

**Investigating the moderating effect of Error management on the relationship between Job-related stress presenteeism and organizational productivity in the Egyptian telecommunication services sector**

**Dr. Amira Abd El Aziz Mohamed Riad**

Assistant Professor of Business Administration

Faculty of Business-Ain Shams University

**Dr. Christine Karmy GadElKarim Srour**

Assistant Professor in Behavioral Sciences and Personnel Administration Department

Sadat Academy for Management Sciences

**Abstract:**

The aim of this paper was to investigate the relationship between job-related stress presenteeism and organizational productivity while taking into consideration the moderating effect of error on management among the Egyptian telecommunication services sector. Reliable and valid questionnaire surveys were used, and the collected data was used to conduct a descriptive analysis as well as regression analysis and one way ANOVA. Results proved the two hypotheses understudy showing Job stress-related presenteeism significant statistical relationship with organizational productivity. Error management moderating effect on the relationship between Job stress-related presenteeism and organizational productivity was proven.

**Keywords:** Job-related stress presenteeism, organizational productivity, efficiency, effectiveness, error management, regression analysis, ANOVA analysis.

### ملخص البحث:

ان الهدف من هذه الورقة البحثية هو دراسة العلاقة بين الحضور تحت ضغط العمل والإنتاجية التنظيمية مع الأخذ في الاعتبار التأثير المعدل لإدارة الخطأ في قطاع الاتصالات المصري. تم استخدام استبيانات موثوقة وصحيحة، وتم التحليل الإحصائي للبيانات المجمعة لإجراء التحليل الوصفي وكذلك تحليل الانحدار وتحليل التباين الأحادي. أثبتت النتائج أن فرضيتي الدراسة تظهران وجود علاقة ذات دلالة إحصائية بين الحضور الوظيفي تحت ضغط العمل والإنتاجية التنظيمية. و أيضاً تم إثبات تأثير معدل إدارة الأخطاء على العلاقة بين الحضور تحت ضغط العمل والإنتاجية التنظيمية. الكلمات الافتتاحية: الحضور تحت ضغط العمل، والإنتاجية التنظيمية، الكفاءة، الفاعلية، إدارة الخطأ، تحليل الانحدار، تحليل التباين.

### Introduction:

In today's 21st century period, organizations are struggling to survive a rapidly changing environment (Yadav, 2022). Additionally, trends in the socio-economic environment, global markets, and availability of information have forced organizations to investigate factors that impact organizational productivity. The literature shows relationships between organizational productivity and different factors including employee's attitudes and behaviors (Mani, 2011; Dosi, Patro, 2013; Krekel, Ward, & De Neve, 2019).

Furthermore, employees are crucial for the survival and productivity of organizations, as they represent a foundational and central asset. Thus, it is critical for organizations to maintain both the physical and psychological wellbeing of their employees (Pfeffer, 2010). Nonetheless, as humans' health is vulnerable to

harm through accidents and life stressors, organizations should face the reality of interrupted productivity of regular attendance at work (Johns, 2010). Although health incidents repeatedly lead to sickness absenteeism, i.e. not showing up for work as scheduled (Johns, 2010), there is growing proof that workers increasingly choose another alternative: presenteeism, which is known as attending work while being sick (Johns, 2010).

Presenteeism not only affects individuals negatively, but also it could be problematic for both organizations and society as well (Evans-Lacko & Knapp, 2016; Miraglia & Kinman, 2017; Johns, 2010; Lohaus & Habermann, 2019). For instance, research studying presenteeism among Nurses has shown increased medication errors, patient falls, missed care, healthcare costs, and decreased perceived safety of the work environment and reporting of errors (Letvak, Ruhm, & Gupta, 2012; Rainbow, Dudding, & Bethel, 2021). Furthermore, Presenteeism pharmacists were found to make more major errors and serious mistakes (Niven & Ciborowska, 2015). The cost of presenteeism therefore, should be calculated through its effect on employee productivity and failure to meet organizational standards. However, organizations are not error free; they are usually confronted with errors. Many errors are amended easily, but some may result in catastrophes.

Research on Presenteeism has always tied it to a cause. The cause of presenteeism this paper focuses on is job stress related (Mathieu & Gilbreath , 2022). Stress is linked to decreased organizational performance and quality of labor, and high turnover rates. Such negative outcomes of Stress are due to its correlation to health problems like anxiety, work-life imbalance and depression. Therefore, job related stress presenteeism potential outcomes may be influenced by the way organizations handle error. Good error management can enhance productivity even in the presence of job-related stress presenteeism. Since no prior research examined these three variables together, this paper examines the effect of job-related stress presenteeism on telecommunication sector productivity, while taking into consideration the moderating effect of error management.

The telecommunication sector is one of the promising fields that the Egyptian government focuses on. The recent reforms and assets liquidation in the face of the US dollar crisis has led the Egyptian government to rely heavily on the growth and productivity of this sector. To achieve this, the National Telecommunication Regulatory Authority strives to establish a competitive level in the various markets of the Telecom sector. With this aim in mind, it is crucial to investigate means of improving the sectors' productivity.

## Literature review

### **Organizational Productivity (OP):**

The term Organizational Productivity has been used by economists, politicians, business and behavioral scientists. Consequently, its definition has differed widely depending on to the context and level of analysis. However, a generally accepted definition of productivity is, “an efficiency concept, and its specification and measurement depend upon the intended use and application of the measure” (Mahoney, 1989, p. 37). Further, Antony and Bhattacharyya (2010a, b) defined organizational productivity as “the rate at which goods and services are produced by a standard population of workers”. Others including Pekuri et al. (2011) build on the notion that the concept of productivity has not exactly been easy to define and remains highly ambiguous.

Scholars like Bernolak (1997) also defined productivity as the amount of goods manufactured with high efficiency and effectiveness utilizing a limited number of resources. Likewise, The European Association of National Productivity Centers (EANPC) defined productivity as a multidimensional term comprising the effectiveness and efficiency of processes used to produce goods and services (Pekuri et al., 2011). Efficiency in these definitions entails the capability to employ inputs or resources in the correct manner where less resources is used to reach the optimum (Grunberg, 2007), while the effectiveness dimension in productivity refers to the ability of the production

process to attain desired goals (Neely et al., 1995). Both effectiveness and efficiency identify organizational productivity and in many papers are shown to be inseparable.

It is crucial for organizations to make efforts to improve the effectiveness with the aim of improving the quality of product or service (Khalifa and Fawzy, 2017). To improve organizational productivity, organizations are to take certain measures such as reducing resources waste and absenteeism (Badran and Khalifa, 2016). Additionally, to successfully improve productivity, organizations need better products and services through the reduction of cost of delivering products and services to users. The principal aim of effective productivity improvement is to lower unnecessary and wasteful effort, not just faster operations and processes. Therefore, for organizations to successfully increase productivity, they need to omit nonvalue-added work or effort the does not contribute to the organization's mission.

While reducing costs through downsizing can be beneficial on the short term, the gains are often deceptive. Employees who survived the downsizing are burdened with the same amount of work leading to stress. The results of which would reduce the quality of products and services.

### **Presenteeism :**

Until recently presenteeism was mostly ignored in research, while scholars mainly focused on absenteeism correlations to employee efficiency and organizational performance (Gosselin et al., 2013). This changed in the last couple of years as presenteeism has gained more popularity among researchers and practitioners. Gosselin et al. (2013) recommend that organizations should deal with absenteeism without creating presenteeism. Munro (2007) proposed that presenteeism was a part of absenteeism whereas Prater and Smith (2011) considered it as the opposite of absenteeism. The known as 'sickness presenteeism', is the focus of most of the studies on presenteeism (Aronsson and Gustafsson, 2005; Aronsson, Gustafsson and Dallner, 2000;).

These indications highlight the fact that most scholars defined presenteeism as showing up to work while ill and trying to hide or manage their symptoms . Yet, this definition was later extended to include having employees work more than the officially required time as well as having them physically present but mentally absent (Simpson, 1998; Gilbreath and Karimi, 2012). Finally to develop a more comprehensive working definition, Werapitiya et al (2016) defined presenteeism as "being at work despite being sick, working more than time assigned on a particular job, not fully engaged in work, recorded as present but not in work assigned and overactive and hyperactive in the assignment" (Werapitiya et al, 2016, p.1502).

Aronsson and Gustafsson (2005) indicate that several factors in organizations could lead to attendance pressure on employees. Job stress has been known as one of presenteeism's common causes (Der Feltz-Cornelis et al., 2020). Nurses are challenged by various stressors in healthcare environments, and they frequently experience burnout in attempts to cope (Manzano-García & Ayala, 2017). Based on this theory, Presenteeism can be conceptualized as a perceived obligatory stressor. When employees turn up to work physically ill, they tend to exert more effort and higher concentration to compensate for the possible compromised performance which is expected to cause mental strain.

#### **Job-stress-related presenteeism :**

As previously mentioned, presenteeism have always been linked to a cause (Mathieu & Gilbreath , 2022). Job stress-related cause of presenteeism is the main interest of this paper. The job stress related presenteeism construct is a derivative of presenteeism itself . This claim focuses on the fact that employees loss their focus on work because of not only physical illness but also a result of mental distress as well. Job stress-related presenteeism can be described through three dimensions i.e. daydreaming , off-job focus and off-task attention.

Gilbreath and Karimi (2012) declared that job-stress-related presenteeism and employee engagement stand at opposite ends of a continuum. Engagement in this context emphasizes attention, the mental availability, the time spent on thinking about a role, as



well as absorption (Rothbard, 2001, p. 656). Conversely, presenteeism is merely work disengagement or low levels of engagement. The majority of scholars defined engagement (Schaufeli, Salanova, González-Roma & Bakker, 2002) as persistent and role-based, while presenteeism is seen as temporary and situational.

Finally, the literature provides evidence of links between job stress, organizational effectiveness and individual performance, and show that increased job stress results in weaker organizational performance. Stress increases the chances of fatal errors lowering job performance (Kazmi Rubina, 2007).

### **Error management:**

Errors are a natural part of organizational reality in all sectors and can have overwhelming implications for employees as well as organizations. Errors are known to be unintentional deviations from objectives, rules, and requirements (Frese & Zapf 1994, Hofmann & Frese 2011, Reason, 1990). Recently error literature has grown significantly presenting the phenomenon as critical to the organization and employee performance (Goodman et al., 2011). Additionally, scholars pointed out that employees under high pressure can sustain their performance levels while risking their mental health, making the chance of errors considerably larger.

According to Helmreich (2000), there are two main reasons behind the high number of error occurrences. First, mankind physical and physiological limitations include inaccurate impressions, biases, conflict, mental overload, unreliable memories and exhaustion (Helmreich, Wilhelm, Klinect, & Merritt, 2001). The second reason is strongly linked to the human development process. Frese and Keith (2015) explained the development of humankind closely related to attempting to do new things, making errors, and corrections. Hence, errors are unavoidable despite intentions to prevent them (Arenas, Taberner, & Briones, 2006).

In organizations, disciplinary rules are set by managers to prevent errors, relying on goal-directed actions and block potential mistakes (Zakay, Ellis, & Shevsky, 2004). From an error management perspective, attempts to avoid all errors from occurring are ineffective. However, the majority of scholars used to assume that error avoidance is the most important method to manage error. Such paradox is understandable since errors may lead to catastrophic outcomes; it appears reasonable to prevent them. In organizations, employee errors as signs of poor performance, carelessness and poor intelligence (Mangels et al., 2006).

Recently, scholars started to view the error phenomenon differently. This shift occurred with the deeper understanding of the concept of error management. The error literature presented two concepts representing error management as a managerial tool

namely error management culture (Van Dyck et al., 2005) and error tolerance (Weinzimmer & Esken, 2017). Scholars assumed that errors are unavoidable and will occur eventually but can be managed to yield positive outcomes (e.g., learning, better performance, creativity) (Frese, 1995; Frese & Keith, 2008). Therefore, in contrast to the error prevention approach that interferes before an error is made, error management emphasizes on what takes place after the error occurrence. In particular, error management is concerned with controlling after error damage, error communication, assessment of error, and initiating positive effects of errors (Van Dyck et al., 2005; Frese & Keith, 2015).

In organizations with strong error management culture, openly communicating about errors helps quick detection and handling of errors. Employees are assured that they will not be judged as errors occur. Such conference results in mutual trust and respect (Edmondson, 1999) as well as group cohesion, less stress, and lower turnover rates. An error management culture is correlated with high firm profitability (Van Dyck et al. 2005) as well as safety performance (Fruhen & Keith, 2014; Hofmann & Mark, 2006).

The second dimension is error tolerance, which is perceived as the most distinct attribute of organizational error management that differentiates it from error prevention (Frese & Keith, 2015). Lack of error tolerance is common in organizations and can be found in daily interactions between organizational members. Arygris and Schon (1996) indicated that employees are usually

determined to promote their own competencies by exposing others' errors. Undermining others and revealing their errors give them a sense of competence and superiority over their colleagues (Alicke, 2000). Criticizing others' errors is a manifestation of the mindset of errors intolerance. Thus, employees tend to tolerate errors to feel like winning. Furthermore, to protect one's self-esteem, employees tend to be more intolerant of errors as failures or errors have long been labeled as negative events (e.g., Martin & Marsh, 2003). Over time, such tendencies form the base for an organizational environment high in errors intolerance.

Another explanation that may describe the frequency of intolerance of errors is the commonly accepted belief that individuals learn from errors if they realize that errors are not accepted. Learning is a crucial result of the error (e.g., Nonaka & Takeuchi, 1995; Weiner, 2001; Demetriou, 2011). Learning from errors, an essential element of learning from experience helps understand procedures mistakes as well as the cause of errors. Such understanding can result in modifications to avoid future loss (Reason, 1990; Zhao, 2011; Weick & Ashford, 2001).

Therefore, this paper regards these two constructs as the core components of organizational error management that not only reflects the thinking which error management is built upon, but also covers the operable aspects of error management practices.

### **Presenteeism and Organization Productivity:**

The influence of absenteeism on productivity is well documented. For instance, MacGregor et al. (2008) reported that billions of dollars were lost in Canada alone owing to absenteeism. Baker-McCleary, Greasley, Dale and Griffith (2010) added that absenteeism was the largest source of lost productivity for businesses in the United Kingdom. Previous research shows that Absenteeism is measurable, and its costs are determinable, however it is often difficult to predict when, and to what extent, employees are present but barely performing (presenteeism). Presenteeism has increasingly become known to weigh on productivity. Both the absenteeism and presenteeism negatively impact organizational effectiveness, productivity, and result in high turnover and increased workers compensation claims (Thogersen-Ntoumani et al., 2017).

Although presenteeism might give an illusion of hard work and persistence avoiding costs related to the unexpected absence, previous research proves this notion to be wrong. Presenteeism is closely associated with errors (Niven & Ciborowska, 2015) and lower levels of performance and productivity (Robertson & Cooper, 2011). Furthermore, Presenteeism is often believed to be a bigger problem than absenteeism as stated in the work of Boles, Pelletier & Lynch (2004). Also, MacGregor et al. (2008) indicated that the cost of sickness presenteeism is sometimes higher than the cost of

sickness absenteeism. Additionally, a white paper by the Health Enhancement Research Organisation (2014) proposed that three-quarters of lost productivity cost came from presenteeism, while absenteeism was only the fourth quarter.

In studies conducted on older employees' performance, presenteeism accounted for 21% of lost productivity. Presenteeism in older employees tends to cause chronic pain, stress and depression (Thogersen-Ntoumani et al., 2017). Moreover, Baker-McClearn and colleagues (2010) found that Employee burnout and lost productivity are 7.5 times higher in cases of presenteeism compared to absenteeism, whereas McGregor, Iverson, Caputi, Magee and Ashbury (2014) show that the cost of presenteeism could be four times higher than that of absenteeism. In several published papers, correlations have been described between sickness absence, health costs and productivity loss in different fields.

Regardless of the piling evidence, organizations are still stressing the possible costs of absenteeism and encourage employees to choose presenteeism (Miraglia & Johns, 2016). Therefore, presenteeism has critical consequences for organizations and on individuals as well since the phenomenon is still poorly understood (Cooper & Lu, 2018). While some research has offered different estimates of potential organizational loss due to presenteeism, the challenge for appropriately analyzing presenteeism is important. This is

especially true in the Egyptian telecommunication field where expected outcomes are difficult to identify and measure.

All the above-mentioned statistics and research results mostly focus on illness related presenteeism rather than stress related presentism. That's why, it is expected that the stress related presenteeism has a negative effect on productivity. Therefore the researchers assume the following hypotheses :

H1: Job stress-related presenteeism has a significant statistical relationship with organizational productivity.

H1a: Job stress-related presenteeism has a significant statistical relationship with organizational effectiveness.

H1b: Job stress-related presenteeism has a significant statistical relationship with organizational efficiency.

### **The mediating Effect of Error Management :**

Employees who attend work while unwell are more prone to making errors. In a research conducted among pharmacists, presentees made much more minor errors as well as fatal mistakes, compared to non-presentee pharmacists. Mediation analyses suggested that higher anxiety rates explained why presentee employees made more errors at work. Errors are made typically due to human natural deficiencies, and errors are more likely committed under stress.

An organization with strong error management is known to handle errors more readily leading to better productivity as well as performance. Error management culture is demonstrated to have a positive effect on organizational performance in two studies in Germany and in the Netherlands (Van Dyck et al. 2005). Van Dyck et al. (2005) proposed that error management culture lessen negative error consequences through increased learning and creativity. Additionally, a study showed that error management culture and error tolerance can result in positive emotional and cognitive outcomes as they help employees consider themselves capable and make them more willing to handle errors and failures effectively. Therefore, a practice of both error management culture and error tolerance might be most effective to strengthen performance.

Therefore this research hypothesizes the following:

H2: Error management has a moderating effect on the relationship between Job stress-related presenteeism and organizational productivity.



## Research model

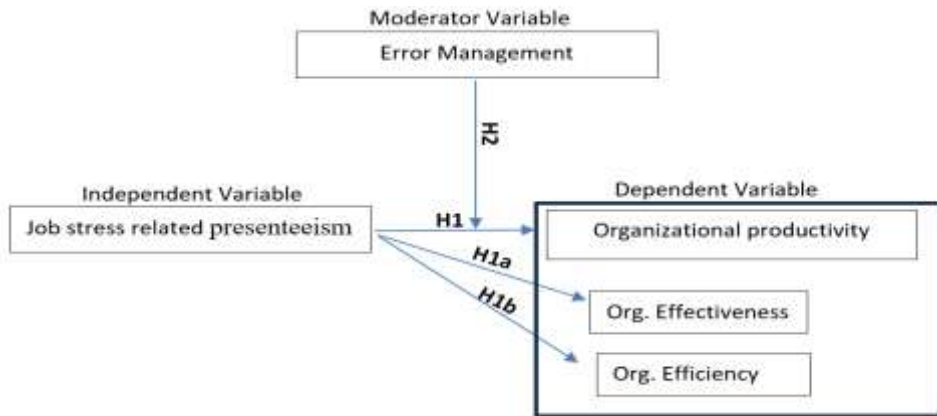


Figure 1: Research model

Source: Authors

### Measures :

To test the research hypotheses, the researchers adopted Gilbreath & Karimi (2012) and Mathieu & Gilbreath (2022) scale to measure the independent variable, Job stress related presenteeism as shown in Figure 1. Their scale consists of six items, for example “I’m unable to concentrate on my job because of work-related stress”; “I spend a significant proportion of my workday coping with work stress”.

As for organizational productivity that is the dependent variable, a scale consisting of 5-items was used, as developed by Rao and Miller (2004). Examples of these items are “Optimal Quality is

achieved in the department service deliveries (successful procedures)” ; “All quantity benchmarks are met by the department (example; target number of customers to be served per day)” ; “Resource is used in the most efficient way by the department”.

Finally for the error management, moderator variable, A five-item scale developed by Weinzimmer and A.Esken (2017) was used.

### **Empirical Assessment of the empirical framework:**

According to the previous literature part, the researchers decided to distribute the questionnaire among the whole population of the Egyptian telecom companies. Then, the questionnaire versions (Arabic and English) were e-mailed to the (372) employees of the targeted population. Finally, total of (342) questionnaires were returned from the surveyed members on Egyptian telecom companies that represented 89.3 % response rate. The below table shows the total population and sample distribution.

**Table (1) – population and sample distribution**

	We	Orange	Vodafone	Etisalat	Total
<b>population</b>	53332	7228	10000	3597	74157
<b>Sample</b>	275	37	52	19	382
<b>Responses</b>	243	35	48	16	342
<b>Percentage %</b>	88.4%	94.6%	92.3%	84.2%	89.3%

## Data analysis methods

### Descriptive analysis:

In order to investigate the feel of the measured data, basic descriptive statistics were conducted to ensure that the distortion of the questionnaire responses outputs was negligible. The descriptive analysis results represented in (Table 2) showed that the mean and the standard deviation was small which revealed that there is only a weak distortion of the collected data for all variables. These results imply some homogeneity of the surveyed sample. The Skewness coefficients are negative which verifies that the surveyed sample is left skewed indicating that the mean is less than the median as shown below.

**Table (2) – Descriptive analysis**

	N	Mean		Std. Deviation	Skewness	
	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error
Job stress	342	4.3377	.03454	.63876	-.610	.132
organizational effectiveness	342	4.1579	.03852	.71233	-.453	.132
organizational efficiency	342	4.3041	.03378	.62462	-.421	.132
Error tolerance	342	4.2854	.03637	.67269	-.543	.132
Error management culture	342	4.4846	.02776	.51338	-.702	.132
Error management	342	4.3850	.02895	.53530	-.496	.132

### 1- Goodness and validity of Data

The validity of the collected data for the factor dimensions were identified by calculating Cronbach's alpha. The SPSS (version 25) reliability analysis was performed separately for the indicators of each scale (see Table3).

**Table (3) – Reliability analysis for studied sample**

Item	Cronbach's alpha
Job stress- related presenteeism	0.872
organizational effectiveness	0.708
organizational efficiency	0.903
defensive silence	0.840
Error management	0.933

Generally, reliability coefficients (Cronbach's alpha) of 0.6 or higher are considered adequate (Sekaran, 2003). As illustrated in table (3), since the calculated Cronbach's alpha values between 0.708 and 0.933, thus this indicates that the researchers can rely on the collected data for testing the research hypotheses.

### **3. Hypotheses testing**

**H1: Job stress-related presenteeism has a significant statistical relationship with organizational productivity.**

The main hypothesis of H1 is divided into two sub-hypotheses as follow:

**H1a: Job stress-related presenteeism has a significant statistical relationship with organizational effectiveness.**

The simple regression procedure was presented to ascertain the proposed relationships between the independent variable and the dependent variable in the first sub- hypothesis that was

formulated to test the effect of Job stress-related presenteeism on organizational effectiveness in the Egyptian telecom sector and it was presented using regression model (1).

### Regression Model (I) Analysis

The SPSS (version 25) simple regression procedure was employed.

#### Model (I) evaluation:

As shown in the model summary (Table 4), the model coefficient of determination (R-square) equals 40.6% which means that the Job stress- related presenteeism explain is 40.6% of the variations in organizational effectiveness.

**Table (4) – Model (1) Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.637a	.406	.404	.54977	1.876

a. Predictors: (Constant), Job stress

b. Dependent Variable: organizational effectiveness

The ANOVA (Table 5), which assesses the overall statistical significance of the model, revealed that model (I) is significant as  $p\text{-value} < 0.05$  (Healey, 2009).

**Table (5) – ANOVA for Model (1)**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.265	1	70.265	232.474	.000b
	Residual	102.764	340	.302		
	Total	173.029	341			

a. Dependent Variable: organizational effectiveness

b. Predictors: (Constant), Job stress

The simple regression equation is created from the “Unstandardized Coefficients” in the coefficients table (Table 6).

**Table (6) – Coefficients table for Model (1)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.075	.204		5.262	.000
	Job stress	.711	.047	.637	15.247	.000

a. Dependent Variable: organizational effectiveness

The Standardized Beta Coefficients give a measure of the contribution of the independent variable to the model. Results in table (6) show that the standardized beta coefficient is 0.637. This means that Job stress- related presenteeism has made strong contribution for explaining the variations in the dependent variable (organizational effectiveness). Moreover, the sig 0.0 is

less than 0.01 significance level which reveals that this variable makes a significant contribution to the prediction of the dependent variable (organizational effectiveness).

**H1b: Job stress-related presenteeism has a significant statistical relationship with organizational efficiency.**

The simple regression procedure was presented to ascertain the proposed relationships between the independent variable and the dependent variable in the first sub- hypothesis which was formulated to test the effect of Job stress-related presenteeism on organizational efficiency in the Egyptian telecom sector and it was presented using regression model (2).

**Regression Model (2) Analysis**

The SPSS (version 25) simple regression procedure was employed

**Model (2) evaluation**

As shown in the model summary (Table 7), the model coefficient of determination (R-square) equals 49.5% which means that the Job stress- related presenteeism explain is 49.5% of the variations in organizational efficiency.

**Table (7) – Model (2) Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
2	.703a	.495	.493	.44458	1.974

a. Predictors: (Constant), Job stress

b. Dependent Variable: organizational efficiency

The ANOVA (Table 8), which assesses the overall statistical significance of the model, revealed that model (2) is significant as  $p\text{-value} < 0.05$

**Table (8) – ANOVA for Model (2)**

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	65.840	1	65.840	333.117	.000b
	Residual	67.201	340	.198		
	Total	133.041	341			

a. Dependent Variable: organizational efficiency

b. Predictors: (Constant), Job stress

The simple regression equation is created from the “Unstandardized Coefficients” in the coefficients table (Table 9).



**Table (9) – Coefficients table for Model (2)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	1.320	.165		7.989	.000
	Job stress	.688	.038	.703	18.251	.000

a. Dependent Variable: organizational efficiency

The Standardized Beta Coefficients give a measure of the contribution of the independent variable to the model. Results in table (9) show that the standardized beta coefficient is 0.703. This means that Job stress- related presenteeism is made strong contribution for explaining the variations in the dependent variable (organizational efficiency). Moreover, the sig 0.0 is less than 0.01 significance level which reveals that this variable makes a significant contribution to the prediction of the dependent variable (organizational efficiency).

**H2: Error management has a moderating effect on the relationship between Job stress-related presenteeism and organizational productivity.**

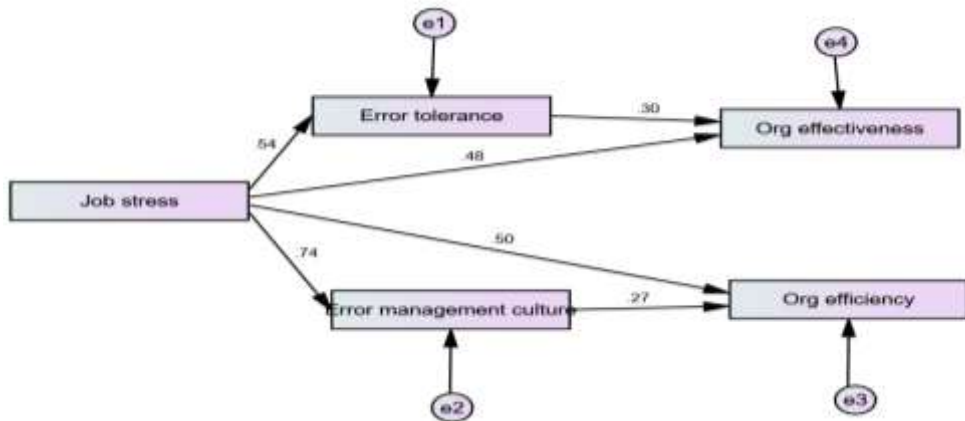
Structural equation model (SEM) analysis was used as a way that explained how error management has a moderating effect on the relationship between Job stress-related presenteeism and organizational productivity at the same time and because of this causal model is complex. The results are presented as model 3 below:

**Table (10) model variables**

Variable	Name
X	Job stress-related presenteeism
Z1	Error tolerance
Z2	Error management culture
Y1	Organizational effectiveness
Y2	Organizational efficiency

Figure 2 presents SEM diagram from hypothesis 2 and table 10 presents the variables assumed in the model:

**Figure (2) path diagram model 3 (SEM) for Hypothesis 2**



**Table (11) Standardized Direct Effects for hypothesis 2**

	Job stress-related presenteeism	Error management culture	Error tolerance
Error management culture	.74087298	.00000000	.00000000
Error tolerance	.53533192	.00000000	.00000000
Organizational effectiveness	.47722272	.00000000	.29893011
Organizational efficiency	.50037841	.27414106	.00000000

Table ( 11) presents the the direct effect for Job stress-related presenteeism, as independent variable and Error management culture and Error tolerance respectively as moderating variables on , Organizational effectiveness, Organizational efficiency as dependent variables.

**Table (12) Standardized Indirect Effects for hypothesis 2**

	Job stress-related presenteeism	Error management culture	Error tolerance
Error management culture	.00000000	.00000000	.00000000
Error tolerance	.00000000	.00000000	.00000000
Organizational effectiveness	.16002683	.00000000	.00000000
Organizational efficiency	.20310370	.00000000	.00000000

Table (12) shows the standardized indirect effects for Job stress-related presenteeism as independent variable on organizational effectiveness and organizational efficiency through the moderating variables error management culture and Error management tolerance as element of error management.

### **Discussion:**

The main objective of the present research paper is to empirically investigate the moderating effect of error management on the relationship between Job stress-related presenteeism and organizational productivity in the Egyptian telecommunication sector. The previous literature presented in the previous sections resulted in developing a suggested framework for the moderating effect of error management on the relationship between Job stress-related presenteeism and organizational productivity. Using self-reported questionnaires, the researchers collected data regarding general characteristics (gender, age, and marriage status), in addition to work-related variables (error management, job stress-related presenteeism and organizational productivity).

Results of this research have several implications. First of all regarding the population of interest for the present study, the researchers considered all levels of managers in the Egyptian telecommunication sector. A Pilot study was conducted and survey respondents were collected. Once the questionnaire was outlined, it was translated into Arabic to ensure participants

ability to understand questionnaire items properly. The general managers and middle managers of Egyptian telecom companies were interviewed to assess understanding of the main concepts, variables and elements used in the questionnaire.

As stated in the statistical analysis part, (342) questionnaires were collected from the surveyed members on Egyptian telecom companies yielding an equivalent of 89.3 % response rate. Secondly, before testing the research hypotheses, the following steps were taken into consideration:

1. Getting the feel of the data, which will give preliminary ideas of how good the data is, how well the coding and entering of data have been done. This will be highlighted by the descriptive analysis. Results of which showed a weak distortion of the collected data for all variables
2. The goodness and validity of response data was accomplished through conducting reliability Test using the Cronbach's Alpha (Sekaran, 2003). The SPSS version (25) was adopted revealing results above 0.6 which means that the researchers can rely on the collected data for testing the research hypotheses.

Thirdly for the hypothesis testing, the feedback from business practice supported the theoretical framework and hypotheses proposed in the survey. This was conducted by carrying out regression analysis for all hypothesis under-study. For hypothesis number 1 where job stress- related presenteeism was assumed to have a significant statistical relationship with organizational

productivity, the sub hypothesis was tested separately. Productivity was usually dealt with in terms of quantitative measures by dividing units of output by units of input. However such a measure is not appropriate for service and other types of organizations such as the sector taken into consideration in this study (e.g. Mathew et al., 2012; Patterson et al., 2005).

That's why the present study employed a subjective measure of productivity using the effectiveness and efficiency scale (see Mathew et al., 2012; Patterson et al., 2005). Since productivity in organization is a series of coordinated and interrelated actions to improve the program and better use of talents, facilities, spaces and places (Fatemeh Torabi, Jamal El-Den, 2017). This supported the fact that both efficiency and effectiveness should be handled individually.

For the first sub-hypothesis indicated by (H1a), the researchers assumed that Job stress-related presenteeism has a significant statistical relationship with organizational effectiveness. Thus eventually concluding that a simple linear regression that was calculated predicted the prevalence of organizational effectiveness based on Job stress- related presenteeism. A significant regression equation was found ( $F(1,340): 232.5, sig < 0.01$  and  $0.05$ ), with an R-square of 40.6 %. These results provide an empirical evidence for verifying the hypothesis (H1a) which supports a positive relationship exists between Job stress- related presenteeism and organizational effectiveness, thus it was concluded that Job stress- related

presenteeism has a statistically significant effect on organizational effectiveness.

Moving over to the second sub-hypothesis indicated by (H1b) researchers stated that Job stress-related presenteeism has a significant statistical relationship with organizational efficiency, Results of which concluded that a simple linear regression that was calculated predicted organizational efficiency based on Job stress-related presenteeism. A significant regression equation was found ( $F(1,340): 333.11, sig < 0.01$  and  $0.05$ ), with an R-square of 49.5 %. These results provide an empirical evidence for verifying the hypothesis (H1b) which supports a positive relationship exists between Job stress- related presenteeism and organizational efficiency, thus it was concluded that Job stress- related presenteeism has a statistically significant effect on organizational efficiency. Therefore, the researchers were able to prove that job stress- related presenteeism actually has a significant statistical positive relationship with organizational productivity. This supports previous literature has put a major focus on the negative effects on productivity caused by presenteeism (Lohaus and Habermann, 2019; Miraglia and Johns, 2016). The measure of presenteeism is often related to its effects on as well productivity (Johns ,2009). That's why even though it could seem to be a form of commitment, presenteeism is not necessarily beneficial to the organization in many other times.

For hypothesis number 2, which states that Error management has a moderating effect on the relationship between Job stress-related presenteeism and organizational productivity, a multivariate data analysis was used because of the existing multiple measures of the proposed constructs (Hair et al. 2010). This was used to examine the moderating effect of error management on the relationship between Job stress-related presenteeism and organizational productivity in Egyptian telecom sector. Results of which showed that Job stress-related presenteeism has direct effect on Error management culture, Error tolerance, organizational effectiveness and organizational efficiency. Thereby, supporting the second hypotheses that error management has a moderating effect on the relationship between Job stress-related presenteeism and organizational productivity.

That's why we conclude that errors are, therefore, almost inevitable, and total elimination is an impossible task within the work field. The concept of error management, however, focuses not on the error itself, but avoidance of its negative consequences (Frese, 1991). That's why Error consequences are avoided by engaging in an "error process" comprising detection, explanation, handling and recovery. And as stated by (Nikki Giovanni) "Mistakes are a fact of life, it is the response to error that counts".



### **Limitations:**

Although this research study is considered as a contribution to both the literature and the scientific field, there still remains some drawbacks and limitations that need to be addressed in the future research. First of all, as far as the researchers know, this is the first time that three variables of the study have come together in a single paper. Thus it should be noted that the researchers have done their best to provide the best evidence possible.

However, this research was conducted in Egypt where the Arabic language is the main speaking language. Thus by translating the questionnaire some items might have lost some of its meaning or led to misinterpretation in some situations, that might have had an impact on the research results. Additionally, the culture of employees might have had an impact as well. Furthermore, the results were collected from the Egyptian telecommunication services sector only, thus these results cannot be dependable in other sectors as the results might differ. Another major drawback was that the survey was distributed among different managerial levels not taking into consideration the rank and file levels. Thus the researchers suggest that the same research should be conducted in the future while taking into consideration the non-managerial employees as well.

## Conclusion

Considering all that has been discussed, the review of related literature and research findings obtained in this study, the aim of this research paper was two main goals which was first to prove that there was a significant positive relationship between job stress-related presenteesim and organizational productivity and it was proven. The second main goal was to test if error management had a significantly positive moderating effect between job stress- related presenteesim and organizational productivity which as well was supported.

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