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## **Effect of occupational stress on work-life balance and psychological well-being: An empirical study of hyderabad metro rail travelers concerning e-commerce industry employees during COVID-19 pandemic**

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**Abstract**--The researchers present the findings of an empirical study on occupational stress, and its effect on work-life balance and psychological well-being of the E-Commerce Industry employees around Hyderabad, who are using Metro Rail transport to reach the workplace and back home. The study was carried out when the Covid-19 pandemic second wave is at its peak. The Metro Rail journey provides a platform for each commuter to learn new habits continuously, like newspaper reading, improving communication skills, etc. It is also evident from the survey that they build the relationship on a day-to-day basis during their journey time, which helps them to form diversified networking that enables them to understand and empathize with others and the situations. The data was gathered using a research instrument, a structured undisguised questionnaire with 37 statements representing three components of the study – occupational stress, work-life balance, and psychological well-being. The occupational stress and work-life balance were measured using a five-point Likert-type scale. The responses on psychological well-being were gathered using a scale developed by Ryff and Keyes 1995, a seven-point scale. The data gathered this seven-point scale transformed to a five-point scale using the linear transformation method for ease of data analysis. A multivariate Generalized Linear Model which allows more than one dependent variable was used for data analysis. The study was subjected to find whether the E-Commerce industry employees who use the metro rail services to reach the workplace and back home experience what level of stress – low, moderate, or high levels, and its influence on their work-life balance and psychological well-being. Psychological well-

being is further measured on six sub-scales, environmental mastery, autonomy, self-acceptance, personal growth, positive relations and purpose of life. The overall Cronbach alpha statistic value for all the study variables is 0.86, work-life balance 0.68, psychological well-being 0.84, and occupational stress 0.62 indicating the research instrument maintained its internal consistency and reliability. Statistically significant differences were observed on occupational stress, age and gender influencing the metro commuter's work-life balance, and some psychological well-being factors.

**Keywords**---Commuters, stress, metro rail, general linear model, Cronbach's alpha.

## 1. Introduction

Occupational stress is stress from employment or a job experienced by an employee. The word stress was first incorporated into the medical dictionary or lexicon by an Austrian-born endocrinologist Hans Selye (1956). Stress can be a state of mind or a type of change that causes physical, emotional, or psychological strain. Stress can be the body's response to any stimuli that need attention. Occupational stress or work stress is a global phenomenon with significant health and economic consequences. Occupational stress is a gradual process where an individual's cognitive assessments of work-related stressors produce adverse health conditions with behavioural consequences (Fortes et al., 2020). Work-related stress is the response that an employee experiences when demands and pressures that are not matched to his/her knowledge and abilities and which challenge their ability to cope. Stress occurs in a wide range of work circumstances but is often made worse when employees feel to have little support from supervisors and colleagues, as well as little control over work processes. There is often confusion between pressure or challenge and stress, and sometimes this is used to excuse bad management practice (WHO, 2020). Occupational stress is also defined as the stressful aspects of work an employee experienced in his/her workplace. The time schedules, the intensity of work, difficulty in work, and occupational hazards are some of the aspects of occupational stress (Zhang et al., 2020) An employee experiences stress due to various reasons. Irrespective of the person – student, teacher, faculty, worker, doctor, experience the stress but only the degree of stress varies. Stress can be experienced due to disliked work or supervisor, work overload, role conflict, role ambiguity or working overtime, working in shifts, and the type of work a person does (Prasad et al., 2015; Akintayo, 2012). The authors further reported that stress from employment or occupation is one of the major factors causing severe health issues costing the companies. Stress is a major factor for all industries irrespective of its type in the Twenty-first century (Donaldson-Feilder et al., 2011). Stress is influencing all types of employees and harming societies with somatic complaints, cardio-vascular diseases (Mohajan, 2012). Chandola et al., (2008) associated occupational stress as one of the behaviour factors and is a determinant of coronary heart disease. Occupational stress causes indirect effects on the health behaviours of working-class people stimulating neuroendocrine stress pathways. The capacity of an employee to deal efficiently combining work,

personal life and family responsibilities are essential for both employers and family members of an employee.

Work-life balance is even distribution of time among work and private life, flexibility in work in the professional field while maintaining the time and energy to spend on personal life (Lonska, 2021). The work-life balance is associated with job engagement and turnover attitudes. Moreover, it is linked to job engagement and turnover intentions (Jaharuddin, & Zainol 2019). The remote working and various forms of flexible employment modes allow to maintain the work-life balance (Chung & Lippe, 2020) and facilitate the development of a balance between private and professional life. The work-life balance is the time spent of an employee, how well a working-class person managing or arranges his/her time for family, managing relations, for personal growth, his/her interest or hobbies. How well a person is juggling his/her time to address the demands of both the personal life and professional constitutes a work-life balance. However, the working class struggles to achieve the work-life balance as the landscape is complicated and people are stressed not to balance their time managing activities perfectly. Working more than the standard of stipulated time leads to serious health and safety concerns for an employee. During the year 1940, on October 24<sup>th</sup> US amended the labor act and adopted the 40-hour work per week. However, the actual phrase “work-life balance” was seen in the United Kingdom during the 80s as part of the Movement of Women’s Liberation. The movement advocated for flexible time programs, and maternity leaves to care for infants, but only a small relief. However, in the recent past, the focus was shifted to incorporating the issues related to the time management of the employees. This resulted to protect the employees from burnout issues, stress-reducing mechanisms. Today employees insist on better time management and with their acumen take out considerable time spend with their families and other personal interests. Now the work-life balance is attainable and maintains gender parity (2015 EY Global Generations Survey). Budumuru Muralidhar et al., (2020) studied the association between remote working and challenges, and its impact on employee work-life balance and reported, personal habits of the employee’s habits, work schedules, and ergonomic issues, are impacting the employee work-life balance.

Psychological well-being is a positive condition of mind with happiness and satisfaction. If a person feels that is he/she is happy or satisfied with available things in his/her possession, we can assume that his/her psychological well-being is high. It is observed through the commuters of those surveyed that they are mostly happy towards the comfort that they get for their commute, the ease of travel that the Metro Rail provides, the certainty of the arrival of the means of transport to reaching the office on time. Ryff (1989) suggests six dimensions of psychological well-being which include: self-acceptance, positive relationship with others, autonomy, environmental mastery, purpose in life, and personal growth. Psychological Well-being evaluates the factors that characterize and influence mental health and wellbeing, nurturing understanding of the cultural, social and economic contexts in which they develop. Therefore, a person can feel comfortable without any stress either before stepping into the office in the morning or while going back to their homes. The extent to which a person experiences his/her positive feelings and emotions of their happiness and is referred to as subjective well-being, and is also a part of psychological well-being

(Diener, 2000). Carl Ryff a psychologist has developed a 6 factor model of psychological/Eudemonic well-being (Ryff and Keyes, 1995, Ryff et al., 2004). Stressful perceptions can influence persons to consequent anxiety and mood disorders (Gladstone et al., 2004); However, exposure to severe traumatic or unfavorable instances will build stress, on the other side, exposure to exceptionally disturbing events can help to protect the psychological well-being. In general, children exposed to stressful instances which are moderate will be able to handle better the following stressors (Khoshaba & Maddi, 1999). The same immunizing influence of unfavorable and stressful events was observed in employees and reported by (Soloman et al., 2007).

## **2. Review of Literature**

Said and El-Shafei (2021) studied the association among occupational stress with job satisfaction and turnaround using a comparative cross-sectional study in Covid-19 and no-Covid-19 hospitals in Zagzig city, Egypt. The study used frontline workers, nurses and reported high levels of stress associated with low job satisfaction and 96 percent of Covid-19 Hospital employees expressing their intention to leave the service during the Covid-19 pandemic period. Occupational stress is associated with adverse mental and physical health. Self-awareness, emotional management, an employee's interpersonal skills are effective in handling occupational stress psychological well-being (Chitra & Karunanidhi, 2021). The study further reported that resilience training embedded with the above said factors in female police officers from South India developed a positive attitude to handle the occupational stress, enhancing work-life balance and psychological well-being of female police officers.

Occupational stress has a moderate level impact on the employees' performance and job stress and job insecurity are the major factors for causing occupational stress in the employees of the IARI, at Hyderabad Metro (Prasad et al., 2015). The authors observed moderate impact on physiological factors and somatic factors with chronic neck and back pain a result of continuous sitting and corpus and tunnel syndrome of wrist an effect of continuous use of the mouse. In another study using multinomial regression analysis, the authors reported the statistically significant influence of coping and occupational stress and affecting the performance of Central Board of Secondary Education (CBSE) school teachers in Hyderabad Metro. The stress variables, role ambiguity, workload, role overload, behaviour of students, the environment of the school, and policies of the school are major stress-causing factors. Approach and avoidance coping are helping the school teachers to mitigate and cope the occupational stress (Prasad et al., 2016). The workload is one of the major concerns for the well-being and performance of support workers and causes significant levels of occupational stress. Lack of recognition, absence of coping strategies, type and context of work are also the stress-causing factors and significant factor is person-centered and lack of recognition is harming the performance and psychological wellbeing Czuba et al., (2019). The length of service of the employees is also a major factor influencing performance and occupational stress. The employees with a longer length of service experience low a level of occupational stress than less experienced and fresh employees. However, there are no gender parity effects on the length of service (Prasad et al., 2018). Al-Kahtani (2013) reported the influence of

characteristics of the demographics and that married subordinate staff with a longer length of service experienced higher burnout and stress.

Zahoor et al., (2021) studied the performance, role conflict, job stress and personality of Bank employees concerning their work-life balance and personality behaviours in South Punjab. This study established that high-performance work practices of banks, role conflict, and personality type B behavioral patterns of bank employees enhance employee work-life balance, and work to family conflict of bank employees decreased the employee work-life balance. Further, job stress and personality type A behavioral patterns of bank employees are not associated with the work-life balance. Irawanto et al., (2021) examined the association between work stress, work-life balance and job satisfaction using a quantitative approach where 472 workers worked from home or designated places rather than the office in Indonesia. The authors reported statistically significant effects of working from home, occupational stress and work-life balance on employee job satisfaction during the Covid-19 pandemic. The employees experienced low stress with sustained job satisfaction with the present working atmosphere of Indonesian workers. Budumuru Muralidhar et al., (2020) studied the association between remote working and employee work-life balance. The results from the regression analysis indicated ergonomic issues, employee behaviour, and employee work schedules life shifts, are influencing the work-life balance of an employee. Sirgy and Lee (2018) reported the antecedents of work-life balance and employee performance, mitigation of occupational stress, a commitment to the organizational objectives and work, career development and career succession planning. To enhance the employee efficiency in performance policies and strategies on Work-life balance employee-oriented initiatives are needed for an organization to succeed, to increase employee working efficiency, handle absenteeism, achieve better performance and employee wellbeing, flexible/telecommuting of work and motivation are needed particularly in the banking sector (Goyal and Babel, 2015). The work-life balance strategies should be used for recruitment, to control the attrition, employee professional development and personal growth with a balance between personal and professional life (Shalini et al., 2012). The work-life balance enhances performance, productivity, maintain congenial industrial relations, decreases employee health care costs, enables better talent management (MSG, 2020)

A longitudinal study examined the association among stress, coping, parental support in the context of psychological well-being using a sample of 444 adolescents inclusive of male and female, Black/African American, White/European American, Latinx, Asian American, and Native American stay-at-home during the covid-19 pandemic. The results reported negative effects of stress during pandemics on adolescents and with enhanced psychological well-being with parental support (Wang et al., 2021).

Li et al., (2021) evaluated the psychological well-being and factors associated with post-traumatic stress disorder among front-line nurses during the coronavirus disease-2019 (COVID-19) pandemic using a predictive study design. In this study the nurses working at First Affiliated Hospital of Bengbu Medical College, Anhui, China subjected survey two times, before and after the nurses worked at the Covid-19 facility. The statistically significant results reported a higher association

between stress level and the prevalence of post-traumatic stress disorder and decreased psychological well-being after they worked at COVID-19 units. The study further reported that nurses with less than 2 years of experience were significantly associated with increased stress and psychological well-being.

Prasad et al., (2020) reported the results using multivariate analysis of the General Linear Model that the remote working factors Organization climate, Communication, Policies of the organization/ institute, Job Satisfaction and nervousness, neurotic complaints and other psychological wellbeing factors influencing the psychological wellbeing of IT sector employees during the Covid-19 pandemic period. In another study, the occupational stress components role ambiguity, peer, job satisfaction organizational climate impacting the wellness - being of the employees with minor gender parities in the information technology sector (Prasad, 2020). Anxiety will have negative impacts on the health and psychological well-being of employees developing depression, heart disease, and hypertension (El-Gabalawy et al., 2011; Janas et al., 1997). Quality of working life and work-life balance is associated with psychological wellness. Positive moods, vigor, joy and positive energy are associated with enhanced employee wellness and in management of good health (Chida and Steptoe, 1995).

### **3. Research GAP**

Several studies reported the respective findings on occupational stress, however, on psychological well-being, and work-life balance, authors are unable to source even a single study related to metro rail commuters working in the Information Technology or E-Commerce Industry. Therefore, the authors carried out this empirical research to investigate the E-Commerce industry employees who are using Metro rail transport as mode to reach office and back home. The study examines the occupational stress and its influence on work-life balance and psychological well-being, in particular when Covid-19 pandemic, when the second wave is at its peak during April to Mid-June 2021.

### **4. Objectives**

- To examine that the E-Commerce Industry employees who are using metro rail mode of transport to reach workplace and back home in and around Hyderabad are experiencing any stress and identify the level of stress experienced – Low, Moderate or High
- To examine whether the stress is affecting the work-life balance and psychological well-being of E-Commerce Industry employees who are using metro rail mode of transport to reach workplace and back home in and around Hyderabad

### **5. Theoretical Framework**

The theoretical framework is based on the studies and models provided by Prasad et al., 2020; Marco Tommasi, et al., 2021. Figure 1 represents the theoretical framework for the proposed study.

## Hypotheses

H<sub>01</sub>: Metro rail commuters working in the E-Commerce Industry in and around Hyderabad are experiencing any occupational stress— low, moderate of high

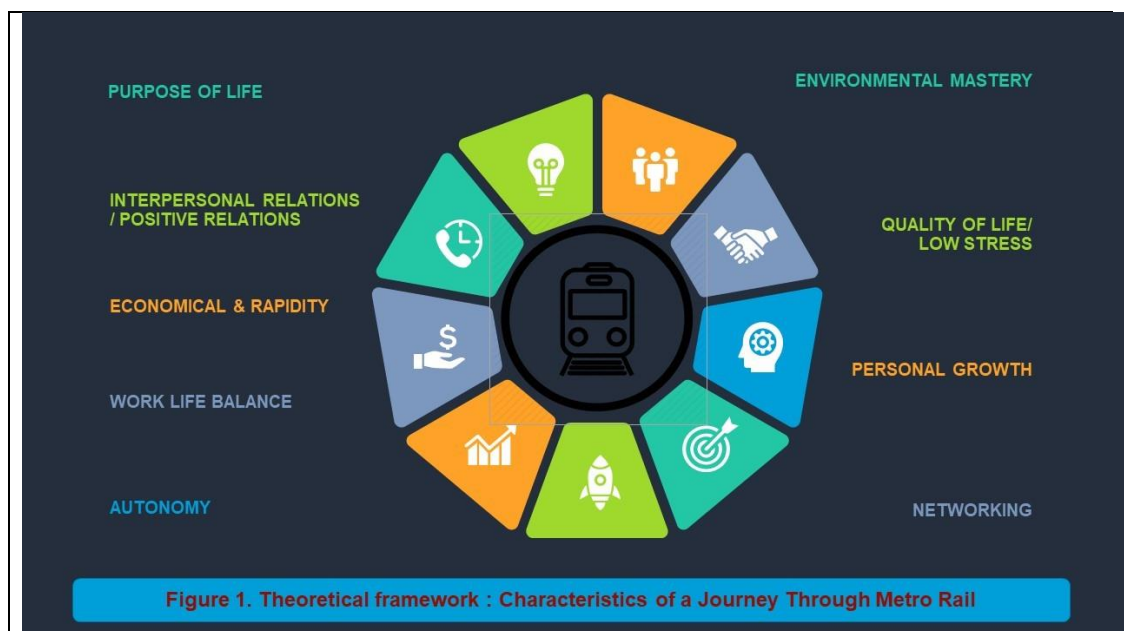
H<sub>a1</sub>: Metro rail commuters working in the E-Commerce Industry in and around Hyderabad are not experiencing occupational stress — low, moderate of high

H<sub>02</sub>: Occupational stress is affecting the psychological well-being of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad

H<sub>a2</sub>: Occupational stress is not affecting the psychological well-being of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad

H<sub>03</sub>: Occupational stress is affecting the work-life balance of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad

H<sub>a3</sub>: Occupational stress is not affecting the work-life balance of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad



The demographic characteristic of the study sample presented in Table 1.

Table 1 | Description of study variables

Male	229
Female	197
Age group	
20-29	107
30-39	169
40-49	92
50 and above	58
Source: Primary data (n=426)	

## 6. Methodology

To study the effect of occupational stress on work-life balance and the psychological well-being of the E-commerce employees who used the Metro Rail to commute to their workplace a survey procedure was followed. Through a survey methodology the data gathered from the responses of metro commuters who are the employees of E-Commerce companies around Hyderabad Metro. The research instrument used was a structured questionnaire which consists of two sections. In the first section, the general information of E-commerce employees was gathered. The second section of the questionnaire consists of 37 statements to measure occupational stress, work-life balance and psychological well-being using 10, 9 and 18 statements respectively. The occupational stress scale and work-life balance were developed following the procedure of Prasad (2020), a five-point Likert type scale, whereas a modified version of Ryff shortened version 18-statements 7-point scale was used to measure the psychological well-being (Ryff and Keyes, 1995). Further, the 18-point psychological well-being scale has six sub-scales, Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance with 3 items each.

The data gathered was subjected to reliability methods Cronbach alpha, split-half odd-even correlation to assess the internal consistency fo reliability of the survey instrument and the values ranged from 0.58-0.86 and were found to be acceptable (Taber, 2018). A multivariate generalized linear model analysis was carried out on the data using Statistical Package for Social Sciences version 27 (IBM Corporation). The general linear model is a generalization of multiple linear regression to the case of more than one dependent variable and this study measures the effect of occupational stress on work-life balance on all the six variables (six sub-scales) of the dependent variable psychological well-being as mentioned above.

### 6.1 Scale: Stress and Work-Life Balance

Both the scales are five-point Likert type scales with 10, 9 statements each respectively and the values ranged from strongly agree = 5, agree=4, neither agree nor disagree =3, disagree 2, to strongly disagree =1.

### 6.2 Scale: Psychological well-being

A modified shortened version scale based on Ryff and Keyes (1995) was used for measuring the psychological well-being of metro commuters. The scale is an 18 items seven-point scale with 6 factors and the characteristics of the psychological well-being described below with measurements of (Strongly agree = 7, Somewhat agree = 6, A little agree =5, Neither agree nor disagree = 4, A little disagree =3, Somewhat disagree = 2, Strongly disagree =1), where some statements are reversed. The responses received on a seven-point scale were transferred to a Likert-type 5-point scale using linear transformation procedures as described in for ease of data analysis (Prasad et al., 2020; IBM-SPSS 2020, ver 27).

### 6.3 Characteristics of the psychological well-being study variables

Well-being is a dynamic concept that includes subjective, social, and psychological dimensions as well as health-related behaviors. The Ryff Scales of Psychological Well-Being is a seven-point based scale that focuses on assessing multiple facets of psychological well-being (Seifert, 2005)

**Self-acceptance:** A positive attitude of a person.

**Environmental mastery:** A person can effectively use the opportunities available to him/her to manage everyday schedules and use the available extra time for personal growth.

**Positive relations with others:** A person's ability to have meaningful relationships with colleagues, or others in the society with intimacy, affection, and reciprocation.

**Personal growth:** A person can continue to develop himself/herself has inquisitiveness to learn new things in the pursuit of professional perfection.

**Purpose in life:** A person has conviction and goals that he needs to achieve which hold his/her life meaningful.

**Autonomy:** An independent person can handle and regulate his/her behavior and is independent of any social, group, or political pressures

### 6.4 Determination of stress levels

The occupational stress levels were determined following the procedure by Annamalai and Nandagopal (2014). For any approximate distribution which is symmetric, the range will be six times of standard deviation and further better approximation makes it to a normal distribution (Francis, 2008; Annamalai and Nandagopal, 2014). The stress has been measured in three levels low level, moderate level, and high level based on the standard deviation. There are nine statements in the study that identify the stress and values ranging from 1 and 5. Therefore the minimum range value is 9, ( $1*9$ ) and the maximum range value is 45 ( $5*9$ ) i.e. between 9 to 45. From the study, the standard deviation estimated is 1.02 which is approximately equal to 6 ( $SS = (45-9)/6 = 6$ ). Therefore, the stress levels determined are:

Mean 3.43; Standard deviation=1.02

High level of of occupational stress Mean+SD =  $\bar{x} + \sigma$  1.02+3.43 (>4.45)

Low level of occupational stress = Mean - SD =  $\bar{x} - \sigma$  3.43-1.02 (<2.41)

Moderate level occupational stress= the level between minim and maximum level  
2.41 to 4.45

In the proposed study the E-Commerce employees experienced low levels of stress (n = 75), moderate levels of stress (n = 275) and the higher level of stress (n = 76), respectively.

## 7. Data Analysis

### 7.1 Determination of sample size

Cochran (1963) formula was used as the population size is large and unknown, and is appropriate for large populations. This measurement provides an ideal sample size given a desired level of precision, desired confidence level, and the estimated proportion of the attribute present in the population.

The Cochran formula is:

$$n_0 = \frac{Z^2 pq}{e^2}$$

where

$n_0$  = the sample size,

$Z^2$  = the abscissa of the normal curve that cuts off an area  $\alpha$  at the tails ( $1 - \alpha$  equals the desired confidence level, e.g., 95%)<sup>1</sup>, The value for  $Z$  is used from tables

$e$  = desired level of precision

$p$  = population proportion population that has the character in question,  $q$  is  $1 - p$ . therefore at 95% CI level the sample size required is 384, however, 426 was used for this study

## 7.2 Reliability statistics

The reliability statistic Cronbach alpha and Split-half odd-even correlation values were measured and presented in Table 2, and the values are found to be acceptable. The Chronbach alpha values ranged from 0.58-0.86 and were found to be acceptable (Taber, 2018). The other common reliability statistic where the data has split the test into two halves (odd/even) and each score is correlated. The reason for carrying out this test is to see that if both halves of the test measure the same construct at a similar level of precision and difficulty, then scores on one half should correlate highly with scores on the other half (William Trochim, 2006). Further Spearman-Brown prophecy formula was used with split-half correlation as input and full-length level of reliability measured. The results presented in Table 2 indicate that the Split-Half with Spearman-Brown Adjustment does not differ largely with Cronbach alpha values and reconfirming the reliability and internal consistency of the research instrument.

Table 2 | Statistics on reliability measurements of primary data (N=426)

Sl No	Factor	Cronbach's Alpha	Split-Half (odd-even) Correlation	Split-Half with Spearman-Brown Adjustment
1	Over all (Occupational stress <sup>1</sup> , work-life balance <sup>1</sup> , and psychological wellbeing)	0.86	93	0.96
2	Psychological well-	0.84	0.76	0.87

	being <sup>2</sup> (Over all)			
3	Occupational stress	0.62	0.55	0.66
4	Work-life balance	0.68	0.58	0.72
	Psychological factors			
5	Autonomy	0.58	0.55	0.64
6	Purpose of Life	0.64	0.54	0.63
7	Self-Acceptance	0.69	0.52	0.70
8	Positive relations	0.73	0.56	0.70
9	Personal Growth	0.62	0.79	0.67
10	Environmental Mastery	0.57	0.52	0.66
<sup>1</sup> Based on 5-point Likert type scale <sup>2</sup> Based on a 7-point Likert type scale Source: Primary data (n=426)				

## 8. Results Discussion

### 8.1 Findings

To measure the effect of occupational stress on work-life balance and psychological well-being of the E-Commerce industry employees who used Metro Rail as commutation mode to reach the workplace and back home, a multivariate generalized linear model analysis was carried out on the data using SPSS version 27. The multivariate generalized linear model deals with more than one continuous dependent variable (Bray, 1985). The proposed study examines the employee occupational stress effect on work-life balance and six-subcales or six factors of psychological well-being viz autonomy, purpose of life, personal growth, environmental mastery, positive relations, and self-acceptance a total of 7 continuous dependent variables, with one nominal independent variable stress with three categories low, moderate and high. The analysis has also included the gender and age covariates to examine gender and age differences with two-way multivariate analysis of covariance (MANCOVA) was run to see any gender and age differences.

Further, the MANCOVA is an extended form of ANCOVA, and the results from MANCOVA analysis, the statistically significant results indicate that not all of the group means are equal. As the Tukey posthoc method was applied to see which dependent variable differed significantly within the group, and do not identify which particular differences between pairs of means are significant. Therefore, the post hoc test was carried out to explore differences between multiple groups means. The post hoc test is used only for those variables where a statistically significant result is obtained from MANCOVA and from where differences have come determined (Foster et al., 2018).

Results of the multivariate generalized linear model analysis are presented below.

### ***Test of homogeneity of variances***

Table 3 | Box's test of equality of covariance matrices<sup>a</sup>

F	4.268
df1	56
df2	125862.451
Sig.	.09
a. Design: Intercept + Age + Gender + Stress	

The assumption for the multivariate approach is that the vector of the dependent variables follows a multivariate normal distribution, and the variance-covariance matrices are equal across the cells formed by the between-subjects effects. To test the null hypothesis that the observed covariance matrices of the dependent variables are equal across the group, Box's M was used. The Box's M test statistic is transformed to an F statistic with df1 and df2 degrees of freedom. The significance value (*p*-value) of the test is > 0.01, which is non-significant therefore the data indicated that data has not violated the homogeneity of variance-covariance matrices assumption (Bray & Maxwell, 1985).

Table 4 | Levene's test of equality of error variances<sup>a</sup>

	F	df1	df2	Sig.
Occupational stress	6.237	2	423	0.053
Work life Balance	6.247	2	423	0.057
Autonomy	4.912	2	423	0.062
Purpose of Life	2.531	2	423	0.470
Self-Acceptance	1.978	2	423	0.394
Positive Relations	18.738	2	423	0.223
Personal Growth	9.668	2	423	0.051
Environmental Mastery	7.528	2	423	0.061
a. Design: Intercept + Age + Gender + Stress				

Levene's test is an inferential statistic used to assess the equality of variances for a variable calculated for two or more groups (Levene, 1960). To determine the variances between group combinations for the dependent variable are equal. In this study, the significant values for all the dependent variables are greater than .05 indicating that the variances are equal and the assumption of homogeneity of variances is met. Similarly, all other assumptions to run the general linear model multivariate analysis was met.

The running GLM aims to establish whether the groups of the independent variable, stress (low, medium and high) are statistically significantly different on the dependent variables i.e. work-life balance and six-subcales or six factors of psychological well-being viz autonomy, purpose of life, personal growth, environmental mastery, positive relations, and self-acceptance. To interpret the

results from the GLM, the multivariate tests in Table 5 is considered and reported below.

Table 5 | General linear model = multivariate tests

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.928	763.361 <sup>b</sup>	7.000	415.000	.000	.928
	Wilks' Lambda	.072	763.361 <sup>b</sup>	7.000	415.000	.000	.928
	Hotelling's Trace	12.876	763.361 <sup>b</sup>	7.000	415.000	.000	.928
	Roy's Largest Root	12.876	763.361 <sup>b</sup>	7.000	415.000	.000	.928
Age	Pillai's Trace	.066	4.185 <sup>b</sup>	7.000	415.000	.000	.066
	Wilks' Lambda	.934	4.185 <sup>b</sup>	7.000	415.000	.000	.066
	Hotelling's Trace	.071	4.185 <sup>b</sup>	7.000	415.000	.000	.066
	Roy's Largest Root	.071	4.185 <sup>b</sup>	7.000	415.000	.000	.066
Gender	Pillai's Trace	.072	4.596 <sup>b</sup>	7.000	415.000	.000	.072
	Wilks' Lambda	.928	4.596 <sup>b</sup>	7.000	415.000	.000	.072
	Hotelling's Trace	.078	4.596 <sup>b</sup>	7.000	415.000	.000	.072
	Roy's Largest Root	.078	4.596 <sup>b</sup>	7.000	415.000	.000	.062
Work-life balance	Pillai's Trace	.71	4.697 <sup>b</sup>	7.000	415.000	.000	.345
	Wilks' Lambda	.67	4.697 <sup>b</sup>	7.000	415.000	.000	.409
	Hotelling's Trace	1.734	4.697 <sup>b</sup>	7.000	415.000	.000	.416
	Roy's Largest Root	1.701	4.697 <sup>b</sup>	7.000	415.000	.000	.604
Stress	Pillai's Trace	.711	32.765	14.000	832.000	.000	.355
	Wilks' Lambda	.338	42.691 <sup>b</sup>	14.000	830.000	.000	.419
	Hotelling's Trace	1.814	53.655	14.000	828.000	.000	.476
	Roy's Largest Root	1.731	102.874 <sup>c</sup>	7.000	416.000	.000	.634
a. Design: Intercept + Age + Gender + Stress+Work-life balance							
b. Exact statistic							
c. The statistic is an upper bound on F that yields a lower bound on the significance level.							

The results under different names – Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root – are different multivariate statistics that can be used to test the statistical significance of the differences between groups. Each different calculation will provide the probability (*p*-value) of getting an *F*-statistic greater or equal to the one calculated. They will also provide you with an effect size. Though there are several effects are presented in the table, the author presented the results from the most commonly used is Wilks' Lambda which is significant. The statistical significance value of .000 indicates that  $p < 0.0005$  and

the result is statistically significant. Therefore, there is a < 5 in 10,000 chance of vector means being as different as they are if the null hypothesis is given as true. The results indicate statistically significant differences between the stress levels in terms of the combined dependent variables  $F(14, 832)=42.691$ ,  $p<.0005$  for stress; Wilks'  $\lambda = .338$ ; partial  $\eta^2 = .419$ , in case of age variables  $F(7, 415)=4.185$ ,  $p<.0005$ ; Wilks'  $\lambda = 0.934$ ; partial  $\eta^2 = .066$  and for gender  $F(7, 415)=4.596$ ,  $p<.0005$ ; Wilks'  $\lambda = 0.28$ ; partial  $\eta^2 = .072$ ; for work-life balance  $F(7, 415)=4.697$ ,  $p<.0005$ ; Wilks'  $\lambda = 0.67$ ; partial  $\eta^2 = .409$  indicating significant differences between the age and gender (Tables 5 and 6).

An individual ANOVA analysis was carried out for each dependent variable with each independent component and Table 6 indicates the results of the analysis. The independent variable age is influencing the outcome of psychological well-being factors Purpose of Life, Personal Relations, Environmental Mastery and the values are  $F(1,421)=5.656$ ,  $p=0.018$ ,  $\eta^2$ , 0.013;  $F(1,421)=11.472$ ,  $p=0.001$ ,  $\eta^2$ , 0.027;  $F(1,421)=5.849$ ,  $p=0.016$ ,  $\eta^2$ , 0.014 respectively. Similarly, the independent variable gender is influencing work-life balance, autonomy, and environmental mastery. Similarly, stress is influences Work-life balance, Autonomy, Purpose of Life, Positive Relations, Personal Growth, and Environmental Mastery the results are presented in Tables 6 and 7.

Table 6 | General linear model: Tests of between-subjects effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Work-life balance	78.320 <sup>a</sup>	4	19.580	191.951	.000	.646
	Autonomy	34.071 <sup>b</sup>	4	8.518	21.847	.000	.172
	Purpose of Life	29.890 <sup>c</sup>	4	7.472	15.986	.000	.132
	Self-Acceptance	.669 <sup>d</sup>	4	.167	.454	.770	.004
	Public Relations	24.031 <sup>e</sup>	4	6.008	16.476	.000	.135
	Personal Growth	4.646 <sup>f</sup>	4	1.161	2.500	.042	.023
	Environment Mastery	16.385 <sup>g</sup>	4	4.096	10.984	.000	.094
Intercept	Work life balance	357.095	1	357.095	3500.742	.000	.893
	Autonomy	309.713	1	309.713	794.392	.000	.654
	Purpose of Life	417.097	1	417.097	892.314	.000	.679
	Self-Acceptance	368.722	1	368.722	999.459	.000	.704
	Public Relations	428.966	1	428.966	1176.417	.000	.736

	Personal Growth	377.605	1	377.605	812.893	.000	.659
	Environment Mastery	367.728	1	367.728	986.037	.000	.701
Age	Work life balance	.186	1	.186	1.823	.178	.004
	Autonomy	.087	1	.087	.224	.636	.001
	Purpose of Life	2.644	1	2.644	5.656	.018	.013
	Self-Acceptance	.061	1	.061	.166	.684	.000
	Public Relations	4.183	1	4.183	11.472	.001	.027
	Personal Growth	.136	1	.136	.292	.589	.001
	Environment Mastery	2.181	1	2.181	5.849	.016	.014
	Gender	Work life balance	.534	1	.534	5.234	.023
Autonomy		2.805	1	2.805	7.195	.008	.017
Purpose of Life		1.610	1	1.610	3.445	.064	.008
Self-Acceptance		.195	1	.195	.528	.468	.001
Public Relations		.165	1	.165	.454	.501	.001
Personal Growth		.007	1	.007	.016	.900	.000
Environment Mastery		2.033	1	2.033	5.452	.020	.013
Occupational stress	Work life balance	72.240	2	36.120	354.100	.000	.627
	Autonomy	31.513	2	15.756	40.414	.000	.161
	Purpose of Life	19.734	2	9.867	21.108	.000	.091
	Self-Acceptance	.504	2	.252	.683	.506	.003
	Public Relations	14.515	2	7.258	19.904	.000	.086
	Personal Growth	4.614	2	2.307	4.966	.007	.023
	Environment Mastery	11.843	2	5.921	15.878	.000	.070
Error	Work life balance	42.944	421	.102			
	Autonomy	164.137	421	.390			
	Purpose of Life	196.789	421	.467			

	Self-Acceptance	155.316	421	.369			
	Public Relations	153.512	421	.365			
	Personal Growth	195.563	421	.465			
	Environment Mastery	157.006	421	.373			
Total	Work life balance	6589.030	426				
	Autonomy	6839.289	426				
	Purpose of Life	6622.761	426				
	Self-Acceptance	7063.112	426				
	Public Relations	6993.560	426				
	Personal Growth	7217.441	426				
	Environment Mastery	6848.827	426				
Corrected Total	Work life balance	121.265	425				
	Autonomy	198.208	425				
	Purpose of Life	226.679	425				
	Self-Acceptance	155.985	425				
	Public Relations	177.544	425				
	Personal Growth	200.209	425				
	Environment Mastery	173.391	425				
	a. R Square = .646 (Adjusted R Square = .642)						
	b. R Square = .172 (Adjusted R Square = .164)						
	c. R Square = .132 (Adjusted R Square = .124)						
	d. R Square = .004 (Adjusted R Square = -.005)						
	e. R Square = .135 (Adjusted R Square = .127)						
	f. R Square = .023 (Adjusted R Square = .014)						
	g. R Square = .094 (Adjusted R Square = .086)						

Table 7 ANOVA results for all the independent components (age, gender, stress) versus dependent factors (work-life balance, autonomy, purpose of life, self-acceptance, public relations, personal growth, environmental mastery) – only statistically significant results are presented

Age	Purpose of Life	F(1,421)=5.656, p=0.018, $\eta^2$ , 0.013
	Personal Relations	F(1,421)=11.472, p=0.001, $\eta^2$ , 0.027
	Environmental Mastery	F(1,421)=5.849, p=0.016, $\eta^2$ , 0.014
Gender	Work-life balance	F(1,421)=5.234, p=0.023, $\eta^2$ , 0.012
	Autonomy	F(1,421)=7.195, p=0.008, $\eta^2$ , 0.017
	Environmental Mastery	F(1,421)=5.4520, p=0.020, $\eta^2$ , 0.013
Occupational stress	Work life balance	F(1,421)=354.100, p=0.000, $\eta^2$ , 0.627
	Autonomy	F(1,421)=40.414, p=0.000, $\eta^2$ , 0.161
	Purpose of Life	F(1,421)=21.108, p=0.000, $\eta^2$ , 0.091
	Positive Relations	F(1,421)=19.904, p=0.000, $\eta^2$ , 0.086
	Personal growth	F(1,421)=4.966, p=0.007, $\eta^2$ , 0.023
	Environmental Mastery	F(1,421)=15.878, p=0.000, $\eta^2$ , 0.70

Table 8 | Effect of age and gender on psychological well-being and work-life balance

Source	Factor	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Gender * Age	Work-life balance	.356	3	.119	1.298	.275	.010
	Autonomy	13.654	3	4.551	17.284	.000	.114
	Purpose of Life	1.897	3	.632	1.916	.126	.014
	Self-Acceptance	1.044	3	.348	.923	.430	.007
	Positive Relations	12.054	3	4.018	16.768	.000	.111
	Personal Growth	4.625	3	1.542	4.156	.006	.030
	Environmental Mastery	3.708	3	1.236	3.882	.009	.028

Age and gender are significantly influencing the dependent variables' outcome on work autonomy, positive relations, personal growth, environmental mastery (Table 8).

As the ANOVA indicates whether the means are statistically different or not but does not give us which group is more different than others. Therefore, we have carried out the posthoc comparisons following the method of Assaad (2014) and reported results are based on the Tukey test. The Tukey posthoc results (Table 9) reveal that the factor work-life balance had statistically significantly higher mean scores for low, moderate and high-stress levels. Similarly, the purpose of life the values are statistically significant for low and moderate stress not with High-level stress. Self-Acceptance is not statistically significant to the posthoc test not carried out. The factors positive relations, personal growth and environmental mastery had statistically significant higher means scores with low and moderate level stress but now with higher levels of stress.

To summarize, using a general linear model a one-way multivariate analysis was applied to the primary data to determine the occupational stress effects on seven dependent factors. Three measures of stress low, moderate, and high levels were assessed. The Shapiro Wilk test value is ( $P > 0.5$ ) indicated that data was normally distributed. The boxplot and Mahalanobis distance ( $p > .001$ ) indicated no univariate or multivariate outliers in the data, and the scatter plots indicate linear relationships among the study variables, no multicollinearity ( $r = .373$ ,  $p = .003$ ; and variance-covariance matrices were homogeneous, as indicated by the Box's M test value ( $p = .009$ ). The differences between the stress and the combined dependent variables were statistically significant.  $F(14, 832) = 42.691$ ,  $p < .0005$ ; W; Wilks'  $\lambda = .338$ ; partial  $\eta^2 = .419$ , in case of age variables  $F(7, 415) = 4.185$ ,  $p < .0005$ ; W; Wilks'  $\lambda = 0.934$ ; partial  $\eta^2 = .066$  and for gender  $F(7, 415) = 4.596$ ,  $p < .0005$ ; W; Wilks'  $\lambda = 0.28$ ; partial  $\eta^2 = .072$  indicating significant differences between the age and gender.

Table 9 | Post-hoc comparisons of three low, moderate and high levels of stress for dependent variables

Factor	Low stress (n = 75)	Moderate stress (n = 275)	High stress (n = 76)
Work-life balance	3.25 ± 0.0207 <sup>c</sup>	3.86 ± 0.0203 <sup>b</sup>	4.67 ± 0.0422 <sup>a</sup>
Purpose of life	3.35 ± 0.102 <sup>b</sup>	3.96 ± 0.0386 <sup>a</sup>	4.08 ± 0.0738 <sup>a</sup>
Self-Acceptance	3.97 ± 0.0777	4.03 ± 0.0375	4.08 ± 0.054
Positive relations	3.55 ± 0.0946 <sup>b</sup>	4.07 ± 0.0341 <sup>a</sup>	4.2 ± 0.0595 <sup>a</sup>
Personal growth	3.84 ± 0.0986 <sup>b</sup>	4.09 ± 0.0356 <sup>a</sup>	4.16 ± 0.0899 <sup>a</sup>
Environmental mastery	3.6 ± 0.0799 <sup>b</sup>	4.05 ± 0.033 <sup>a</sup>	3.99 ± 0.0881 <sup>a</sup>

Values are means ± SEM.

Means in a row without a common superscript letter differ ( $P < 0.05$ ) as analyzed by one-way ANOVA and the TUKEY test

Based on the results that we accept the null hypotheses moderate level of stress ( $n = 275$ ), and stress is affecting the psychological well-being work-life balance of the employees during the Covid-19 pandemic period.

H<sub>01</sub>: Metro rail commuters are experiencing occupational stress working in the E-Commerce Industry in and around Hyderabad — low, moderate or high; experience a moderate level of occupational stress

H<sub>02</sub>: Occupational stress is affecting the psychological well-being of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad — stress is affecting the psychological well-being

H<sub>03</sub>: Occupational stress is affecting the work-life balance of the metro rail commuters working in the E-Commerce Industry in and around Hyderabad - Occupational stress is affecting the work-life balance

## 9. Conclusions

Upon surveying the commuters, the study reveals that their overall stress due to occupation or domestic affairs is reduced considerably. The absence of the metro rail would aggravate the tensions and stress as it involves a huge exercise of either arranging an own vehicle driving from home to office, or to engage a public

transport exclusively which may affect the financials if the distance is considerably long, or to attend their workplace late, which would further a cause of concern and worry, and also the stress. On average, the participants/ felt, that two hours a day is left at their disposal during which they could spend time with their family, friends, acquaintances, finish the pending works, speak to their relatives or friends during the journey, or spend the journey time in a relaxed mood reading a book of their choice, watching movies to get relief which otherwise they could not have done so. Thus, they agree that they lead a more comfortable and qualitative life without any occupational stress through the economic and world-class public transportation that facilitates the fastest, yet safest journey. Though there are certain limitations for some people who had to arrange connectivity transport from the metro station to their office location, still it remains their choice of transport for the reason it is the rapid transport system. Most of the people who surveyed are happy because there are no traffic jams, no need to bypass or there are no traffic congestions. Moreover, the Metro Rail plays a greater role in their day to day life to overcome the daily stress due to various other things including pollution, etc., and remains the best choice in all seasons viz., summer, winter and rainy, and irrespective of age and gender due to the safety measures that Metro Rail undertakes.

Most of our findings are in line with the studies of Prasad et al., (2020), Calderon Jr. et. al., (2021) who examined the levels of happiness, psychological well-being, perceived stress, and health behaviors of university students. The authors reported the results to identify specific areas of concern in the health and well-being of Thai university students. Another study by Birditt et al., (2021) studied the implications of the Covid-19 pandemic and psychological well-being and associated age-related risks in 654 adults, ages ranging between 18-97 years. The study reported that older people experienced less pandemic-associated stress, less life change and less social isolation. The younger experienced more pandemic-related stress, social isolation, life change and poorer social ties. The greater social isolation and poorer social ties are the major effects of the Covid-19 pandemic affecting the psychological well-being of younger people when compared with older people. Ceri and Cicek (2021) in a comparative study among healthcare and non-healthcare professionals during the Covid-19 pandemic investigated psychological well-being, depression, and stress. The study consists of 546 healthcare professionals (females = 313) and 445 non-healthcare professionals (females = 333), aged between 20 and 67 years. The psychological well-being of healthcare professionals and stress varied in terms of age, gender, marital status, job descriptions, and ways of working in the clinic. Women, non-physician healthcare professionals, young and single people and those who worked in COVID-19 service and stayed away from their families during the pandemic were found to have poor mental wellbeing. Psychological well-being was significantly and negatively correlated with depression and anxiety. The researchers used one-way ANOVA, t-test, MANOVA, and follow-up ANOVAs and posthoc comparisons. The authors also carried out the MANOVA, one-way ANOVA and posthoc comparisons in the present study and reported the results.

## 10. Limitations And Suggestions

The study was carried out when the second wave of the Covid-19 pandemic in its peak from April to Mid-June 2021. We have the research instrument i.e. survey form hard copy link slip to around 20,000 moving metro station to station. Some travelers even refused to collect the link slip where the link for the questionnaire was provided. Some were given mobile numbers to share the link. The study is limited geographically to Hyderabad Metro city. The authors strongly recommend carry out similar types of studies across Indian metro stations. Though the study has been conducted in Hyderabad the results can be generalized as the authors have taken all the care from measuring internal consistencies, reliabilities, fulfilled all the assumptions that are required general linear model univariate analysis. Women commuters are more enthusiastic in submitting their responses. Some commuters raised concerns about not deploying security near the staircase and lift as the intruders can have access to the whole area near toilets which is not manned with security.

### *10.1 The central message of the article, what is new, useful, and important*

Irrespective of the type of organization, an employee will experience occupational stress but only the degree of stress experienced varies. Most of the organizations in India, and across the asked the staff to work from home (WFH) to mitigate the infection. Though, working from home for the employees is one of the safest options to reduce the chance of getting infected of the respective organization's employees. However, WFH has posed several challenges like the absence of technology for virtual meetings, family distractions, workplace isolation and missing of colleagues' interaction during the breaks have a significant influence on an employee's psychological well-being and enhanced stress.

The Hyderabad Metro and its surroundings with about 20 million population face severe traffic jams, and the situation is worst during peak hours. The Hyderabad Metro Rail covers most of the city destinations ie hassle-free and pleasant transport system for the city population and in particular people working in the information technology sector. Most of the E-Commerce in employees Hyderabad Metro uses Metro rail to reach workplace and back home to save time and enjoy the comfort of the Metro travel. The metro shut for six months (March-September, 2020) during the pandemic and has restarted from October 2020 and directed the travelers to follow the Covid appropriate protocols. To start with travelers were not enthused with the reopening of the metro and some people traveled reluctantly. Therefore, the authors carried out this study to examine occupational stress and its effect on work-life balance and psychological well-being.

### *10.2 The real-world implications of the proposed article can be the central message and how it can be applied in businesses today*

One of the consequences that the organizations come across, especially during pandemic situations or in the situations like uncertainty is coping with the occupational tress in the respective occupations. The authors conducted this empirical keeping significant skills and competencies that organizations expect in view, concentrating on psychological well-being, work-life balance and

occupational stress, of the E-Commerce industry employees. The organizations should have a resilient mechanism that can address Self-awareness, emotional management, an employee's interpersonal skills to handle pandemic-type situations following the new norm society which is, agile, and adaptable. Therefore, it is pertinent to note that this study has considerably taken a view that employee engagement could happen only when the employees are motivated, cope with the stress; have social support from all walks of life.

### *10.3 The audience of the article and why a researcher, academician, the manager should read*

The authors kept in view that service-based industries like E-commerce companies do have social responsibility and the well-being of their respective employees. The authors opine that while formulating the human resource policies to address the pandemic situation can consider the inputs from this study and implement it in such a way that their team gets all the support to overcome occupational stress and enhance the psychological well-being of an employee, get moral and ethical support, which in turn will help them overcome the stress with enhanced job satisfaction. This study may provide to consider the external and internal factors that have cause and effect relationship employee performance.

### *T10.4 he research conducted to support the argument or logic of our article*

The authors have carried out an empirical study through survey research, mixing the 37 statements systematically to avoid any bias. Most of the respondents may not be aware of what component the authors are measuring. The results are in line with the other studies carried out by the researchers on stress, well-being, in particular during the Covid-19 period. The researchers have gone through extensive literature review, data and information via a quantitative research approach and thoroughly screened the secondary data. The authors believe that the results through the surveys conducted other researchers illustrated in this article, there is no such study has been carried out to assess the effects of occupational stress on work-life balance and psychological well-being of an E-commerce industry employee who is using metro rail as a mode of travel.

### **Acknowledgment**

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### **Data Availability Statement**

The data gathered through the following google form survey is available. The following is the link for the research instrument, a structured undisguised questionnaire using google form at

<https://docs.google.com/forms/d/e/1FAIpQLSeJHitFcoaNXjK7bCG0GxqZUjvubAFQ89C6bBRw38-u306Q3Q/viewform> and the data gathered using the google form in multiple Excel sheets are available at

[https://docs.google.com/spreadsheets/d/1FKMLyne52O\\_2eOLAqpruOy2WtkPrP Pnf/edit#gid=1968452634](https://docs.google.com/spreadsheets/d/1FKMLyne52O_2eOLAqpruOy2WtkPrP Pnf/edit#gid=1968452634)

### **Ethics Statement**

The respondents, the employees of E-Commerce Industry in and around Hyderabad Metro are explained about the study and provided a link for the survey questionnaire. The respondents are filled in the questionnaire voluntarily and without any force from the researchers

### **Author Contributions**

KDVP designed the study, analysed the data, and prepared the manuscript. MMR collected the data from the E-Commerce Industry and provided the final and cured dataset to KDVP. MMR has also provided inputs for completing the manuscripts

**Conflict of interest:** The authors has no potential conflict of interest in conducting this survey research and reporting the findings.

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