

## **Employee Health during COVID-19 Pandemic and its impact on Employee Job Performance and Quality of Life**

**Muhammad Rahies Khan**

Ph.D Scholar Bahria University, Karachi.

*mrahies581@gmail.com*

**Naveed R Khan**

Associate Professor Bahria University, Karachi.

*naveedrkhan.bukc@bahria.edu.pk*

**Mubashir Ali Khan**

Assistant Professor Bahria University, Karachi.

*makhan.bukc@bahria.edu.pk*

### **Abstract**

Employees are the operating engine of organizations and their health played a fundamental part in their performance. The spread of COVID-19 creates disruptions in every field of life but more importantly the virus directly influences employee health. So far, less attention has been paid to employee health from the COVID-19 perspective. The current study attempts to discuss employee health during COVID-19 and its impact on job performance and quality of life. A total of 230 responses were received from health professionals. For data analysis, Smart PLS was used to measure the structural model. This study operationalizes working conditions, workplace relationships, and loneliness as antecedent stressors of employee health from the COVID-19 perspective, and the results indicated that the three stressors significantly contributed as antecedents of employees' health during COVID-19. Moreover, our study evaluated the nexus between employee health and quality of life and job performance. The results showed that employee health is positively associated with quality of life and negatively associated with job performance. Moreover, job performance is positively and significantly associated with quality of life. More importantly, the path model was significant except Job performance >employee health >quality of life. Our findings implicate that policymakers should improve working conditions, enhance collaboration among employees, and provide recreational facilities to reduce stress. Moreover, indoor physical activities should be provided to improve physical health that positively affects their mental health. By incorporating, these stress coping strategies, employees' quality of life, and job performance can be improved.

**Keywords:** Job Stress, Quality of Life, Job Performance, COVID-19

### **1. Introduction**

The most important possession of an individual's life is personal health. The basic life activities are inhibited without good health and the important daily activity is work. The world health organization defined health as "a state of absolute physical, mental and social well-being and not merely absence of disease infirmity and healthy workplace as "one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety, and well-being of all workers and the sustainability of the workplace"(Burton & Organization, 2010).

Health remained the strongest part of daily life and is considered to be the outcome of a healthy environment. Moreover, the health of employees at the workplace has been under discussion for a longer period but recently the relationship between employee health and job performance (Kundi et al., 2020), employee health, and quality of life (Buselli, Corsi, et al., 2020) and occupational stress on employee health (Prasad et al., 2020) has been discussed widely. Especially the year 2020 was considered to be the year of health-related issues for everyone. The outbreak of the COVID-19 pandemic acts as a catalyst in the dissemination of this problem among the public. One of the most debatable antecedents of employee health is stress. Stress was firstly defined by Hans Selye (1970) as a mental and physical state that appears when a difference exists between the demand and capability of an individual to meet those demands. Previous studies predict that certain thresholds exist to bear the level of stress among individuals (Pestonjee, 1987). Stress caused due to physical, organizational, social, and emotional problems has negative effects on an individual's health. Individual personality traits and style of managing stress is the main stressor (Khoury & Analoui, 2010). Certain reasons cause a higher level of stress among employees which includes undue workload, role conflict, and unsatisfactory working conditions (Sidhu et al., 2020).

These and many other reasons for job stress lead to physical and mental health issues among employees that affect their job performance (Shikieri & Musa, 2012). The health issues employees suffered from are emotional collapse, chances of physical hurt, increased blood pressure, anxiety, and cardiac issues. These problems lead to negative behavior like depression, annoyance, and irritability (Kirkcaldy et al., 2002). Besides all these stress-causing issues, an outbreak of the COVID-19 pandemic added a new stressor among the general public that impaired the employee's health across the world. COVID-19 pandemic spread in the city of Wuhan China in December 2019 and rapidly spread all over the world (Rossi et al., 2020). The mode of transmission and severity of infections of this virus leads to immense concerns and stress among the public. Immediate shutdowns and initial lockdowns were made as a primitive measure to cater to the further spread of the COVID-19 pandemic. All nations, companies, and individuals were busy protecting themselves against this deadly virus but health professionals act as front-line soldiers against this virus and played a vital role in treating and controlling the infection. Changes in working conditions, fear of self-infection, and transmission of infection to family members and relatives lead to immediate stress among health professionals that leads to impaired mental health. More than 570,000 health professionals have been infected and 2500 died due to this deadly virus all over the world (Pan American Health Organization [PAHO], 2020). Similarly, the health professionals infected in Pakistan are 240 and who died are 58 (Bhatti, 2020).

Recent literature revealed that health professionals working on the frontline are at higher risk that leads to psychological and mental health impairment (Rajkumar, 2020). The health workers at the frontline are directly in contact with COVID-19 patients and bear unusual risk factors like the diminution of PPE, inadequate protocols of treatment, and emotions of feelings of being incompetently appreciated, that could all somehow contribute to their mental burden (Liu et al., 2020; Rajkumar, 2020). The increasing number of infections and deaths of health professionals further deteriorated the situation. Along with infections and deaths, the physical health of health professionals has also been affected due to restricted movements and recreational facilities during and after duty hours. Recent literature indicated that health workers having fear of infection to their close ones, presented with higher level of stress, depression and anxiety symptoms that might leave long psychological consequences (Buselli, Baldanzi, et al., 2020). Moreover, a recent study on approximately 1000 Chinese health workers presented 71.5 %, 50.4%, 44.6 % and 34% of

distress, depression, anxiety, and insomnia (Lai et al., 2020; Liu et al., 2020). The employee's dual exposure to infected patients on-duty hours and family members and close ones in off time leads to recently described health issues. The disturbance in family life and quality of life ignites stress and anxiety among employees. Simultaneously, the stress caused due to new working conditions during COVID-19, lack of autonomy in decision making, and personal life and role ambiguity during working hours also impact the job performance of the employees (Li et al., 2019; C. Liu et al., 2015; Liu et al., 2020; Rajkumar, 2020).

Previous literature revealed that the meager working conditions, workload, role ambiguity, career growth, unfeasible targets, and lack of autonomy in decision making at the workplace are the major institutional stressors (Sharma & Singh, 2016). These stressors yield impact on the health of employees such as increased blood pressure, insomnia, weight gain, and cardiac issues (Tyagi & Dhar, 2014). The majority of the existing literature (Rosenbusch et al., 2015; Tudu & Pathak, 2014; Udod et al., 2017) highlighted work pressure and the absence of institutional courage as chief contributors to job stress. These stressors lead to absenteeism of employees because of health issues (Ray et al., 2017). On the other hand, previous research also suggests the dual impact of occupational stress on the employees. A moderate level of occupational stress acts as a motivation among employees that leads to interest in work, increased working efficiency, and maintenance of adequate physiological and psychological conditions (Quick, J.C, 2003). However, severe stress for a longer period has adverse effects on the mental and physical health along with the effect on the quality of employees that ultimately leads to abnormal psychological, physiological, and behavioral outcomes (Li et al., 2019). Similarly, previous literature also provides strong shreds of evidence of occupational stress (i.e work pressure) impact on job performance (Arshadi & Damiri, 2013; Iqbal et al., 2015; Shahu & Gole, 2008) and they also claimed that increased work pressure decrease job performance. Regarding the workplace attitude, 90 % of employees believe that the working output is largely affected by the working environment (Saxena et al., 2001). However, other studies revealed that poor working and physical conditions are the important factors that impact productivity (Ahmad et al., 2015; Riaz et al., 2017).

This paper aims to evaluate the impact of employee health issues caused due to some stressors during COVID-19 on employee health, quality of life, and job performance. In particular, this paper tries to answer what are the antecedents/ stressors of employee health issues and how the COVID-19 pandemic affected employee health that ultimately leads to impact the job performance and quality of life. Three job stressors were evaluated as antecedents to employee health namely, working conditions, workplace relations, and loneliness. This study provides an adequate contribution to the existing literature by evaluating the nexus between employee health and its impact on the employees' job performance, and quality of life during the COVID-19. Moreover, the findings of this research provide implications to the policymakers and institutions regarding the adverse impacts of COVID-19 produced job stress as antecedents of employee health among health professionals and its impact on employee quality of life and job performance, especially among the nurses. The rest of the paper is designed as: section two describes the relevant literature and hypotheses development, section three discussed the methodology used and section four describes results discussion, future research directions, and policy implications.

## 2. Literature review

### 2.1 Theoretical underpinning

The study is grounded from the JD-R model of Baker and Demerouti (2007) which encompasses the demands of a job and resources to fulfill that job. The job demand includes physical or psychological aspects related to performing a job or fulfilling an expectation through mental or physical exertion. The resources are considered as psychological belongings which are incorporated to enhance job performance and decrease demands or accelerate extra resources (Bakker & Demerouti, 2007; Voydanoff, 2004). The said JD-R model was constructed on the belief that all the job requirements are grouped either demands or resources. Two mediators' i.e health impairment and motivation impact the employee health and job performance that ultimately leads to quality of life. In the health concerns process, huge job demands with less resources leads to employees health issues and ultimately influence their physical and mental capacities. However, in motivation concerns, resources enhance employees mental and physical capacities that leads to good job performance, satisfaction and engagement.

In our study, job demands are operationalized from psychological and physiological aspects and these are widely used in the literature (Bakker & Demerouti, 2007; Mudrak et al., 2018; Peeters et al., 2005; Torp et al., 2018). During the COVID-19, different working conditions and different precautionary measurements lead to physical job burdens on health professionals. Similarly, workplace relationships, quarantine, and loneliness brought some psychological and emotional overload on the health professionals. These physical and psychological demands during the disruption have influenced their job performance and hence the quality of life. The constructs used in the formation of the theoretical model for this study are operationalization as under:

### 2.2 Operational Definition of Constructs

Construct	Definitions	Reference
<b>Employee Health</b>	A state of absolute physical, mental and social well-being and not merely absence of disease infirmity and healthy workplace as "one in which workers and managers collaborate to use a continual improvement process to protect and promote the health, safety, and well-being of all workers and the sustainability of the workplace	Burton & Organization (2010)
<b>Job Stress</b>	A mental and physical state appears when a difference exists between the demand and capability of an individual to meet those demands.	Hans Selye (1970)
<b>Job Performance</b>	The degree of one's achievement of goal-oriented behaviors, which is and an overall sign of an individual's performance in working	Carlson et al.,(2019)

---

<b>Loneliness</b>	An employee's perception is that he/she is kept isolated intentionally at the workplace.	Ferris et al (2008)
<b>Quality of Life</b>	The level to which an individual's life experiences are satisfying.	Lin Zhan MS (1992)

---

Health professionals are playing a vital role in preventing and controlling infection, isolation, containment, and community health (G. D. Smith et al., 2020). Previous research repeatedly showed that the health professionals remain under stress as compared to other professionals in normal situations (Aiken et al., 2002; Caplan, 1994), and the major impact of the stress leads to disturbed mental and physical health among physicians (Buddeberg-Fischer et al., 2008; Coomber et al., 2002; Rogers et al., 2014). In critical situations, the health industry was put under extreme pressure that made the working environment more stressful than ever (Tam et al., 2004). Similarly, in the present situation, health professionals are acting as frontline soldiers against the deadly coronavirus. The important stressor among the frontline soldiers was fear of family infection from health professionals itself (Wong et al., 2005). Previous data from 2009 swine flu showed that 20 % of health professionals who developed symptoms infected at least one family member (Choi et al., 2011). Hence, the spread of COVID-19 infection and deaths among health professionals and their families across the world was also noted during the present pandemic (Rothan & Byrareddy, 2020). The increased workload, fear of infection, and prevention techniques from infection through extra caring by putting personal protective equipment (PPE) have some significant impacts on the health of these employees. Moreover, higher-risk exposures, development of COVID-19 symptoms, testing for COVID-19, and quarantine lead to stress among health care providers (Neto et al., 2020). In other words, health professionals try hard to fulfill the job demands with scarce resources but there exists a gap that ultimately leads to occupational stress (Sun et al., 2012), and occupational stress is considered as an epidemic worldwide by WHO (Akinboye et al., 2002). Hence, the health care providers are fighting simultaneously an epidemic and a pandemic.

Therefore, certain factors contribute to occupational stress, and these are divided into occupational and individual factors. The occupational stress includes (1) working conditions that consist of ambiguous working hours, sedentary and repetitive working methods and interactive, controllable, and uncontrollable tasks, (2) workplace relationships or interpersonal relationships with colleagues, subordinates, co-workers, and supervisors (Chou et al., 2014; Dewa et al., 2011; Härmä, 2006). The individual factors include the individual's age, gender, personality type, self-confidence, self-perception, stress coping abilities, and loneliness (Rausch et al., 2008; Shultz et al., 2010; Wright et al., 2006). Previous literature revealed that there exists a positive association between psychological health and job stress (Singh & Singh, 2007). Previous findings by Krishnamurthy et al. (2017) describe that poor working condition leads to stress that reduces productivity. Similarly, Smith et al. (2018) examined the association between burnout, work-family conflict, and work stress amongst 208 fighters of the USA with path analysis. Their results showed that the work-family conflict and work stress leads to burnout that negatively impacts the safety measures, PPE acquiescence, and efficient negotiation and safety performance. A cross-sectional study conducted by Kaewanuchit and Sawangdee (2018) among 600 Thai immigrant individuals predicted occupational stress as a hindrance factor that brings mental health illness as

an outcome. Moreover, traveling distance, working environment, salary, and duty place were considered chief contributors to job stress. Ahmed and Ashfaq (2013) conducted a study among 144 banking employees and found that job stress negatively influences job performance. Therefore we hypothesize that:

***H<sub>1</sub>: The COVID-19 related stressors are significantly associated with employee health.***

***H<sub>2</sub>: There exists a significant association between employee health and quality of life.***

On the other hand, previous literature also showed strong shreds of evidence that the higher occupational stress negatively impacts the physical and mental health of employees that leads to compromised quality of life and job performance among professionals (Li et al., 2019; C. Liu et al., 2015). Moreover, the findings of Liu et al.,(2020) research showed that higher occupational stress among medical professionals leads to poorer quality of life, and job stress is an important factor that impacts employee health that influences the quality of life. Hence we hypothesize that:

***H<sub>3</sub>: There exists a significant association between employee health and job performance.***

Along with these factors, COVID-19 prevention measures include social distancing and quarantines that lead to another stressor i.e loneliness. In this study, we choose loneliness which apart from the similar construct “ostracism”, is an employee's perception that he/she is kept isolated intentionally at the workplace (Ferris et al., 2008). The two constructs i.e loneliness and ostracism are different as empirical research found a moderated relationship between them and other researchers treat them as a separate construct (Wesselmann et al., 2012). In some cases, ostracism is considered as an antecedent of loneliness (Leary, 1990) and both were never been theoretically or empirically found as the same constructs (Wesselmann et al., 2012; Williams, 2007). However, in this research, we are conceptualizing loneliness from the workplace dimension and define it as “employees’ subjective affective evaluations of, and feelings about, whether their affiliation needs are being met by the people they work with and the organizations they work for” in normal life, people are affiliated with each other through different relationships and similarly employees are affiliated with each other through interpersonal relationships, social contacts and belongingness (Schachter, 1959) and affiliations are a vital element in social relationships (Hess, 2006; Mehrabian & Ksionzky, 1974). Due to precautionary measures at the workplace and even in off timings health professionals feel loneliness from the society and family as well. Therefore this loneliness also causes stress among these individuals. Previous research predicts that loneliness is considered to be more painful and severe when individuals are left alone in social contact as compare to left themselves alone (Jones, 1981; Sermat, 1980). Studies by Heinrich and Gullone (2006) and Coplan et al.(2007) found that loneliness was the critical indicator of social collaboration insufficiency. A recent study conducted by Santas et al.(2016) showed that loneliness deviates individuals from their tasks by impacting their mental health and ultimately compromising their job performance. it is evident that job satisfaction or performance is directly associated with good quality of life (Evans et al., 1993). Similarly, working conditions, work related activities are associated with job performance and satisfaction that yield quality of life (Linn et al., 1986). The loneliness, changing working conditions, workplace relations, and restricted recreational and family entertainment leads to compromised job performance and ultimately leads to poorer quality of life and hence, we hypothesize that:

***H<sub>4</sub>: There is a significant association between Quality of life and employee job performance.***

### **3. Methodology**

#### **3.1 Sample and procedures**

This study is cross-sectional and primary data for this study was collected from specialists, physicians, staff nurses, and male nurses working in hospitals situated in Karachi, Pakistan. A purposive sampling technique was used to collect the data because this study mainly focused on the health professionals who actively worked in COVID-19 wards and have been in actual contact with patients infected with COVID-19 or suspected of COVID-19.

The questionnaire for this study was adopted from existing literature and showed in table 1 below. To check the content validity of the questionnaire, the opinion of four academicians was taken regarding Likert Scale statements, spellings, and ease of understanding and interpretation for respondents. A pilot study was also conducted to test the reliability of the questionnaire before the final distribution. The final version of the questionnaire was prepared on Google form and distributed through email and hard copies where applicable. The questionnaire consists of 3 sections. The first section includes the title and consent form, the second section describes the demographic information of respondents and the third section consists of items of variables. All the variables were measured on 5 points Likert scale except employee health which is measured through multiple-choice options. A total of 300 questionnaires were distributed among health professionals working in different hospitals in Karachi, Pakistan. Three to four soft reminders were also sent to respondents during data collection. A total of 255 valid questionnaires were received indicating a response rate of 85 %. Finally, analysis was done on 230 responses after excluding 25 incomplete responses.

### **4. Results**

#### **4.1 Descriptive statistics**

Descriptive statistics showed that 126 (54.8%) out of 230 were males and 104 (45.2%) were females. 57.4% were between the age of 20-30, 37% were between the age of 31 and 40 and 1.7% were above the age of 40. 56.5% of the respondents have a Male Nursing degree (3 years), 30.3% have Graduation (14 years), 8.3% were specialization qualifications, and a very few of them have Intermediate, Masters, and Ph.D. According to the profession majority of them (39.6 %) were staff nurses. 29.6% were male nurses, 22.6 % were Physicians and only 7.8% were specialists.

Structural Equation Modelling (SEM) was employed since it can handle complex models and run completely at the same time (Schumacker & Lomax, 2012; Tabachnick et al., 2007). According to Anderson and Gerbing (1988), SEM works on two levels: measurement and structural model. Details of these two have been provided in the results and interpretation part. Smart PLS 3.2.9 was utilized for data analysis using the PLS-SEM approach. This software was used for two reasons; firstly, this study developed a novel framework by integrating COVID-19 related job stressors like loneliness, workplace relationships, and new COVID-19 creating working conditions and their impact on employee health, job performance, and quality of life during the first phase of COVID-19. This study was explanatory based on developing a new phenomenon (Hair et al., 2017). Secondly, data is not normally distributed in the survey research. Using the PLS-SEM approach through Smart PLS does not require data normality assumptions to be fulfilled (Chin et al., 2003).

Common Method Bias (CMB) can be a potential threat for self-reported research surveys (Podsakoff, 2003) as data were collected from a single source (MacKenzie & Podsakoff, 2012). Harman's single factor was employed through Exploratory Factor Analysis (EFA) to detect CMB. The criteria state that inner factor VIF values of collinearity must be equal to or less than 3.3 to prove that the instrument is free from common method bias (Kock, 2015). The inner factor VIF of our study is  $< 1.5$  which is well below the threshold value confirming no issue of CMB was not a problem in our study (Babin et al., 2016).

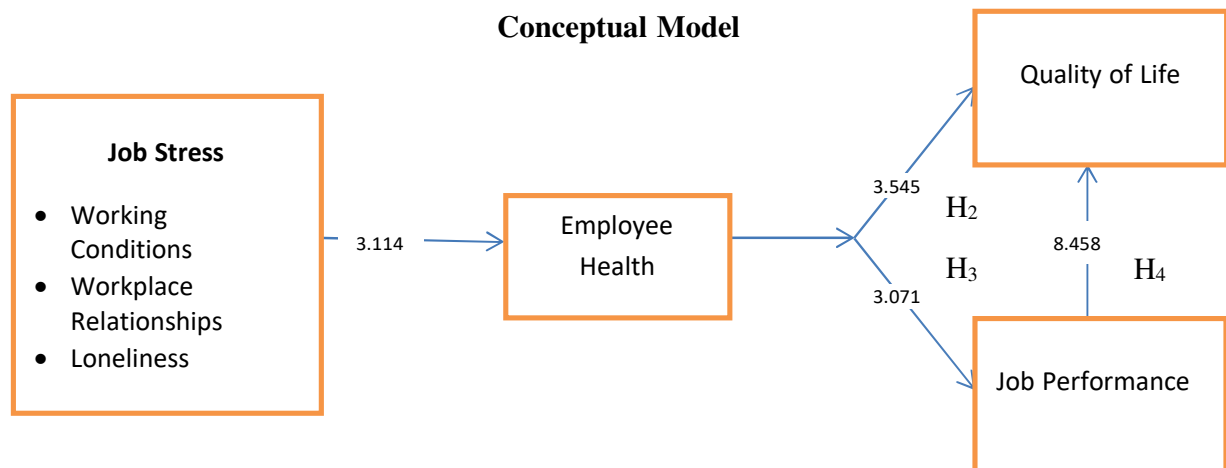


Figure 1. Conceptual Model

#### 4.2 Measurement Model

Figure 1 showed the findings of the validity and reliability using the measurement model. The reliability of the constructs was assessed through CA and AVE. According to Hair et al., (2017), values for CA and AVE should be greater than 0.70&.50 respectively. Cronbach's alpha of employee health and job stress and QOL is slightly lower but the values of CR and AVE are well above 0.7 and .50 respectively which means there is no issue of reliability. Moreover, reliability can be improved by increasing the sample size (Saunders et al., 2009).

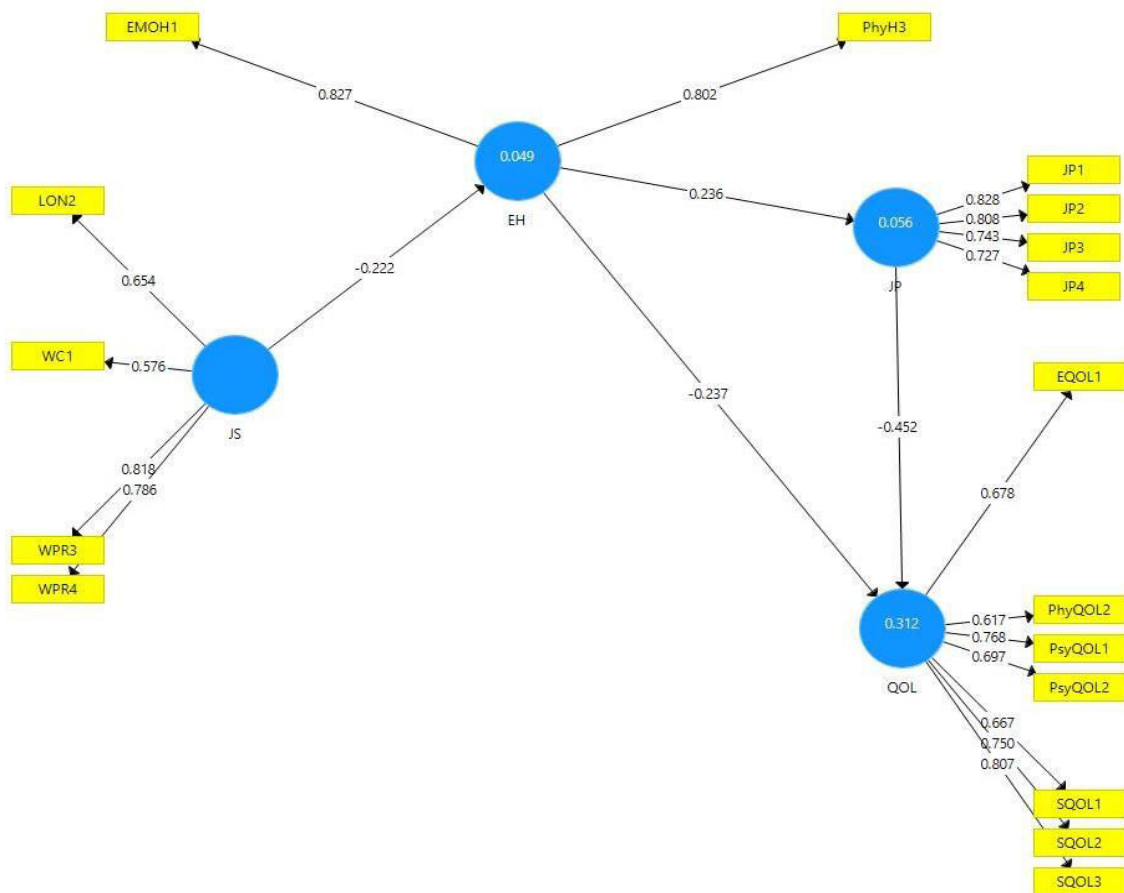


Figure 2. Measurement Model

### 4.3 Structural Model

Figure 2 showed the relationships among the constructs and the model's explanatory and predictive powers. The bootstrapping procedure was applied using a resample of 5000 as suggested by Hair *et al.*, (2017) and Ramayah *et al.*, (2018) for evaluating the structural model. Multi-collinearity was assessed through Variance Inflation Factor (VIF) values as suggested by Hair *et al.*, (2017). VIF value should be less than 5 as indicated in table 3 showing the absence of multi-collinearity. For evaluating the explanatory power of the model, the  $R^2$  value was determined for job stress (JS) and employee health (EH). Cohen *et al.*, (1988) categorized the  $R^2$  values of 0.02, 0.13, 0.26 for endogenous constructs as weak, moderate, substantial respectively. In our study, the variance in employee health due to job stress and variance in job stress due to employee health is medium as shown above in the table. However, variance in job performance due to quality of life is substantial. Effect sizes of individual exogenous construct on endogenous were reported through ( $f^2$ ) values.  $f^2$  values of 0.02, 0.15, and 0.35 show small, medium, and large effect sizes respectively (Cohen, 1988). The effect size of job stress on employee health and employee health on job performance and quality of life were showing a medium effect size. However, the effect of quality of life on job performance had a higher-medium effect size as shown in table 3.

Table 1. Factor Loadings

<b>Job Stress</b>		
Cronbach's Alpha = 0.671, CR= 0.804 , AVE = 0.511		
The workplace for COVID-19 duties is uncomfortable	0.576	Shahu and Gole (2008), BashirandRamay (2010), Karunanithy and Ponnampalam (2013), French and Caplan (1972), Bashir and Ramay (2010), Badar (2011) L.Wright, B.Burt & T.Strongman (2006).
My colleagues cannot support me in performing the job	0.818	
It is very hard to share with colleagues.	0.786	
I feel isolated when I am with my colleagues.	0.654	
Employee Health Cronbach's Alpha =0.493, CR= 0.798 , AVE = 0.663		
How you indicated your physical health during duties at COVID-19 wards.	0.802	
During duties at COVID-19 wards how distressed have you felt about your health	0.827	
<b>Quality of Life</b>		
Cronbach's Alpha = 0.840, CR= 0.879, AVE = 0.510		
How satisfied are you with your ability to perform your daily living activities?	0.617	(MOS-SF) developed by Stewart in 1988 and the Boston Health Research Center in the United States
How much do you enjoy life?	0.768	
How well are you able to concentrate?	0.697	
How satisfied are you with your personal relationships?	0.667	
Do you feel respected by others?	0.750	
How safe do you feel in your daily life?	0.80	
How satisfied are you with the conditions of your living place?	-0.216	
<b>Job Performance</b>		
Cronbach's Alpha = 0.78 ,CR= 0.859 , AVE = 0.605		
I finish the assigned tasks.	0.8	Karunanithy and Ponnampalam (2013), Judge and Bono (2001)
The supervisor is satisfied with the results.	0.8	
Colleagues evaluate me well during job performance.	0.7	
I am satisfied with my performance in COVID-19 wards	0.7	

#### 4.4 Hypothesis Testing

$R^2$  values predict the level of variation effect size in the dependent variable due to the change in the independent variable. The result of regression in Table 4.6 predicts that job stress explains 4.9% of the variance in employee health. Employee health explains 5.6% of the variance in job performance. Quality of life explains 31.2% of the variance in job performance.

**Table 2. Model Fit**

Construct	R-square	Adj R-square
Employee health	0.049	0.045
Job performance	0.056	0.051
Quality of life	0.312	0.306

For this study, all hypotheses were developed based on direct relationships among the constructs. The first hypothesis of the study indicated a direct association between job stress and employee health. This relationship was found to be negative and significant as T value was more than 1.96, LL, and UL do not straddle between zero shown in table 3 (Beta= -0.222; T value= 3.114; LL=-0.112, UL=-0.387). The second hypothesis indicated the impact of employee health on employee quality of life and was also found to be positively significant as T value was more than 1.96, LL, and UL do not straddle between zero shown in table 3 (Beta= 0.236; T value= 3.545; LL=-0.105, UL=-0.365). The third hypothesis consisted of the influence of employee health on job performance and was also negatively significant as t value was more than 1.96, LL, and UL do not straddle between zero shown in table 3 (Beta= -0.237; T value= 3.071; LL=0.384, UL=0.089). This negative association indicated that compromised employee health leads to lower job performance and vice versa. The fourth hypothesis determined the negative association between quality of Life and Job performance and was significant as t value was more than 1.96, LL, and UL do not straddle between zero shown in table 3 (Beta= -0.452; T value= 8.458; LL=-0.353, UL=-0.562).

**Table 3. Hypotheses Testing**

Hypothesis	VIF	F	$\beta$	t-values	LL	UL	Decision
<i>Job Stress</i> → <i>employee health</i>	1.000	0.052	-0.222	3.114	-0.112	0.387	<b>Supported</b>
<i>Employee Health</i> - -> <i>quality of life</i>	1.059	0.077	0.236	3.545	-0.105	-0.365	<b>Supported</b>

<i>Employee health - -&gt;job performance</i>	1.00	0.059	-0.237	3.071	0.384	0.089	<b>Supported</b>
<i>Quality of life-- &gt;job performance</i>	1.059	0.281	-0.452	8.458	-0.353	-0.562	<b>Supported</b>

**Table 4. Path Effects**

Path	Coefficient	p-value	Decision
<b>Job Stress -&gt; Employee Health -&gt;Quality of Life -&gt;Job Performance</b>	2.105	0.035	Supported
<b>Job Stress -&gt; Employee Health -&gt; Job Performance</b>	2.161	0.031	Supported
<b>Employee Health -&gt;Quality of Life -&gt; Job Performance</b>	2.983	0.003	Supported
<b>Job Stress -&gt; Employee Health -&gt; Quality of Life</b>	1.901	0.057	Not Supported

Our study indicated that a good quality of life leads to higher job performance and vice versa. To the best of the author's knowledge, few studies have been conducted to check the relationship between quality of life and job performance. More importantly, the path designed by the author is supported and shown in path table 4. The path from job stress to job performance and from job stress to quality of life is also supported as the T value is 2.98 which is again more than 1.96 and the p-value is <0.05. The only path which is not supported is from job stress to quality of life as T value is <1.96 and the p-value is 0.05. This non-supported path indicates that job performance depends on the quality of life. Good quality of life leads to better job performance and vice versa.

## 5. Discussion

The purpose of this paper was to observe the employee health issues caused due to stressors like loneliness, working conditions, and workplace relationships during COVID-19. Moreover, we examine how employee health affects employee quality of life and job performance among health professionals in Karachi, Pakistan. Through hypothesis four we also aim to examine the relationship of quality of life with job performance. Our findings indicated a negative significant association between stressors and employee health. We examine and operationalize COVID-19 related three stressors which include working conditions, workplace relationships, and loneliness. There exists a positive association between employee health and quality of life. The quality of life has a very strong association with job performance. Our findings indicated that job performance strongly depends on the quality of life. Good quality of life leads to higher job performance and vice versa.

Three factors were used to determine the job stress among health care employees namely, working conditions, workplace relationships, and loneliness. Through hypothesis one, our findings reported that these three parameters generate job stress among employees that directly affect their physical and emotional health. These findings are consistent with Sidhu et al. (2020). Moreover, previous literature provides strong evidence that the working environment is contributed massively to creating job stress among employees (Darmody & Smyth, 2016; De Silva et al., 2017; Manshor et al., 2003; Mosadeghrad, 2013). Similarly, Erdil and Ertosun (2011) conducted a study to measure the role of social climate and loneliness at the workplace in generating job stress and found a positive association. On the other hand, a recent study conducted by Zhang and Ma (2020) reported that people in Liaoning province China did not feel helpless due to COVID-19, and the majority of them got social support and care from friends and families.

Similarly, hypothesis two indicated a significant positive association between employee health and quality of life. Liu et al. (2020) find a poorer quality of life among young individuals in the USA due to poorer mental health and COVID-19 related anxiety. Previous literature proved strong evidence that occupational stress is one of the prominent factors that negatively affect the quality of life of medical staff (Ying et al., 2012). Employee health is negatively associated with job performance as indicated in hypothesis three. However, Abdullah et al. (2020) recently conducted a study in Pakistan and proved that the nurse's well-being positively influences job performance. Previous studies proved that higher job stress leads to poorer health that ultimately impacts the job performance of the employees (Abdullah et al., 2020; Ahmed & Ashfaq, 2013; Shahu & Gole, 2008). Through hypothesis four, the nexus between job performance and quality of life was tested and found a negative association. A very few studies, however, support the positive association between quality of life and job performance (Fathi & Simamora, 2019; Lin et al., 2015).

### **5.1 Theoretical Implications**

Our findings contributed to previous literature by incorporating the novel job stressors and including quality of life in the model. Moreover, the findings of this study implicate that COVID-19 related stressors have a potential effect on the employees' health. Impaired health leads to poorer job performance and quality of life. Our findings are supported by previous literature (Ahmed & Ashfaq, 2013; Ray et al., 2017; Santas et al., 2016; Sidhu et al., 2020). Similarly, Ying et al.,(2012) conducted a study among medical professionals in China to measure the impact of occupational stress on quality of life and found significant negative effect. The theoretical model of this study was JD-R model and the changing working conditions was used as job demand while workplace relationship and supervisor support are the resources. Due to COVID-19 pandemic these two resources have been widely compromised resulting relationship gap and loneliness that leads to poorer job performance. Incorporation of these stressors and quality of life through JD-R underpinning provide a new theoretical contribution in the previous literature. More precisely, JD-R model is used as theoretical model from the COVID-19 pandemic perspective that also provide a theoretical insight.

### **5.2 Practical Implications**

Practically, these findings implicate that policymakers should improve working conditions, enhance collaboration among employees, and provide recreational facilities to reduce stress and improve their mental and physical health. Moreover, indoor physical activities should be provided to improve physical health that positively affects their mental health. By incorporating, these stress

coping strategies, employees' quality of life, and job performance can be improved. Moreover, our findings highlighted the role of job performance in the quality of life. Policymakers can improve job performance by providing health allowances, a good working environment, and other packages to improve their quality of life.

### 5.3 Limitations and Future Research Directions

The study has geographical and sector limitations. Future research can be conducted in different sectors and different geographical areas to counter-check our findings. This study was limited to identifying only three stressors as antecedents of employee health. In future research, further tangible and intangible stressors related to COVID-19 can be identified and used to measure employee health. Moreover, our findings showed a lower relationship between employee health and job performance. In future research quality of life can be treated as a mediator between employee health and job performance.

### References

- Abdullah, M. I., Huang, D., Sarfraz, M., Ivascu, L., & Riaz, A. (2020). Effects of internal service quality on nurses' job satisfaction, commitment and performance: Mediating role of employee well-being. *Nursing Open*, *n/a(n/a)*. <https://doi.org/10.1002/nop2.665>
- Ahmad, N., Shoaib, U., & Prinetto, P. (2015). Usability of Online Assistance From Semiliterate Users' Perspective. *International Journal of Human-Computer Interaction*, *31*(1), 55–64.
- Ahmed, & Ashfaq. (2013). Effects of Job Stress on Employees Job Performance A Study on Banking Sector of Pakistan. *IOSR Journal of Business and Management*, *11*(6), 61–68. <https://doi.org/10.9790/487X-1166168>
- Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Jama*, *288*(16), 1987–1993.
- Akinboye, J. O., Akinboye, D. C., & Adeyemo, D. A. (2002). Coping with stress in life and workplace Ibadan. *Stirling-Horden Publishers*.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Arshadi, N., & Damiri, H. (2013). The relationship of job stress with turnover intention and job performance: Moderating role of OBSE. *Procedia-Social and Behavioral Sciences*, *84*, 706–710.
- Babin, B. J., Griffin, M., & Hair, J. F. (2016). Heresies and sacred cows in scholarly marketing publications. *Journal of Business Research*, *69*(8), 3133–3138. <https://doi.org/10.1016/j.jbusres.2015.12.001>
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*.

- Bhatti. (2020). *The News*. <https://www.thenews.com.pk/print/680655-pakistan-has-lost-42-doctors-among-58-healthcare-providers-to-covid-19>
- Buddeberg-Fischer, B., Klaghofer, R., Stamm, M., Siegrist, J., & Buddeberg, C. (2008). Work stress and reduced health in young physicians: Prospective evidence from Swiss residents. *International Archives of Occupational and Environmental Health*, 82(1), 31–38.
- Burton, J., & Organization, W. H. (2010). *WHO Healthy workplace framework and model: Background and supporting literature and practices*. World Health Organization.
- Buselli, R., Baldanzi, S., Corsi, M., Chiumiento, M., Del Lupo, E., Carmassi, C., Dell’Osso, L., & Cristaudo, A. (2020). Psychological care of health workers during the COVID-19 outbreak in Italy: Preliminary report of an Occupational Health Department (AOUP) responsible for monitoring hospital staff condition. *Sustainability*, 12(12), 5039.
- Buselli, R., Corsi, M., Baldanzi, S., Chiumiento, M., Del Lupo, E., Dell’Osse, V., Bertelloni, C. A., Massimetti, G., Dell’Osso, L., Cristaudo, A., & Carmassi, C. (2020). Professional Quality of Life and Mental Health Outcomes among Health Care Workers Exposed to Sars-Cov-2 (Covid-19). *International Journal of Environmental Research and Public Health*, 17(17), 6180. <https://doi.org/10.3390/ijerph17176180>
- Caplan, R. P. (1994). Stress, anxiety, and depression in hospital consultants, general practitioners, and senior health service managers. *Bmj*, 309(6964), 1261–1263.
- Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, 14(2), 189–217.
- Choi, S.-H., Chung, J.-W., Jeon, M.-H., & Lee, M. S. (2011). Risk factors for pandemic H1N1 2009 infection in healthcare personnel of four general hospitals. *Journal of Infection*, 63(4), 267–273.
- Chou, L.-P., Li, C.-Y., & Hu, S. C. (2014). Job stress and burnout in hospital employees: Comparisons of different medical professions in a regional hospital in Taiwan. *BMJ Open*, 4(2).
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Lawrence Erlbaum Associates. Hillsdale, NJ, 20–26.
- Coomber, S., Todd, C., Park, G., Baxter, P., Firth-Cozens, J., & Shore, S. (2002). Stress in UK intensive care unit doctors. *British Journal of Anaesthesia*, 89(6), 873–881.
- Coplan, R. J., Closson, L. M., & Arbeau, K. A. (2007). Gender differences in the behavioral associates of loneliness and social dissatisfaction in kindergarten. *Journal of Child Psychology and Psychiatry*, 48(10), 988–995.
- Darmody, M., & Smyth, E. (2016). Primary school principals’ job satisfaction and occupational stress. *International Journal of Educational Management*.

- De Silva, N., Samanmali, R., & De Silva, H. L. (2017). Managing occupational stress of professionals in large construction projects. *Journal of Engineering, Design and Technology*.
- Dewa, C. S., Thompson, A. H., & Jacobs, P. (2011). Relationships between job stress and worker perceived responsibilities and job characteristics. *Int J Occup Environ Med (The IJOEM)*, 2(1 January).
- Erdil, O., & Ertosun, Ö. G. (2011). The relationship between social climate and loneliness in the workplace and effects on employee well-being. *Procedia-Social and Behavioral Sciences*, 24, 505–525.
- Evans, D. R., Pellizzari, J. R., Culbert, B. J., & Metzen, M. E. (1993). Personality, marital and occupational factors associated with quality of life. *Journal of Clinical Psychology*, 49(4), 477–485.
- Fathi, A., & Simamora, R. H. (2019). Investigating nurses' coping strategies in their workplace as an indicator of quality of nurses' life in Indonesia: A preliminary study. *IOP Conference Series: Earth and Environmental Science*, 248, 012031. <https://doi.org/10.1088/1755-1315/248/1/012031>
- Ferris, D. L., Brown, D. J., Berry, J. W., & Lian, H. (2008). The development and validation of the Workplace Ostracism Scale. *Journal of Applied Psychology*, 93(6), 1348.
- Frese, M., & Greif, S. (1981). Stress at Work, C. L. Cooper and R. Payne (Eds), Wiley, Chichester and New York 1978. Price: £9.75 (hardback). *Journal of Organizational Behavior*, 2(1), 73–75. <https://doi.org/10.1002/job.4030020107>
- Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017a). *Advanced issues in partial least squares structural equation modeling*. saGe publications.
- Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017b). *Advanced issues in partial least squares structural equation modeling*. saGe publications.
- Härmä, M. (2006). Workhours in relation to work stress, recovery and health. *Scandinavian Journal of Work, Environment & Health*, 502–514.
- Heinrich, L. M., & Gullone, E. (2006). The clinical significance of loneliness: A literature review. *Clinical Psychology Review*, 26(6), 695–718.
- Hess, J. (2006). Distancing from problematic coworkers. *Problematic Relationships in the Workplace*, 205–232.
- Iqbal, A., Ijaz, M., Latif, F., & Mushtaq, H. (2015). Factors affecting the employee's performance: A case study of banking sector in Pakistan. *European Journal of Business and Social Sciences*, 4(8), 309–318.
- Jones, W. H. (1981). Loneliness and social contact. *The Journal of Social Psychology*, 113(2), 295–296.

- Kaewanuchit, C., & Sawangdee, Y. (2018). The comparison of causal relationships of job stress between Thai immigrant employees with and without rearing their aging parents. *Journal of Health Research*.
- Khoury, G., & Analoui, F. (2010). How Palestinian managers cope with stress. *Journal of Management Development*.
- Kirkcaldy, B. D., Trimpop, R. M., & Williams, S. (2002). Occupational stress and health outcome among British and German managers. *Journal of Managerial Psychology*.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration (Ijec)*, 11(4), 1–10.
- Krishnamurthy, M., Ramalingam, P., Perumal, K., Kamalakannan, L. P., Chinnadurai, J., Shanmugam, R., Srinivasan, K., & Venugopal, V. (2017). Occupational heat stress impacts on health and productivity in a steel industry in southern India. *Safety and Health at Work*, 8(1), 99–104.
- Kundi, Y. M., Aboramadan, M., Elhamalawi, E. M. I., & Shahid, S. (2020). Employee psychological well-being and job performance: Exploring mediating and moderating mechanisms. *International Journal of Organizational Analysis, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/IJOA-05-2020-2204>
- Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., Wu, J., Du, H., Chen, T., & Li, R. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, 3(3), e203976–e203976.
- Leary, M. R. (1990). Responses to social exclusion: Social anxiety, jealousy, loneliness, depression, and low self-esteem. *Journal of Social and Clinical Psychology*, 9(2), 221–229.
- Li, Y., Sun, X., Ge, H., Liu, J., & Chen, L. (2019a). The status of occupational stress and its influence the quality of life of copper-nickel miners in Xinjiang, China. *International Journal of Environmental Research and Public Health*, 16(3), 353.
- Lin, W.-Q., Wu, J., Yuan, L.-X., Zhang, S.-C., Jing, M.-J., Zhang, H.-S., Luo, J.-L., Lei, Y.-X., & Wang, P.-X. (2015). Workplace Violence and Job Performance among Community Healthcare Workers in China: The Mediator Role of Quality of Life. *International Journal of Environmental Research and Public Health*, 12(11), 14872–14886. <https://doi.org/10.3390/ijerph121114872>
- Linn, L. S., Yager, J., Cope, D. W., & Leake, B. (1986). Factors Associated with Life Satisfaction among Practicing Internists. *Medical Care*, 24(9), 830–837.
- Liu, C. H., Stevens, C., Conrad, R. C., & Hahm, H. C. (2020). Evidence for elevated psychiatric distress, poor sleep, and quality of life concerns during the COVID-19 pandemic among U.S. young adults with suspected and reported psychiatric diagnoses. *Psychiatry Research*, 292, 113345. <https://doi.org/10.1016/j.psychres.2020.113345>

- Liu, C., Wang, L., & Zhao, Q. (2015). Factors related to health-related quality of life among Chinese psychiatrists: Occupational stress and psychological capital. *BMC Health Services Research*, 15(1), 20.
- Liu, C.-Y., Yang, Y., Zhang, X.-M., Xu, X., Dou, Q.-L., Zhang, W.-W., & Cheng, A. S. (2020a). The prevalence and influencing factors in anxiety in medical workers fighting COVID-19 in China: A cross-sectional survey. *Epidemiology & Infection*, 148.
- MacKenzie, S. B., & Podsakoff, P. M. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. *Journal of Retailing*, 88(4), 542–555.
- Manshor, A. T., Fontaine, R., & Choy, C. S. (2003). Occupational stress among managers: A Malaysian survey. *Journal of Managerial Psychology*.
- Mehrabian, A., & Ksionzky, S. (1974). *A theory of affiliation*. Lexington Books.
- MOSADEGHRAD, A. (2013). *OCCUPATIONAL STRESS AND ITS CONSEQUENCES: IMPLICATIONS FOR HEALTH POLICY AND MANAGEMENT*.
- Mudrak, J., Zabrodska, K., Kveton, P., Jelinek, M., Blatny, M., Solcova, I., & Machovcova, K. (2018). Occupational well-being among university faculty: A job demands-resources model. *Research in Higher Education*, 59(3), 325–348.
- Neto, M. L. R., Almeida, H. G., Esmeraldo, J. D., Nobre, C. B., Pinheiro, W. R., de Oliveira, C. R. T., da Costa Sousa, I., Lima, O. M. M. L., Lima, N. N. R., & Moreira, M. M. (2020). When health professionals look death in the eye: The mental health of professionals who deal daily with the 2019 coronavirus outbreak. *Psychiatry Research*, 112972.
- PAHO. (2020). *COVID-19 Updates*. <https://www.paho.org/en/news/2-9-2020-covid-19-has-infected-some-570000-health-workers-and-killed-2500-americas-paho>
- Peeters, M. C., Montgomery, A. J., Bakker, A. B., & Schaufeli, W. B. (2005). Balancing work and home: How job and home demands are related to burnout. *International Journal of Stress Management*, 12(1), 43.
- Pestonjee, D. M. (1987). Executive Stress: Should it always be avoided? *Vikalpa*, 12(1), 23–30.
- Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 885(879), 10.1037.
- Prasad, K. D. V., Vaidya, R., & Mruthyanjaya Rao, M. (2020). *Effect of occupational stress and remote working on psychological well-being of employees: An empirical analysis during covid-19 pandemic concerning information technology industry in hyderabad*. <https://doi.org/10.18843/ijcms/v11i2/01>
- Quick, J.C. (2003). *Handbook of Occupational Health Psychology, Second Edition*. <https://www.apa.org>. <https://www.apa.org/pubs/books/4318078>

- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066.
- Ramayah, T., Cheah, J., Chuah, F., Ting, H., & Memon, M. A. (2018). *Partial least squares structural equation modeling (PLS-SEM) using smartPLS 3.0*. Kuala Lumpur: Pearson.
- Rausch, S. M., Auerbach, S. M., & Gramling, S. E. (2008). Gender and ethnic differences in stress reduction, reactivity, and recovery. *Sex Roles*, 59(9–10), 726.
- Ray, T. K., Tat'Yana, A. K., & Pana-Cryan, R. (2017). Employment arrangement, job stress, and health-related quality of life. *Safety Science*, 100, 46–56.
- Riaz, A., Shoaib, U., & Sarfraz, M. S. (2017). Workplace Design and Employee's Performance and Health in Software Industry of Pakistan. *International Journal of Advanced Computer Science and Applications*, 8(5), 542–548.
- Rogers, M. E., Creed, P. A., & Searle, J. (2014). Emotional labour, training stress, burnout, and depressive symptoms in junior doctors. *Journal of Vocational Education & Training*, 66(2), 232–248.
- Rosenbusch, K., Cerny II, L. J., & Earnest, D. R. (2015). The impact of stressors during international assignments. *Cross Cultural Management*.
- Rossi, R., Soggi, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., Di Marco, A., Rossi, A., Siracusano, A., & Di Lorenzo, G. (2020). COVID-19 Pandemic and Lockdown Measures Impact on Mental Health Among the General Population in Italy. *Frontiers in Psychiatry*, 11. <https://doi.org/10.3389/fpsy.2020.00790>
- Rothan, H. A., & Byrareddy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of Autoimmunity*, 102433.
- Santas, Gulcan, O., Demir, A., Hacettepe Universitesi, & Afyon Kocatepe Universitesi. (2016). The effect of loneliness at work; work stress on work alienation and work alienation on employees' performance in Turkish health care institution. *South Asian Journal of Management Sciences*, 10(2), 30–38. <https://doi.org/10.21621/sajms.2016102.03>
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. Pearson education.
- Saxena, S., Carlson, D., Billington, R., & Orley, J. (2001). The WHO quality of life assessment instrument (WHOQOL-Bref): The importance of its items for cross-cultural research. *Quality of Life Research*, 10(8), 711–721.
- Schachter, S. (1959). *The psychology of affiliation: Experimental studies of the sources of gregariousness*.
- Schumacker, R. E., & Lomax, R. G. (2012). *A Beginner's Guide to Structural Equation Modeling: New York*. Taylor & Francis.

- Selye, H. (1970). The evolution of the stress concept. *The American Journal of Cardiology*, 26(3), 289–299. [https://doi.org/10.1016/0002-9149\(70\)90796-4](https://doi.org/10.1016/0002-9149(70)90796-4)
- Sermat, V. (1980). Some situational and personality correlates of loneliness. *The Anatomy of Loneliness*, 305–318.
- Shahu, R., & Gole, S. V. (2008). Effect of job stress and job satisfaction on performance: An empirical study. *AIMS International Journal of Management*, 2(3), 237–246.
- Sharma, D., & Singh, D. (2016). Identification of sources of job stress: A study of bank marketing executives. *Sharma, Sakshi & Singh, Jashandeep (2016). Identification of Sources of Job Stress: A Study of Bank Marketing Executives, Journal of Organization & Human Behaviour*, 26–31.
- Shikieri, A. B. E., & Musa, H. A. (2012). Factors Associated with Occupational Stress and Their Effects on Organizational Performance in a Sudanese University. *Creative Education*, 03(01), 134. <https://doi.org/10.4236/ce.2012.31022>
- Shultz, K. S., Wang, M., Crimmins, E. M., & Fisher, G. G. (2010). Age differences in the demand—Control model of work stress: An examination of data from 15 European countries. *Journal of Applied Gerontology*, 29(1), 21–47.
- Sidhu, A. K., Singh, H., Viridi, S. S., & Kumar, R. (2020). Job stress and its impact on health of employees: A study among officers and supervisors. *Journal of Management Development*.
- Singh, A. P., & Singh, A. K. (2007). Effect of life events stress on mental health of managers: The role of coping. *Journal of Indian Health*, 1, 205–216.
- Smith, G. D., Ng, F., & Li, W. H. C. (2020). COVID-19: Emerging compassion, courage and resilience in the face of misinformation and adversity. *Journal of Clinical Nursing*, 29(9–10), 1425.
- Smith, T. D., Hughes, K., DeJoy, D. M., & Dyal, M.-A. (2018). Assessment of relationships between work stress, work-family conflict, burnout and firefighter safety behavior outcomes. *Safety Science*, 103, 287–292.
- Sun, G. F., Wu, T. C., & Niu, Q. (2012). *Occupational health and occupational medicine*. PEOPLE'S MEDICAL PUBLISHING HOUSE Press.
- Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5). Pearson Boston, MA.
- Tam, C. W., Pang, E. P., Lam, L. C., & Chiu, H. F. (2004). Severe acute respiratory syndrome (SARS) in Hong Kong in 2003: Stress and psychological impact among frontline healthcare workers. *Psychological Medicine*, 34(7), 1197.
- Torp, S., Lysfjord, L., & Midje, H. H. (2018). Workaholism and work–family conflict among university academics. *Higher Education*, 76(6), 1071–1090.

- Tudu, P. N., & Pathak, P. (2014). Diagnosing stress level in employees of Indian banking sector: A study. *Rajagiri Management Journal*, 8(1), 52–75.
- Tyagi, A., & Dhar, R. L. (2014). Factors affecting health of the police officials: Mediating role of job stress. *Policing: An International Journal of Police Strategies & Management*.
- Udod, S., Cummings, G. G., Care, W. D., & Jenkins, M. (2017). Role stressors and coping strategies among nurse managers. *Leadership in Health Services*.
- Voydanoff, P. (2004). The effects of work demands and resources on work-to-family conflict and facilitation. *Journal of Marriage and Family*, 66(2), 398–412.
- Wesselmann, E. D., Wirth, J. H., Mroczek, D. K., & Williams, K. D. (2012). Dial a feeling: Detecting moderation of affect decline during ostracism. *Personality and Individual Differences*, 53(5), 580–586.
- Williams, K. D. (2007). Ostracism. *Annual Review of Psychology*, 58.
- Wong, T. W., Yau, J. K., Chan, C. L., Kwong, R. S., Ho, S. M., Lau, C. C., Lau, F. L., & Lit, C. H. (2005). The psychological impact of severe acute respiratory syndrome outbreak on healthcare workers in emergency departments and how they cope. *European Journal of Emergency Medicine*, 12(1), 13–18.
- Wright, S. L., Burt, C. D., & Strongman, K. T. (2006). *Loneliness in the workplace: Construct definition and scale development*.
- Ying et al. (2012). A Cross-Sectional Study on Occupational Stress and Quality of Life among Medical Staff in Shenyang—《*Journal of Environmental & Occupational Medicine*》2012年09期. [http://en.cnki.com.cn/Article\\_en/CJFDTTotal-LDYX201209011.html](http://en.cnki.com.cn/Article_en/CJFDTTotal-LDYX201209011.html)
- Zhang, Y., & Ma, Z. F. (2020). Impact of the COVID-19 Pandemic on Mental Health and Quality of Life among Local Residents in Liaoning Province, China: A Cross-Sectional Study. *International Journal of Environmental Research and Public Health*, 17(7), 2381. <https://doi.org/10.3390/ijerph17072381>