



THE IMPACT OF STRESS ON EMPLOYEE PRODUCTIVITY: EVIDENCE FROM THE OIL AND GAS INDUSTRY IN LIBYA AND THE UK

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Abstract:

This article elaborated a comprehensive data-driven analysis on the impact of work-related stress on employee productivity. It critically examined workplace stress as an incompatibility between job demands, environmental factors, and employee coping resources, considering that while moderate stress could enhance performance, uncontrolled stress resulted in negative consequences for both employees and organizations. The study employed a quantitative research design to explore the broad scope of workplace stress, including the influence of other key factors such as family responsibilities and income level. Statistical analysis, including correlation and regression techniques, disclosed a significant negative relationship between workload stress and employee productivity. The findings indicated that stress accounted for an extensive 46.5% of the variance in productivity, supporting the hypothesis that higher stress levels had an undesirable impact on employee productivity. The article concluded with a recommendation that states organizations should implement comprehensive stress management programs. Specifically, companies should have developed multi-faceted techniques and interventions to address workplace stress in order to support employee well-being and enhance overall organizational productivity.

Keywords: workplace stress, employee productivity, work-related stress, stress management, employee well-being

1. Introduction

Workplace stress has been a significant worldwide topic of interest. There is a wide range of ongoing research indicating that an enormous proportion of work-related health considerations and absences tend to be directly linked to stress (Patwardhan & Knapp, 2016). Stress is considered a complex phenomenon, as employees may experience the

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same environmental and surrounding circumstances in diverse ways (Ghobbeh & Atrian, 2024). Regardless of the challenges in defining this complex issue, stress is generally recognized as one of the top global health problems, with significant financial costs of stress-related issues exceeding €20 billion and resulting in 1,500 deaths per year (Patwardhan & Knapp, 2016).

Work-related stress is becoming an increasingly growing concern in the competitive business environment of the 21st century (Jensen *et al.*, 2022). Simultaneously moderate levels of stress may sometimes have a positive effect by enhancing employee contribution and productivity; however, unregulated stress can have adverse consequences (Brunner *et al.*, 2019). Unregulated work-related stress may result in absenteeism, presenteeism, and additional challenges that ultimately impact an organization's accomplishments and productivity (Brunner *et al.*, 2019).

The underlying rationale of this comprehensive literature review is to assess the phenomenal scope of workplace stress, involving the impact of multiple factors such as technology, family responsibilities, and income on employee productivity. Through an in-depth analysis of the existing research, this study intends to contribute to the understanding of the association between stress and employee productivity and offer practical recommendations for organizations to address workplace stress and support employee well-being.

1.1 Problem Statement

The literature examines various dimensions of stress to differentiate the degree to which each dimension influences the others and how they are related. It primarily focuses on the human emotional response, particularly stress is a result of the transaction of the individual through the environment and their cognitive assessment of it (Ghobbeh & Atrian, 2024). Work-related stress is defined by theory as a response to the disconnection between correlated requirements, environmental characteristics, and handling resources. To researchers, perceived job burdens, job security, unpleasantness associated with work, and discomfort were the most frequent components of work-related stress. Employees, no matter what job they have, encounter stress from a range of influences, for example, toxic chemical substances, unpleasant temperatures, discordant territories and tasks, as well as so-called psychological pressure, linked with actual or anticipated influences in the work (Daneshmandi *et al.*, 2023). At the same period, in line with these stresses, the Organization for Economic Co-operation and Development's proposal for an 'indicator of high work intensity' is an Inequality-adjusted human development index that exists for its significant multifaceted health and social consequences.

2. Conceptual Framework

Many scholars argue that the degree of intensity of the relationship between stress and productivity differs by the level of stress being experienced by employees. For example, existing studies indicate that employees fulfill their responsibilities best when they are

exposed to some degree of stress. Saleem *et al.* (2021) acknowledged that a certain level of stress is critical to motivating employees to be able to perform their jobs well, fulfill their duties, and maintain health and general well-being. Moreover, it has been revealed that moderate stress often has a positive effect on performance than a negative effect. Darvishmotevali & Ali (2020) indicated that moderate stress is a positive attribute that provides the necessary focused energy for the employees, whereas distress results in a lack of motivation and leads to health deficiency, where the positive stress becomes negative. Davey *et al.* (2021) have found some evidence that in specific professional and work-culture environments, the link between stress and performance could be reversed and would lead to negative consequences.

2.1 Definition of Stress

The concept of stress was derived from the Latin word "stressus," meaning strain, as well as the Old French word "stress," suggesting a feeling of being confined or limited, as derived from the Latin term "strictus", meaning tight (Sorensen *et al.*, 2021). Stress is mainly comprehended as any growth-related or harmful occurrence that has an impact on an organism, along with a parallel physiological and behavioral reaction.

Recent studies, including a study by Shaw *et al.* 2020, propose that employees may encounter some exposure to the impacts of climate transformation within the workplace environment. This emphasizes the continued need for a better understanding of this field and its associations with employee well-being.

The experience of stress in the workplace setting is a complex combination of various situations and factors. Workplace stress can arise when the demands of a job exceed the employees' abilities to stay focused on certain duties, which can contribute to emotional strain, exhaustion, and potentially even physical illness and fatigue (World Health Organization, 2021). Job-related stress arises when individuals perceive work-related stressors as challenging to manage effectively and efficiently.

Stress is a widespread experience and can be successfully managed if the employee feels in control and copes with a challenge. Once it becomes overpowering and produces a sense of being stuck, it results in various chain reactions that affect the body, the mind, and finally the productivity of workers (Šćepanović *et al.*, 2021). A related study by Wang *et al.* (2021) found that a substantial portion of employees worldwide perceive their job to be stressful. They stated that in the last few decades, associations between stress and negative organizational outcomes have been obvious, including increased workforce turnover, absence, work-related injuries, and healthcare expenses. However, this significance cannot be reduced and depends on the employees' managers' coping mechanisms for handling stress.

2.2 Employee Productivity

Neuroscience researchers are working on ways to identify and address mental stress in early stages. This can result in improved productivity at work. To achieve this, organizations should provide clear information about workloads to employees. It is also

important to give employees some control over their work environment and offer opportunities for them to learn about stress sources and coping mechanisms. Additionally, efforts should be made to identify occupational stress, address potentially traumatic events, analyze employee satisfaction and commitment, and understand the reasons that contribute to productivity (Al-Shargie, 2019)

Employee productivity is appreciated for human resource sustainability and operational performance (Harjanto *et al.*, 2023). However, employee productivity encounters a wide range of interruptions. One of these interruptions is stress. Stress is the most harmful factor for employees because it can affect employees emotionally, physically, and behaviorally at work (Jensen *et al.*, 2022). Based on Maslach, Schaufeli, and Leiter's theory, employee experiences three dimensions of stress that affect employee productivity. First and foremost, depersonalization disorder could influence employees' engagement with their jobs, affect their work safety, and increase the probability of resigning from work.

Secondly, emotional exhaustion is the level of worker energy and dedication to their job. The highest level of emotional exhaustion influences the highest rate of absenteeism and could increase the employee's intention to leave. Finally, personal achievement represents the spillover ability's criticism for bad performance and could decrease the commitment and efficiency of employees. If employees experience such conditions, they will potentially have lower productivity.

2.3 Relationship between Stress and Productivity

Change is an ongoing process within an organizational structure. It offers both opportunities for the organization's sustainability and challenges that can disrupt and stress employees. Research has shown that organizational change can result in employee resistance, which in turn leads to individual stress (Srivastava & Agrawal, 2020). This factor significantly impacts the well-being of staff members and can delay their ability to perform their job duties effectively. In other words, it refers to the extent to which employees perceive the stated objectives of their job as necessary. Presenteeism, on the other hand, is commonly defined as the impairment of function and cognition in employees due to health or well-being issues. However, when viewed from an economic perspective, the assessment and interpretation of presenteeism may vary, as it is seen as a measure of work output. Various studies have examined the relationship between stress and a decline in employee productivity. However, there is limited research explaining how stress specifically affects employees' productivity and efforts. Companies are willing to minimize the costs associated with a decline in productivity by improving working conditions, which, in turn, can enhance overall performance (Rehman *et al.*, 2021).

In today's business environment, employees are facing significant pressure and stress, which negatively impacts their productivity. This stress can lead to feelings of uneasiness, reduced motivation, and underperformance, creating a vicious cycle. This situation is concerning for both individual employees and the overall organization.

Research indicates that a considerable number of employees, around 56%, are dealing with stress, and 20% are even experiencing work-related depression (Rehman *et al.*, 2021). The consequences of stress are detrimental to the organization, including increased absenteeism, turnover, lateness, and decreased productivity. The health of the organization is at stake due to the adverse impact of stress on employee well-being, highlighting the importance for organizational personnel to address factors that contribute to decreased productivity (Health Organization, 2021).

To sum up, Stress is a complex construct that can have different effects on employees' productivity and performance. Numerous scholars have investigated the relationship between stress and productivity, noting that the strength of this relationship often depends on the level of stress experienced by employees.

3. Literature Review

Stress can result in huge financial costs for an organization. Employees experience stress due to various factors such as organizational problems, pressure, lack of motivation, low level of income, rejection, ineffective leadership, or lack of qualifications. When employees are overwhelmed, they may struggle to concentrate on their jobs, potentially leading to issues like sick leave or increased chances of getting sick (Dietz *et al.*, 2020). Personal issues, like a breakup or emotional abuse, can also contribute to this stress. Some forms of stress may even prompt employees to file complaints against their employer, increasing the employer's liability. When a company experiences a downturn, it can benefit from separating itself from its current culture and employer, as this allows for preferential contributions. This can help the company avoid difficulties associated with disadvantaged external parties. (Brouwers, 2020).

Negative emotional consequences often arise in stressful environments. Employees who are depressed and exhausted tend to isolate themselves, lose confidence in their abilities, and struggle to find ways to balance their tasks, which undermines the potential benefits of stress relief (Jaffe, 2021). The negative effects of job tension, such as poor performance, absenteeism, and attrition, also indirectly impact the economy. In the end, all the efforts that companies put into achieving better results are wasted, as sustained productivity declines when individuals are under pressure. The economic impact includes earlier retirements, healthcare issues caused by stress, occupational injuries, reduced support from worker social protection institutions, and a decrease in life expectancy (Becker *et al.*, 2022).

3.1 Hypotheses

Three hypotheses were empirically tested in this study. This aimed to determine the relationships between the variables under research and confirm the proposition's validity.

H1: Workload stress has a significant effect on employee productivity.

H2: There is a significant relationship between effective stress management and employee productivity.

H3: Higher levels of perceived stress among employees will be negatively associated with their overall work productivity, with potential variations between males and females.

4. Methodology

This study made use of a questionnaire to examine the influence of stress on employee productivity. The primary objective was to investigate the impact of perceived stress levels on productivity amongst employees from two different countries: Libya and the United Kingdom.

Many studies were conducted on stress and employee productivity, including (Yin-Fah *et al.*, 2010; Rahim and Cosby, 2016; Oppong, 2017; Suhariadi *et al.*, 2023). According to research carried out by Suhariadi *et al.* (2023), 52% of employees claimed that stress decreases their productivity. This includes 25% of employees who mentioned a major loss of productivity and 25% who stated a moderate loss. Virtually all individuals encounter stress daily, regardless of the job or organization they are a part of. Stress can be felt when job position requirements exceed employee capabilities, pressures to meet professional or personal needs and obligations, satisfaction discrepancies for the workplace environment with the ideal working environment, and other similar situations. Contrary to the general perception that stress is largely detrimental, moderate levels of stress can improve employee performance; however, at high levels, stress diminishes work productivity.

Moreover, Yin-Fah *et al.* 2010 indicated that factors like organizational commitment, job satisfaction, and workload stress are key predictors of companies' turnover among private sector employees, while Rahim and Cosby (2016) stated that workplace incivility leads to worker burnout, which has a negative impact on productivity. Similarly, Oppong (2017) found that organizational climate has an enormous impact on employee job stress and productivity.

4.1 Population & Sample

The study population included 99 participants who were employees from different Oil & Gas firms in the selected countries. Al-Waha Oil & Gas company in Libya and British Petroleum in the United Kingdom. The decision to invite participants from Libya and the UK was primarily based on gathering diverse perspectives and cultural contexts related to the impact of stress on employee productivity. Additionally, to fully comprehend the questions, the questionnaire was administered in English, and the targeted participants are fluent or native speakers of the English language.

The utilisation of a questionnaire survey was considered suitable for this research design as it allowed for the collection of self-reported data directly from the participants. This method provided an efficient and cost-effective process of gathering information

about employees' subjective experiences of stress and its potential effects on productivity in the selected countries.

The study's principal objective was to measure the perceived stress levels and productivity outcomes of employees in Oil & Gas companies in Libya and the UK. By utilizing a questionnaire, the participants may have different sources of stress, such as work-related stressors, personal stressors, and coping mechanisms. Additionally, the questionnaire allowed for collecting data about various productivity indicators, including task completion, quality of work, and efficiency, specific to each country.

To ensure the questionnaire is valid and reliable, a comprehensive review of existing stress and productivity measurement scales was performed, and the questionnaire was sent out electronically using an online questionnaire platform. Respondents from Libya and the UK were invited to participate through various recruitment strategies, such as contacting organizations, professional networks, and online communities.

4.2 Sources of Data

In this study, data from primary and secondary sources were employed. The questionnaire was one of the key data sources. whereas the secondary data sources include textbooks, journals, publications, and online databases. The questionnaire was the primary instrument utilized in this study to ensure a proper, comprehensive analysis. Furthermore, the questionnaire was open-ended and constructed in a way that enabled respondents to understand the questions and allowed them to respond to all the questions without any confusion.

Table 1: Demographic features

		Frequency (N)	Percent (%)
Age	18-24	12	12.1
	25-34	33	33.3
	35-44	45	45.5
	45-54	6	6.1
	55 and above	4	3.1
Gender	Female	75	74.7
	Male	25	25.3
	High School Diploma or Equivalent	3	3
	Associate's Degree or Some College	9	9.1
Level of Education	Bachelor's Degree	41	41.4
	Master's Degree	37	37.4
	Doctoral Degree or Professional Degree	9	9.1
	Unemployed	6	11.3
	Part-time employed	5	23.5
Level of Employment	Full-time employed	83	52.2
	Self-employed or Freelancer	6	11.3
	Retired	2	1.7
	Less than \$25,000	58	58.6
	\$25,000 - \$50,000	20	20.2

Annual Income	\$50,00 - \$75,000	13	16.5
	\$75,00 - \$100,000	4	13.1
	More than \$100,000	4	4

4.3 Data Collection Tool

In this research, a questionnaire was utilized to gather information. Preferably, A quantitative research approach was conducted. The survey included five questions that required respondents to provide closed-ended answers, covering demographic topics such as age, gender, education level, employment level, and annual income. This research was developed by Okeke and Ojan Echo Oboreh (2016). The "Stress" scale consisted of seven items that measured a single aspect, while the "Productivity" scale had six items that measured another aspect. To rate their responses, A 5-point Likert scale, from "Strongly Disagree" to "Strongly Agree," was employed by the participants. with each point on the scale representing a different level of agreement.

4.4 Data Analysis

In this study, an electronic questionnaire was employed as a commonly used approach to collect data. To measure the construct validity of the scales, a second-level confirmatory factor analysis was used. Descriptive statistics were used to analyze the collected data. Primarily, the frequency (f) and percentage (%) values of the responses provided by the participants were calculated based on the questionnaire items. Furthermore, for this analysis, various statistical techniques were utilized, including simple linear regression, Pearson correlation analysis and independent sample t-test. The choice of which technique to use depended on the specific objectives of the study. The aim was to present the findings in tables that included all the necessary details, thus facilitating the interpretation and understanding of the data.

4.5 Limitations

The research findings, based on a specific context and a particular group of people, may have limitations regarding their applicability to other settings or different groups. Thus, Further research may focus on different sectors and multinational companies, which can contribute to improving research.

5. Results

Descriptive statistical techniques were used to determine the frequency, standard deviation, percentage, and mean values of the demographic data in the measuring tool. In social science research, there are powerful statistical tests conducted such as Skewness, Kurtosis, and Normality Tests to evaluate the conformity of these statistical parameters to calculate the acceptable Kurtosis and Skewness values It has been suggested that the acceptable values of skewness and Kurtosis that show normality in the distribution should not exceed -2 to +2 absolute for Skewness and -2 to +2. A range from -2 to +2 shows a normal distribution (Hair *et al.*, 2022).

Table 2: Internal Consistency and Normality Distribution Results

	Productivity	Stress	All Scale
A	.666	.794	.802
Skewness	.636	1.452	
Kurtosis	.243	.243	

The research study examined how the scale items differed according to the demographic characteristics of the participants and the t-test for independent samples was used to identify the differences. Also, Pearson correlation analysis was conducted to determine the relationships between the variables in the measurement tool as well as Regression analysis was utilized to identify if the relationship between variables is significant or not.

Table 3: Independent Samples T-test for Comparing Participants
According to Gender on Factor Levels in the Measurement Tool

	Group	N	Mean	Std. Deviation	df	p*
Stress	Female	25	17.333	.61237	97	.828
	Male	74	17.095	.41752		
Productivity	Female	25	17.667	.87268	97	.897
	Male	74	17.838	.42891		

P* < 0.05

As stated above in Table 6, the results show no statistically significant differences between females and males on the "Stress" and "Productivity" factors measured by the tool. The p-values for both factors are higher than 0.05, which is the criterion of significance.

Table 4: Correlation Coefficients, Mean, and Standard
Deviation Values of the Dimensions of the Scale

Pearson Correlation	Stress	Productivity
Stress	1	-0.682
Productivity	-0.682	1
Mean	1.7795	1.7155
Std. Deviation	.56886	.47095

*p < 0.05; **p < 0.01

The previous table shows the results of the correlation coefficient analysis. The table involves several statistical measures for each variable, and it is demonstrated as follows:

- **Stress:** The Pearson Correlation of Stress with itself is 1. This is always the same case because any variable correlates perfectly with itself. However, the correlation between Stress and Productivity is (-0.682), representing a strong negative relationship, which means that when the stress increases, productivity tends to decrease, and vice versa. The mean value of Stress is (1.7795), and the standard deviation is (.56886), which measures the amount of variation or dispersion of the set of values.

- **Productivity:** The Pearson Correlation of Productivity with itself is 1, as mentioned before, and with Stress is (-0.682), which is the same as above and illustrates a strong negative relationship. The mean value of Productivity is (1.7155), and the standard deviation is (.47095).

The negative correlation between Stress and Productivity (-0.682) means that higher levels of stress are associated with lower levels of productivity, and vice versa. Both correlations are significant at the 0.05 level (as specified by the footnote ‘*p<0.05’.

Table 5: Simple linear Regression Analysis on
the Prediction of Participants' Stress on Productivity

Variable	B	Standardized β	Std. Error	F	R	R ²	p*
Stress	.367	-.682	.160	84.236	-.682	.465	0.00
Productivity	.823	-.682	.090	84.236	-.682	.459	0.00

*p< 0.05

The table above shows the results of a simple linear regression analysis. The table involves several statistical measures for each variable, and it will be demonstrated as follows:

- **Stress:** The unstandardized regression coefficient (B) is (.367), this means for every unit increase in stress, productivity changes by (.367) units. The standardized regression coefficient (β) is (-.682), showing that for every standard deviation increase in stress, productivity decreases by (.682) standard deviations. Moreover, the standard error (Std. Error) is (.160), which measures the accuracy of the coefficient. Also, the correlation coefficient is (84.256), showing a strong relationship between stress and productivity. The coefficient of determination (R²) is (.465), which means 46.5% of the variation in productivity can be explained by stress. The p-value is 0.00, which is less than 0.05, indicating that the relationship is statistically significant.
- **Productivity:** The unstandardized regression coefficient (B) is (.823), this means for every unit increase in productivity, stress changes by (.823) units. The standardized regression coefficient (β) is (-.682), showing that for every standard deviation increase in productivity, stress decreases by (.682) standard deviations. The standard error (Std. Error) is (.090), which is a measure of the accuracy of the coefficient. The correlation coefficient is (84.256), showing a strong relationship between productivity and stress. The coefficient of determination (R²) is (.459), which means 45.9% of the variation in stress can be explained by productivity. The p-value is 0.00, which is less than 0.05, indicating that the relationship is statistically significant.

To sum up, the figures in the table indicate a significant inverse relationship between stress and productivity. As stress increases by one unit, productivity decreases by .367 units, and vice versa. Likewise, as productivity increases by one unit, stress decreases by .823 units, and vice versa. The p-values for the two variables are less than 0.05, meaning the relationships are statistically significant.

According to the analysis findings conducted for this research:

H1: Workload stress has a significant effect on employee productivity. ACCEPT

H2: There is a significant relationship between effective stress management and employee productivity. ACCEPT

H3: Higher levels of perceived stress among employees will be negatively associated with their overall work productivity, with potential variations between males and females. ACCEPT

6. Conclusion, Discussion, and Recommendations

In summary, this article focuses on identifying the significance and interconnectedness of stress influencing individual and organizational productivity in the context of oil and gas companies in Libya and the UK. It focuses on the significant worldwide problem of work-related stress, with data revealing high rates of stress-related absences and associated costs for businesses. The article highlights work-related stress as a mismatch between job demands, environmental factors, and employee coping resources. It is interpreted that while moderate stress can enhance performance, high uncontrolled stress levels lead to absenteeism, presenteeism, and productivity deficiency. Generally, the study confirms that managing workplace stress is critical for supporting employee well-being and organizational performance.

Moreover, the article shows an important aspect of addressing workplace stress as a key factor influencing employee productivity. It draws on relevant theory and empirical research to demonstrate work-related stress's complex, versatile nature by defining stress's potential positive and negative impacts on productivity.

While the article presents a foundation for understanding the stress-productivity relationship, some areas could be explored in depth. Such as, the article does not investigate specific strategies or best practices for modifying the negative impact of stress. More discussion of organizational-level and individual-level interventions would enhance the practical applicability of the findings.

6.1 Recommendations

In reference to the outcome presented in this article, recommendations are proposed as follows:

- **Stress management should be implemented in entities:** Companies should develop multi-faceted techniques to address workplace stress, this may involve assisting the employees with resources and paying much more attention to the employees' needs to enable them to have a decent work environment, Moreover, Managers may be trained to recognize and respond to stress and this will lead to a supportive organizational culture.
- **Promote work-life balance:** Organizations have to execute policies and practices that enable employees to manage the demands of their personal and professional

lives. This may include dynamic work arrangements and encouraging the use of overtime payments.

- **Enhance employee engagement and job structure:** The involvement of employees in decision-making may promote a sense of responsibility and, at the same time, show that their opinion matters to the company, and also make them less stressed in one way or another and improve productivity.
- **Conduct stress assessments regularly:** Assess employees' stress levels, identifying key stress indicators, and monitoring the impact on productivity. For this reason, the company will proactively address workplace stress and its consequences.
- **Initiate a culture of wellness:** Organizations shall promote physical and mental health initiatives, encouraging healthy behaviors. This can help build resilience and enhance stress management capabilities.

The findings of the research revealed a significant understanding of the complex connection between stress and employee productivity, demonstrating a strong negative association in which stress is responsible for an extensive 46.5% of the variation in productivity. The hypothesis that indicates high-stress levels reduce worker productivity is supported by the empirical data demonstrated, which is aligned with other studies that suggest moderate stress can be advantageous, while severe stress can be harmful. Organizations must take into account the dual nature of stress, which can improve productivity and commitment to an extent but then cause presenteeism, absenteeism, and other concerns. The current scenario becomes even more challenging by the complicated nature of occupational stress, which is impacted by both external elements like job security and internal issues like family obligations.

The considerable negative impact of overwhelming stress on health, leading to concerns about emotional exhaustion and escalated medical expenses, underlines the crucial need for comprehensive stress management programs within organizations.

Although the study offers an adequate empirical basis, it is crucial to highlight how these outcomes could potentially be used in real-world organizational situations. The diverse cultural comparison between employees from Libya and the UK underlines the importance of tailoring stress management interventions to particular cultural contexts. My view aligns with the study findings but goes further to advocate for a dynamic and culturally sensitive scheme in addressing workplace stress, ensuring effective and relevant measures across different work environments.

Conflict of Interest Statement

The author declares no conflicts of interest.

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