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The Effects of Social Isolation, Remote Work Satisfaction, and Stress on Perceived Remote Work Productivity of Business Process Outsourcing Employees in National Capital Region: A Gender Difference Approach

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Abstract

This paper aims to assess the effects of social isolation, remote work satisfaction and stress on the perceived remote work productivity between male and female Business Process Outsourcing employees in National Capital Region. This study made use of a causal-predictive research design and partial-least structural equation modeling (PLS-SEM) to measure the direct and indirect effects of the structural model. The findings revealed that there is a significant difference on the relationship between stress and perceived remote work productivity (ALGC = 0.109, p = 0.026) between male and female respondents and that the negative effect of stress on perceived remote work productivity is greater among male respondents (β_M = -0.425) compared to females (β_F = -0.333). Further, it was exposed that there is no significant difference was found on the link between remote work satisfaction and perceived remote work productivity (ALGC = 0.028, p = 0.313) between male and female participants. Implications of the study in remote workers, organizations, and the directions for future research were also provided.

Keywords: *business process outsourcing, remote working, remote work productivity, social isolation, stress, remote work satisfaction, gender, structural equation model, Polytechnic University of the Philippines*

1. Introduction

Innumerable elements of human existence, including economics, politics, security, and health were all drastically altered by the global health crisis, including lockdowns, travel bans, job losses, and wage reductions (Attygalle & Abhayawardana, 2021). The pandemic has also grown to be a serious danger to many organizations all around the world, which has changed how people work and communicate with one another.

Several businesses have switched from managing their employees face-to-face to so-called virtual methods in order to stop the virus from spreading (Mustajab et al., 2020). This virtual practice or flexible work arrangement has been implemented by several nations as a tactic to ensure that corporate operations continue (Purwanto et al., 2020). In the Philippines, workers are now able to choose flexible work schedules as the nation adjusts to the "new normal." Due to stringent community quarantines in various parts of the country since 2020, about 72% of businesses have worked remotely. According

to Sprout Solutions, the business process outsourcing industry is the one that has most actively promoted remote employment (Daza, 2020).

The scientific article and literature on remote work has highlighted a variety of potential gains of this arrangement, resolving issues on work-family conflict, job satisfaction, organizational commitment, and job performance. Yet, there are also drawbacks to this arrangement, including increased family-work conflict, a breakdown in professional ties, and a decreased chance of getting promoted (Allen et al., 2015; Gajendran et al., 2007; Toscano et al., 2020).

In order to help businesses decide whether to accept, continue, or end this type of system—particularly in light of the COVID-19 pandemic—this study determines whether a specific component (mental, physical, emotional, etc.) has a beneficial or negative impact on distant workers' productivity. In the current situation, where working remotely is still a contentious topic, this paper additionally provides inputs on Philippines government's direction issued in September 2022 that allows Information Technology and Business Processing Management or Business Processing Outsourcing (IT-BPM/BPO) organizations in economic zones to utilize up to 100% work-from-home (WFH) arrangements without dropping tax benefits (https://www.dti.gov.ph, 2022).

However, there is little research on the impact of gender gaps on employees' perceived work productivity, necessitating further research on this idea. Constructs like stress, remote work satisfaction, social isolation, and perceived work productivity have formerly correlated with one another in previous studies. This clarifies how Filipinos perceive gender roles, which are influenced by the culture and tradition of the nation and the fact that women typically perform two duties in the home. Having a double function means that obligations as homemakers must nevertheless met even while the person works two jobs to support themselves.

Remote work productivity is one of the most crucial issues in macro and micro-economic aspects (Saputra et al., 2021) and whether this new work arrangement of working from home influences productivity (Kniffin et al., 2020; Thorstensson, 2020), or not, industry leaders must be cautious in implementing mechanisms that would impact the organization as a whole.

2. Research Framework and Hypotheses

This study is based on the Job Demands - Resources Model (JD-R Model) of Demerouti et al. (2001), which suggests that job setting can be divided into two major categorizations: job resources, and job demands, which are diametrically opposed to one another in terms of their relationships to specific outcomes. Work demands are primarily associated with the exhaustion component of burnout, whereas a scarcity of resources at work is generally connected with disengagement. For this study, social isolation and stress are tagged as job demands whereas remote work satisfaction is categorized as job resource.

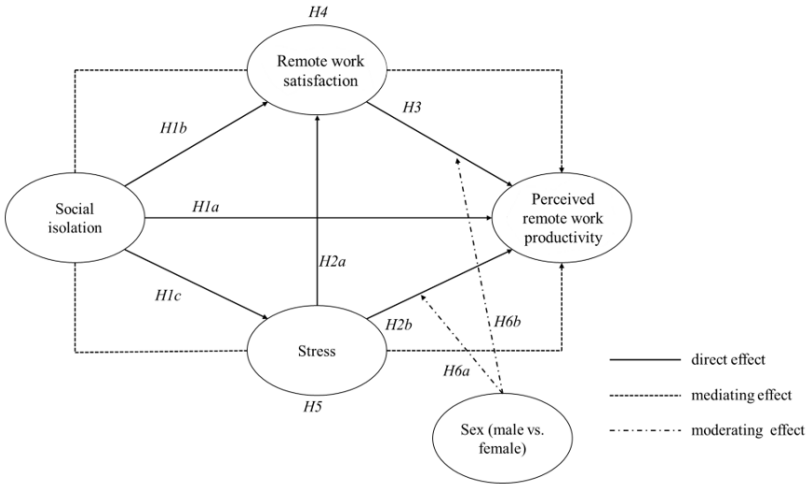

Figure 1. Conceptual Framework of the Study

The JD-R Model in Figure 1 integrates the stress process with the motivational process, two fundamental psychological processes. High workloads, poorly designed jobs, ongoing workloads, and a lack of resources drain workers' energies, which has a negative impact on performance, workability, organizational dedication, and sickness (Demerouti et al., 2001, 2001a, b; Leiter, 1993; Schaufeli, 2017). This psychological process, which Schaufeli (2017) also refers to as strain, has a detrimental impact on worker's emotional, physical, and mental health, which ultimately has a bad organizational effect.

As presented, the terms dependent and independent variables are discarded in path modeling. Called endogenous variables, these variables are modeled as dependent on other variables, rather than response variables because they may turn into independent variables in other equations within the Structural Equation Modeling (Gunzler et.al, 2013) and exogenous variables are those that are not dependent on another variable.

Social isolation, stress, and satisfaction with distant work are considered exogenous variables in this study, while perceived productivity of remote work is considered an endogenous variable. Moreover, social isolation and perceived productivity of distant work are mediated by remote work satisfaction and stress. The mediator is the element that has an indirect impact on both endogenous and external factors.

For the purpose of determining its influence on (1) the association between stress and perceived remote work productivity and (2) the correlation between perceived remote work satisfaction and perceived remote work productivity, sex (male or female) is employed as a moderator in this study. Moderating factors are those that have an impact on how strongly endogenous and exogenous variables are correlated.

Social Isolation

One key issue highlighted in researchers on working remotely is its implication in terms of isolation perceptions (Cooper & Kurland, 2002; Kurland & Cooper, 2002; Vega & Brennan, 2000) because employees see it as a cause of difficulty and tension (House, 1981) as well as a breakdown of working relationships, a decreased chance of promotion, and an increment in family-work conflict (Allen et al.,

2015; Gajendran & Harrison, 2007; Toscano & Zappalà, 2020). Social isolation in the workplace is defined as the absence of fulfilling camaraderie or an absence of access to social networks (Marshall et al., 2007).

According to an evolutionary perspective, humans have long perceived social and physical separation from others as negative because it implies a lack of protection and support, both of which are essential for survival (Buss, 1996) and require support for executing duties (Cramton, 2001). Study reviews have also shown that the most frequently cited issue of employees in remote working is their perceived isolation from their office social system (Mann et al., 2000; Pinsonneault & Boisvert, 2001; Levin & Stokes,1989; Maslach & Jackson, 1981; Rook, 1984; Cooper & Kurland, 2002) which is created as a result of an insufficiency of assistance, interaction, and feedback (Marshall et al., 2007; Kenyon et al., 2002; Furst et al., 2004; Hertel et al., 2005; Kirkman et al., 2002; Malhotra et al., 2007; Mulki et al., 2008).

Stress

Remote working has revealed several positive impacts on all aspects of health (Voulon, 2021) including better work-life balance (Mustajab et al., 2020; Nordin et al., 2016; Vittersø et al., 2003; Ammons & Markham, 2004; Johnson et al., 2007; Nakrošiene et al., 2019) and better concentration (Vittersø et al., 2003) which is obtained from flexibility (Gajendran & Harrison, 2007; Heathfield, 2019), reduced transportation costs (Tremblay & Genin, 2007), reduced workload stress (Duxbury & Halinski, 2014; Gajendran & Harrison, 2007; Hartig et al., 2007; Sardeshmukh et al., 2012), no reduced family responsibility (Sirait & Murdianingrum, 2021) and work autonomy (Tremblay & Genin, 2007).

But even so, because of the long periods associated with continuous and repetitive seated work, telecommuting also leads to poor musculoskeletal health (Crossan & Burton, 1993; Skov et al., 1996; Standen et al., 1999; Tavares, 2017), therefore contributing to worker's mental concerns connected to stress (Ammons & Markham, 2004; Mann & Holdsworth, 2003; Standen et al., 1999; Tavares, 2017). These influence the well-being, job effectiveness and work-life balance (American Psychiatric Association Foundation [APAF], 2020; Grant et al., 2019) of remote workers.

Stress is a difficult concept to define since it is highly dependent on each individual's characteristics (Voulon, 2021). And though variety of definitions have been posited over the years, stress is repeatedly alluded to as a response to exhaustion that employees experience when work responsibilities exceed their ability to cope with them (Hessels et al., 2017). Further, several articles have discussed stressors in the milieu of remote working (Sardeshmukh et al., 2000). Stressors refer to actions or stimuli encountered by an individual (Ayyagari et al., 2011; Tarafdar et al., 2010) that cause stress. These include but are not limited to: work overload (Baruch, 2000), work-family conflict (Giurge & Bohns, 2020; Carnevale & Hatak, 2020; Friedman & Westring, 2020; Petersen, 2020; Rudolph et al., 2021; Sinclair et al., 2020; Van Zoonen et al., 2021; Standen et al., 1999; Mann & Holdsworth, 2003; Gajendran & Harrison, 2007), adjustment (Raghuram et al., 2001; Van Zoonen et al., 2021) on the work environment (Raghuram & Wiesenfeld, 2004), job role (Fernet et al., 2004; Nelson & Sutton, 1991; Sargent & Terry, 1998; Van Zoonen et al., 2021; Weinert et al., 2015) or personal role (Ashforth et al., 2000; Kossek et al., 2012; Olson-Buchanan & Boswell, 2006; Van Zoonen et al., 2021), technology use (Saeed et al., 2020; Ter Hoeven & van Zoonen, 2020; Van Zoonen et al., 2021; Rice, 1992), work-life balance (Greenhaus & Beutell, 1985), lack of support from co-employees and

supervisors (McCloskey & Igbaria, 2003; Mann & Holdsworth, 2003), and social isolation (Golden et al., 2008; Ellison, 1999; Cooper & Kurland, 2002; Bailey & Kurland, 2002; Sardeshmukh et al., 2008).

Per Stephenson and Bauer (2010) and Weinert et al. (2015), isolation is clearly linked to a perception of increased stress as a consequence of a lack of face-to-face relationships and contact with colleagues (Bakker & Demerouti, 2007; Toscano & Zappalà, 2020). Based on the Job Demands-Resources Model, other studies have discovered that social isolation has a negative impact on performance (Golden et al., 2008) and health (Stephenson & Bauer, 2010) and for these same reasons, social support must be core in any extensive effort to control stress (or its negative effects) in remote workers (Williams & House, 1985).

Remote Work Satisfaction

Job satisfaction is a psychological state in which employees perceive their work to be enjoyable or unpleasant (Handoko, 2008). It is said to be the result of their perceptions as to the extent they have accomplished what is considered to be an important part (Jensen & Luthans, 2006) or as an emotional response or an attitude related to all aspects of their job (Anggarwati et al*,* 2015). Prasetio et al. (2017) also mention that job satisfaction has a powerful cultivation to raise the productivity level of workers who participate in remote working because it is critical to empower employees to utilize the best of their expertise for their jobs (Setiawan et al*., 2*020). Employees who are pleased with their professions have a better outlook toward their jobs; those who are dissatisfied have the opposite attitude (Syabarrudin et al., 2020).

A number of literatures suggests heterogeneous conclusions pertaining to remote working's effect on employee satisfaction (Bailey & Kurland, 2001). Employees who choose to work remotely are generally more enthusiastic, more engaged and committed to their work which in due course outstandingly increases remote workers' job satisfaction (Schall, 2019; Bhattarai et al., 2020; Das et al., 2014). Employees are more motivated and devote a longer period of time without changing careers if they have a choice in terms of their preferred working hours; this means that they receive job satisfaction from their companies (Davidescu et al., 2020).

Remote workers are satisfied with the current arrangement because of the flexibility (Tavares, 2017), work-life balance (Mustajab et al., 2020; Nordin et al., 2016; Vittersø et al., 2003; Ammons & Markham, 2004; Johnson et al., 2007; Nakrošiene et al., 2019; Sullivan, 2012) and autonomy (Tremblay & Genin, 2007) it provides them. Remote workers have the capacity to choose where and when they want to work (Kossek et al., 2006), which enables them to achieve a better work-life balance since they can effectively schedule their working hours between their home demands (Golden et al., 2006; Versey, 2015) or manage their personal issues. As a result, these remote workers are more likely to be productive at their jobs (Alghaithi & Sartawi, 2020).

Alternately, according to Morgan and Symon (2002), lack of social contact (Marshall et al., 2007) and physical distance cause job dissatisfaction when working remotely along with other stressors such as work-to-home conflict (Hammer et al., 2005; Hill et al., 2003; Schieman & Young, 2010) and home-to-work conflict (Delanoeije et al., 2019; Duxbury et al., 1992; Golden et al., 2006).

Sometimes work invades private life outside normal working hours when there is no specific schedule or location to work; they sometimes answer emails beyond the normal working hours (Saarenoksa,

2021) or feel as though they are on call 24/7 (Kim et al., 2020). Because home chores are more visible at home, they cause remote workers to interrupt their activities (Golden et al., 2006).

As a form of job resource based on the Job Demands-Resources Model, remote work satisfaction has triggered debates on the significance of re-evaluating remote worker satisfaction and the requisite to remodel employee engagement programs that will enable employees to completely focus on sustaining the level of their satisfaction (Despinur et al., 2020).

Perceived Remote Work Productivity

Every organization must work hard to maintain and improve productivity, especially during this pandemic period (Jääskeläinen, 2010) when mostly are in remote working because productivity becomes an integral issue in micro and macro-economic viewpoints (Saputra et al., 2021). Productivity, as for Smith and Gardner, (2017), is often regarded as an important element of company performance for it increases the general efficiency of the organization (Bloom et al., 2006). Said to be the key to organizational success (Attygalle & Abhayawardana, 2021), it is also an indicator that the workers or group of workers are efficient at their jobs (Singh, 2020).

As explained by Yilma Goshu et al. (2017), productivity is the notion of utilizing current resources by considering the effectiveness in their allocation. By working smart, productivity is not just measuring how much output was produced but rather how much resources were effectively used in order to produce such output (Gordon & Gretton, 2015). In the 20th century, the traditional terminology of productivity is focused mainly on the efficiency of manual workers by having the ratio of the produced goods or services versus the amount of time needed (Fernandez, 2013; OECD, 2001). Certainly, it is the relationship of output produced and the inputs needed to generate the output (Saputra et al., 2021; Neufeld & Fang, 2004).

For this study, the perceived remote productivity is defined as personal perception towards efficiency in accomplishing job-related tasks based on the set terms of reference.

Different results have been noted in terms of productivity of remote workers when the number of hours working is at stake. It was noted that appropriate remote working hours increase productivity and on the contrary, a decrease in productivity when hours are too long (Kazekami, 2020). Further, remote worker's self-discipline must also be taken into consideration since they cannot focus much on their work as compared to on-site because they are too relaxed at home, having no colleagues around them (Bao et al., 2020).

A number of studies on behavioral direction have depicted that less face-to-face contact and greater technology dependence deleteriously influence work-related results (Gibson & Gibbs, 2006; Martins et al.,2004) as well as the fact that remote workers lack facilities that would support remote working such as computers, internet networks (Mustajab et al., 2020; Davenport & Pearlson, 1998), communication with co-workers, work environment, supervisor's trust and support, existence of other home activities (Nakrošienė et al., 2019), telecommunication environment (Morikawa, 2021), home chores, role conflict (Duxbury et al., 1992; Igbaria & Guimaraes, 1999; Venkatesh & Vitalari, 1992; Vitalari et al., 1985) looking after children or pets (Ajala, 2013), and some other distractions that interrupt and take a lot of their time (Bao et al., 2020). These are job demands, based on the JD-R Model and were tagged as organizational aspects of the job that lead to reduced job performance

(Bakker & Demerouti, 2017), depression, anxiety (Schaufeli & Bakker, 2004) or burnout and reduced productivity (Ajala, 2013).

Many studies on the other hand have explored the impact of remote working on productivity (Neufeld & Fang, 2004; Neufeld & Fang, 2005; Baker et al., 2007; Laihonen et al., 2012; Campbell, 2015; Coenen & Kok, 2014; Kazekami, 2020); mostly are geared toward its positive effects.
Because of prolonged operating hours, fewer interruptions and disruptions, increased satisfaction due to flexibility, and better use of high productivity moments, remote workers are more productive than traditional office workers (Tavares, 2017). It gives employees better work-life balance so that they can work in better conditions. The decrease in cost of transportation and time saved from commuting increase remote workers' working time due to the fact that there is no longer a switch between home and workplace. Further, they have more authority over their own work schedule and location (Eng et al., 2010) and they have the liberty to work very early in the morning or very late in the evening (Bao et al., 2020) that creates positive opportunities for balance in terms of their work and personal life (Pawar, 2013) and promotes productivity.

3. Hypotheses Development

In working remotely, there is a greater reliance on technology and little face-to-face interaction (Harrington & Santiago, 2006). Enhanced physical and social exclusion in the workplace has been found to reduce job satisfaction and commitment (Bartel et al., 2012; Kurland & Egan, 1999; Mulki et al., 2008; Toscano & Zappalà, 2020; Orhan et al., 2016; Bentley et al., 2016; Lee & Brand, 2005) of remote workers. On the other hand, friendship opportunities and communication with others significantly impact satisfaction at work (Levin & Stokes, 1989; Maslach & Jackson, 1981; Morrison, 2004; Bailey & Kurland, 2002; Dubrin, 1991; Feldman & Gainey, 1997; Bhattarai et al., 2020; Das, 2014; Schall, 2019; Bellmann & Hübler, 2020; Gajendran & Harrison, 2007). Remote working reduces stress and promotes job satisfaction (Contreras et al., 2020; Irawanto et al., 2021; Lyness et al., 2012).

Literature has acknowledged professional isolation as a prospective stumbling block to the success of remote working (Cooper & Kurland, 2002; Kurland & Egan, 1999) since professionally isolated remote workers are not confident in terms of their competencies when remote working because they are unlikely able to acquire, explicitly translate or use relevant details (Rook, 1984). Increased anxiety (Baumeister & Tice,1990), loneliness (Jones, 1990), physical and mental health (DeWall & Baumeister, 2006; Schneider et al., 2000; Chang et al., 2021; Morikawa, 2020; OECD, 2020) and stress (Stephenson & Bauer, 2010; Golden et al., 2008; Weinert et al., 2015) are some of the experiences carried out from being professionally isolated which further reduce job performance (Schneider et al., 2000; Krauss & Fussell, 1990; Golden et al., 2008; Cooper & Kurland, 2002; Kurland & Egan, 1999) and productivity (Toscano & Zappalà, 2020; Galanti et al., 2021).

To provide a trustworthy and valid estimation procedure for theory testing, Weinert et al., (2015) evaluated the measurement instrument used in the study by concentrating on indicator reliability, construct reliability, content validity, and discriminant validity, which revealed that telework resulted in undesirable outcomes such as telework exhaustion among the 310 teleworkers surveyed online. Other observational studies have found that social isolation has both positive and negative effects on perceived remote work productivity, remote work satisfaction, and stress; thus, it is hypothesized that:

Hypothesis (H1a) Social isolation has a significant effect on perceived remote work productivity.

Hypothesis (H1b) Social isolation has a significant effect on remote work satisfaction.

Hypothesis (H1c) Social isolation has a significant effect on stress.

Several articles have discussed stressors in the framework of remote working (Sardeshmukh et al., 2012; Baruch, 2000) which refer to actions or stimuli encountered by an individual (Ayyagari et al., 2011; Tarafdar et al., 2010) that cause stress. Toscano and Zappalà (2020) discovered similar results in a sample of 265 employees, confirming the negative effects of social isolation in stress, which led to a decrease in perceived remote productivity. It was noted that not everyone responds to such in the same way, with others better able to oppose stressors than others (George et al., 2021). Also, stress level can be dependent on age (Yang et al., 2017) and marital status wherein single workers are vulnerable to stresses related to loneliness, economy/money and social commitments (Ta et al., 2017) because they do not have anyone to share the burden of family responsibility (Yang et al., 2017) that can affect productivity at work (Seva et al., 2021).

Based on the findings of Widodo et al., (2021), job stress has an influence on the productivity of engineering employees in the target industry. A number of statistical tests on the reliability of respondents' responses, including the R2 test, F-test, and t-test, were used to strengthen research hypothesis analysis. Respondents tend to oppose with the statements under the productivity construct, thus, indicating that productivity is low due to stress (Widodo et al., 2021; Indhu & Thirumakkal, 2015; Hoboubi et al., 2017). Stress was found to be a deleterious determinant of both subjective and objective productivity measures in non-remote work settings. According to a study performed by Donald et al. (2005), stress causes a reduction in job performance. Similar results were discovered in the studies of Halkos and Bousinakis (2010) and Nurhani and Santoso (2020).

On the other hand, these outcomes are in conflict with the results publicized by FlexJobs' (2020) 7th annual survey where 65% of remote workers assessed that their productivity increased while working from home compared with working in a traditional office. Workstation suitability supports the improvement of productivity amongst remote workers while stress affects it negatively (Seva et al., 2021).

Moretti et al. (2020) reflected that thirty-nine percent of the respondents perceived themselves to be more slightly productive but less stressed during remote working. Among its advantages were saved travel time (82.4%), time spent with family (25.4%) and time flexibility (23.5%). Further, it was noted that there is a remarkable decrease in perceived job stress that involves remote working in open spaces because it provides autonomy and a greater sense of job control, resulting in higher efficiency and productivity (Mache et al., 2020).

The existence of health issues (Malhotra & Chadha, 2012) due to chronic job stress in the study of MacDonald et al., (2003) has shown that there is a correlation between job dissatisfaction and the causes of job stress or stressors. According to Purwanto et al., (2020), when stress is felt not to be a burden in remote working because one can manage time well, increased productivity follows. Thus, when a remote worker effectively and quickly completes work, job satisfaction is observed. With these studies, it was noted that job stress has a significant impact on the remote work satisfaction and perceived remote work productivity. Therefore, it is theorized that:

Hypothesis (H2a) Stress has a significant effect on perceived remote work productivity.

Hypothesis (H2b) Stress has a significant effect on remote work satisfaction.

Judge et al. (2001) regarded job satisfaction as an influence of professional experience, but it is unclear whether job satisfaction should be treated as a predictor of job performance because studies investigating the causal connection between these two variables yield contradictory results. This study refutes the existence of a significant relationship between these constructs.

Institutions seeking to increase their market edge have focused on one of productivity's determining characteristics: job satisfaction (Böckerman & Ilmakunnas, 2012; Fisher, 2010). Many studies have found that job satisfaction has a significant effect on employee productivity (Hussain Khan et al., 2012; Senyametor et al., 2019; Yaya et al., 2016). It was revealed that responses from 234 banking industry employees in the Greater Jakarta Area who have experienced work from home, claimed that remote working positively impacts their overall productivity (Halkos & Bousinakis, 2010). It has also reflected that there is a strong cultivation to increase such if they are satisfied with their jobs due to the flexibility (Prasetio et al., 2017) and empowerment it brings (Setiawan et al., 2020). As stated by Rahayu et al., (2018), satisfied employees generally have an emotional bond with the company and become satisfied of their affiliation which gives way to keep up their integrity and confidence. Employees who are dissatisfied with their jobs are more likely to develop illness or become absent from work even without illness, thus resulting in decreased productivity. On the other hand, using instrumental variables point estimate, a positive productivity is seen through employees who are often present at work in Finnish manufacturing plants from the period 1996-2001 (Bockerman & Ilmakunnas, 2012). Consequently, these remote workers are likely to be more productive in their work (Alghaithi & Sartawi, 2020). Hence, it is postulated that:

Hypothesis (H3) Remote work satisfaction has a significant effect on perceived remote work productivity.

A collection of scientific literature on working remotely has already highlighted a number of potential benefits of this work arrangement with regard to job satisfaction (Allen et al., 2015; Gajendran & Harrison, 2007; Toscano & Zappalà, 2020), flexible working hours (Tavares, 2017), work-life balance (Bailey & Kurland, 2002; Mustajab et al., 2020; Nordin et al., 2016; Vittersø et al., 2003; Ammons & Markham, 2004; Johnson et al., 2007; Nakrošiene et al., 2019), autonomy (Tremblay & Genin, 2007), work environment (Raguseo et al., 2016; Mello, 2007; Green et al., 2000; Bloom, 2014; Nakrošienė et al., 2019; Awan & Tahir, 2015), and support from colleagues (Davenport & Pearlson, 1998, Depickere, 1999; Konradt et al., 2001) which lead to perceived remote work productivity (Widodo et al., 2021; Indhu & Thirumakkal, 2015; Hoboubi et al., 2017).

On the other hand, it has been noted that social isolation is a prerequisite in the formation of work satisfaction (Levin & Stokes, 1989; Maslach & Jackson, 1981; Morrison, 2004; Bailey & Kurland, 2002; Dubrin, 1991; Feldman & Gainey, 1997; Bhattarai et al., 2020; Das et al., 2014; Schall, 2019; Bellmann & Hübler, 2020). The formation of which boils down on the positive or negative effect on productivity. Using meta-analysis of 46 studies in natural environment that involved 12,883 employees, Gajendran and Harrison (2007) found that the perceived autonomy that remote working provides mediated the beneficial effects on more distal outcomes such as performance, role stress and

job satisfaction. Thus, when remote work satisfaction is established, the propensity of employee productivity becomes evident. Hence, it is postulated that:

Hypothesis (H4) Perceived remote work satisfaction has a mediating effect on the relationship between social isolation and perceived remote work productivity.

Stress, being the predictor of social isolation (Golden et al., 2008; Ellison, 1999; Cooper & Kurland, 2002; Bailey & Kurland, 2002; Sardeshmukh et al., 2012) has been considered as a job demand based on the Job Demands-Resources Model (Schaufeli & Bakker, 2004; Bakker, & Demerouti, 2017; Galanti et al., 2021) and is essentially associated to certain costs that, in turn, lead to decreased job performance (Bakker & Demerouti, 2017). As a result, when employees are stressed as a result of a lack of face-to-face interactions and contact with colleagues, (Bakker & Demerouti, 2007; Toscano & Zappalà, 2020) it negatively affects the perceived remote work productivity of employees. Analogous to this, based on a Web survey data sent via email from a matched sample of 261 teleworkers by Golden et al., (2008), more face-to-face interactions and access to communication-enhancing technology minimize the effects of social isolation, which has a negative impact on job performance. Therefore, it is hypothesized that:

Hypothesis (H5) Stress has a mediating effect on the relationship between social isolation and perceived remote work productivity.

The current health and economic scenarios due to COVID-19 pandemic have created challenges for women's advancement as they lost jobs (Kavˇciˇc et al., 2020), and became more exposed to infection and stress (OECD, 2021; OECD, 2020; Wenham, 2020; Rožman et al., 2021; Lyttelton et al., 2020; Feng & Savani, 2020; Bahn et al., 2020; Nash & Churchill, 2020), lower performance, lower engagement (Innstrand et al., 2012; Hu et al., 2020) and lower productivity (Carli, 2020; Rožman et al., 2021; Feng & Savani, 2020) because women continue to wrestle with family responsibilities even when they are remote working, having greater responsibilities in terms of childcare (Carli, 2020; Collins et al., 2021), household chores, (Adisa et al., 2021; Horton, 2020; Lyon, 2020; Rožman et al., 2021) and shoulder much of the burden at home (OECD, 2021; OECD, 2020). The lockdown has increased family-work conflict and disparity (Savage, 2020) and may potentially traditionalize gender norms in the home and labor market (Nash & Churchill, 2020). Involving semi-structured dialogues with 26 working women in the UK, Adisa et al. (2021) study has shown that remote working has added tension to role bottlenecks amongst women, thus causing tremendous challenges to role differentiation.

In terms of work satisfaction in remote working, the study conducted by Feng and Savani (2020) reflected that during the lockdown, women, compared to men, have noted to have decrease work satisfaction (OECD, 2021; Miller, 2020; Collins et al., 2020; Lyttelton et al., 2020; Hakanen et al., 2019; Feng & Savani, 2020) and lower work efficiency because of increased household obligations that interfere with job, (Feng & Savani, 2020; Andrew et al., 2020; Mustajab et al., 2020).

Using the *t*-test and factor analysis for two independent sampling, the research by Rožman et al. (2021) with 785 employees in Slovenian organizations revealed that there is a noted gender dissimilarity in work engagement, work efficiency and work satisfaction for those employees who adopted remote working arrangement in the course of the COVID-19 pandemic.

Although remote working provides flexibility to employees, it also increases more housework due to unavailability of domestic help; thus, both men and women do all domestic work themselves (Chowdhury, 2020). Affected families have reported parental burnout arising from time commitment and managing of logistics for distance learning and homeschooling (Grose, 2020). In terms of education or possibilities of training, both male and female are not satisfied since some education programs or business training are not implemented or very limited (Rožman et al., 2021).

On the other hand, flexible working increases women's satisfaction (Fuller & Hirsh, 2018) as it provides balance to work and family life by allowing them to carry on with their jobs following childbirth (Chung & Van der Horst, 2018b). It has also increased gender equality amongst men and women by increasing men's amount of childcare, inevitably decreasing the gender imbalance in household responsibilities (Carli, 2020) but not as much for women.

Companies which allow remote work should take gender differences in work satisfaction, engagement, and productivity into account. They should provide more support such as social support, flexible work assignment and deadlines especially to women to relieve the load brought about by the job arrangement (Rožman et al., 2021). Therefore, it is considered that:

Hypothesis (H6a) Respondents' sex has a moderating effect on the relationship between stress and perceived remote work productivity.

Hypothesis (H6b) Respondents' sex has a moderating effect on the relationship between remote work satisfaction and perceived remote work productivity.

4. Methods

4.1. Method of Research

To measure all the hypothesized relationships in the current study, a causal-predictive research design was used. A causal-predictive research approach, according to Chin et al. (2020), means that the model was anticipated to demonstrate a high degree of predictive accuracy, while also being grounded in well-established causal explanations. This research design was appropriate for this study because this involves explanation and prediction of key target latent variables and detecting their relevant constructs (Hair et al., 2017).

4.2. Population, Participants, Sample Size, and Sampling Techniques

The population of this study were from the Information Technology and Business Process Management (IT-BPM) industry under the Business Process Outsourcing subsector in the National Capital Region.

For the sample size, this undertaking did not employ the conventional way of computing the population by identifying margin of errors, setting confidence level, and using formula for the calculation. Hence, sample size sufficiency was estimated through power analysis using the methods inverse square root and Gamma-exponential, via WarpPLS 8.0 (Kock, 2022; Kock & Hadaya, 2018). In calculating the sufficiency of the number of samples, the following are considered: the minimum absolute path coefficient in the structural model, significance level, and power level. In the current study, the minimum absolute path coefficient is 0.217 (see Table 7), significance level of 5%, and

power level of 80%. And based on these values, the recommended minimum sample size is within 140 (Gamma-exponential) to 154 (inverse square root). The current undertaking was able to gather 400, with 307 valid responses, a response rate of 77%. Therefore, n = 307, larger than the minimum sample size requirement of the model, is adequate to support the results of the path modelling via partial least squares (see Figure 2).

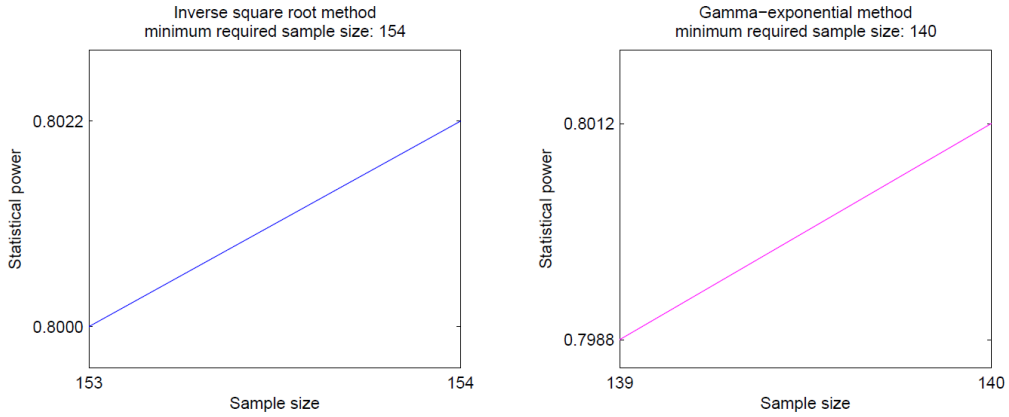

Figure 2. Sample Size Estimation using Inverse Square Root and Gamma-Exponential Methods

In order to ensure that respondents met the requirements of this study, qualifying or screening questions were incorporated in the survey questionnaire. This includes: (1) Are you still working from home? (2) Have you experienced working from home for at least three months? (3) Office location; (4) Have you experienced working from home before COVID-19? and (5) Number months/years working from home. Through elimination, the researcher was able to assess respondents' answers if they were qualified to be part of the study.

Out of 307 respondents, 222 or 72% of the respondents are still currently remote working while 85 or 28% have returned onsite. 32% or 99 of these respondents have experienced remote working for at least three months while 77 or 25% for at least 13 months (1 year and 1 month) and 131 or 43% for at least 23 months (1 year and 11 months). Further, from the total valid respondents, 225 or 73% are female and the remaining 82 or 27% are male. The study indicates that most of the respondents have experienced working remotely on the onset of the COVID-19 Pandemic, specifically during the declaration of enhanced community quarantines and most of the respondents are female BPO workers which is supported by the data from the Philippine Statistics Authority.

4.3. Research Instrument

Self-administered questionnaires were utilized as the research instrument in the study. This was composed of two parts - characteristics of the respondents and the items for each latent variable.

The characteristics of the respondents included sex, age, civil status, highest educational attainment, employment status, number of years in service, number of months/years working remotely, number of people in the household, number of kids (ages 5 and below) in the household, Internet speed, home work-station set-up, and hours working every day.

On the other hand, the second part included adopted questions that were used for each of the latent constructs, namely: social isolation, stress, remote work productivity, and perceived remote work productivity and were measured using a 5-point Likert scale where 1 signifies strongly disagree and 5 means strongly agree. Additionally, this undertaking used reverse coding for item RWS9 (Due to changes in working conditions during the COVID-19, my work satisfaction declined) which rewords a "positive" answer in a "negative" way and vice versa as a typical validation approach for survey items. This checks to see if respondents are responding to the survey consistently (John et al., 1991). Reverse-scoring was also done after the responses have been reversely coded. This, on the other hand, means that the numerical scoring scale runs in the opposite direction. Put simply, picking the low end of the scale (1) results in the largest number of points (Sparks, 2019). Table 4 summarizes the items for each construct and the sources where the indicators were adopted.

4.4. Data Gathering Procedure

Due to restrictions and health protocols imposed by the government and the applicability of the topic which is remote working, the researcher collected primary data from the respondents via Google Forms. The Google Form served as the research instrument included all the stated criteria to properly account valid responses.

4.5. Statistical Treatment of Data

To quantify the direct and indirect effects of the structural model, this study used partial-least structural equation modeling (PLS-SEM) and a causal-predictive research methodology. PLS-SEM, according to Reinartz et al. (2009), is a variance-based estimate technique that assesses the constructs' reliability and validity as well as their relationship to one another (Barroso et al., 2010) and is primarily used in causal-predictive research studies where it highlights prediction in model estimations while giving causal explanations with the structural path (Sarstedt et al., 2017).

5. Results

The evaluation of the measurement model, which is the first stage of PLS-SEM, assesses the validity and dependability of the reflective constructs.

5.1. Evaluation of the Measurement Model

Table 1 presents the assessment of the convergent validity and reliability of the latent constructs. In the internal consistency of items (reliability) of each construct, composite reliability (CR) test was performed. Fornell and Larcker (1981) recommended that the value of CR must not be lower than 0.70. As seen in Table 1, all latent reflective constructs – social isolation (CR = 0.916), stress (CR = 0.962), and remote work satisfaction (CR = 0.950) – are beyond the minimum requirement for internal consistency; hence, reliability is established.

Average variance extracted (AVE) and factor loadings were assessed for convergent validity. According to Amora (2021) AVE of each latent construct and the item loadings must be at least 0.50. Moreover, each item loading must be significant, meaning the corresponding p-value must be $p < 0.05$. Based on the findings in Table 5, social isolation (AVE = 0.611), stress (AVE = 0.785), and remote work satisfaction (AVE = 0.705) passed the requirements for convergent validity.

Table 1. Assessment of the Constructs' Convergent Validity and Reliability

Construct/Item	Factor loading	Average variance extracted	Composite reliability
Social isolation		0.611	0.916
SI1: I feel left out on activities and meetings that could enhance my career.	0.803		
SI2: I miss out on opportunities to be mentored.	0.818		
SI3: I feel out of the loop.	0.811		
SI4: I miss face-to-face contact with coworkers.	0.660		
SI5: I feel isolated.	0.838		
SI6: I miss the emotional support of coworkers.	0.804		
SI7: I miss informal interaction with others.	0.722		
ST1: Working at home (telework) creates a variety of problems, number of requests and complaints in my job, which would not occur without teleworking.		0.785	0.962
ST2: I feel rushed through the work at home (telework).	0.812		
ST3: I feel pressured by working at home (telework).	0.838		
ST4: I feel exhausted from working at home (telework)	0.891		
ST5: I feel tired from working at home (telework).	0.925		
ST6: Working all day at home (telework) is a strain for me.	0.918		
ST7: I feel burned out from working at home (telework).	0.893		
Remote work satisfaction	0.921		
RWS1: I am satisfied with the working hours and distribution of work obligations.		0.705	0.950
RWS2: I am satisfied with the possibilities of training or education.	0.814		
RWS3: I am satisfied with the flexible working hours.	0.816		
RWS4: I am satisfied with the balance between my work and private life.	0.831		
RWS5: I am satisfied with the level of self-regulation of work speed that is enabled during the COVID-19.	0.854		
RWS6: I am satisfied with enabling the flexible workspace (working from home).	0.905		
RWS7: I am satisfied with all the flexible forms of work that the company allows me.	0.890		
RSW8: I am satisfied with the leadership during the COVID-19.	0.856		

RWS9: Due to changes in working conditions during the COVID-19, my work satisfaction declined.	0.738		
ST1: Working at home (telework) creates a variety of problems, number of requests and complaints in my job, which would not occur without teleworking.	D		
Perceived remote work productivity (Single-item latent construct)	1.00	1.00	1.00

D – deleted. All loadings are significant (p < 0.001).

In a similar manner, heterotrait-monotrait (HTMT) ratios were used to assess the discriminant validity of the latent components. According to Kline (2011), the HTMT ratios must be at most 0.85 for the latent reflective components to demonstrate discriminant validity. Based on the results in Table 2, all HTMT ratios are below 0.85 requirement; therefore, discriminant validity is established.

Table 2. Constructs' Discriminant Validity Assessment

	SI	ST	RWS	PRWP
SI	-	-	-	-
ST	0.734	-	-	-
RWS	0.516	0.563		
PRWP	-	-	-	-

SI – social isolation; ST – stress; RWS – remote work satisfaction; PRWP – perceived remote work productivity. PRWP is a single-item latent construct. All HTMT ratios are significant (p < 0.001, one-tailed).

5.2. Evaluation of the Structural Model

The second phase of PLS-SEM is the evaluation of the structural modelling. In this stage, all hypothesized relationships – direct, mediating, and moderating effects – were tested (see Figure 3).

Analysis of the data in Table 4 revealed that social isolation has no significant effect on perceived remote work productivity (β = -0.083, p = 0.070). On the other hand, social isolation was found to have a significant and negative influence on remote work satisfaction (β = -0.201, p < 0.001), and significant and positive effect on stress (β = 0.679, p < 0.001). From these findings, it can be noted that social isolation has a small effect on remote work satisfaction (f^2 = 0.096), while a large effect on stress (f^2 = 0.461). Therefore, H1a is not supported, while H1b and H1c are supported.

Furthermore, the outcome reveal that stress has a significant, moderate, and negative effect on remote work satisfaction (β = -0.430, p < 0.001, f^2 = 0.240), and significant, small, and indirect influence on perceived remote work productivity (β = -0.217, p < 0.001, f^2 = 0.095). Therefore, H2a and H2b are supported.

Moreover, remote work satisfaction was found to have a significant, small, and positive effect on perceived remote work productivity (β = 0.308, p < 0.001, f^2 = 0.144). Hence, H3 is supported.

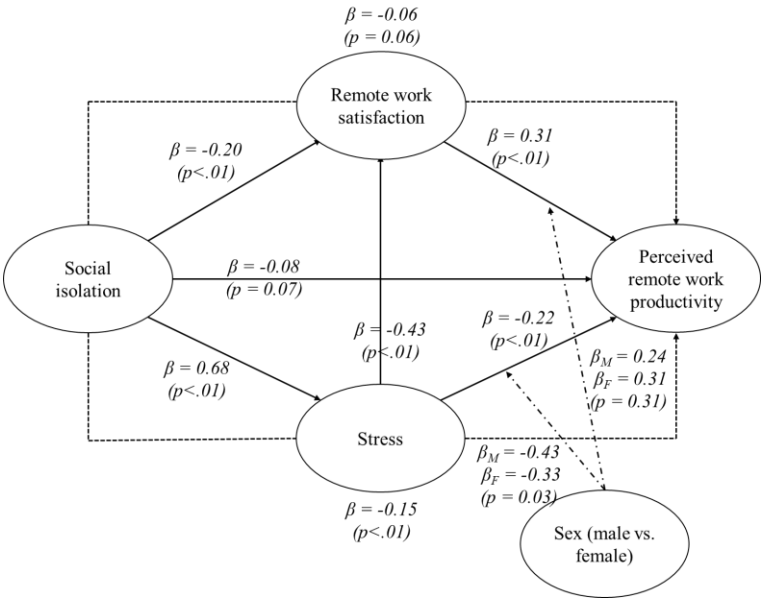

Figure 3. The Structural Model with Parameter Estimates

A mediation analysis was conducted to evaluate the impact of remote work stress and satisfaction on the relationship between social isolation and perceived productivity. Moreover, Table 4 demonstrates that the perceived productivity of remote work was shown to have a negligible mediating effect on the connection between social isolation and distant job satisfaction (β = -0.062, p = 0.061). On the other hand, stress acts a mediator between social isolation and perceived remote work productivity (β = -0.147, p < 0.001), with a small effect size (f^2 = 0.053). The negative mediating effect indicates that the presence of social isolation further decreases perceived remote work productivity via stress. Therefore, H4 is not supported, while H5 is supported.

Table 4. Hypothesis Testing – Direct and Mediating Effects

Hypothesis	Path coefficient	p-value	Standard error	Effect size	Decision
Direct effects					
H1a. SI → PRWP	-0.083	0.070	0.056	0.030	NS
H1b. SI → RWS	-0.201	<0.001	0.055	0.096	S
H1c. SI → ST	0.679	<0.001	0.051	0.461	S
H2a. ST → RWS	-0.430	<0.001	0.054	0.240	S
H2b. ST → PRWP	-0.217	<0.001	0.055	0.095	S
H3. RWS → PRWP	0.308	<0.001	0.054	0.144	S
Mediating effects					
H4. SI → RWS → PRWP	-0.062	0.061	0.040	0.022	NS
H5. SI → ST → PRWP	-0.147	<0.001	0.039	0.053	S

S – Supported; NS – not supported. Effect sizes were measured using the following criteria: 0.02 – small effect; 0.15 – medium effect; 0.35 – large effect (Cohen, 1988).

The present study also examines the moderating effects of sex (male vs. female) on the relationships between stress and remote work satisfaction (H6a), and between perceived remote work productivity and remote work satisfaction (H6b). Since the moderator (sex) is a categorical variable (male vs. female), a multigroup analysis (MGA), a type of moderation analysis, was performed (see Figure 3).

The first phase in performing the MGA is the robustness test using measurement invariance. This stage evaluates the structural model to establish that the same construct is being gauged across some specified groups, in this case, between male and female respondents. Memon et al. (2019) noted that the measurement variance is a pre-requisite of MGA. Using the constrained latent growth with loadings using WarpPLS 8.0 (Kock, 2014; Kock, 2022), the results in Table 5 reveal that there are no significant differences in the absolute latent growth coefficients for loadings (ALGCs) between male and female respondents. Therefore, no measurement invariance was detected in the model (Kock, 2022).

Table 5. Measurement Invariance

	Sex: Male vs. Female	
Items	**ALGC for loadings**	**p-value**
SI1	0.048	0.393
SI2	0.027	0.633
SI3	0.006	0.922
SI4	0.033	0.556
SI5	0.025	0.663
SI6	0.015	0.790
SI7	0.014	0.803
ST1	0.054	0.336
ST2	0.034	0.545
ST3	0.010	0.860
ST4	0.040	0.476
ST5	0.039	0.489
ST6	0.010	0.856
ST7	0.000	0.998
RWS1	0.028	0.617
RWS2	0.039	0.492
RWS3	0.038	0.507
RWS4	0.065	0.248
RWS5	0.000	1.000
RWS6	0.002	0.970
RWS7	0.032	0.578
RWS8	0.011	0.851
PRWP	0.000	1.000

SI – social isolation; ST – stress; RWS – remote work satisfaction; PRWP – perceived remote work productivity; ALGC – absolute latent growth coefficients. PRWP is a single-item latent construct. P-values are two-tailed.

After performing the measurement invariance test, MGA via constrained latent growth method using WarpPLS 8.0 was performed (Kock, 2022). Table 6 reveals that there is a significant difference on the correlation between stress and perceived remote work productivity (ALGC = 0.109, p = 0.026) among male and female respondents. The negative effect of stress on perceived remote work productivity is greater among male respondents (β_M = -0.425) compared to females (β_F = -0.333). Therefore, H6a is supported.

Contrary, no significant difference was found on the link between remote work satisfaction and perceived remote work productivity (ALGC = 0.028, p = 0.313) between male and female participants. Hence, H6b is not supported.

Table 6. Moderating Effects via Multigroup Analysis (MGA)

Moderation analysis	Path coefficient		ALGC	p-value	T-ratio	Decision
Hypothesis	Male	Female				
H6a. Sex*ST → PRWP	-0.425	-0.333	0.109	0.026	1.950	S
H6b. Sex*RWS → PRWP	0.239	0.305	0.028	0.313	0.487	NS

**p-values are one-tailed. S – supported; NS – not supported.*

The common method bias test, coefficient of determination, and measurement of the predictive relevance are all a part of the structural model's evaluation. Kock (2015) recommended the use of full collinearity variance inflation factor (FCVIF) in gauging the common method bias test. This test detected whether vertical and lateral collinearity exist in the structural model. The threshold for the FCVIF is 3.30. Based on the findings in Table 7, all latent constructs – social isolation, (FCVIF = 1.907), stress (FCVIF = 2.129), remote work satisfaction (FCVIF = 1.594), and perceived remote work productivity (FCVIF = 1.350) – are below 3.30 threshold; hence, no collinearities were detected in the model.

Additionally, coefficient of determination (R^2) was measured. Based on the results in Table 7, the R2 values are within acceptable coefficients ranging from weak (perceived remote work productivity) to moderate effects (stress and perceived work satisfaction).

And lastly, predictive relevance (Q^2) was gauged. Kock (2022) noted that, to establish predictive validity in the structural model, Q^2 values must be greater than zero. Based on the results in Table 7, stress (Q^2 = 0.463), remote work satisfaction (Q^2 = 0.400), and perceived remote work productivity (Q^2 = 0.212) passed the requirement for predictive relevance.

Table 7. Common Method Bias Test, Coefficients of Determination, and Predictive Relevance

Construct	FCVIF	R^2	Q^2
Social isolation	1.907		
Stress	2.129	0.461	0.463
Remote work satisfaction	1.594	0.393	0.400
Perceived remote work productivity	1.350	0.206	0.212

R^2 is evaluated using the following: 0.67 – substantial; 0.33 – moderate; 0.19 – weak (Chin, 1998).

6. Discussion

Based on the second phase of the PLS-SEM which is the evaluation of the structural modelling, where all hypothesized relationships – direct, mediating, and moderating effects were tested, seven out of the ten hypotheses introduced in this study were supported namely: *H1b.* Social isolation has a significant effect on remote work satisfaction; *H1c.* Social isolation has a significant effect on stress;

H2a. Stress has a significant effect on remote work satisfaction; *H2b*. Stress has a significant effect on perceived remote work productivity; *H3*. Remote work satisfaction has a significant effect on perceived remote work productivity; *H5*. Stress has a mediating effect on the relationship between social isolation and perceived remote work productivity; and *H6a*. Respondents' sex has a moderating effect on the relationship between stress and perceived remote work productivity.

On the other hand, the three hypotheses which were not supported are: *H1a*. Social isolation has a significant effect on perceived remote work productivity; *H4*. Remote work satisfaction has a mediating effect on the relationship between social isolation and perceived remote work productivity; and *H6b*. Respondents' sex has a moderating effect on the relationship between perceived remote work satisfaction and perceived remote work productivity. Analysis of each result is discussed on the succeeding paragraphs per hypothetical item.

H1a. Social isolation has a significant effect on perceived remote work productivity. The study's findings indicate that perceived productivity of remote work is not significantly correlated with social isolation. This finding indicates that higher or lower degree of social isolation does not result in an increase or decrease on the level of the perceived productivity of remote workers. The results are inconsistent with those of research by Galanti et al. (2021) and Golden et al. (2008), which found that social isolation was significantly and negatively related to work productivity when people worked from home and the studies of Bailey & Kurland (2002) and Gajendran & Harrison (2007) which pronounces that remote worker see social isolation as an opportunity to increase their productivity level, thus, they are more productive when they are socially isolated.

H1b. Social isolation has a significant effect on remote work satisfaction. The study's findings also show that social isolation has a large, unfavorable impact on how satisfied people are with their remote jobs. According to this result, respondents' level of job satisfaction declines when they are socially isolated. The result supports the studies of Gajendran & Harrison (2007), Galanti et al., (2021), Allen et al., (2015) and Toscano & Zappalà (2020) that indicate that due to this social isolation, remote workers suffer lower levels of job satisfaction because they worry about missing out on opportunities at the office, may feel "out of the loop," are unsure of their place in the company, and may even feel envy of coworkers. Also, other studies state the importance of social relationships with others as they relate to work satisfaction (Toscano & Zappalà, 2020; Orhan et al., 2016; Bentley et al., 2016; Lee & Brand, 2005) and these relationships brought about by the opportunities to be connected with others positively influence their satisfaction at work (Levin & Stokes, 1989; Maslach & Jackson, 1981; Morrison, 2004).

H1c. Social isolation has a significant effect on stress. It was also noted that social isolation is significantly and positively related to stress. This finding shows that when remote workers' degree of social isolation increases, their stress level also rises. The result agrees with the studies of Toscano and Zappalà (2020), Stephenson and Bauer (2010), Weinert et al., (2015) that say that the experience of social confinement is correlated with an escalated stressful condition of remote workers (Galanti et al., 2021; Allen et al., 2015). Social isolation has resulted in other stressors such as work-home conflict, work overload and role ambiguity (Weinert et al., 2015).

H2a. Stress has a significant effect on remote work satisfaction. With regard to stress' direct effects on remote work satisfaction and perceived remote work productivity, the result shows that stress is significantly and negatively related to remote work satisfaction. This means that when remote workers are stressed, their remote work satisfaction decreases. This result supports the studies of MacDonald et al., (2003) and Toscano and Zappalà (2020) which declare that there is a correlation between the causes of job stress or other stressors and work satisfaction. Burnout as caused by excessive and prolonged stress (Ciampi, 2019) has significantly decreased work satisfaction based on the studies of Tziner et al., (2015), Hombrados-Mendieta et al., (2013) and Wolpin J., (1991).

H2b. Stress has a significant effect on perceived remote work productivity. Concerning stress' effect on perceived remote work productivity, the finding also shows the same result as stress' effect on remote work satisfaction. It reflects that when remote workers are stressed, their perceived remote work productivity decreases. Therefore, stress significantly and negatively relates to perceived remote work productivity. This result harmonizes with the studies of Widodo et al., (2021), Indhu and Thirumakkal (2015), Hoboubi et al., (2017), Seva et al., (2021). Alternately, Purwanto et al., (2020) highlighted that there is a positive influence in terms of productivity if stress is not felt to be a burden when remote working.

H3. Remote work satisfaction has a significant effect on perceived remote work productivity. Moreover, the finding reveals that remote work satisfaction is significantly and positively related to perceived remote work productivity. This means that if the satisfaction level of remote workers is high, the perceived remote work productivity also rises. Highlighting the relationship of the two variables, Lussier and Achua (2001) discovered that work satisfaction is just the means to the end (productivity) and not the end. Thus, the finding of this study is congruent with the study of Senyametor et al., (2019) which affirms that if factors such as opportunities for development, attractive salaries, welfare support and the like were met, work satisfaction then follows. Satisfaction is achieved when needs are met, therefore, productivity follows. The finding is also in line with the study of Aboagye (2006) where the result has shown that low productivity is recognized when low level of job satisfaction is experienced. Over and above that, the study of Yaya et al., (2016) also revealed a significant relationship between work satisfaction and productivity and anchoring on the Job Demand-Resource Model (JD-R Model), remote work satisfaction as a job resource directly affects the remote workers' perceived productivity.

H4. Remote work satisfaction has a mediating effect on the relationship between social isolation and perceived remote work productivity. In addition, remote work satisfaction does not mediate the relationship between social isolation and perceived remote work productivity. This means that respondents' remote work satisfaction does not predict and does not influence the two variables being mediated. Because different findings have emerged regarding the relationships of these variables, the result supports and emphasizes the recommendation made by Golden et al. (2008) that additional research is necessary to fully understand how social isolation reduces remote workers' ability to perform their jobs effectively and how work satisfaction serves as a mediator.

H5. Stress has a mediating effect on the relationship between social isolation and perceived remote work productivity. On top of that, stress as a mediator between social isolation and perceived remote work productivity is able to demonstrate a significant effect. The mediation reflected a negative relationship between social isolation as the findings presented a small effect size. This explains that with stress, social isolation further reduces the perceived work productivity of remote workers. This result validates the study of Toscano and Zappalà (2020). Also, the result of the relationship between the two variables is fully compatible with the model used in this current study (Bakker, 2017) which tags social isolation and stress as job demands that affect the perceived productivity of remote workers.

H6a. Respondents' sex has a moderating effect on the relationship between stress and perceived remote work productivity. The relationship between stress and perceived remote work productivity is significant and is moderated by sex. In this current study, stress is considered as a job demand that is a vital concern for productivity. The relationship between these two variables is significantly higher for males than females and prior research studies contradict the findings (OECD, 2021; OECD, 2020; Wenham, 2020; Rožman et al., 2021; Lyttelton et al., 2020; Feng & Savani, 2020; Bahn et al., 2020; Nash & Churchill, 2020). These studies highlighted the effects and challenges of women because this pandemic has lowered their productivity (Carli, 2020; Rožman et al., 2021; Feng & Savani, 2020) due to the fact that they continue to wrestle with family responsibilities even though they are remote working. Additionally, from the study of Adisa et al., (2021), it has shown that remote working has increased role conflict and role congestion amongst women that constituted extreme challenges to role differentiation.

H6b. Respondents' sex has a moderating effect on the relationship between perceived remote work satisfaction and perceived remote work productivity. When sex act as moderator in the relationship between remote work satisfaction and perceived remote work productivity, the results reveal that regardless of respondents' sex (male or female), there was no significant difference on the link between remote work satisfaction and perceived remote work productivity. This result does not conform to the study of OECD (2021), Miller (2020) Collins et al., (2020), Lyttelton et al., (2020) Hakanen et al., (2019) and Feng and Savani (2020) that reveal that women have reported to have decrease work satisfaction than men due to excessive family pressure that interferes with their work (Feng & Savani, 2020; Andrew et al., 2020; Mustajab et al., 2020).

7. Management Implications and Future Research Directions

The present study on the effects of social isolation, remote work satisfaction, and stress on perceived remote work productivity establishes that social isolation does not affect the perceived productivity of remote workers; thus, the working environment of these remote workers, whether they are isolated from their peers or not, ~~it~~ does not affect their productivity level. However, their work satisfaction level decreases if they are socially isolated because work satisfaction includes being on the loop and having social relationships that would connect them with others. Furthermore, social isolation was found to have significant and positive effects on stress. This means that due to social isolation, the stress level of remote workers also increases.

The current undertaking also showed that stress has a significant and negative effect on remote work satisfaction. This signifies that when stress is present, work satisfaction of remote workers decreases. Further, stress also has a significant and negative effect on perceived remote work productivity; thus, when remote workers become stressed, their perceived remote productivity dwindles. Other stressors might include working environment, Internet speed, and number of people and kids living within the household. It has also been noted that remote work satisfaction was found to have a significant and positive effect on perceived remote work productivity. Therefore, if remote workers are satisfied in their work, an increase in their perceived productivity level follows.

This study also showed that remote work satisfaction insignificantly mediates the relationship between social isolation and perceived remote work productivity. This means that the perceived productivity of remote workers does not change regardless if they are satisfied with their work or if they are socially isolated. Stress significantly mediates the relationship of social isolation and perceived remote work productivity. This denotes that with stress, social isolation further lessens the perceived work productivity of remote workers. Further, a significant difference was noted on the relationship between stress and perceived remote work productivity and that higher stress level was experienced by male remote workers than female. This means that when the work environment is stressful, the perceived remote work productivity is affected and is clearly manifested in male employees. On the other hand, no significant difference was found on the link between remote work satisfaction and perceived remote work productivity when moderated by sex.

The present study has its limitations. First, it only includes participants who have experienced remote working during the onset of the COVID-19 community quarantines. Thus, future researches may find interest in looking at other timelines of implementation of this work arrangement. Second, scope and coverage may be expanded to other cities, municipalities, regions and provinces of the country since this study is only focused in the National Capital Region.

8. Conflict of Interest

None

9. Ethical Clearance

The study was approved by the institution.

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