

# Work during COVID-19: assessing the influence of job demands and resources on practical and psychological outcomes for employees

Work during  
COVID-19

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## Abstract

**Purpose** – A sudden shift of work from the office to home amid global lockdown demands exploration of factors that facilitate or obstruct remote working and their impact on practical and psychological outcomes for the employee when individual mandatorily telecommutes full-time with no prior experience of the same. Based on job demands and resources model (JD-R), the present study explores the role of certain job demands and resources on negative and positive outcomes through mediating role of strain and well-being, respectively.

**Design/methodology/approach** – A data sample of 371 IT sector employees was collected and confirmatory factor analysis model was run to assess the model fit indices, convergent and divergent validities of the data. While proposed hypotheses of the study were tested using structural equations modeling (SEM) technique.

**Findings** – It was found that workload pressure, task interdependence, professional isolation and family interference in work lead to exhaustion and further stress, whereas the presence of autonomy and schedule flexibility and sufficient technology resources improve employee work-life balance and further better productivity and performance and job satisfaction. Improved well-being was also found to reduce stress for full-time telecommuters.

**Practical implications** – This study provides implications that will help in doing away with exhaustion and stress for employees and ensure business continuity in emergencies like COVID-19 pandemic.

**Originality/value** – There are no past instances of mandatory full-time telecommuting arrangement by organizations, and researchers never had the opportunity to study it. This research, based on the JD-R model provides for the first time empirical insights into the experiences of mandatory full-time telecommuting during COVID-19 induced lockdown.

**Keywords** Job demands and resources, Well-being, Strain, Stress, COVID-19

**Paper type** Research paper

## 1. Introduction

Globally, the adoption of lockdown and other social distancing measures to combat COVID-19 have shifted work from office to home, and work from home (WFH) is the new normal to ensure business survival and continuity. WFH, also known as telecommuting, telework or remote work, refers to a work arrangement where individuals have the flexibility to work from the comforts of their home. Telecommuting owes its inception to another emergency in the 1970s when it was first introduced due to the oil crisis in the US telecommuting has often been proposed as a risk-mitigation strategy that ensures business continuity when offices are inaccessible during or in the aftermath of emergencies like natural disasters, terror attacks and influenza outbreaks (Donnelly and Proctor-Thomson, 2015; Gill, 2006; Boon Heng *et al.*, 2012).

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According to the studies published around and after the beginning of COVID-19 induced lockdown, “Work From Home (WFH)” can help social distancing and this could further help control the spread of the virus (Di Domenico *et al.*, 2020; Kawashima *et al.*, 2020).

Most organizations did not have a formal telecommuting policy and they were unprepared for an overall shift to remote working. Organizations never planned to go fully virtual, and hence there is a lack of policies, resources and management practices to deal with the current situation. As stressed by Mahler (2012), telecommuting is not just a new way of working during such situations but a new organizational form where tasks are not the same anymore, integration problems are highly complex, and management responsibilities are defined differently. Since this is an unprecedented situation, there are hardly any researches that focus on mandatory full-time telecommuting because it is often offered temporarily and mostly taken voluntarily in case of full-time telecommuting. The unplanned and overall shift to remote work makes it essential to determine the role of such an arrangement on employee outcomes.

Following the introduction of telecommuting programs by various organizations around the globe during the lockdown, there has been a significant rise in academic as well as popular press articles pertaining to telecommuting. Most of these articles focused on work organization aspects and collaboration for virtual teams (Belzunegui-Eraso and Erro-Garcés, 2020; Kawashima *et al.*, 2020), while others focused on proper maintenance of employee productivity (Raghuram *et al.*, 2019; Bouziri *et al.*, 2020) and the popular press articles related to psychologists’ opinion about work-life balance maintenance and employee well-being. However, almost all of these articles included opinions of experts like human resource managers and psychologists which were based on their pre-pandemic knowledge of telecommuting. Expectedly, there has also been a steep surge in academic studies focusing on remote working (Belzunegui-Eraso and Erro-Garcés, 2020; Bouziri *et al.*, 2020; Irawanto, 2020; Kawashima *et al.*, 2020; Raišienė *et al.*, 2020) and with almost every aspect of work gone virtual, this phenomenon is not going to lose relevance any time soon. For instance, gender inequality in this work arrangement has been of interest to researchers lately (Collins *et al.*, 2020). Thus, it is crucial to study mandatory full-time telecommuting and gather statistically significant evidence that may help academicians to further build on this sort of work arrangement and at the same time help managers in tackling new emerging challenges at work.

The practicality of working remotely involuntarily and for a continued period raises certain challenges and concerns. Jaakson and Kallaste (2010) reported that employment and psychological contracts between employers and employees change when employees start to telecommute. While there had been some research suggesting the adoption of telecommuting for business continuity during such situations and a few researchers have studied it, there is hardly any research focusing on the job demands and resources such situations inhibit and their role in outcomes for employees. Working from home brings a new dimension to how the work is done and there are new job demands and resources; even the nature of existing demands and resources change when the work is taken home from the office for a continuous period. Thus, it is crucial to understand the job demands and resources that arise and their impact on various employee outcomes for those who have hardly telecommuted before and are doing it involuntarily for a continued period. Relying upon the suitability of the job demands-resources model (JD-R Model) framework (Bakker and Demerouti, 2007) in explaining objective performance and psychological outcomes, this study examines the effect of various job demands and resources on positive and negative employee outcomes.

Given that the individuals might be asked to work extra hours in the absence of commute, involved in tasks that require coordination and are dependent on media that lacks richness and working in the presence of families; workload pressure, task interdependence, professional isolation and family interference in work (FIW) are taken as job demands in

the present study. Since an individual is not present in the office and there is a psychological and physical distance between employees and supervisor and co-workers, thus autonomy and schedule flexibility, sufficient technological resources, technical support and technical training and experience are taken as job resources for this study. Further, work exhaustion and work-life balance have been taken as a component of strain and well-being, respectively, and stress represents negative employee outcomes, whereas productivity and performance and job satisfaction are positive employee outcomes. The present study also explores the effect of well-being on strain for mandatory full-time telecommuting.

With the advent of COVID-19 induced lockdown, millions of employees switched to mandatory full-time telecommuting, but due to the unprecedentedness of the situation, there are no comprehensive theoretical framework-based studies focusing on the factors that ease or hinder such telecommuting arrangement and their effect on employee outcomes. Therefore, the objectives of this study are to fill the research gap and study factors that facilitate and obstruct mandatory full-time telecommuting and their impact on practical and psychological outcomes. In line with the objectives of this study, three research questions are examined as follows:

- (1) How do job demands impact negative employee outcomes through the mediation of strain?
- (2) How do job resources impact positive employee outcomes through the mediation of well-being?
- (3) How is well-being related to strain for full-time telecommuters?

The present study seeks to answer these research questions by using data from 371 IT sector employees and analyzing it using the structural equation modeling (SEM) technique. Lastly, by answering these questions, the present study also seeks to provide some practical implications that will help managers in effectively managing telecommuters and ensuring employee mental well-being.

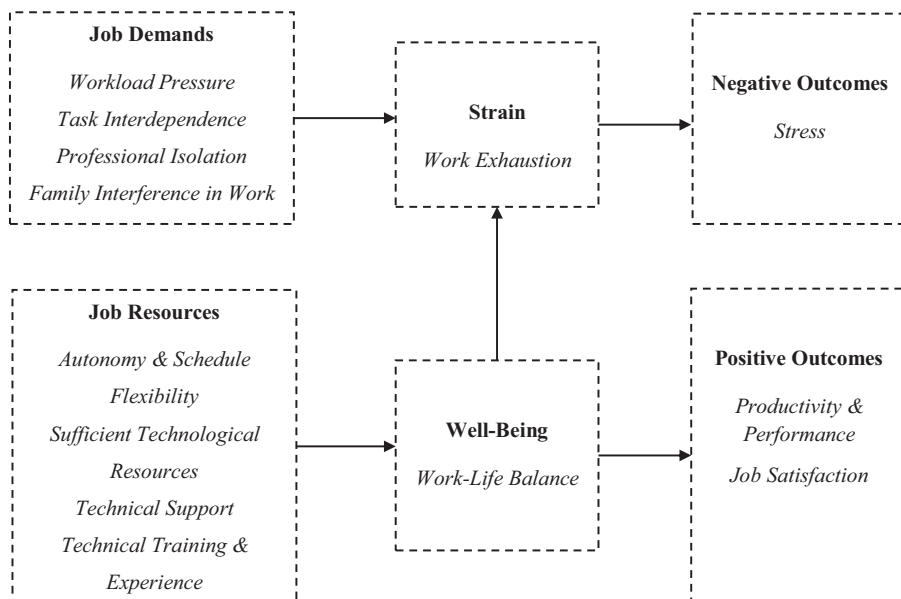
## **2. Literature review and hypotheses development**

### *2.1 The JD-R model*

JD-R model framework explains the role of high job demands on negative outcomes through an energetic process where demands lead to strain and hence a boost in negative outcomes and the role of job resources on positive outcomes through a motivational process where resources lead to well-being and hence a boost in positive outcomes (Schaufeli and Taris, 2014). Under the JD-R model, job demands refer to the psychological, physical, organizational or social aspects of the job that lead to psychological and/or physical strain and thus, result in some psychological and physiological deterioration for an individual (Schaufeli and Bakker, 2004). However, job demands are not essentially negative, but high efforts required to cope with them often result in exhaustion. Job resources refer to the psychological, physical, organizational or social aspects of the job that ease working for individuals and reduce psychological or physiological deterioration or aid personal growth and development (Demerouti *et al.*, 2001). Job resources strengthen well-being and reduce strain for an employee, which further boosts positive employee outcomes and weakens negative outcomes (Van Steenbergen *et al.*, 2018). The next section of this study focuses on establishing the relationships represented in Figure 1 below.

### *2.2 Linking job demands to outcomes*

*2.2.1 Workload pressure.* The extant literature and current articles in popular press reveal that employees are being asked to work extra hours as an excuse for time saved on



**Figure 1.**  
Hypothesized  
conceptual framework

commuting, and thus, it is rational to presume that employees are experiencing work extensification and intensification (Brammer and Clark, 2020). Work extensification refers to working longer hours, while intensification refers to putting extra efforts in the regular hours (Green, 2001). Past researchers put forward that employees work longer and harder when they begin to telecommute (Kelliher and Anderson, 2010; Felstead and Henseke, 2017) since telecommuting is often offered as an employee benefits scheme, rather than an employee right (Bathini and Kandathil 2019). Employees working longer shifts are expected to experience low-work-life balance and stress because of spillover of one role into another (Duxbury and Halinski, 2014) as work-family depletion theory suggests that an individual has a limited set of physiological and psychological resources to expend on two roles and an effort is made to strike a balance between the two (Edwards and Rothbard, 2000). Longer shifts would mean spending extra resources on work at the expense of the family. In their respective studies, Ahsan *et al.* (2009) and Carr *et al.* (2006) found a positive correlation between workload pressure and job stress for telecommuters.

**2.2.2 Task interdependence.** Task interdependence refers to the degree to which a job requires tasks to be done by multiple co-workers to finish it (Morgeson and Humphrey, 2006). A task is said to be highly interdependent when it requires high coordination among co-workers. Past research has often stressed that it is difficult to carry out interdependent tasks while being physically dispersed and telecommuting is unsuitable for such tasks (Biron and van Veldhoven, 2016; Kaplan *et al.*, 2018). Kaplan *et al.* (2018) also found in their study that managers are less likely to allow remote working if the job requires high interdependence and employees also prefer telecommuting when jobs have low-task interdependence. High-task interdependence could lead to stress for telecommuters since it requires high coordination and frequent information exchange, and remote working by its very nature and dependence on media for information exchange makes coordination difficult for physically distributed teams (Golden and Veiga, 2005).

**2.2.3 Professional isolation.** Professional isolation has often been put forward as the biggest disadvantage of telecommuting with more serious effects in the case of full-time

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telecommuting since it highly curtails opportunities for social interaction among employees (Golden *et al.*, 2008; Morganson *et al.*, 2010). Golden *et al.* (2008) defined professional isolation as an individual's perception that one is distanced from colleagues, stemming from lesser chances to interact and form interpersonal relationships with them. Windeler *et al.* (2017) suggested that professional isolation may lead to disinterest in colleagues or rejection by the colleagues and further to loneliness, anxiety, burnout and even physiological issues. Further, running through the JD-R model's motivational process, professional isolation may result in decreased productivity for the individuals (Hoornweg *et al.*, 2016). Effects of professional isolation could be most catastrophic for employees who have high interdependence and are experiencing work intensification. Highly interdependent jobs require continuous information exchange among co-workers and if an employee feels professionally isolated and information exchange is hampered, then it may worsen work intensification for such individuals (Chung and Van der Lippe, 2018).

*2.2.4 Family interference in work.* Telecommuting is ought to reduce work-family conflict by providing flexibility to an individual to allocate time to work and family properly and also by fading the boundary between work and home (Sarbu, 2018). However, studies found that telecommuting could be the reason for work-family conflict because of the same boundary fade between home and office and subsequent spill of demands of one role into another (Eddleston and Mulki, 2017; Felstead and Henseke, 2017; Delanoije *et al.*, 2019). Remote workers face greater role overload and role conflict because of concurrent demand from both work and family (Moore, 2006) and this could result in stress (Gajendran and Harrison, 2007; Delanoije *et al.*, 2019). Hence, telecommuting may probably lead to an increase in stress for telecommuters rather than reducing it (Tietze and Musson, 2005; Kelliher and Anderson, 2008). In the current context, it is important to consider family interference in work, rather than work interference on the family because the previous meta-analysis by Allen *et al.* (2013), and Gajendran and Harrison (2007) found no significant role of work interference on family at the higher extent of telecommuting. Similarly, Golden *et al.* (2006) reported that work interference on family reduces with an increase in the extent of telecommuting. In contrast, family interference in work increases and a possible explanation for this could be an increase in assumed family responsibility for a telecommuter (Delanoije *et al.*, 2019). Thus, the present study hypothesizes that;

- H1. There exists a direct relationship between job demands viz. workload pressure (H1a), task interdependence (H1b), professional isolation (H1c), family interference in work (H1d) and negative employee outcomes (stress) such that an increase in job demands lead to an increase in negative outcomes.

### *2.3 Strain as a mediator of job demands and negative outcomes relationship*

For this study, work exhaustion has been taken as a component of strain. In the work context, work exhaustion as the primary aspect of burnout refers to the feeling of not being able to cope up with the job demands (Hobfoll, 1989; Lee and Ashforth, 1996) and Moore (2000) defined it as the depletion of emotional and mental energy required to carry out the job. Although job demands are not essentially negative, they lead to exhaustion because of the high efforts required to meet them (Sardeshmukh *et al.*, 2012) and employees may feel exhausted when perceived resources are inadequate to deal with job demands (Wright and Cropanzano, 1998).

Windeler *et al.* (2017) studied the link between interdependence and exhaustion and found a direct relation between them and further suggested that greater interdependence requires greater efforts to manage the inputs and outputs to work and hence leading to exhaustion. Golden (2012) reported that telecommuting leads to exhaustion because of increased work-family conflict, and this effect is maximum at an increased level of telecommuting.

Telecommuting could be most exhausting for individuals involved in highly interdependent tasks since they rely on others for information regarding tasks and if information exchange is hindered because of professional isolation, then it may worsen work intensification (Chung and Van der Lippe, 2018). Based on the research model from Schaufeli and Bakker (2004), which proposes that exhaustion leads to health problems, the present study postulates that work exhaustion will further aggravate the effect of job demands on stress; thus, it is hypothesized that;

- H2. Work exhaustion (strain) mediates the relationship between job demands viz. workload pressure (H2a), task interdependence (H2b), professional isolation (H2c), family interference in work (H2d) and stress (negative outcomes).

#### 2.4 Linking job resources to positive outcomes

2.4.1 *Autonomy and schedule flexibility.* Langfred (2000) defined job autonomy as the extent to which an individual has control over various aspects of tasks to be performed. Telecommuters are considered to have greater autonomy in comparison to their in-office colleagues since they are psychologically and spatially away from direct supervision and they have spatiotemporal flexibility (Sardeshmukh *et al.*, 2012; Biron and van Veldhoven, 2016). Although time flexibility, also known as schedule flexibility is not the core component of telecommuting, usually it comes along with it (Valcour, 2007) and knowledge and information workers are expected to have greater control over their work scheduling latitude (Venkatesh and Vitalari, 1992). According to the demand control model framework (Karasek, 1979), job autonomy as an aspect of job control helps leverage advantages and curb the challenges of telecommuting (Gajendran, *et al.*, 2015; Perry *et al.*, 2018). Telecommuting increases employee flexibility over work demands (White *et al.*, 2003) since nobody is physically monitoring telecommuters, so they have significant freedom over how, under what conditions and sometimes when they do their job (Kosseck and Thompson, 2016), and telecommuters are likely to have increased productivity and performance (Gajendran *et al.*, 2015) and job satisfaction (Fonner and Roloff, 2010; Overmyer, 2011; Allen *et al.*, 2015).

2.4.2 *Sufficient technological resources.* Information and knowledge workers are largely dependent on technology for completion of tasks (Fetzner, 2003), and telecommuting information and knowledge workers are even more dependent on technology (Nicklin *et al.*, 2016) since it helps in accessing work files, effectively communicating with the team and staying updated by accessing resources of organization from home (Greer and Payne, 2014). Technological dependence on tools like instant messaging software and apps, video conferencing, data sharing tools and VPNs (Virtual Private Networks) is high since they make telecommuting easier and safe and also help in simulating face-to-face interactions to some extent and inject social contexts (Pearce, 2009; Waber, 2013). Telecommuters are involved in complex tasks and technological development has made remote working easy by providing richer media (Turetken *et al.*, 2011). According to media richness theory (MRT), rich media is one that enables an individual to transmit social cues, change understanding and resolve equivocality by approximating live and face-to-face communication (Daft and Lengel, 1986). Telecommuters today are equipped with richer media like video conferencing for coordination and communication. Such media facilitates more extensive and nuanced transmission of information since it is better able to replicate nonverbal and physical social cues in comparison to less rich media like email, text messaging (Allen *et al.*, 2015). Richer technological resources were found to have a direct positive relationship with productivity and performance and job satisfaction (Turetken *et al.*, 2011). Based on the above argument, it is proposed that knowledge-based technology workers have access to richer technological resources that help in easing their work and lead to positive employee outcomes.



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*2.4.3 Technical support.* Proper technical support ensures uninterrupted and effective coordination with co-workers and supervisors through the smooth exchange of task-related knowledge (Bosua *et al.*, 2012; Bentley *et al.*, 2016). Telecommuters do not have the usual technical structure as available at the office, and it is expected that technological support is slightly poor and delayed as compared to the regular work arrangement since all are not present under the same roof. However, advanced technology has made it possible to remotely provide effective support to telecommuters through technological tools like Microsoft Teams, WebEx, Skype, Zoom and LogMeIn Rescue. There is a dearth of research focusing on the technical support aspect of telecommuting, and the available literature suggests that greater technical support is required with an increase in the extent of telecommuting and adequate technical support lead to a boost in positive outcomes for employees (Baker *et al.*, 2006; Bayrak, 2012). In an empirical analysis by Bentley *et al.* (2016), a negative correlation was found between technical support and professional isolation, psychological strain and job stress. Thus, it is proposed that technical support will have a positive effect on employee outcomes, like job satisfaction and performance and productivity.

*2.4.4 Technical training and experience.* Adequate technical training and experience enable telecommuters to properly use all the available technological tools and successfully work remotely. Guimaraes and Dallow (1999) stressed the importance of having a required set of technical skills and substantial experience in task performance to be an effective telecommuter. Apart from other measures, training sessions, preliminary technology testing and supervised work periods are crucial for technology comprehension and proper utilization (Nicklin *et al.*, 2016). Further, Nicklin *et al.* (2016) recommended that telecommuting grow and improve under appropriate job circumstances and effective technical training. Staples *et al.* (1999) empirically found that technical training and ICT experience boost performance for telecommuters. Based on the above narrative, the present study proposes that technical training and experience would act as a job resource and make telecommuting easy for individuals and is expected to positively influence employee outcomes like job satisfaction, productivity and performance. Thus, the following hypotheses are postulated in such a way that an increase in job resources leads to an increase in positive outcomes;

*H3.* There exists a direct relationship between job resources viz. autonomy and schedule flexibility (H3a), sufficient technological resources (H3b) technical support (H3c), technical training and experience (H3d) and productivity and performance such that an increase in job resources lead to an increase in productivity and performance.

*H4.* There exists a direct relationship between job resources viz. autonomy and schedule flexibility (H4a), sufficient technological resources (H4b), technical support (H4c), technical training and experience (H4d) and job satisfaction such that an increase in job resources lead to an increase in job satisfaction.

### *2.5 Well-being as a mediator of job resources and positive outcomes relationship*

There is enough evidence of reduced work-family conflict and better well-being as a result of positive job spillover effects, which further lead to an increase in productivity and performance (Giovani, 2018). For this study, work-life balance has been taken as a component of well-being. Telecommuting has often been suggested as a strategy to improve work-life balance for an individual by fading the boundary between home and office and allowing individual flexibility to deal with the demands of both and also because telecommuters get to spend more time with the family in the absence of commute (Eddleston and Mulki, 2017; Felstead and Henseke, 2017; Sarbu, 2018). Baker *et al.* (2007) also pointed out that much of the telecommuting literature has stressed the improvement of work-life balance for telecommuters and subsequent increase in their productivity. In addition, past research also claims that autonomy provided by

telecommuting leads to an improved work-life balance for individuals and this further results in greater job satisfaction for individuals (Tremblay and Thomsin, 2012; Perry *et al.*, 2018). Kwon and Jeon (2020) reported that telecommuters experience better work-life balance and they are more motivated and productive as a result of the flexibility available to them.

There is a lack of research focusing on the work-life balance supporting aspect of three other resources adopted for this study: sufficient technological resources, technical support and technical training and experience. Based on the assumption that in the absence of these three resources, telecommuting will be difficult and time-consuming, leading to an increase in workload pressure and most importantly, time saved on commuting will be used up in the completion of the task and thus eliminating any time savings which are often claimed to be used for engaging with family and improving work-life balance. Moreover, based on a socio-technical systems perspective, Bentley *et al.* (2016) proposed that the availability of reliable technological resources influences perceptions of individuals regarding their ability to manage work demands and reduce strain and stress for telecommuters. Further, in line with a socio-technical systems perspective, Bentley *et al.* (2016) reported that various forms of organizational support help in maintaining a better work-life balance and boost job satisfaction for individuals. Therefore, it is rational to assume that the presence of sufficient technological resources, technical support and technical training and experience will provide for a better work-life balance and this will enhance positive outcomes for telecommuters. Thus following hypotheses are proposed in such a way that well-being mediated the relationship between job resources and positive outcomes;

- H5. Work-life balance (well-being) mediates the relationship between job resources viz. autonomy and schedule flexibility (H5a), sufficient technological resources (H5b), technical support (H5c), technical training and experience (H5d) and productivity and performance.
- H6. Work-life balance (Well-being) mediates the relationship between job resources viz. autonomy and schedule flexibility (H6a), sufficient technological resources (H6b), technical support (H6c), technical training and experience (H6d) and job satisfaction.

### *2.6 Linking well-being to strain*

It is compelling to study the role of well-being on strain due to the peculiarity of mandatory full-time telecommuting. It seems necessary to explore this relationship to assess the indirect role of job resources on the strain. Past research has reported a link between well-being and strain; work-life balance improves for telecommuters because of resources (Bailey and Kurland, 2002) and this further boosts stress resistance capacity for them (Hobfoll, 1989). Telecommuters are expected to be less exhausted by work since telecommuting reduces the needs for recovery by providing opportunities to deal with non-work life (Binnewies and Sonntag, 2008; Biron and van Veldhoven, 2016). Further, in a longitudinal study, Van Steenbergen *et al.* (2018) suggested that increased job autonomy may decrease exhaustion by providing a buffer against negative effects of job demands on exhaustion, and it was found that employees with greater autonomy over their tasks have higher work engagement and lower burnout levels.

As already discussed, past research claimed that telecommuting could lead to strain since it blurs the boundary between office and home, but schedule flexibility provided by telecommuting could help in preventing conflict between two roles. Telecommuters have control over their schedule, and they may organize their work schedule in such a way that they are able to cater to the demands of both family and work and thus mitigate any strain that may arise because of conflict between work and family. Full-time telecommuters enjoy maximum autonomy and they are better able to schedule their work according to their



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comfort and are less exhausted because of their ability to mitigate workload pressure and energy depletion (Gajendran and Harrison, 2007; Sardeshmukh *et al.*, 2012; Bentley *et al.*, 2016). Sardeshmukh *et al.* (2012) further suggested that exhaustion decreases with an increase in the extent of telecommuting because of a decrease in role conflict since role conflict is reported to strain physical and emotional energy (Um and Harrison, 1998) and cause exhaustion (Hang-Yue *et al.*, 2005).

The telecommuting literature is inconsistent on the relationship between well-being and strain at an increased extent of telecommuting (Perry *et al.*, 2018). Past research has also proved that work-family conflict increases for full-time telecommuters leading to burnout and hence stress (Eddleston and Mulki, 2017) as Westman and Etzion (2001) suggested that in a regular work arrangement, employees get to disconnect from work when they are out of the office and this prevents exhaustion and stress for them. Psychological disconnect from work after exiting the office also makes way for recovery and reduces exhaustion and stress (Hahn and Dormann, 2013). Full-time telecommuters are not able to psychologically detach themselves from work and this may affect well-being (Sonntag, 2003) and lead to stress. To solve the inconsistency problem in the existing literature, present study hypothesizes that an increase in well-being leads to a decrease in strain;

*H7.* There exists a negative relationship between work-life balance and work exhaustion

### 3. Research methodology

The cross-sectional study design was adopted, and the data were collected from IT company employees from the national capital region (NCR) of India. Taking advantage of one of the authors' prior experience of working in the IT sector, his network resources were used to collect the data adopting a convenience sampling method. To be precise, 728 employees were contacted through email and asked to fill out the questionnaire on mandatory telecommuting. Total 377 valid responses were retrieved from the contacted respondents, and of them, 246 male and 131 were female respondents.

#### 3.1 Development of the questionnaire

The authors adopted widely cited and validated scales to measure all 13 variables used in the current study. Productivity and performance and autonomy and schedule flexibility were measured on separate scales, and they have been merged, respectively, to ensure brevity and adherence to the word limit of the manuscript. A list of adopted scales comprising observed items with their sources has been added to the [Appendix](#).

#### 3.2 Data screening

At the very first stage after the collection of the data, it was processed for the cleaning and screening process. Entire data were collected online in late March and April 2020 using Google forms, as it was the most suitable method of data collection during the period of lockdown. Out of a total of 377 responses received, four were found filled in without being engaged; therefore, these four responses were removed from the dataset. Further, the dataset was not found suffering from the issue of missing frequencies. Moreover, the authors implemented Cook's distance method to check for outliers in the dataset. Only two responses were witnessed reporting Cook's distance statistics above the threshold of 1 (Stevens, 2012); henceforth, these two responses were also eliminated from the dataset, thereby leaving a final sample of 371 responses, combining 242 males and 129 females, for further statistical analysis which is considered to be large enough to represent a population of ten thousand (Krejcie and Morgan, 1970). An assumption of applying CFA is that the distribution of the data should be normal. For ensuring the normality of the data, the measure of skewness and kurtosis were

taken into consideration and descriptive statistics shown in Table 5 reveal that the statistics for skewness and kurtosis for all the latent constructs were within the suggested range of -1 and +1, thus normality of the prevails (Kline, 2015).

To make sure that the data are not affected by common method variance at the time of data collection, the authors used Harman’s single factor test along with other remedial measures suggested by (Podsakoff and Organ, 1986). While drafting the questionnaire, the authors made sure that questions are not double-barreled and asking only one aspect at a time. The language of every single statement of the questionnaire was also kept simple and pin-pointed, thereby not losing the conceptuality of the constructs. With the view of keeping a psychological barrier in the minds of the respondents while switching from one variable to another, the variables of the study were briefed (Podsakoff and Organ, 1986). Furthermore, to empirically ensure that data are free from common method bias, Harman’s single factor test was applied (Podsakoff and Organ, 1986). All 53 items used in the study were put into the test to let them load under one single factor and explain the total variance. Table 1 reports that all 53 items used in the study explained 32.835% variance, hence, conforming to the criteria of Harman’s single-factor test, i.e. explaining the variance below 50%. Later in the study, confirmatory factor analysis (CFA) and structural equations modeling techniques were employed to statistically testify the fitness of the data to the model, its convergent and discriminant validity (Anderson and Gerbing, 1988) and hypothesized conceptual model.

#### 4. Results

##### 4.1 Measurement model: fit indices, reliability and validity

Predominately, a total of 13 latent constructs have been used in the present study to cognize and testify the hypothesized framework. The present study is based on the JD-R model, thus instrumenting job demands, job resources, strain, well-being, negative outcome and positive outcome. CFA model was run taking all 13 latent variables. Furthermore, fit indices for SEM models were also checked apart from checking fit indices for the CFA model along with convergent and divergent validities. Table 3 reports that fit indices for the CFA model and both SEM models have been found appropriate and acceptable as per suggested thresholds (refer to Table 2). Average loading (convergence) of each observed indicator to respective

**Table 1.**  
Harman’s one-factor test

Component	Extraction sums of squared loadings		
	Total	% of variance	Cumulative %
1	19.045	32.835	32.835

**Note(s):** Extraction Method: Principal Component Analysis, Rotation Method: Varimax

**Table 2.**  
CFA model fit Indices

Model	CMIN/DF	GFI	AGFI	NFI	CFI	RMSEA
Study model (First Order)	1.914	0.921	0.894	0.944	0.936	0.051
SEM model – 1	2.145	0.891	0.873	0.927	0.914	0.063
SEM model – 2	2.047	0.905	0.882	0.932	0.921	0.059
Recommended value	Acceptable 1–4	≥0.90	≥0.85	≥0.90	≥0.90	<0.07
	Wheaton <i>et al.</i> (1997)	Shevlin and Miles (1998)	Shevlin and Miles (1998)	Hu and Bentler (1999)	Hu and Bentler (1999)	MacCallum <i>et al.</i> (1996)

Variable name		No. of items	Avg CFA loading	Alpha ( $\alpha$ )	CR	AVE
Job demands	<i>Workload pressure</i>	3	0.744	0.768	0.788	0.554
	<i>Task interdependence</i>	3	0.757	0.782	0.795	0.659
	<i>Isolation</i>	4	0.782	0.854	0.862	0.611
	<i>Family interference in work</i>	4	0.780	0.871	0.894	0.608
Job resources	<i>Autonomy and schedule</i>	5	0.825	0.905	0.914	0.68
	<i>Flexibility</i>					
	<i>Sufficient technological resources</i>	4	0.853	0.911	0.918	0.728
	<i>Technical support</i>	3	0.850	0.868	0.887	0.723
	<i>Technical training and experience</i>	6	0.802	0.919	0.924	0.643
Strain	<i>Work exhaustion</i>	4	0.907	0.853	0.871	0.823
Well-being	<i>Work life balance</i>	3	0.815	0.830	0.824	0.664
Negative outcome	<i>Stress</i>	3	0.779	0.824	0.816	0.607
Positive outcome	<i>Productivity and performance</i>	7	0.891	0.924	0.93	0.794
	<i>Job satisfaction</i>	4	0.787	0.865	0.874	0.619

**Table 3.**  
CFA loadings,  
Cronbach's alpha, CR  
and AVE

latent construct is also found well above the recommended threshold of 0.70, thereby ensuring that observed items have enough convergence with their respective latent constructs (Bagozzi and Yi, 1988; Hair *et al.*, 1998).

Average variance explained (AVE) were calculated to corroborate the convergent validity of each latent construct. While composite reliability and Cronbach's alpha reliability were also measured to testify the scale consistency. AVE for all the latent constructs is found well above the threshold of 0.50, thereby gauging with the standard norms (Fornell and Larcker, 1981; Hair *et al.*, 1998). While on the other hand, statistics for CR and alpha reliabilities have also been noticed to be greater than the suggested threshold of 0.70 for every latent variable, henceforth satisfying the criteria (Bagozzi and Yi, 1988; Hair *et al.*, 1998).

Authors were also desirous to look to meet the benchmark of discriminant validity for each latent construct. A latent construct having greater convergence of its observed, i.e. AVE than its correlation with other latent constructs, is said to be fulfilling the criteria of discriminant validity (Dahiya and Ragnekar, 2020; Chin *et al.*, 1997); therefore AVE of each latent construct was compared to its inter-construct correlations with other latent constructs to ensure discriminant validity. Results from Table 4 confirm that AVE of every latent construct (Shown in italics) is greater than its correlation with other latent constructs, thus fulfilling the criteria of discriminant validity. Correlations between predictors and outcome variables are found to be fairly correlated and in the hypothesized direction, thereby rendering preliminary support for the testing of hypotheses. Descriptive statistics, including mean, standard deviation, skewness and kurtosis, have also been reported in Table 4. Statistics for skewness and kurtosis were reported within the recommended range of  $-1$  and  $+1$ ; therefore, the dataset holds the normality (Kline, 2015).

#### 4.2 Hypotheses testing

The hypothesized model was tested in two folds. Two SEM models, SEM model-1 and SEM model-2 were run. In the first SEM model, the influence of job demands viz. workload pressure, task interdependence, professional isolation and family interference in work was tested directly on stress (*negative outcomes*) and indirectly through the mediation of work exhaustion (*strain*). While in the second SEM model, direct effects of autonomy and schedule

**Table 4.**  
Correlations, divergent validity and descriptive statistics

Variable name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Workload pressure	<i>0.744</i>														
Task interdependence	-0.089	<i>0.757</i>													
Isolation	-0.098	<i>0.367</i>	<i>0.782</i>												
Family interference in work	0.148	0.104	-0.21	<i>0.780</i>											
Job insecurity	-0.499**	0.006	0.058	0.097	<i>0.762</i>										
Autonomy and schedule flexibility	0.264**	-0.058	-0.121	0.214	-0.407**	<i>0.825</i>									
Management trust	0.397**	0.111	0.147	0.114	-0.491**	0.440**	<i>0.845</i>								
Sufficient technological resources	0.505**	0.047	0.028	0.288	-0.365**	0.440**	0.528**	<i>0.853</i>							
Technical support	0.526**	0.141	-0.020	-0.164	-0.512**	0.348**	0.563**	0.658**	<i>0.850</i>						
Technical training and experience	0.445**	0.062	0.075	0.045	-0.488**	0.295**	0.478**	0.628**	0.753**	<i>0.802</i>					
Strain	0.313**	0.498**	0.433**	0.421**	0.146	-0.068	-0.126	-0.198*	-0.153	-0.156	<i>0.907</i>				
Work-life balance	-0.449**	-0.211	-0.189	0.489**	-0.440**	0.466	0.387**	0.499**	0.385	0.418*	-0.356**	<i>0.815</i>			
Stress	0.441**	0.480**	0.541	0.561**	0.405**	0.498**	0.488**	0.562**	0.446**	0.335**	0.697	-0.440**	<i>0.779</i>		
Productivity and performance	0.459**	-0.094	-0.194*	-0.341	-0.477**	0.388**	0.448**	0.574**	0.489	0.504*	-0.434*	0.748*	-0.538**	<i>0.891</i>	
Job satisfaction	-0.484**	-0.009	-0.112	-0.264	-0.511**	0.508**	0.501**	0.544**	0.583**	0.529**	-0.367	0.651**	-0.452**	0.680**	<i>0.787</i>
Mean	4.928	4.315	4.710	2.688	4.950	5.340	5.136	5.349	5.562	3.941	5.165	4.888	5.009	4.965	4.928
Standard deviation	1.309	1.630	1.664	1.346	1.398	1.454	1.317	1.355	1.195	1.303	1.513	1.534	1.541	1.475	1.309
Skewness	-0.483	-0.420	-0.573	0.882	-0.546	-0.950	-0.616	-0.837	-0.563	-0.087	-0.778	-0.612	-0.785	-0.774	-0.483
Kurtosis	0.003	-0.484	-0.595	0.735	-0.387	0.592	-0.026	0.119	-0.393	-0.476	0.053	-0.358	-0.075	0.043	0.003

**Note(s):** Squared root of AVE has been shown in italics on diagonals and it should be greater than off-diagonal values for divergent validity. \*\*Correlations are significant at 0.01 level

Dependent variable		Independent variable	Std estimate	Supported	
<i>Standardized direct effects</i>					
H1a	Stress	<—	Workload pressure	0.344***	Yes
H1b	Stress	<—	Task interdependence	0.281***	Yes
H1c	Stress	<—	Isolation	0.314***	Yes
H1d	Stress	<—	Family interference in work	0.344***	Yes
<i>Standardized indirect effects (Through work exhaustion)</i>					
H2a	Stress	<—	Workload pressure	0.129**	Yes
H2b	Stress	<—	Task interdependence	0.193**	Yes
H2c	Stress	<—	Professional isolation	0.138**	Yes
H2d	Stress	<—	Family interference in work	0.104**	Yes
<i>Standardized total effects (Direct Effect + Indirect Effect)</i>					
Stress		<—	Workload pressure	0.473**	
Stress		<—	Task interdependence	0.474**	
Stress		<—	Isolation	0.452**	
Stress		<—	Family interference in work	0.448**	

**Note(s):** Paths indicated with \* have been found significant at 1% or 5% level of significance, i.e. \*\*\* $p < 0.01$  and \*\* $p < 0.05$ . Indirect effects were found significant at 5% level of significance, i.e.  $p < 0.05$  using Bias-corrected Percentile Method using bootstrap at 5000

**Table 5.**  
SEM Model 1-  
Standardized  
regression weights  
(Direct, indirect and  
total effects)

flexibility, sufficient technological resources, technical support and technical training and experience were measured on productivity and performance and job satisfaction (*positive outcomes*), while indirect effects were tested through the mediating role of work-life balance (*well-being*).

4.2.1 *SEM model-1*. Results reported in Table 5 unearth that job demands viz. workload pressure, task interdependence, professional isolation and family interference in work have a significant direct and positive influence on stress (*negative outcomes*) with standardized coefficients of 0.344, 0.281, 0.314 and 0.344, respectively, thereby meaning that increased levels of job demands lead to higher stress hence supporting the hypotheses; H1a, H1b, H1c and H1d. Furthermore, the impact of work exhaustion (*strain*) was also predicted on stress and postulating hypothesis with predicting power ( $B = 0.458$ ) of 45.80%. For SEM model-1, explanatory power ( $R^2$ ) for explaining the variance in stress (*negative outcome*) was found to be 0.328 (32.80%), while on work exhaustion (*strain*), it was precisely found to be 0.411 (41.10%).

4.2.2 *Mediation analysis (SEM model-1)*. Mediated paths, through work exhaustion (*strain*), were also drawn to measure the indirect effect of job demands viz. workload pressure, task interdependence, professional isolation and family interference in work on stress (*negative outcomes*) and hypotheses; H2a, H2b, H2c and H2d were postulated, respectively. With the significant indirect effects of 0.129, 0.193, 0.138 and 0.104 for workload pressure, task interdependence, professional isolation and family interference in work, respectively, work exhaustion (*strain*) was found partially mediating the influence of job demands on stress (*negative outcomes*). Total effects were calculated, adding indirect effects to the respective direct effects (Hayes, 2009) and for each job demand, the total effect was found significant with standardized estimates as follows; 0.473, 0.474, 0.452 and 0.448.

4.2.3 *SEM model-2*. SEM model-2 was run to testify proposed hypotheses; H3a, H3b, H3c and H3d for measuring the direct effect of job resources viz. autonomy and schedule flexibility, sufficient technological resources, technical support and technical training and experience on productivity and performance and hypotheses; H4a, H4b, H4c and H4d for

measuring the direct effect of job resources viz. autonomy and schedule flexibility, sufficient technological resources, technical support and technical training and experience job satisfaction (*positive outcomes*). Table 6 reported that autonomy and schedule flexibility, sufficient technological resources and technical training and experience on productivity and performance have a significant positive impact on productivity and performance with standardized regression weights of 0.470, 0.283 and 0.298, respectively, while technical support does not significantly increase productivity and performance with a coefficient of 0.073. Table 6 also reports that except for technical training and experience ( $B = 0.075$ ),

Dependent variable	Independent variable	Std estimate	Supported
<i>Standardized direct effects</i>			
H3a	Productivity and performance <— Autonomy and schedule flexibility	0.470***	Yes
H3b	Productivity and performance <— Sufficient technological resources	0.283***	Yes
H3c	Productivity and performance <— Technical support	0.073 <sup>NS</sup>	No
H3d	Productivity and performance <— Technical training and experience	0.298***	Yes
H4a	Job satisfaction <— Autonomy and schedule flexibility	0.218***	Yes
H4b	Job satisfaction <— Sufficient technological resources	0.251***	Yes
H4c	Job satisfaction <— Technical support	0.322***	Yes
H4d	Job satisfaction <— Technical training and experience	0.075 <sup>NS</sup>	No
H7	Strains <— Work-life balance	-0.238***	Yes
<i>Standardized indirect effects (Through work-life balance)</i>			
H5a	Productivity and performance <— Autonomy and schedule flexibility	0.196**	Yes
H5b	Productivity and performance <— Sufficient technological resources	0.180**	Yes
H5c	Productivity and performance <— Technical support	0.046 <sup>NS</sup>	No
H5d	Productivity and performance <— Technical training and experience	0.125**	Yes
H6a	Job satisfaction <— Autonomy and schedule flexibility	0.139**	Yes
H6b	Job satisfaction <— Sufficient technological resources	0.128**	Yes
H6c	Job satisfaction <— Technical support	0.033 <sup>NS</sup>	No
H6d	Job satisfaction <— Technical training and experience	0.089 <sup>NS</sup>	No
<i>Standardized total effects (Direct effect + Indirect effect)</i>			
	Productivity and performance <— Autonomy and schedule flexibility	0.666***	
	Productivity and performance <— Sufficient technological resources	0.463***	
	Productivity and performance <— Technical support	0.119 <sup>NS</sup>	
	Productivity and performance <— Technical training and experience	0.423***	
	Job satisfaction <— Autonomy and schedule flexibility	0.357***	
	Job satisfaction <— Sufficient technological resources	0.379***	
	Job satisfaction <— Technical support	0.355***	
	Job satisfaction <— Technical training and experience	0.164 <sup>NS</sup>	

**Table 6.**  
SEM Model 2-  
Standardized  
regression weights  
(Direct, indirect and  
total effects)

**Note(s):** Paths indicated with \* have been found significant at 1% or 5% level of significance, i.e. \*\*\* $p < 0.01$  and \*\* $p < 0.05$ . Indirect effects were found significant at 5% level of significance, i.e.  $p < 0.05$  using Bias-corrected Percentile Method using bootstrap at 5000



autonomy and schedule flexibility, sufficient technological resources and technical support enhance job satisfaction with the following predicting powers; 0.218, 0.251 and 0.322, respectively. Moreover, authors also hypothesized (H7) to estimate the influence of work-life balance (*well-being*) on work exhaustion (*strain*) and statistics retrieved from Table 6 evidenced that work-life balance reduces the level of strain, i.e. work exhaustion with the predicting power of  $-0.238$  (23.80%). Explanatory powers ( $R^2$ ) for variance in productivity and performance and job satisfaction were found 0.524 (52.40%) and 0.415 (41.50%), respectively.

*4.2.4 Mediation analysis (SEM model-2).* Hypotheses H5a, H5b, H5c and H5d were put forward by the authors to assess the indirect effects of autonomy and schedule flexibility, sufficient technological resources, technical support and technical training and experience on productivity and performance, while hypotheses H6a, H6b, H6c and H6d were postulated to measure the indirect influence of job demands on job satisfaction through the mediating role of well-being, i.e. work-life balance. Autonomy and schedule flexibility, sufficient technological resources and technical training and experience were found having significant indirect effects of 0.196, 0.180 and 0.125, respectively, on productivity and performance through partial mediation of work-life balance with exception to technical support showing the insignificant standardized indirect effect of 0.046, thereby supporting H5a, H5b and H5d. Furthermore, work-life balance was found partially mediating the influence of autonomy and schedule flexibility and sufficient technological resources on job satisfaction with significant indirect effects; 0.139 and 0.128 while technical support and technical training and experience were found having an insignificant indirect effect on job satisfaction through the mediator (work-life balance) thus supporting only H6a and H6b. Total effects, i.e. the sum of direct and indirect effect (Hayes, 2009), were found significant for hypotheses; H5a, H5b and H5d with standard estimates at 0.666, 0.463 and 0.423, while for hypotheses; H6a, H6b and H6c, total effects were 0.357, 0.379 and 0.355, respectively.

## 5. Discussion

All the proposed job demands were found to have a direct effect on stress and an indirect effect through increased work exhaustion as well. Individuals reported workload pressure, task interdependence, professional isolation and family interference in work to be exhausting and stressful significantly. Workload pressure was expected because individuals do not have experience of full-time telecommuting and they must have felt workload due to reduced efficiency because of inadequate infrastructure and inept managerial practices. The situation demands that the work arrangement should be employee-centric and must not lead to workload pressure (Avgoustaki and Bessa, 2019) and apart from work, managers should also proactively concern themselves about psychological issues of remote workers like overworking, work-life management and their levels of frustration, exhaustion and stress. Remote working is a new concept for some organizations and it will require new management practices. Managers should let go of close supervision and focus on positive reinforcement by internally motivating employees. As suggested by previous research, managers must set out criteria, introduce job guidelines, increase informal interaction and focus on results (Gajendran and Harrison, 2007; Turetken *et al.*, 2011; Allen *et al.*, 2015).

Results regarding task interdependence and professional isolation mean that there is a need for more sophisticated technical tools to do away with the negative effects of task interdependence and professional isolation in full-time telecommuting. Although, availability of tools like Zoom, Slack, Microsoft Teams, WebEx, Twist, GoToMeeting and UberConference facilitate collaboration and staying connected but they have not delivered the desired results due to lack of media richness and inability to replicate face to face interaction. However, as found in previous research (Nicklin *et al.*, 2016) and explained by

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channel expansion theory (Carlson and Zmud, 1999), further experience, technological development and access to high-speed Internet will make it easier to telecommute and subside the negative effects of task interdependence and professional isolation. Also, managers must adopt a proactive approach for interacting with the away workforce (White, 2018) and efforts must be made to replicate “water cooler chit-chat” and negate professional isolation through informal virtual interactions so that employees do not feel out of the loop.

Moving to family interference in work, both direct and mediating effect on stress was supported and this could be attributed to the lack of experience with full-time commuting and hence individuals must not have been able to keep a boundary between work and home. As recommended by Eddleston and Mulki (2017) as well, segmentation between two roles will help in bringing down family interference in work. Like experienced full-time telecommuters, individuals need to set up a workstation at a separate place for working from home and follow an office like schedule. Family interference in work will recede with time as the family will get used to the new working style of an individual.

Among job resources, autonomy and schedule flexibility and availability of sufficient technology resources were found to have a positive relationship with both job satisfaction and performance and productivity directly as well as indirectly through improved work-life balance. Apart from these resources, increased productivity and performance could also be explained by social exchange theory (Blau, 2017), which states that employee makes an extra effort as a way of paying back to the organization when some special privilege is given by an organization (Avgoustaki and Bessa, 2019; Golden and Gajendran, 2019). This is important in the current context because not all organizations have allowed telecommuting; some have either shut operation and put employees on unpaid leave, while others require office presence. Another possible reason for this behavior could be fears around job security; lockdown is expected to continue for a few more months and employees must be putting in extra efforts to remain among the top performers and trying to save their jobs.

Apart from the proposed resources, increased job satisfaction could be a result of spending more time with the family (McNall *et al.*, 2009). Increased job satisfaction could also be attributed to the very fact that employees had an opportunity to telecommute because it would have been frustrating to go to the office amid the risk of getting infected while traveling or at the office so employees must have felt more satisfied with their job even if it meant increased workload pressure and professional isolation.

Technical support was not found to boost productivity and performance either directly or indirectly through work-life balance. Further, technical support was found to enhance job satisfaction but no indirect effect of technical support was found on job satisfaction through work-life balance. Similarly, no support was found for the relationship between technical training and experience and increased job satisfaction directly or indirectly through work-life balance. These findings seem logical given the fact that our respondents were technology dependent knowledge and information workers; hence they were well versed with the technology they use so timely technical support may have led to a direct increase in job satisfaction but no indirect effect through improvement in work-life balance and similarly no effect on productivity and performance. Similarly, the job nature of the studied population also explains the relationship between technical training and experience and improved productivity and performance and also the insignificant relationship with job satisfaction.

Work-life balance positively mediated the relationship between two job resources (autonomy and schedule flexibility and sufficient technology resources) and positive outcomes and support for the negative relationship between well-being (work-life balance) and strain (work exhaustion) was also found. In conformity with previous research, it is highly plausible that autonomy and schedule flexibility along with an absence of commute provided individuals with more time to spend with family and engage in hobbies and household chores, leading to an improved work-life balance (Golden *et al.*, 2006; Allen *et al.*,

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2015). Further, improved work-life balance because of these resources may have led to a reduction in work exhaustion for an individual like previous research reported that autonomy that comes with telecommuting helps in mitigating workload pressure, exhaustion and further the negative impacts (Sardeshmukh *et al.*, 2012; Allen *et al.*, 2015; Gajendran *et al.*, 2015; Vander Elst *et al.*, 2017). As recent studies also found that, telecommuting improves well-being when the work arrangement is employee-centric (Sánchez, 2017; Avgoustaki and Frankort, 2018) and this also helps the organization in the long run because improved well-being increases performance and productivity and employees are less likely to quit (Magnier-Watanabe *et al.*, 2020).

## 6. Implications

### 6.1 Practical implications

It is a certainty that full-time telecommuting is here to stay at least for a good number of organizations. For the successful adoption of such programs, managers must consider job demands and resources that come with remote work and their impact on practical and psychological outcomes for the employees. The present study recommends that increased autonomy, availability of richer media, adequate infrastructure, designating separate workplaces, prior work from home training and improvised management practices will reduce strain and improve the well-being of full-time telecommuters. These measures will also help in reaping the benefits of these arrangements in the form of increased productivity and performance and job satisfaction while mitigating stress at the same time. More satisfied and better-performing employees would translate into better organizational performance overall. The findings of the present study could also be used by organizations planning to continue or introduce full-time telecommuting arrangements once this pandemic is over; managers may incorporate suggested measures for the success of such arrangements. Lastly, these findings will also help in ensuring employee well-being for full-time telecommuters while stimulating business continuity and survival in emergencies like COVID-19.

### 6.2 Theoretical implications

Theoretically, this study adds to mandatory full-time telecommuting literature, which is still in its infancy by studying certain factors that act as a facilitator or hindrance in such work arrangement and their impact on practical and psychological employee outcomes. Telecommuting researchers hardly had any opportunity to study employees who mandatorily work from their homes for such long times since telecommuting was mostly allowed for few days in a work-week and in the case of full-time telecommuting, it mostly was voluntary. The present study used this COVID-19 induced lockdown as an opportunity to study this type of work arrangement and future researchers may further build upon the findings of this study.

## 7. Limitations and future research

The present study has many limitations because of the lockdown situation and the theme and population it attempted to study. The present study uses cross-sectional data, which implies that responses about all variables were taken at the same time and thus, time precedence of independent variables cannot be guaranteed in establishing the causal relationships so that a longitudinal study may offer more clarity. In addition, lockdown is expected to continue for some time and it is expected that telecommuting will get easier as people get used to their new work arrangement or it may worsen for some due to inability to cope with job demands and hence longitudinally studying employees overtime will make an essential contribution to the telecommuting literature by bringing forward perceptual differences. Due to the peculiarity of the current situation, it was not possible to have a control group in our study because

telecommuting was rolled out to all the employees. So the findings cannot be fully attributed to mandatory full-time telecommuting, as there may be other factors at play like organizational or societal change.

There are serious concerns regarding the generalizability of this study. Our sample represents only employees working in IT and IT-enabled services in one particular geographic region of India. The findings of this study cannot be generalized to other sectors and geographic areas and create space for future studies on a similar theme with other groups. Future studies may take other job demands and resources specific to certain geographic, demographic and job characteristics. Similarly, the present situation will have implications on other outcomes like work interfering family, organizational commitment and turnover intention; further research can be undertaken to study this. The present study is based on the JD-R model; future studies may adopt some other framework or may further build on demands and resources mentioned in the present study. The present study is based on self-reported data from employees and hence a future study may endeavor a holistic study by taking perceptions of managers as well.

## 8. Conclusion

The phenomenon of telecommuting full-time mandatorily brings new challenges and opportunities for employees. The present study sheds some light in this direction by empirically analyzing job demands and resources and the outcome variables and puts forward that workload pressure, task interdependence, professional isolation and family interference in work serves as a job demand and leads to exhaustion and stress for the individuals who are telecommuting full-time mandatorily. Whereas, autonomy and schedule flexibility and availability of sufficient technology resources serves as a job resource and results in better work-life balance and boosts productivity, performance and job satisfaction. Technical support was found to enhance job satisfaction only and technical training and experience improved productivity and performance only and there was no mediating role of work-life balance on any of the positive employee outcomes. In addition, improved well-being was also found to reduce stress for full-time telecommuters.

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### Further reading

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### Appendix

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Construct name with items of measurement

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*Workload pressure source: Amabile et al. (1996)*

- (1) I have sufficient time to do my project(s)
- (2) My organization is keeping realistic expectations regarding work
- (3) I do not feel a sense of time pressure in my work

*Task interdependence source: Morgeson and Humphrey (2006)*

- (1) Unless my job gets done, other jobs cannot be completed
- (2) My job depends on the work of many different people for its completion
- (3) My job cannot be done unless others do their work

*Professional isolation source: Golden et al. (2008)*

- (1) I am missing face-to-face contact with coworkers
- (2) I am feeling left out of the loop
- (3) I am missing the emotional support of coworkers
- (4) I am missing informal interaction with others

*Family interference in work source: Netemeyer et al. (1996)*

- (1) The demands of my family or spouse/partner interfere with work-related activities
- (2) I have to put off doing things at work because of demands on my time at home
- (3) My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks and working overtime
- (4) Family-related strain interferes with my ability to perform job-related duties

*Autonomy and schedule flexibility source: Langfred (2000); Morgeson and Humphrey (2006)*

- (1) I have authority in determining tasks to be performed
- (2) I have authority in determining rules and procedures for my own work
- (3) The job allows me to make my own decisions about how to schedule my work
- (4) The job allows me to decide on the order in which things are done on the job
- (5) The job allows me to plan how I do my work

*Sufficient technological resources source: Amabile et al. (1996)*

- (1) The facilities I need for my work are readily available to me
- (2) I can get all the data I need to carry out my projects successfully
- (3) I am able to easily get the materials I need to do my work
- (4) The information I need for my work is easily obtainable

*Technical support source: Day et al. (2012)*

- (1) My organization is using the latest technology
- (2) Technical support is available at work when I need it
- (3) My organization's technical support people respond promptly to any of my problems

**Table A1.**  
Items of the  
questionnaire with  
(continued) their source of adoption

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Construct name with items of measurement

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*Technical experience and training source: Staples et al. (1999)*

- (1) I am experienced at using my organization's e-mail system
- (2) I am experienced at using my organization's electronic collaborative (group support) system
- (3) I am experienced at using my organization's videoconferencing system
- (4) I received adequate training to use my e-mail system
- (5) I received adequate training to use my organization's electronic collaborative (group support) system
- (6) I received adequate training to use my organization's video conferencing system

*Work exhaustion source: Maslach et al. (1986)*

- (1) I feel emotionally drained from my work
- (2) I feel used up at the end of the workday
- (3) I feel fatigued when I get up in the morning and have to face another day on the job
- (4) Working from home all day is a strain for me

*Stress source: Staples et al. (1999)*

- (1) I am feeling lesser tensed while working from home
- (2) I am not feeling fidgety or nervous as a result of my job
- (3) I am facing lesser job related problems when working from home

*Work-life balance source: Geurts et al. (2005)*

- (1) After a pleasant working day/working week, I feel more in the mood to engage in activities with my spouse/family/ friends
- (2) I manage my time at home more efficiently as a result of the way I do my job
- (3) I have greater self-confidence at work because I have my home life well organized

*Productivity and performance source: Bélanger (1999)*

- (1) I feel that I am productive in my work environment
- (2) My work environment allows me to work efficiently
- (3) My work environment allows me to complete a large number of tasks each day
- (4) My work environment allows me to complete tasks in satisfactory manner
- (5) My work environment allows me to improve my overall work performance
- (6) My work environment allows me to do high quality work
- (7) My work environment allows me to meet the expectations of my supervisor in performing my job

*Job satisfaction source: Weiss et al. (1967)*

- (1) I am satisfied with the amount of work I am doing
  - (2) I am satisfied that my job provides for steady employment
  - (3) I am satisfied with the chance to work alone on the job
  - (4) I am satisfied with the feeling of accomplishment I am getting from the job
- 

**Table A1.**

### About the authors

Mohd Tariq Jamal is currently pursuing a PhD from the Department of Commerce, Aligarh Muslim University (AMU), Aligarh. His area of research is Organizational Behavior and Human Resource Management and he studies flexible work arrangements and their impact on employee-related outcomes. He completed his bachelor's and master's degree from the University of Delhi, India and thereafter worked as a subject matter expert before embarking on the research journey. Jamal not only studies flexible work arrangements but he has also been a practitioner of flexible work arrangement during his time in the corporate sector.

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Prof Nawab Ali Khan is a senior professor presently serving as a Chairman in the Department of Commerce, AMU, Aligarh. He has also been the Dean, Faculty of Commerce, AMU. Khan taught at the University of Delhi earlier in his career. Besides, he has also served as a full professor and coordinator of the HRM program at college of Business Administration, Prince Sattam bin Abdul aziz University, Al Kharj, KSA. His core area of specialization is HRM. He is also the examiner of a large number of universities and other institutions including IIT, State Public Service Commission, Institute of Company Secretaries, etc. Khan is also on the panel of various journals of national and international repute.

Prof Imran Saleem, Former Vice-Chancellor, Singhania University, Rajasthan is a senior professor at Department of Commerce, AMU and is currently serving as a Dean at Faculty of Commerce, AMU, Aligarh and visiting faculty at IIM Kashipur. He has also served as Professor and Dean, Faculty of Management and Head, Department of Management at Jamia Hamdard, New Delhi. He has also served as Head of Department under World Bank Project, Consultant under Social Service Agreement, United Nations and also as Consultant Lal Bahadur Shastri National Academy of Administration, Mussoorie. He has varied association and exposure in the field of academics and publication at various levels.

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