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Examining the Impact of Job Demands, Resources and Technostress on Psychological Wellbeing of Gig Workers: A Theoretical Model

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Abstract: *The purpose of writing this paper is to give an integrated framework in the form of a theoretical model to understand the influence of gig work-related job characteristics on the psychological well-being of gig workers. A synthesis of existing literature in the form of research papers, conference proceedings, reports on gig index etc., is used to identify critical job characteristics, e.g., precarity (job insecurity) and flexibility (job autonomy) and stress related to extensive use of technology (technostress) which have implications for the wellbeing of gig workers. By drawing on the job demands and resources theory and technostress model, this study proposed a theoretical model. The result of this article can be used to guide ongoing research in the context of the gig economy to investigate the job characteristics and stressors relevant to gig workers affecting psychological well-being workers. The research paper tried to expand the understanding of JDR theory in the context of gig works regarding how job demand and job resources via technology-related stress mechanisms affect psychological well-being.*

Key Words: Gig Work, Job Demands, Job Resources, Psychological Well-being, Technostress, Job Insecurity, Job Autonomy

Introduction

The world of work has seen significant transformations due to the emergence of digital and information technology. Online labor marketplaces are giving rise to a new type of work that deviates from traditional norms, for instance, 'gig work,' as has been studied by Watson, Kistler, Graham, and Sinclair (2021). In their seminal work, Watson et al. (2021) outlined the distinguishing characteristics of gig workers, which encompass temporary contractual employment, online app-based work, remote or location-based online work, and freelancing. Various internet platforms, such as Uber, Foodpanda, Upwork, Fiverr, and Mechanical Turk, have emerged to facilitate gig employment by effectively connecting gig workers or freelancers with customers or client organizations.

The McKinsey Global Institute, in its 2016 report, states that gig work is the most rapidly expanding sector of the labor market (Manyika et al., 2016). In 2015, roughly 25% of the United States population was involved in gig labor in some capacity. According to an alternative projection made by the McKinsey Global Institute, the anticipated impact of gig work on the global GDP by 2025 is estimated to be \$2.7 trillion, accompanied by a workforce of around 540 million individuals engaged in online platform gig activities (World Economic Forum, 2020). Pakistan's labor force participation in the global gig economy is experiencing significant growth. According to a survey by Payoneer, an American online financial services firm, Pakistan was listed as the fourth highest country in terms of freelancing in the Global Gig Index 2019 (Javed, 2020). Based on an estimate, the annual influx of individuals joining the workforce consists of approximately 10,000 freelancers and application developers (Javed, 2020). The rise in workforce

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engagement within the gig economy necessitates a comprehensive investigation into the work experience of these individuals and its impact on their overall well-being (Pacheco et al., 2020).

The globalization of work has led to its continuous operation, nearly 24/7, due to the increasing connectivity and accessibility of the workforce. This trend has the potential to induce excessive work hours and consequently impair the overall well-being of workers (Parry & Battista, 2019). The extensive use of information and communication technology has the potential to induce stress and consequently impact overall well-being (Parry & Battista, 2019). The implementation of technology has indeed contributed to increased efficiency in work processes, yet it is important to acknowledge the existence of negative consequences, such as technostress. Previous research has examined the phenomenon of stress caused by technology, mostly by investigating its sources and effects. However, there remains a gap in the literature regarding the extent to which employment features contribute to the intensification or mitigation of this stress (Suh & Lee, 2017). According to Allan, Autin, and Wilkins-Yel (2021), the presence of technology-driven digital platforms and the precarious nature of employment can have varying impacts on the overall well-being of workers. In their study, Suh and Lee (2017) recommended an investigation into the effects of technostressors on workers' job outcomes, as well as the implications of adopting alternative information and communication technologies (ICTs) or online platforms for job performance.

Over the last decade, the term gig economy has gained visibility internationally due to the ongoing inclusion of the majority of the young workforce (Anwar & Graham, 2020). The gig economy is all about precarious (uncertain/temporary) online platform work with robust use of information and communication technologies (ICT), which comes with features of precarity and flexibility, which can be attributed to demand and resource, respectively (Graham & Anwar, 2019). The extensive use of information and communication technologies (ICT) creates technostress for workers (Harris et al., 2021). This technostress can have implications for the well-being of gig workers due to the additional demand for work that online gig work implies.

By drawing on the job demands and resources theory (Bakker & Demerouti, 2007) and technostress model (Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008), this study proposed a theoretical model. The study aims to determine the influence of job demand (job insecurity) and job resources (job autonomy) on psychological well-being in the presence of stressors related to technology. These psychological states might then result in certain job-related and personal health outcomes. This research paper proposed a theoretical model that predicts psychological wellbeing of gig workers.

The first part of the paper puts a gloss on existing literature on the nature of online gig work, working conditions and its prospective implications on psychological well-being and the second part of the paper is used to present findings in the form of a model which will be an integration of critical variables and research gaps identified in preceding part after that discussions and implications of study are presented followed by limitations and future research recommendations.

Literature Review

Gigs, Nature of Job, and Working Conditions

Numerous organizations are turning to digital platforms to employ independent workers in order to address the dynamic demands of their company operations effectively (Fleming, 2017). The hiring of independent workers offers several benefits to enterprises, as they offer a convenient, efficient, and prompt alternative for enhancing the responsiveness and effectiveness of their businesses. The exponential growth of online job markets, sometimes referred to as platform-mediated gig economy, has generated considerable debate on its impact on the well-being of workers. While it undeniably presents novel employment prospects for individuals ranging from high-skilled IT professionals to beginners, it also offers advantages such as flexibility, autonomy, and a just-in-time workforce (Wood, 2019). However, there are other risk factors associated with it, including social, health, and financial problems, which can be attributed to the unstable nature of its work environments and insecure jobs (Keith, Harms, & Tay, 2019). Workers experienced a range of work-related challenges, including time constraints, inadequate compensation, task rejection, platform management's suspension of worker accounts, and wasted attempts. An investigation of the implications of various working circumstances, both from an individual

and societal standpoint, is crucial due to its potential impact on the well-being of gig workers (Umair, Conboy, & Whelan, [2019](#)).

In contrast to conventional employees, companies transfer the financial burden of maintaining the well-being of independent workers (Duggan, Sherman, Carbery, & McDonnell, [2020](#)). The employees are not getting any form of training or learning opportunities to foster their professional development. Additionally, there is a lack of provisions for health and safety measures, as well as the absence of social and other job benefits. The responsibility of social security and career development for employees is therefore transferred from employers to gig workers. E ki. Duggan et al. (2020) have identified the well-being of app-based gig workers as an emerging issue resulting from inadequate investment in employees. This is evidenced by the absence of health and safety standards, limited social protection, and the prevalence of algorithmic management structures (Duggan, Sherman, Carbery, & McDonnell, [2019](#)). The well-being of app-based gig workers is a significant concern, particularly those engaged in ridesharing or delivery services that involve direct customer interaction, road safety concerns, and a lack of health insurance or social protection provided by the platform organization (Duggan et al., [2019](#)).

Job Demands and Resources Theory

Job demands involve sustained effort and associated costs, while job resources help achieve work goals, reduce demands, and promote personal growth (Bakker & Demerouti, [2007](#); Demerouti, Bakker, Nachreiner, & Schaufeli, [2001](#)). According to the Job Demands–Resources theory (Bakker & Demerouti, [2017](#); Demerouti et al., [2001](#)), high demands can drain employee energy and cause health issues due to increased effort, while a lack of resources can hinder goal accomplishment and motivation. The job demand–resources theory proposes that employee health and motivation result from two processes: health impairment and motivation. Job demands like work pressure and demanding clients drain employees' energy and health, while employment resources like autonomy and social support help them cope and grow.

The job design viewpoint helped researchers introduce numerous testable propositions in the Job Demands–Resources theory that explain how crises like the COVID-19 pandemic and uncertain times affect employees' well-being and functioning (Demerouti & Bakker, [2023](#)). Technology can negatively impact employee well-being, leading to fatigue and decreased engagement. This affects employees (damaged health), their families (less family involvement), organizations (increased absenteeism, turnover, and performance), insurance, and governments (benefit expenses) (Demerouti, [2020](#)). Gig workers encounter an array of work-related demands and utilize both job-related and personal resources to mitigate the adverse effects of these demands on their overall well-being outcomes (Keith, Harms, & Long, [2020](#)).

Psychological Wellbeing

The historical review of the topic of well-being reveals the existence of two distinct approaches that have been used to elucidate the concept's definition. These approaches are commonly referred to as the hedonic and eudaemonic approaches, as discussed by notable scholars (Bradburn, [1969](#); Diener, Emmons, Larsen, & Griffin, [1985](#); Kahneman, Diener, & Schwarz, [1999](#); Lyubomirsky & Lepper, [1999](#)). The key components of certain constructs under the hedonic approach encompass happiness, positive affect, negative affect, and life satisfaction. Waterman ([1993](#)), Ryff ([1989a](#)), and Rogers Carl ([1961](#)) emphasized the significance of the eudemonic approach in understanding human development and the role of positive psychology. While there may be variations in perspective, Michaelson et al. ([2009](#)), as well as Diener ([2009](#)), assert that well-being is a multidimensional concept. Diaz et al. (2006) proposed the concept of psychological well-being (PWB) as a framework rooted in the eudaemonic tradition. This framework emphasizes personal growth and the cultivation of abilities as key components of a positive indicator function.

Psychological well-being, as conceptualized by (Ryff, [1989a](#), [1989b](#)), is characterized by active participation in and effective responses to the different challenges encountered in life. Psychological well-being encompasses the processes of growth and transformation that occur throughout an individual's lifespan. The psychological well-being concept proposed (Ryff & Keyes, [1995](#)) encompasses six dimensions



that are used to assess levels of independence and self-determination (referred to as Autonomy), positive attitudes towards one's past experiences (referred to as Self-acceptance), the quality of relationships with others (referred to as Positive relations with others), the perception of life as purposeful and meaningful (referred to as Purpose in life), the ability to effectively utilize opportunities (referred to as Environmental mastery), and promoting the overall quality of life (personal growth).

According to recent studies, gig labor is inherently characterized by precariousness, which refers to the uncertainty associated with work experiences. Consequently, this precarious nature of gig employment might potentially impact the overall well-being of gig workers, including their mental, psychological, and physical health (Imhof & Andresen, 2017). According to Freni-Sterrantino and Salerno (2021), those who have a past record of unemployment and have had unstable employment situations are more susceptible to experiencing adverse health effects. The interrelationship between workplace and overall life satisfaction is of significant importance, particularly in light of the increasing prevalence of remote work and different geographical work arrangements resulting from globalization, the emergence of online labor platforms, and crisis situations such as the Covid-19 pandemic (Pacheco et al., 2020).

Job Insecurity

Job insecurity is defined as the 'perceived threat of job loss and accompanying worries' (De Witte, 2005). Job insecurity can be quantified as the fear of losing a job and qualitative as the fear of losing important job features (Hellgren, Sverke, & Isaksson, 1999). With job insecurity, employees fear that their abilities may become obsolete and their jobs may disappear in the near future. For instance, food servers can apply for other food server positions if they lose their jobs at one restaurant. If restaurants become more automated and fewer food servers are needed, they may have to learn a new job.

Employment trends have changed over the years, like during the era known as the Industrial Revolution. Subsequently, the current rate of change is faster than ever, according to 'The Future of Jobs Report' (World Economic Forum, 2020). The digital revolution has created new jobs (like app developers and cloud computing professionals) that didn't exist ten years ago (Srivastava, Chandra, & Shirish, 2015). This transformation has also reduced manufacturing jobs. Note that not only low-skilled jobs may be lost. Large-scale data processing algorithms are rapidly improving their ability to automate non-routine cognitive tasks like accounting and paralegal work (Brynjolfsson & McAfee, 2011). Whether one is optimistic or pessimistic about the future of employment, entire occupations are undergoing dramatic changes. This trend is predicted to continue, leading to increased job-related stress among individuals. This study examines the impact of job demand, namely job insecurity, on employee well-being within the context of the gig economy. Being the most dominant form of work precarity, job insecurity is the perceived threat of job loss, which is inherent in the nature of temporary jobs (Allan et al., 2021). Additionally, the study explores the presence of technostress as a contributing factor to this relationship.

Job Autonomy

According to Pearson and Hall (1993), autonomy can be defined as the desire to exercise control over oneself as well as the environment in which one is being employed. According to Karasek (1990), control at work refers to the extent to which workers believe they have the power to make decisions concerning many areas of their work, including the techniques, timing, location, and nature of the activities they are responsible for. The extent to which employees are able to put their knowledge and abilities to use in the workplace is another aspect that is included in this concept.

Moreover, the concept of job autonomy has been identified as an indication of empowerment, leading to a transformation in workers' perceptions of the significance of their work and occupation (Özkoç, 2016). According to Wu and Zhou (2020), in the contemporary era, autonomy encompasses more than conventional elements such as time and location since it also entails flexibility in selecting work methodologies. The presence of job autonomy in the present research model as a job resource within the context of nonstandard gig work is believed to have a positive impact on the well-being of workers. The current investigation employs the job demands and resources model as a theoretical basis (Bakker & Demerouti, 2007; Demerouti et al., 2001).

Technostress

Technostress was defined as stress caused by the widespread adoption of ICTs (information and communication technologies) by Tarafdar, Tu, Ragu-Nathan, and Ragu-Nathan (2007). The technostress literature investigates the adverse effects, whether direct or indirect, that the use of technology has on human beings. Technostress is caused by technostressors, which are events or demands triggered by technology that provoke stress. The current body of research has identified several types of stressors associated with technology, including overload, invasion, complexity, insecurity, ambiguity, skepticism, and uncertainty (Ayyagari, Grover, & Purvis, 2011; Ragu-Nathan et al., 2008).

However, there is a significant knowledge gap on the psychological impacts of remote and online work in relation to stressors caused by technology (Taser, Aydin, Torgaloz, & Rofcanin, 2022). Consistent with the Job Demands-Resources (JDR) model proposed by Bakker and Demerouti (2007), there is a substantial body of evidence supporting the notion that stressors or job demands primarily exert adverse impacts on individuals' well-being. Considering the extensively investigated negative relationship between job insecurity and technostress with well-being, there is a noticeable lack of literature that examines these two stressors together in relation to psychological well-being (Shoss, 2017).

The globalization of work has led to its continuous operation, nearly 24/7, due to the increasing connectivity and accessibility of the workforce. This trend has the potential to induce excessive work hours and consequently impair the overall well-being of workers (Parry & Battista, 2019). The extensive use of information and communication technology has the potential to induce stress and consequently impact overall well-being (Parry & Battista, 2019). The implementation of technology has indeed contributed to increased efficiency in work processes, yet it is important to acknowledge the existence of negative consequences, such as technostress. Previous research has examined the phenomenon of stress caused by technology, mostly by investigating its sources and effects. However, there remains a gap in the literature regarding the extent to which employment features contribute to the intensification or mitigation of this stress (Suh & Lee, 2017). According to Allan et al. (2021), the presence of technology-driven digital platforms and the precarious nature of employment can have varying impacts on the overall well-being of workers. In their study, Suh and Lee (2017) recommended an investigation into the effects of technostressors on workers' job outcomes, as well as the implications of adopting alternative information and communication technologies (ICTs) or online platforms for job performance.

Theoretical Model

Drawing upon the findings of recent scholarly investigations (Allan et al., 2021; Glavin, Schieman, & Bridge, 2021; Keith et al., 2020; Shoss, 2017), it is imperative to undertake a comprehensive examination of the interplay between job precarity and flexibility, and its consequential impact on individuals' psychological well-being. Furthermore, it is possible that stressors arising from technology usage could play a role in mediating the effects of job insecurity on an individual's overall state of well-being. The anticipated outcome of job flexibility is believed to mitigate the adverse consequences of precarious employment and the resulting psychological strain (Bakker & Demerouti, 2007; Hackman & Oldham, 1975; Karasek Jr, 1979). This study expands upon the JD-R theory (Bakker & Demerouti, 2007) by incorporating job insecurity and job autonomy as job demand and resource, respectively, influencing the psychological well-being of gig workers. Technostress is considered a mediating stress factor in the relationship between job insecurity and psychological well-being. At the same time, job autonomy mitigates the negative effects of job insecurity and technostress on the psychological well-being of gig workers.

Findings

In line with the literature review, it can be identified that there is a clear link between these job characteristics and their positive or negative influence on psychological well-being. Job insecurity, being the most apparent face of precarity, negatively influences psychological well-being, and it can provoke more stressful and extensive use of technology for the ever-continued job search and multi-tasking in order to survive and maintain workflow. On the other hand, job autonomy is the most aspired job resource that helps workers tailor their work schedule and work decisions to achieve the optimal state of affairs

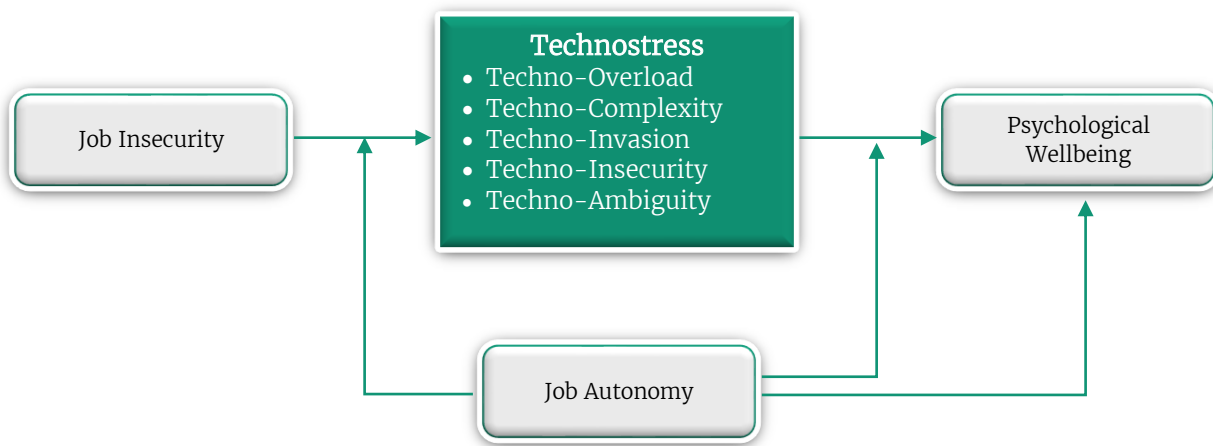


according to the best interest of their well-being. Job resources will have a positive impact on the psychological well-being of workers. According to JDR theory, job resources might mitigate the negative influences of job demands and stressors encountered in performing work. The job stress encountered in these gig works due to the prolonged use of ICTs is caused by various techno-stressors, namely techno-overload, techno-invasion, techno-complexity, techno-ambiguity, and techno-insecurity.

From the literature discussed on psychological well-being and the various job characteristics, we are now in a position to develop an integrated model that combines all those elements that are important in evaluating psychological well-being in the context of gig works. The cursory view of the literature suggests some of the most influential precarious job characteristics along with technostressors that enhance and undermine psychological well-being. These relationships can be integrated in the form of the model; the model is shown in Figure 1.

Figure 1

Theoretical Model



Discussions and Implications

In recent years, researchers in the domains of management sciences and occupational health have exhibited a strong inclination toward examining the various elements that impact the overall welfare of gig workers (Imhof & Andresen, 2017). Nevertheless, the existing degree of interest in the subject is insufficient due to a lack of scholarly investigation of the welfare of gig workers participating in digital labor markets (Keith et al., 2020). The current literature has predominantly overlooked the examination of the well-being of self-employed individuals, instead placing significant emphasis on individuals in conventional employment arrangements (Keith et al., 2020; Shevchuk, Strebkov, & Davis, 2018; Steel, Schmidt, Bosco, & Uggerslev, 2019). The current body of research in the field of management sciences lacks empirical evidence on this specific problem. Researchers have found a scarcity of studies regarding the occupational wellness of gig workers or freelancers. There is limited academic literature available on algorithmic management, the drivers of gig workers, the influence of technical education on freelancing, and conceptual research (Malik, Heeks, Masiero, & Nicholson, 2020; Zaman, Nawaz, Javed, Rasul, & Foroudi, 2020; Zheng, Zhu, Zhao, & Zhang, 2015).

This study provides a theoretical contribution to the current literature on psychological well-being in the context of gig works about the influence of job demands and job resources and stress related to technology. Using the JDR framework, this study has developed a research model based on existing literature and emphasizes the need for empirical testing of the suggested model. There is a demand for studies to explore and analyze the key factors that significantly impact the mental well-being of gig workers (Keith et al., 2020). Prior research has yielded significant insights into psychological well-being. However, the researchers of the present study have not encountered any previous studies that investigate the integration of the technostress model into the job demands and resources model within the gig environment. This study is the first to use the JDR theory and technostress model to investigate the well-being of gig workers.

There is a persistent risk to the mental health and general well-being of workers worldwide from precarious employment and work precarity, according to the report of ILO, 2019 (Kalleberg, 2009; Kuhn & Maleki, 2017). This is particularly accurate for historically marginalized people who have endured prolonged periods of insecure employment (Hyman, 2018). Work psychologists can have a significant impact on addressing these issues by combining psychological concepts related to uncertainty and insecurity with the existing body of research on precarious work, which has traditionally focused on a broader societal level. Hence, the suggested model integrates the job attributes of precarity. Work precarity, in turn, has adverse consequences for job attitudes, job behaviors, identity, and mental well-being. By focusing attention on studying this multifaceted issue, work psychologists might enhance ongoing initiatives aimed at preventing and addressing the adverse effects of employment precarity in the future.

Limitations and Future Research

The present conceptual study lacks empirical evidence. The model also provides room for empirical validation by applying it to the real world to evaluate the psychological well-being of gig workers. The findings of the empirical study may vary from the expected results. Future studies can investigate the influence of other job demands and job resources/ personal resources on the psychological well-being of gig workers. Besides job insecurity and autonomy, the impact of various other job characteristics, social and economic reasons, and motivations to join online gig works on the overall well-being can also be examined. Hence, the limitations in the present study offer many opportunities for future research to gain a deeper understanding of well-being in the context of the gig economy.

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