classroom teaching may find it difficult to switch to online education because of a lack of training. To survive, they need to learn how to deliver lectures online and discover the technological tools required. Getting the necessary training needed to learn technical skills on virtual platforms are not an overnight task.

Another theory relevant to employees in today’s global pandemic context is the Career Construction Theory (CCT) (Savickas, 2005). The basic tenet of the CCT is that individuals use their vocational personalities to adapt to changes in jobs or job requirements. Individuals focus on their careers while performing jobs and invest their time learning new ways of doing things. Employees build their careers by imposing meaning on what they do in organizations, that is, work orientation. Individuals inherently develop career-related abilities, needs, values, and interests and behave in ways that help their career development. As imposed by the global pandemic, flexible working conditions would create opportunities for vocational personalities to engage in behavior that promotes their career.

As mentioned before, the objective of the present study is to unravel the interrelationships between perceived stress caused by a global pandemic, telecommuting, and work orientation among IT employees in India.
Hypotheses development

a Perceived stress due to COVID-19 and work engagement. Extant research on the negative relationship between occupational stress and work engagement, worker productivity, and worker satisfaction has been well documented in the literature (Amin et al., 2018; Hobubi et al., 2017). Work-related stress, to some degree, is vital to work engagement as long as the stress is considered ‘positive’ (called ‘eustress’). On the contrary, when stress is considered ‘negative’ (called ‘distress’), employees would not engage in the work productively. Abundant research documented that excessive stress has several adverse consequences on organizations in addition to serious health problems at the individual level (Morrissette and Kisamore, 2020; Rees, 1995). Previous researchers documented that work-related stress results in physical and psychological illness, and employees may eventually leave the organizations unless organizations introduce intervention mechanisms to reduce stress (Bhui et al., 2017). In addition, some studies reported that economic conditions, such as recession, may increase the stress of employees (Evans-Lacko et al., 2013; Stranks, 2015). Earlier researchers found that stress may also be related to adverse life events and environments where the transactional interaction between an individual and environment may trigger stressors (Cox, 1993; Florio et al., 1998). In the present study, the perceived stress due to the COVID-19 global pandemic, unprecedented and expected, has a deleterious effect on work engagement. This observation has intuitive appeal (logos) and is also consistent with the existing literature on stress. Based on the above, the following hypothesis was proposed:

H1: Perceived stress due to COVID-19 is significantly and negatively related to work engagement.

b Work orientation and work engagement

In the present competitive work environment, the employees must exhibit work orientation to survive (Elhart et al., 2014). As the work conditions have undergone significant changes and flexibility in the workplace has become a norm, employers expect that workplace flexibility may increase job performance, higher level of comfort, increase work motivation of employees, and contribute to improved relationships between employees and management. On the other hand, employees focus on work orientation to balance the demands coming from the employers. The career theory and research scholars argue that organizational dynamics shape individual career decisions in terms of flexible work policies and administrative practices (Tomlinson et al., 2018). The changes in the work-life demands stemming from crises, such as the global pandemic, affect employees’ career management. Career-oriented employees have strong work orientations and perform better than those who do not care about their career growth. From a sociological viewpoint, work orientation consists of interpretation patterns, subjective interests, behavioral strategies to perform work, and react to employment situations (Pongratz. and Voß, 2003). From a psychological point of view, work orientation is concerned with personal needs and preferences regarding work and whether the individual preference of career orientation, performance orientation, and relationship between work and non-work are aligned perfectly or not. Work orientation is concerned with how individuals can optimize their working methods and get the best out of themselves. Work orientation also includes the willingness to work overtime when needed, willing to help others, exhibit extra-role behaviors, and not allow the family to hinder the work (Hoge, 2011). Intuitively, work orientation makes an individual engage in work and increases productivity. Based on the above, the following hypothesis was offered:

H2: Work orientation is significantly and positively related to work engagement

c Telecommuting and work engagement

One of the hallmarks of the present decade is workplace flexibility as a management strategy to achieve business results (Kurland and Bailey, 1999). Work flexibility includes part-time work schedules, flexitime, telework on an ad hoc basis, telework regularly, shifts flexibility, and telework full-time. Telecommuting is one of the widely used workplace flexibility methods in organizations. The empirical evidence suggests that telecommuting results in better health, increased job satisfaction, improved objective performance, lower stress, reduced absenteeism and turnover (Gajendran and Harrison, 2007; Kossek and Michel, 2011). Though telecommuting has been in vogue for a long time, during the COVID-19 global pandemic, organizations considered home office as a strategy to continue their operations, and it is also expected that shortly (until things come to normal), the procedures will be conducted remotely (Gomez et al., 2020). Previous researchers documented a positive association between telecommuting and work engagement and suggested that leadership can promote telecommuting to increase productivity (Tate et al., 2019). For instance, Gerards et al. (2018) found that “time and location-independent work” (one of the five new work ways related to work engagement) is positively associated with work engagement, mediated by transformational leadership. Based on the above, the following hypothesis was proposed:

H3: Telecommuting is significantly and positively related to work engagement

d Moderation hypotheses

Sometime back, several authors have proposed new ways of work consisting of various facets—viz., flexibility, working at home, working together at a distance, time-and location-independent work—suggesting the organizations refurbish offices from traditional face-to-face offices to open-office layouts (De Leede and Kraijenbrink, 2014; Peters et al., 2014). A recently held study found that various facets of new ways of working are positively related to work engagement (Gerards et al., 2018). The authors argue that one of the facets of these new ways of working, that is, telecommuting, has, in addition to a direct effect on work engagement, a potential to moderate the relationship between other independent variables and work engagement. Individuals will be motivated to invest their time and energy into work when they have the discretion to perform duties
according to their convenience, and telecommuting offers such inconvenience. Employee engagement is a psychological state characterized by the passion for working and commitment and thus resulting in positive organizational outcomes (Bakker and Albrecht, 2018). During the global pandemic, telecommuting acts as a positive and motivating force for the employees to alleviate the stress caused by the pandemic and severely affects the work engagement. Though stress is negatively related to work engagement, the authors argue that telecommuting reduces the strength of the negative relationship. Though, to our knowledge, no previous studies were available to vouch for the moderating effect of telecommuting; the authors are making a priori hypothesis in an exploratory way. It is also contended that telecommuting acts to strengthen the positive relationship between employee work orientation and work engagement. Tomlinson et al. (2018) argue that individuals on a career path would invest their resources in grabbing opportunities stemming from crises and react positively. Some individuals prefer flexibility in their careers, which is most often influenced by the institutional and organizational environment. Sometimes, problems such as a global pandemic takes the opportunities for their benefit. Telecommuting helps these individuals to realize their career goals by self-motivation and interacting with the changing environment positively. Based on the above arguments and existing literature, the moderation hypotheses were offered:

H4a: Telecommuting moderates the relationship between perceived stress and work engagement such that at higher levels of telecommuting, the relationship between stress and work engagement becomes weaker than at lower levels of telecommuting

H4b: Telecommuting moderates the relationship between work orientation and work engagement such that at higher levels of telecommuting, the relationship between work orientation and work engagement becomes more substantial than at lower levels of telecommuting.

The conceptual model is presented in Figure 1.

**Method**

**Sample**

A survey instrument was sent to the employees working in the information and technology (IT) sector in four major cities of the southern part of India (Tamil Nadu). Because of the global pandemic, the authors could not directly contact the respondents. The surveys were sent using the Google forms, and asked the respondents to answer only if they are in the IT sector and working remotely. The authors got data from 285 respondents from four cosmopolitan cities (Chennai, Coimbatore, Tiruchirappalli, and Madurai).

To collect data, the authors used convenience sampling because of several reasons:

1. It is impossible to have a fixed list of IT employees in various companies to have probability sampling.
2. IT employees are dispersed over several locations due to social distancing and global pandemic and all the employees were working from homes.
3. Some IT employees may not show any interest in participation.

![Figure 1. Conceptual model.](image)

To have representativeness of data and elicit unbiased responses, the focus was only on interested participants who are willing to provide accurate information about what they feel. Non-serious respondents may skew the results, so the authors preferred to avoid them. It took around 4 months for us to collect data from the respondents. This is consistent with past researchers’ work in social science research (Badgaiyan and Verma, 2014). The authors also tested the data for non-response bias by comparing the mean differences between the first fifty respondents and the last fifty respondents and noted no significant differences.

**Demographic profile**

The demographic profile of the respondents was presented in Table 1.

**Measures**

In this research, all the indicators were measured on a Likert-type five-point scale (“1” = strongly disagree; “5” = strongly agree). Perceived stress due to COVID-19 was measured using seven items adapted from Gomez et al. (2020). The sample items read as: “I feel tense or worried about the effects that the coronavirus might have”; and “I feel anxious or nervous about the coronavirus.” The reliability coefficient Cronbach’s alpha for stress was 0.68. Work orientation was measured using six items adapted from Hoge (2011), and the sample items read as: “I constantly optimize my working methods”; “I get the best out of myself.” The reliability coefficient of work orientation was 0.641. The telecommuting was measured using nine items adapted from Gomez et al. (2020), and the sample items read as: “I can cover my work responsibilities from home (work from home)”; “I have the right conditions to do my work from home.” The reliability coefficient for telecommuting was 0.72. Finally, work engagement was measured using ten items adapted from Schaufeli and Bakker (2004). The sample items read as: “At work, I feel full of energy”; “In my job, I feel strong and vigorous.” The reliability coefficient of work engagement was 0.813.

**Results**

**Multicollinearity**

The means, standard deviations, and zero-order correlations are presented in Table 2.

First, the authors checked for multicollinearity, which is very common in survey research. If the correlations between the variables are over 0.75, as Kennedy (1979) suggests,
multicollinearity may be a problem with the data. The correlations ranged between 0.209 and 0.474, less than the general rule of thumb of 0.75 (Tsui et al., 1995). The authors also performed another statistical check, that is, variance inflation factor (VIF), found that the VIF values for all the variables were less than 5, which render support that multicollinearity should not be a problem with data (Hair et al., 2011).

**Hypotheses testing**

Hierarchical regression analysis was used to test the hypotheses that independent variables (perceived stress due to COVID-19, work orientation, and telecommuting) are related to the dependent variable (work engagement). The regression results are presented in Table 3.

**Step 1.** (Table 3) shows the direct effects of the independent variables on the dependent variable. As can be seen in Table 3, the regression coefficients of control variables (age and income) were not significant. The regression coefficient of age (β = −.015, p = 0.623) was not significant, and the regression coefficient of income (β = −.046, p = .37) was also not significant.

**Hypothesis 1.** suggests that perceived stress due to COVID-19 is negatively related to work engagement. The hierarchical regression results reveal that the regression coefficient of stress on work engagement was negative and significant (β = −.080, p < .05), thus supporting H1. The beta coefficient of work orientation was positive and significant (β = .548, p < .001), thus supporting hypothesis 2. Finally, the regression coefficient of telecommuting was positive and significant (β = .091, p < .05), thus supporting hypothesis 3.

**Step 2.** (Table 3) shows the interaction effect of telecommuting on work engagement. The authors followed the steps suggested by Aiken and West (1991) and entered the interaction terms into the regression equation. The regression coefficient of the interaction term (perceived stress due to COVID–19 x telecommuting) was significant (β = .035, p < 0.05) suggesting that telecommuting moderates the relationship between stress and work engagement. Thus, Hypothesis 1a is supported. The regression coefficient of the interaction term (work orientation x telecommuting) was significant (β = .038, p < 0.05), thus supporting the hypothesis 2a that telecommuting moderates the relationship between work orientation and work engagement.

The interaction effect of telecommuting is presented in Figures 2 and 3. As can be seen in Figure 2, as expected, stress is negatively related to work engagement, at both
lower and higher levels of telecommuting. In the beginning, lower telecommuting is associated with higher levels of work engagement under the conditions of lower levels of stress due to COVID-19. However, as the stress is increasing from “low” to “high,” low levels of telecommuting results in a significant reduction of work engagement when compared to “higher” levels of telecommuting. That means, at the higher levels of telecommuting, increased stress results in a decrease in work engagement at a slower pace and lower levels of telecommuting, the decrease in work engagement is alarmingly high. These results corroborate the moderating effect of telecommuting in the relationship between perceived level of stress due to COVID-19 and work engagement.

Figure 3 shows the moderating effect of telecommuting in the relationship between work orientation and work engagement. When the work orientation is low, lower levels of telecommuting are associated with higher levels of work engagement, and higher levels of telecommuting is associated with lower levels of work engagement. However, the rate of growth in work engagement is more significant when telecommuting levels are ‘high’ than ‘low’. The difference in

| Variables                              | Step 1 |          |        |        | Step 2 |          |        |        |
|----------------------------------------|--------|----------|--------|--------|--------|----------|--------|--------|
|                                       | Coeff  | se       | 't'    | 'p'    | Coeff  | se       | 't'    | 'p'    |
| Age                                    | -.012  | 0.035    | -.493  | .623   | -.012  | 0.035    | -.348  | .728   |
| Gender                                 | -.046  | 0.051    | -.897  | .370   | -.032  | 0.051    | -.638  | .524   |
| Perceived stress due to COVID-19 H1    | -.080* | 0.036    | -2.245 | .026   | -.204  | 0.062    | -3.266 | .001   |
| Work orientation H2                    | 0.548***| 0.070    | 7.821  | .000   | 0.433  | 0.090    | 4.835  | .000   |
| Telecommuting H3                       | 0.091* | 0.044    | 2.06   | .046   | 0.314  | 0.089    | 3.510  | .001   |
| Perceived stress due to COVID-19 x Telecommuting H1a | —      | —        | —      | —      | 0.035* | 0.016    | 2.229  | .027   |
| Work orientation x telecommuting H2a   | —      | —        | —      | —      | 0.038* | 0.018    | 2.111  | .048   |
| F                                      | 13.56***| —        | —      | —      | 11.16***| —        | —      | —      |
| R²                                     | 0.197  | —        | —      | —      | 0.221  | —        | —      | —      |
| Adj R²                                 | 0.182  | —        | —      | —      | 0.202  | —        | —      | —      |
| ΔR²                                    | —      | —        | —      | —      | 0.025  | —        | —      | —      |
| ΔF                                     | —      | —        | —      | —      | 4.34*  | —        | —      | —      |
| df1                                    | 5      | —        | —      | —      | 7      | —        | —      | —      |
| df2                                    | 277    | —        | —      | —      | 275    | —        | —      | —      |

Table 3. Results of hierarchical regression analysis of the effect of Perceived Stress. Due to COVID-19, work orientation, and telecommuting on work engagement.

Figure 2. Telecommuting as a moderator in the relationship between Perceived stress due to COVID-19 and work engagement.
the slopes of the curves render strong support for the moderating effect of telecommuting on work engagement.

The empirical model is presented in Figure 4.

**Discussion**

As the COVID-19 global pandemic brought significant change in the work culture in many countries, including India, the number of employees working from home has increased tremendously. The frequent lockdowns, mandatory social distancing, and risk of getting infected by the virus forced many organizations to introduce and encourage the work from home climate. In developed countries, work from home was a common phenomenon (as some employees work on virtual platforms), the experience of developing countries like India is different. This is because of lack of infrastructure, lack of adequate training to work from home, lack of training to deal with emergencies like global pandemics (or natural calamities such as cyclones), resulting in unpreparedness of employees to meet the changing circumstances. This paper aims to develop a conceptual model and test the hypotheses to see the effect of pandemic-generated stress, work orientation, and telecommuting on work engagement. First, as predicted, our results reveal that stress is significantly and negatively related to work engagement (hypothesis 1). This finding is aligning with the results from the previous studies in the literature on stress (Bhui et al., 2017; Evans-Lacko et al., 2013; Stranks, 2015). In organizations, managers realize the importance of work engagement in driving success and hence invest a considerable amount of time and resources in motivating the employees to work. When organizations suffer huge losses because of the global pandemic, one of the resilient strategies is to bring employees back to work to stage a recovery. The pandemic created a platform for the managers to rethink and reposition their organizations to deal with changing customer needs and see that the employees understand the dynamics of the changing scenario. Though in developing countries like India, work from home is not ingrained in employees’ blood, and employees did not have any other choice than to accept it as a requirement. For example, the local governments moved from face-to-face to online in schools and universities, which is a new concept for both faculty and administrators. This has a spillover effect on employees in the IT sector because the demand for employees in the IT sector has escalated during the pandemic. An increase in work pressure created by the stress caused by the global pandemic may harm work engagement. The results of a negative relationship between pandemic-generated stress and work engagement is consistent with the stress research (Motamedzade et al., 2018). These results are consistent with JDR and COR theories.

Second, the results from the present study also support the positive relationship between work orientation and work engagement (hypothesis 2). Following the CCT theory, these results support the findings from the previous researchers that career adaptability is significantly related to work engagement, which, in turn, positively affects employee well-being.
(Yang et al., 2019). In addition, our results also suggest that telecommuting is positively related to work engagement (hypothesis 3), which is consistent with the previous findings from the literature (Gomez et al., 2020; Tate et al., 2019). As work has undergone significant changes with the internet revolution, it has become a common phenomenon for organizations to have frequent virtual meetings and conferences, especially in developed nations. With the pandemic situation, organizations did not have an alternative other than to switch to telecommuting. The results from the present study are consistent with the findings from the previous studies about the effect of telecommuting on work engagement (Sardeskhmukh et al., 2012). Telecommuting involves working away from offices where employees use technology and work from home. Our study also indicated that telecommuting has weakened the negative relationship between stress due to COVID-19 and work engagement (hypothesis 1a). Higher levels of telecommuting have resulted in a decrease in work engagement due to stress, albeit at a lesser rate. In contrast, lower levels of telecommuting have resulted in a sharp decrease in work engagement. Though prior studies did not explore the moderating relationship of telecommuting, our results are intuitively convincing. Further, telecommuting has increased the strength of the positive relationship between work orientation and work engagement (hypothesis 2a). Although again, prior studies did not explore the moderating effect of telecommuting in the relationship between work orientation and work engagement, our results provide evidence of the positive impact of telecommuting.

**Theoretical and practical implications**

The present study contributes to both literature on human resource management and practicing managers. First, the conceptual model tested in this research provides evidence that COVID-19 induced stress has an adverse effect on work engagement, which is somewhat expected and self-explanatory. Undoubtedly, the global pandemic has created unprecedented stress among the employees and fear of getting infected by the virus if they make private visits (to friends or even the office). Pandemic also created uncertainty about the future, as far as careers are concerned, as several companies have engaged in downsizing because of decreased sales of the products and services. The global pandemic also resulted in mental health problems for many individuals (Bradbury-Jones and Isham, 2020). There is widespread agreement that COVID-19 brought substantial psychological, professional, and social changes in the work environment in organizations. So, in light of the present pandemic scenario, as this study suggests, companies implementing the telecommuting strategy may benefit from retaining employees as telecommuting reduces stress and enhances work engagement. When COVID-19 started spreading worldwide, the World Health Organization has suggested to all the government and organizations to implement telecommuting, teleworking, and work from home to prevent the spread of the virus and protect the health of the health employees (Irawanto et al., 2021). Though it existed before as a choice, work from home has now become inevitable. The results from this study provide strong evidence that telecommuting, a new work innovation model, represents an effective way of performing jobs and reducing the ill-effects of the pandemic on work engagement. This study indicated that employees working in the IT sector would not find it difficult to move to off-site working (i.e., working from home), and anecdotal evidence reveals that employees were comfortable working from home, especially during the pandemic.

A second significant contribution of this study is that work orientation is a necessary precursor to work engagement. During the COVID-19 crisis, the relationship between workers and employees has taken a different shape. Instead of face-to-face meetings, organizations implemented virtual meetings and expanded communication networks to increase employee engagement and positively influence the work orientation. Further, as anecdotal evidence reveals, some organizations introduced digital learning programs for upgrading the employees’ technical skills, thus promoting work orientation.

Third, the present study also contributes to the managers in the human resource department to suggest that telecommuting enhances the positive effect of work orientation on work engagement. As some researchers documented, teleworking is positively associated with job performance, reduces stress levels, and maintains work-family balance (increases job performance, lessens work–family imbalance, reduces stress levels, and lessens turnover intentions (Contreras et al., 2020). This study underscores the importance of telecommuting in strengthening the relationship between work orientation and work engagement, thereby increasing job performance. In sum, the significant contribution of this study is that telecommuting helps reduce the negative effect of COVID-19 induced stress on work engagement and strengthens the positive association with work engagement.

**Limitations of the study**

The results from the present study should be interpreted considering some limitations. First, as with any survey research, common method bias is a potential problem and the current research is not an exception. However, to address the common method bias problem, the authors followed the procedures recommended by Podsakoff et al. (2003) and did perform Harman’s one-factor analysis. The total variance explained by a single factor accounted for 28.4%, which is less than 50% and confirms the absence of common method bias. Further, the researchers also checked the correlation matrix as Bagozzi et al. (1991) suggest that correlations of over 0.9 indicate the presence of common method bias. The authors found that the correlations are less than 0.5, and common method bias is not a problem with the data. Another limitation of the study is social desirability bias which is very common in survey research. In general, individuals tend to present themselves positively so that their behavior is culturally acceptable, and hence they provide biased responses in surveys. Finally, to address the problem, the researchers assured the respondents about the confidentiality and anonymity of the answers, as suggested by researchers (Chung and Monroe, 2003).

The third problem is about the generalizability of findings from the present study. Since our sample consists of
employees in the information technology sector, the results may not be generalizable across other sectors. However, the COVID-19 had a multi-sectoral impact worldwide; it is more likely that the conceptual model developed and tested in this research may be generalizable.

**Suggestions for future research**

The conceptual model developed and tested in this research provides several avenues for future research. First, the present model is focused on only four variables. During the post-pandemic scenario, future research can examine the role of trust employees have in the organization. Second, future studies may also investigate how employees’ organizational citizenship behavior helps train employees who are not conversant with technological and administrative changes and adapt to crises. Third, future studies may focus on the effect of knowledge sharing among the employees to foster work engagement. Past studies (Shea et al., 2021) documented the positive impact of knowledge sharing and helping employees deal with crises such as the global pandemic (D’Souza et al., 2021; Usman et al., 2021). Fourth, stress apart, how employees cope with emotional exhaustion is another exciting area for future researchers to address, especially during and post-COVID situations (Parayitam et al., 2021). Fifth, as organizations plan to engage in resilient strategies to bring back operations to regular, psychological contract changes are likely to occur. Finally, an increase in digital surge and more gig workers may increase the threat to the existing labor force during the post-pandemic. Hence, work orientation plays an essential role in retaining their employment. The changes in employment conditions during the post-COVID period may be on the agenda of future researchers.

**Conclusion**

The work pressure due to the COVID-19 global pandemic has escalated the stress levels of IT employees worldwide, as several sectors depend on the services of IT professionals. This research concludes that work orientation and telecommuting are possible solutions to combat stress and enhance work engagement. Therefore, leaders of organizations must pay attention to creating a climate of personal trust (cognitive and affective trust) plays a vital role in enhancing productivity and effectiveness (Parayitam and Dooley, 2007). Second, future studies can also investigate how employees’ organizational citizenship behavior helps train employees who are not conversant with technological and administrative changes and adapt to crises. Third, future studies may focus on the effect of knowledge sharing among the employees to foster work engagement. Past studies (Shea et al., 2021) documented the positive impact of knowledge sharing and helping employees deal with crises such as the global pandemic (D’Souza et al., 2021; Usman et al., 2021). Fourth, stress apart, how employees cope with emotional exhaustion is another exciting area for future researchers to address, especially during and post-COVID situations (Parayitam et al., 2021). Fifth, as organizations plan to engage in resilient strategies to bring back operations to regular, psychological contract changes are likely to occur. Finally, an increase in digital surge and more gig workers may increase the threat to the existing labor force during the post-pandemic. Hence, work orientation plays an essential role in retaining their employment. The changes in employment conditions during the post-COVID period may be on the agenda of future researchers.

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**References**

Achterberg M, Dobbelaar S, Boer OD, et al. (2021) Perceived stress as mediator for longitudinal effects of the COVID-19 lockdown on wellbeing of parents and children. *Scientific Reports* 11(1): 1–14.

Ahmed RR, Streimikiene D, Rolle J-A, et al. (2020) The COVID-19 Pandemic and the Antecedants for the Impulse Buying Behavior of US Citizens. *Journal of competitiveness* 12(3): 5–27. DOI: 10.7441/joc.2020.03.01.

Aiken LS and West SG (1991) *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications, Inc.

Akala A (2020) More big employers are talking about permanent work-from-home positions. Retrieved https://www.cnbc.com/2020/05/01/major-companies-talking-about-permanent-work-from-home-positions.html 12 June 2021.

Alfes K, Shantz AD, Truss C, et al. (2013) The link between perceived human resource management practices, engagement and employee behavior: a moderated mediation model. *The International Journal of Human Resource Management* 24(2): 330–351.

Amin M, Khattak AZ and Khan MZ (2018) Effects of job stress on employee engagement and organizational commitment: A study on employees of emergency rescue service. *City University Research Journal* 8(2): 200–208.

Badgaiyan AJ and Verma A (2014) Intrinsic factors affecting impulsive buying behavior: evidence from India. *Journal of Retailing and Consumer Services* 21(4): 537–549.

Bagozzi RP, Yi Y, Phillips LW, et al. (1991) Assessing Construct Validity in Organizational Research. *Administrative Science Quarterly* 36(3): 421–458.

Bakker AB (2017) Strategic and proactive approaches to work engagement. *Organizational Dynamics* 46(1): 67–75.

Bakker AB and Albrecht S (2018) Work engagement: current trends. *Career Development International* 23(1): 4–11.

Bakker AB and Demerouti E (2007) The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology* 22(3): 309–328. DOI: 10.1108/02683940710733115.

Bakker AB, Demerouti E, Sanz-Vergel AJ, et al. (2014) Burnout and work engagement: the JD-R approach. *Annual Review of Organizational Psychology and Organizational Behavior* 1(1): 389–411.

Bao Y, Sun Y, Meng S, et al. (2020) 2019-nCoV epidemic: Address mental health care to empower society. *Lancet* 395(10224): e37–e38.

Bellah RN, Madsen R, Sullivan WM, et al. (1985) *Habits of the Heart*. New York: Harper & Row.
Bhui K, Dinos S, Galant-Miecznikowska M, et al. (2017) Perceptions of work stress causes and effective interventions in employees working in public, private and non-governmental organisations: a qualitative study. British Journal of Psychological Bulletin 40: 318–325. DOI: 10.1192/b.bp.115.050823.

Bradbury Jones C and Isham L (2020) The pandemic paradox: the consequences of COVID-19 on domestic violence. Journal of Clinical Nursing 29(13–14): 2047–2049.

Breveaart K, Bakker AB, Hetland J, et al. (2014) Daily transactional and transformational leadership and daily employee engagement. Journal of Occupational and Organizational Psychology 87(1): 38–157.

Bunderson J and Thompson J (2009) The call of the wild: Zookeepers, callings, and the double-edged sword of deeply meaningful work. Administrative Science Quarterly 54(1): 32–57.

Chung J and Monroe GS (2003) Exploring social desirability bias. Journal of Business Ethics 44: 291–302.

Contreras F, Baykal E, Abid G, et al. (2020) E-Leadership and Teleworking in Times of COVID-19 and Beyond: What We Know and Where Do We Go. Frontiers in Psychology 11: 3484.

Cox T (1993) Stress Research and Stress Management: Putting Theory to Work (HSE Contract Research Report No 61/1993). Health and Safety Executive. http://www.hse.gov.uk/research/crr_pdf/1993/crr93061.pdf.

Cucinotta D and Vanelli M (2020) WHO declares COVID-19 a pandemic. Acta Bio-Medica: Atenei Parmensis 91(1): 157–160.

De R, Pandey N, Pal A, et al. (2020) Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice. International Journal of Information Management 55: 102171. DOI: 10.1016/j.ijinfomgt.2020.102171.

De Leeuw J and Kraijenbrink J (2014) The mediating role of trust and social cohesion in the effects of new ways of working: a Dutch case study. In: Bondarouk T and Olivas-Luján MR (eds), , 14, pp. 3–20. Human Resource Management, Social Innovation and Technology, Advanced Series in Management.

Demerouti E and Bakker AB (2011) The Job Demands Resources model: Challenges for future research. SA Journal of Industrial Psychology 37(2).

D’Souza GS, Irudayasamy FG, Syed Akhtarsha Usman SA, et al. (2021) The Effect of Emotional Intelligence and Psychological Capital on Knowledge, Service and Leadership Excellence: Knowledge Sharing and Trust as Moderators. FIIB Business Review 1: 23197145211065087. DOI: 10.1177/23197145211065087.

Duffy R and Dik B (2013) Research on calling: What have we learned, and where are we going? Journal of Vocational Behavior 83: 428–436.

Ehner I, Harry W and Zink JK (2014) Sustainability and HRM. An Introduction to the Field. In: Ehner I, Harry W and Zink JK (eds), Sustainability and Human Resource Management: Developing Sustainable Business Organizations. Germany: SpringerBerlin/Heidelberg, pp. 3–32.

Evans-Lacko S, Knapp M, McCrone P, et al. (2013) The mental health consequences of the recession: economic hardship and employment of people with mental health problems in 27 European countries. Plos One 8: e69792.

Feng Z and Savani K (2020) Covid-19 created a gender gap in perceived work productivity and job satisfaction: implications for dual-career parents working from home. Gender in Management: An International Journal 35(7/8): 719–736.

Florio GA., Donnelly JP, Zevon MA, et al. (1998) The structure of work-related stress and coping among oncology nurses in high-stress medical settings: a transactional analysis. Journal of Occupational Health Psychology 3: 227–242.

Fossen RS and Vredenburg D (2014) Exploring differences in work’s Meaning: An investigation of individual attributes associated with work orientations. Journal of Behavioral and Applied Management 15(1): 101–120.

Gajendran RS and Harrison DA (2007) The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. Journal of Applied Psychology 92(6): 1524–1541.

Gerards R, de Grip A, Baudewijns C, et al. (2018) Do new ways of working increase work engagement? Personnel Review 47(2): 517–534. DOI: 10.1108/PR-02-2017-0050.

Gomez SM, Mendoza OEO, Ramirez J, et al. (2020) Stress and myths related to the COVID-19 pandemic’ssecrets on remote work. Management Research: Journal of the Iberoamerican Academy of Management 18: 401–420. DOI: 10.1108/MRJIAM-06-2020-1065.

Gopal R, Singh V and Aggarwal A (2021) Impact of Online Classes on the Satisfaction and Performance of Students during the Pandemic Period of COVID 19, Education and Information Technologies. DOI: 10.1007/s10639-021-10523-1.

Hair JF, Ringle CM, Sarsted M, et al. (2011) PLS-SEM: Indeed a silver bullet. Journal of Marketing Theory and Practice 19(2): 139–151. DOI: 10.2753/MTP1069-6679190202.

Hobfoll SE (1989) Conservation of resources: A new attempt at conceptualizing stress. American Psychologist 44(3): 513–524. DOI: 10.1037/0003-066X.44.3.513.

Hobfoll SE, Halbesleben J, Neveu J-P, et al. (2018) Conservation of Resources in the Organizational Context: The Reality of Resources and Their Consequences. Annual Review of Organizational Psychology and Organizational Behavior 5: 103–128.

Hoboubi N, Choobineh A, Ghanavati FK, et al. (2017) The Impact of Job Stress and Job Satisfaction on Workforce Productivity in an Iranian Petrochemical Industry. Safety and Health Work 8(1): 67–71.

Hoge T (2011) Perceived Flexibility Requirements at Work and the Employee-Work-Orientation: Concept and Measurement. Psychology of Everyday Activity 4(1): 3–21.

Holman D and Axtell C (2016) Can job redesign interventions influence a broad range of employee outcomes by changing multiple job characteristics? A quasi-experimental study. Journal of Occupational Health Psychology 21(3): 284–295.

Irawanto DW, Novianti KR, Roz K, et al. (2021) Work from Home: Stress during the COVID-19 Pandemic in Indonesia. PloS ONE 8: e69792.

Jaipuria S, Parida R, Ray P, et al. (2021) The impact of COVID-19 on tourism sector in India. Tourism Recreation Research 46(2): 245–260. DOI: 10.1080/02508281.2020.1846971.

Jung Y and Takeuchi N (2018) A lifespan perspective for understanding career self-management and satisfaction: The role of developmental human resource practices and organizational support. Human Relations 71(1): 73–102.
Koch J, Frommeyer J, Schewe G, et al. (2020) Online Shopping Motives during the COVID-19 Pandemic—Lessons from the Crisis. *Sustainability* 12: 10247. DOI: 10.3390/su122410247.

Kossek EE and Michel J (2011) Flexible work scheduling. In: Zedeck, S. (ed), *Handbook of Industrial-Organizational Psychology*. Washington, DC: American Psychological Association, 1, pp. 535–572.

Kurland NB, and Bailey DE (1999) Telework: The advantages and challenges of working here, there, anywhere, and anytime. *Organizational Dynamics* 28(1): 53–68.

Liu S, Lithopoulos A, Zhang CQ, et al. (2021) Personality and perceived stress during COVID-19 pandemic: The mediating role of perceived threat and efficacy. *Personality and Individual Differences* 168: 110351. DOI: 10.1016/j.paid.2020.110351.

Loxton M, Truskett R, Scarf B, et al. (2020) Consumer Behaviour during Crises: Preliminary Research on How Coronavirus Has Manifested Consumer Panic Buying, Herd Mentality, Changing Discretionary Spending and the Role of the Media in Influencing Behaviour. *Journal of Risk and Financial Management* 13(8): 166–175.

Marr B (2021) *9 Future Predictions for A Post-Coronavirus World*. Forbes. https://www.forbes.com/sites/bernardmarr/2020/04/03/9-future-predictions-for-a-post-coronavirus-world/?sh=2ba7efaf5410.

Mazza C, Ricci E, Biondi S, et al. (2020) A nationwide survey of psychological distress among Italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health* 17(9): 3165.

Morrissette AM and Kisamore JL (2020) A Meta-Analysis of the Relationship between Role Stress and Organizational Commitment: the Moderating Effects of Occupational Type and Culture. *Occupational Health & Safety* 4(1): 23–42. DOI: 10.1007/s41542-020-00062-5.

Motamedzade M, Asghari M, Basati M, et al. (2018) The relationship between Work Engagement and Job Stress among Emergency Technicians of Markazi Province, Iran. *Iranian Journal of Health, Safety & Environment* 6(2): 1259–1266.

Naeem M (2021) Understanding the customer psychology of impulse buying during COVID-19 pandemic: implications for retailers. *International Journal of Retail & Distribution Management* 49(3): 377–393. DOI: 10.1108/IJRD-M-08-2020-0317.

Nath D, Sasikumar K, Nath R, et al. (2021) Factors Affecting COVID-19 Outbreaks across the Globe: Role of Extreme Climate Change. *Sustainability* 13: 3029. DOI: 10.3390/su130303029.

Parayitam S and Dooley RS (2007) The Relationship Between Conflict and Decision Outcomes: The Modulating Role of Affect-and Cognition-Based Trust in Strategic Decision-Making Teams. *International Journal of Conflict Management* 18(1): 42–73.

Parayitam S, Usman SA, Namisivayam RR, et al. (2021) Knowledge management and emotional exhaustion as moderators in the relationship between role conflict and organizational performance: evidence from India. *Journal of Knowledge Management* 25(6): 1456–1485. DOI: 10.1108/JKM-03-2020-018.

Pedrozo-Pupo JC, Pedrozo-Cortés MJ, Campo-Arias A, et al. (2020) Perceived stress associated with COVID-19 epidemic in Colombia: an online survey. *Cadernos de saude publica* 36: e00090520.

Peters P, Poutsma E, Van der Heijden BI, et al. (2014) Enjoying new ways to work: an HRM-process approach to study flow. *Human Resource Management* 53(2): 271–290.

Pitacho LA, Palma P, Correia P, et al. (2019) Work orientation: Dimensionality and internal model. *Análise Psicológica* 4(47): 479–491.

Podsakoff PM, Mackenzie SB, Lee J-Y, et al. (2003) Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology* 88(5): 879–903.

Polšek D (2020) Psychiatry of Pandemics: A Mental Health Response to Infection Outbreak: Springer International Publishing. In: Huremović D (ed), *Croatian Medical Journal*, 61, p. 306. DOI: 10.3325/cmj.2020.61.306.

Pongratz HJ and Voß GG (2003b) From employee to “entreemployee”: Towards a “self-entrepreneurial” work force? *Concepts and Transformation* 8: 239–254.

Rees DW (1995) Work-related stress in health service employees. *Journal of Managerial Psychology* 10(3): 4–11. DOI: 10.1108/02683949510081329.

Rich BL, Lepine JA, Crawford ER, et al. (2010) Job Engagement: Antecedents and Effects on Job Performance. *Academy of Management Journal* 53: 617–635.

Sardeshmukh SR, Sharma D, Golden TD, et al. (2012) Impact of telework on exhaustion and job engagement: a job demands and job resources model. *New Technology Work and Environment* 27(3): 193–207.

Sauter SL and Murphy LR (eds), (1995) *Organizational risk factors for job stress*. Washington, DC: American Psychological Association.

Savickas ML (2005) The theory and practice of career construction. In: Brown, S. D. and Lent, R.W. (eds), *Career development and counseling: Putting theory and research to work*. Hoboken, NJ: Wiley, pp. 42–70.

Schneiderman N, Ironson G, Siegel SD, et al. (2005) Stress and Health: Psychological, Behavioral, and Biological Determinants. *Annual Review of Clinical Psychology* 1: 607–628.

Schaufeli WB and Bakker AB (2004) Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior* 25(3): 293–315.

Shea T, Usman SA, Sengottuvel A, et al. (2021) ‘Knowledge Management Practices’ as moderator in the relationship between Organizational Culture and Performance in information technology companies in India. *VINE Journal of Information and Knowledge Management*. DOI: 10.1108/VJKMS-12-2020-0232.
Shinn M, Rosario M, Morch H, et al. (1984) Coping with job stress and burnout in the human services. *Journal of Personality and Social Psychology* 46: 864–876.

Stranks J (2015) *Stress at Work: Management and Prevention*. Elsevier Butterworth-Heinemann.

Sveicher A and Fabio AD (2021) Job Crafting: A Challenge to Promote Decent Work for Vulnerable Workers. *Frontiers in Psychology* 12: 681022. DOI: 10.3389/fpsyg.2021.681022.

Tate TD, Lartey FM, Randall PM, et al. (2019) Relationship between Computer-Mediated Communication and Employee Engagement among Telecommuting Knowledge Workers. *Journal of Human Resource and Sustainability Studies* 7: 328–347.

Tomlinson J, Baird M, Berg P, et al. (2018) Flexible careers across the life course: Advancing theory, research and practice. *Human Relations* 71(1): 4–22.

Tsui AS, Ashford SJ, Clair L, et al. (1995) Dealing with discrepant expectations: Response strategies and managerial effectiveness. *Academy of Management Journal* 38(6): 1515–1543.

Usman SA, Kowalski KB, Andiappan VS, et al. (2021) Effect of Knowledge Sharing and Interpersonal Trust on Psychological Capital and Emotional Intelligence in Higher-educational Institutions in India: Gender as a Moderator. *FIIB Business Review*. DOI: 10.1177/23197145211011571.

Worldometers (2021) *Countries where COVID-19 Has Spread*. https://www.worldometers.info/coronavirus/countries-where-coronavirus-has-spread/(accessed on 11 June 2021).

Wang C, Pan R, Wan X, et al. (2020) Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health* 17(5): 1729.

Wefald AJ and Downey RG (2008) Job engagement in organizations: Fad, fashion, or folderol? *Journal of Organizational Behavior* 30(1): 141–145.

World Health Organization (2020) *Coronavirus disease (COVID-19) pandemic*. Retrieved on June, 12 2021.

Wrzesniewski A (2003) Finding positive meaning at work. In: Cameron K, Dutton JE and Quinn RE (eds), Positive organizational scholarship. San Francisco, CA: Berrett-Koehler Publishers, pp. 296–308.

Yan L, Gan Y, Ding X, et al. (2021) The relationship between perceived stress and emotional distress during the COVID-19 outbreak: Effects of boredom proneness and coping style. *Journal of Anxiety Disorders* 77: 102328.

Yang X, Feng Y, Meng Y, et al. (2019) Career Adaptability, Work Engagement, and Employee Well-Being Among Chinese Employees: The Role of Guanxi. *Frontiers in Psychology* 10: 1029. DOI: 10.3389/fpsyg.2019.01029.