

## Assessment of Occupational Stress and Job Performance among Staff in a Typical Refining Company in Port Harcourt

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### Abstract

*This study assessed occupational stress and workers performance in a typical refining company in Port-Harcourt. A 5-point Likert scale questionnaire adapted from literature was used as a primary source of data collection. The acquired data were analyzed using Regression analysis and Pearson's Correlation on SPSS. The results obtained showed that excessive workload, lack of training, pollution, insufficient manpower, insufficient information and long hours of work are some of the factors responsible for occupational stress in the company. Also, lack of proper communication and insufficient information are considered to likely cause a disruptive effect on the performance of workers. It was concluded that there is a relationship between the factors responsible for occupational stress and employee performance. Therefore, it is recommended that proper communication and information dissemination should be implemented to improve workers performance, and adequate infrastructure, sufficient manpower, training and reduced workload should be executed to reduce occupational stress in the company.*

**Keywords:** Occupational stress, Job performance, Refining company, Port Harcourt

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### 1. Introduction

Occupational stress has become a worldwide phenomenon, which occurs in various forms in every workplace. In today's work life, employees are generally working for longer hours, as the rising levels of responsibilities require them to exert themselves even more strenuously to meet rising expectations about work performance. Stress is a Common element in any kind of job and persons have to face it in almost every aspect of life. Stress is an increasing problem in organizations and often cause adverse effects on performance. Work related stress has been a topic that has received increasing attention, in the area of occupational health, over the last three decades. The demands on employees grew equally dramatically and this created stress within employees. Apart from stress that arose from the work situation, other sources of stress could relate to personal factors such as relationships with others and use of free time. The petroleum industry in Nigeria has positively impacted the Nigerian economy. Sadly, the industry has also recorded high incident rates and has maintained the upward trend as reported by the Department of Petroleum

Resource (DPR) in their 2015 publication of the petroleum industry health and safety performance score card. The workers in the oil and gas industry have continually faced unfavourable work environments and conditions, lengthy working hours, achieving ambitious targets and deadlines, workplace competition and other workplace stress factors which led to fatigue, substance abuse to keep up with work, poor judgments and accidents as the eventual outcome.

Stress can therefore be described as the adverse psychological and physical reactions that occur in an individual as a result of his or her inability to cope with the demands being made on him or her. Stress begins when individuals are placed in a work environment that is incompatible with their work style and or temperament. It becomes aggravated when individuals find out that they have or can exercise little control over it. Michac (1997) specified causes of stress as follows: poor time management, unclear job descriptions, feelings of inadequacy and insecurity, inability to get things done, lack of communication, bad personal relationships, quality and complexity of tasks. In

the same vein, Dean (2002) viewed stress-related illnesses as the leading cause for low productivity levels in the workplace.

Stress in a workplace has touched almost all professions, starting from executive levels to co-workers who are directly engaged in the production. The result of the job stress ultimately affects the physical as well as mental health. Some of the reasons of work stress may be: interpersonal causes, role demand, task demand, structure of the organization, style of leadership, organizational work culture, etc. Interpersonal causes are due to interpersonal relationship at work place, when employees found unsupportive environment or any personal remark from others at work place. Studies show that long work hours can result in increased levels of stress, poor eating habits, lack of physical activity and illness. It is important to recognize the symptoms of worker fatigue and its potential impact on each worker's safety and health and on the safety of co-workers. According to Canadian Centre for Occupational Health and Safety, workplace fatigue is one of the most common, costly, and dangerous safety risks affecting safety-sensitive industries, yet it is poorly understood.

Most organizations attain high performance by saddling employees with overload of work in order to meet deadline and this has psychological and physical effects on the employees which sometimes results to something contrary to what these organizations want to achieve. Stress has a significant negative impact on employees' physical, emotional health and behaviour as well as economic implications to organizations, and the nation as a whole. Stressed workers are prone to diseases like hypertension, cardiovascular disease, depression, etc. with their associated huge medical bills. In order to meet objective and to generate enough revenue to be self-sustaining and to be able to fund the acquisition of modern equipment to meet efficient service provision and optimal employment of resources, there has been the need for a continuous change in management strategies and administration, and the demands on employees to perform have been increasing. This has brought a lot of pressure on the employees who are expected

to deliver a world class service without the corresponding increase resources and training, yet those who fail to deliver are threatened with dismissal and other forms of punishment. With jobs very difficult to come by these days in Nigeria, many employees are crumbling under this pressure. Cases of employee stress are therefore on the ascendancy and thus requires detailed and specific study. The application of the findings of this study would be significant for the design and implementation of the most effective strategies for dealing with job stress in refining companies, and can be transferred to any workplace wishing to increase or enhance workers' productivity and effectively manage workplace stress.

## **2. Materials and methods**

### **2.1 Study area**

The study was conducted in a Nigerian-based oil and gas company primarily specializing in the refining of crude oil into petroleum products. Its headquarter is in Port Harcourt metropolitan area of Rivers State (Fig. 1), south-eastern Nigeria. Port Harcourt is the centre of the Nigerian oil economy, through its associations with the petroleum industry has become modernized and urbanized. Port Harcourt has rapidly grown to position itself as the commercial centre and the central metropolitan city in the Niger Delta region. The city of Port Harcourt is a major industrial centre with many multinational firms as well as other industrial concerns. The oil and gas businesses have increased the population of Port Harcourt hence making it necessary to provide accommodations for its inhabitants and also expanding the road networks by constructing roads and bridges for easy flow of traffic which is the reason Port Harcourt city was selected for this study. Port Harcourt is 66 km upstream from the Gulf of Guinea, located within latitudes 6°58'N to 7°6'N and Longitude 4°40'E to 4°55'E, with a population of about 3,020,232 in 2020. Port Harcourt is a fast-growing city having several oil companies both multinational and indigenous located at different areas of the city.



**Fig.1:** Map of the study area

## 2.2 Study population

The study population (150) consist of the workers in the Refining Company studied, comprising men and women from various departments, namely administration, production, maintenance, as well as Health and Safety, actively at work during the study period.

## 2.3 Sampling technique

This study utilized a purposive sampling method because it targeted the people available and willing to participate. This sampling technique was employed because the number of workers existing in the refining company participated in the study. Information was collected from the workers using a structured 5-point Likert scale questionnaire.

## 2.4 Sample size

The sample size for the study (110) was calculated using Taro Yamane's formula.

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

where n is the minimum sample size required for the study, N is Population under study, e is the margin of error set as 5% at 95% confidence level.

## 2.5 Research instrument

The instruments used for this study was a structured 5-point Likert scale questionnaire. The questionnaire consisted of four sections; Section 1 focused on the demographic information of the respondents. Section 2 focused on nature of occupational stress; Section 3 was on factors responsible for occupational stress while Section 4 focused on employee performance. The questionnaire was structured to be in the Likert scale system with Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD) representing 5, 4, 3, 2 and 1, respectively.

## 2.6 Validity/reliability of study instrument

Experts in Occupational health and Stress Management were used to establish the validity of the instrument. The reliability of the instrument was achieved by the test-retest method to determine the level of reliability of items of the survey instrument.

## 2.7 Statistical analysis

The data from the study were coded, keyed in, organized, and analysed using a Statistical Package for social sciences (SPSS) Version 20.0. Frequency tables and bar charts were used to present results. Descriptive statistics of percentages and mean were used. Inferential statistics such as regression and correlations were used to determine the effect of occupational stress on employee performance and the relationship between factors of occupational stress and employee performance, respectively.

## 3. Results and discussion

### 3.1 Demography of respondents

Fig. 1 to 6 show the demography of the respondents. The distribution of the respondents according to their office designation shows 62% at the entry level in the company, 18% at supervisory level while 14% and 6% are at middle and top managements levels respectively as show in Fig. 1. As regards academic qualification, Fig. 2 shows that 34% of respondents across the company have bachelor's degree as their highest academic qualification, this is followed by those who are

master's degree holders 20% and OND holders 16%. PhD holders were about 2% and Other unspecified academic qualification recorded 28% of respondents. The age distribution of the respondents presented in Fig. 3 shows that 14% of respondents were between 18-25 years old, 30% were in the range of 26 – 35 years old, 36 -45years old and those between 56-65 years old rescored 23% and 16%, respectively. While 17% of respondents were in the age range of 56 -65 years. The distribution of the respondents according to the number of years they have been working in their companies displayed as Fig. 4 shows that the highest percentage (35%) of respondents have worked between 11 -15 years, followed by those who have worked between 16 – 20 years (24%) and 6-10 years (23%). The lowest percentage of respondents were those who have been in the company 0-5years (13%) and 21-25 years (5%). Majority of the respondent worked 8 hours per day (45%) followed by respondents who work 9-10 hours (43%). 12% of respondents work above 10 hours per day as depicted in Fig. 5

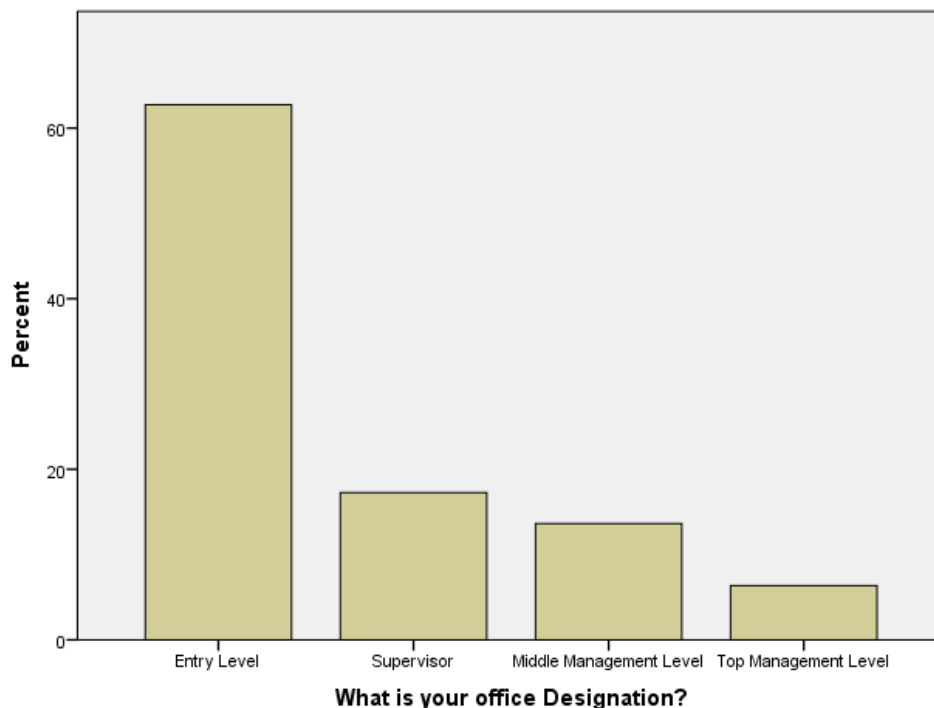


Fig. 1: Office designation of respondents

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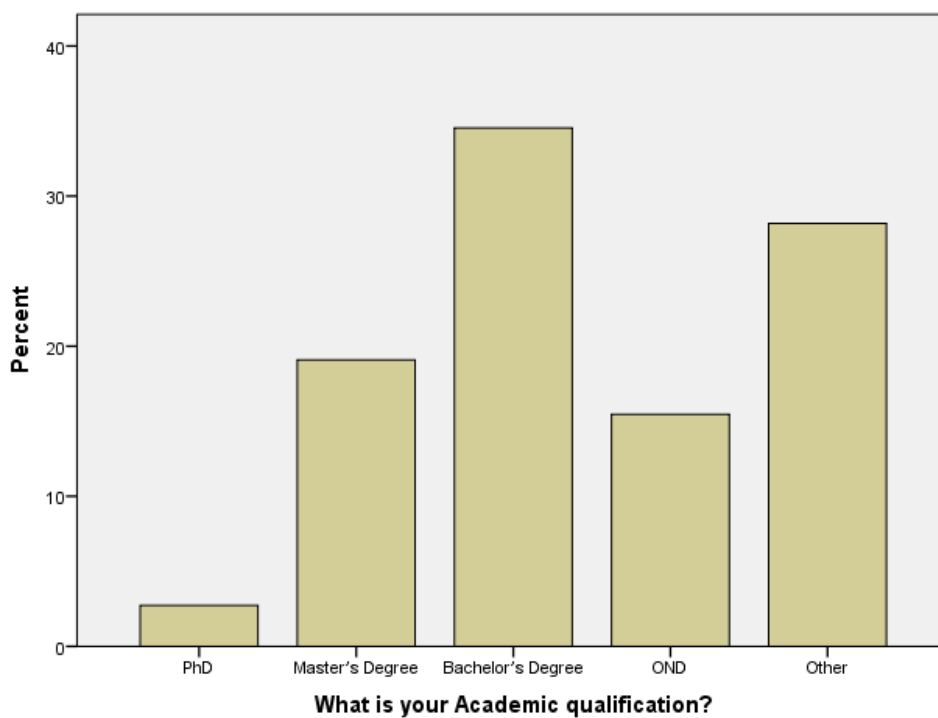


Fig. 2: Academic qualifications of respondents

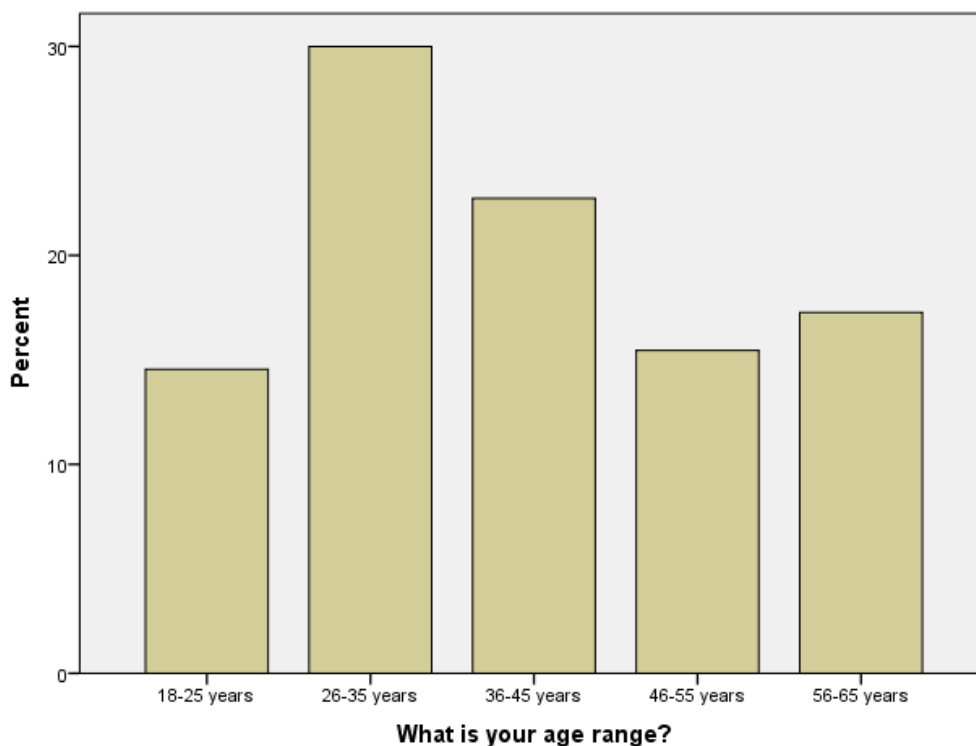
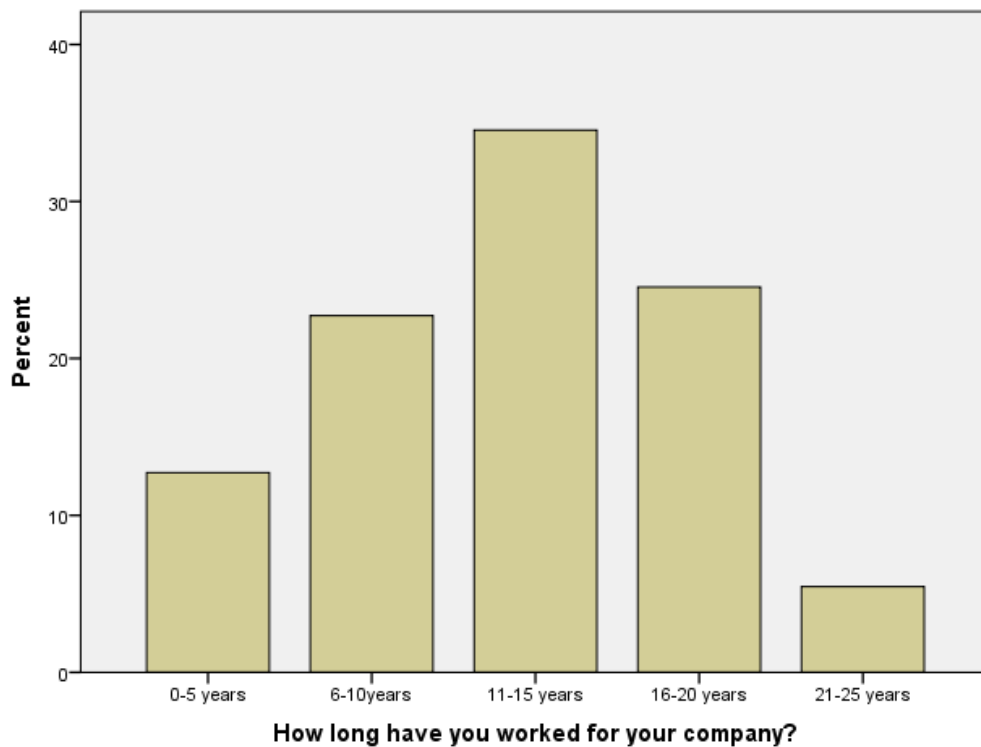
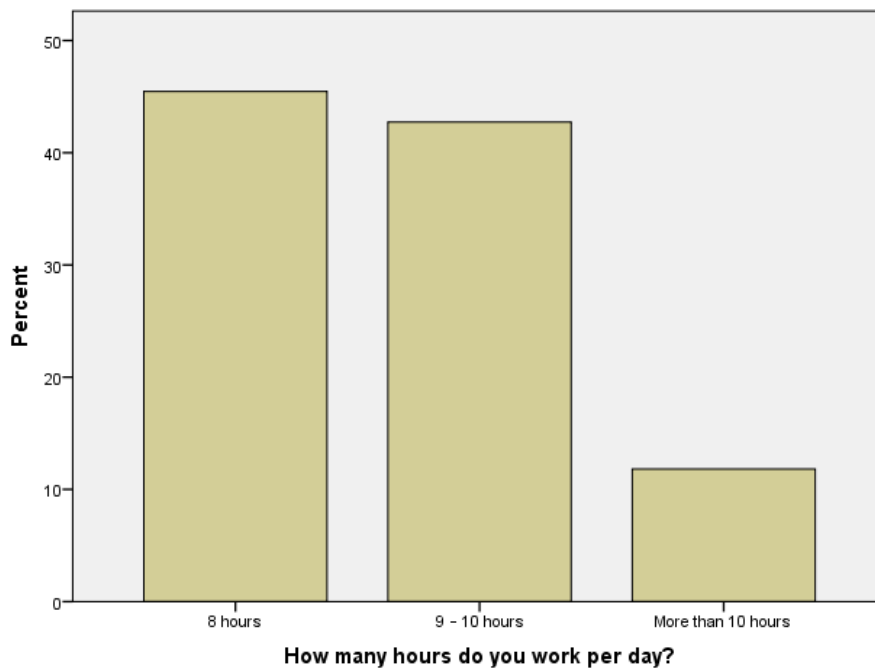


Fig. 3: Age range of respondents



**Fig 4:** Duration of service of respondents in their respective companies

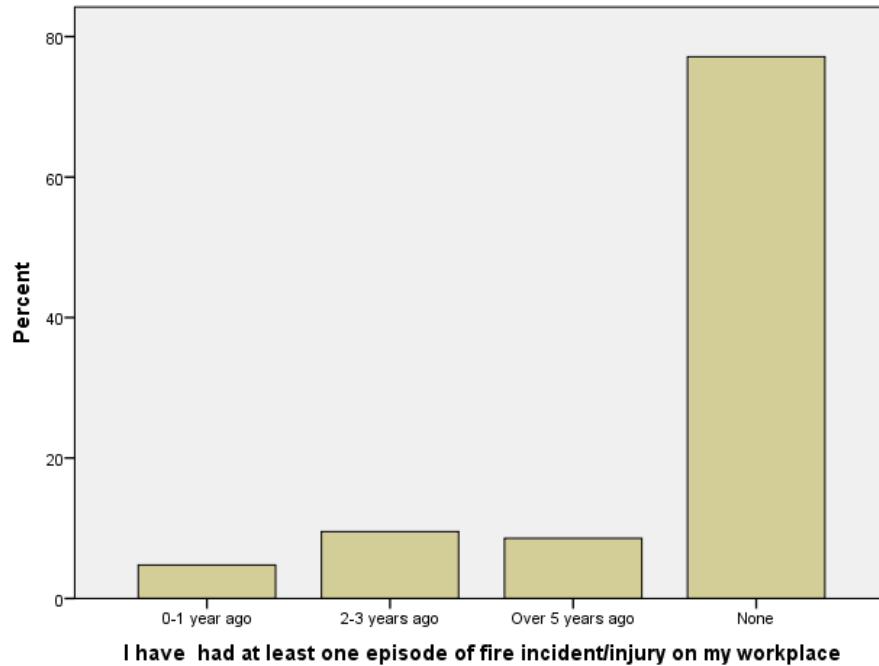


**Fig. 5:** Hours respondents worked per day

**3.2 Time of last experienced episode of fire incident/injury in the place of work**

Fig. 6 shows that 5% of the respondents experienced their last fire incident/injury episodes 0-1 year ago, 9% respondents experienced their last

fire incidents 2-3 years ago, while 8% respondents had their experience of fire incident/injury over 5 years ago. Interestingly, 75% of the respondents have however, had no experience of fire incident/injury.



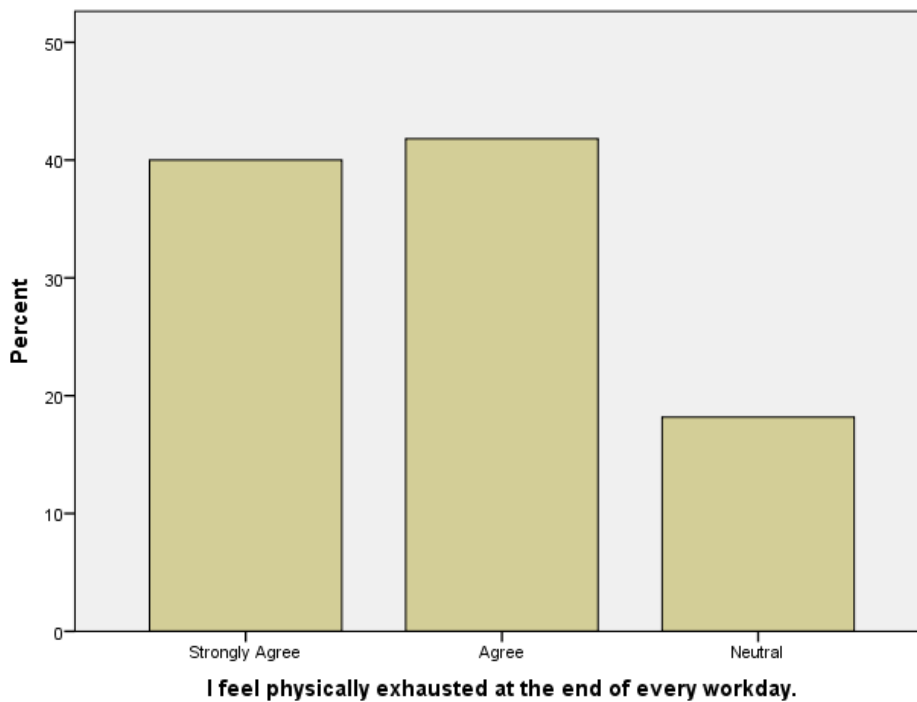
**Fig. 6:** Respondents experience of fire incident/injury in their place of work

### 3.3 Nature of stress

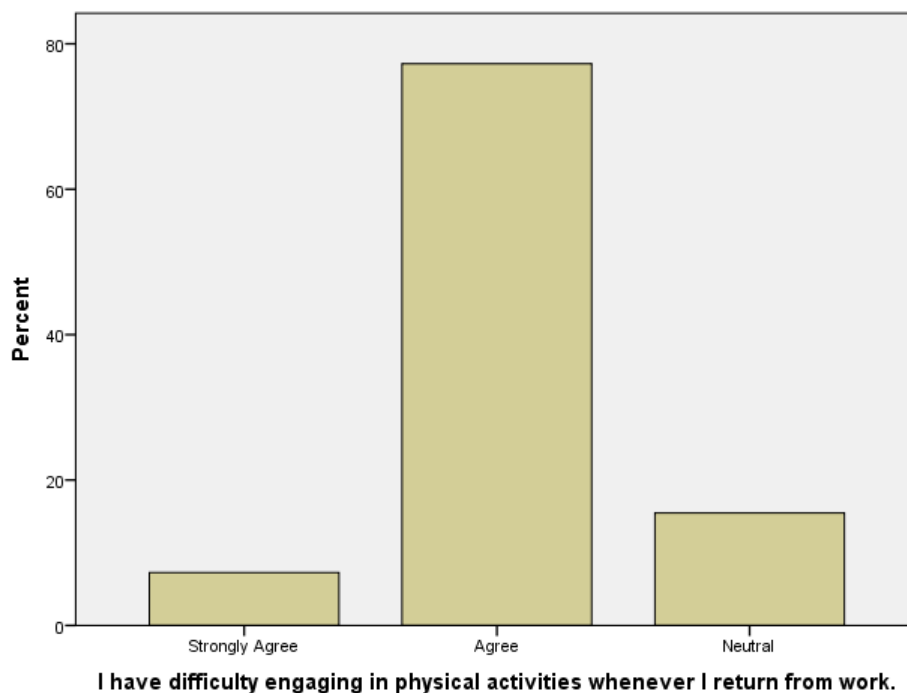
The nature of stress prevalent in the company studied are physical stress, emotional stress and mental stress. Fig. 7a depicts that 42% and 40% of the respondents agreed and strongly agreed, respectively that they are physically exhausted at the end of every work day. While 18% disagree that they are physically exhausted at the end of a work day. Fig. 7b shows that 77% and 7% of the respondents agreed and strongly agreed, respectively that they have difficulty engaging in any physical activities at the end of each day's work. However, 16% neither agreed nor disagreed that they had difficulty engaging in any physical

activity. Fig. 7c revealed that 85% of the respondents (SA=25% and A=65%) want to physically shut down at the end of a work day, while 15% do not want to physically shut down. Also, 55% and 24% of respondents agreed and strongly agreed, respectively that they are mentally drained and a work day. While 21% disagreed as depicted in Fig. 7d. Fig. 7e shows that 36% are unable to think clearly after a work day, 36% disagreed while 8% neither agreed nor disagreed. These observations agree with the studies of Adaramola (2012), Shin and Lin (2017) that every worker experiences some level of stress.





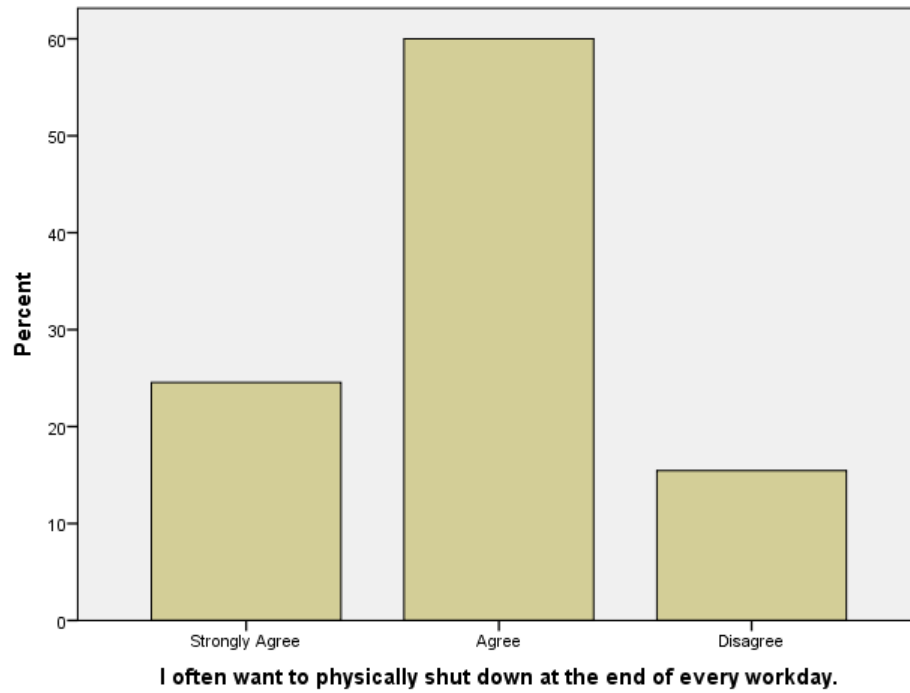
**Fig. 7a:** Physically exhausted at the end of everyday work



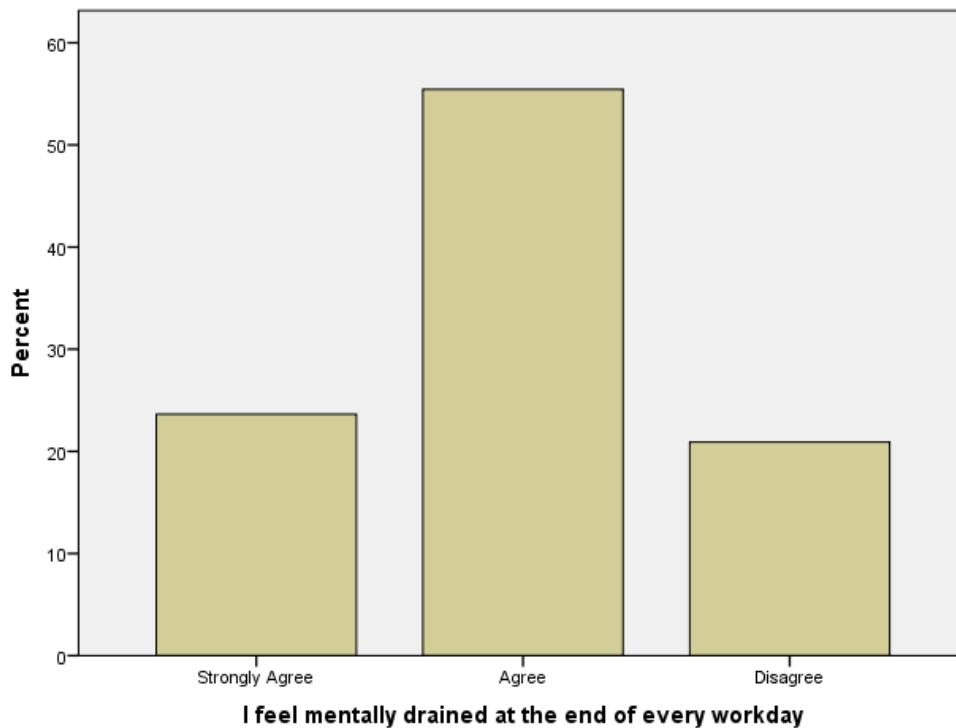
**Fig. 7b:** Difficulty engaging in physical activities



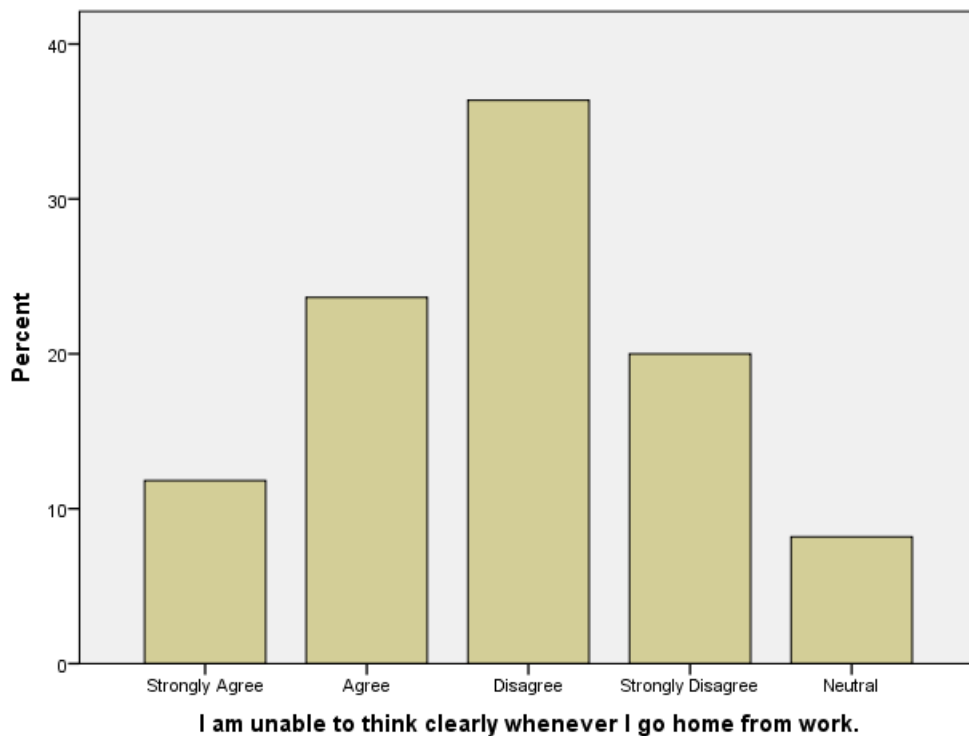
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**Fig. 7c:** Emotional stress resulting from work



**Fig. 7d:** Mental stress resulting from work

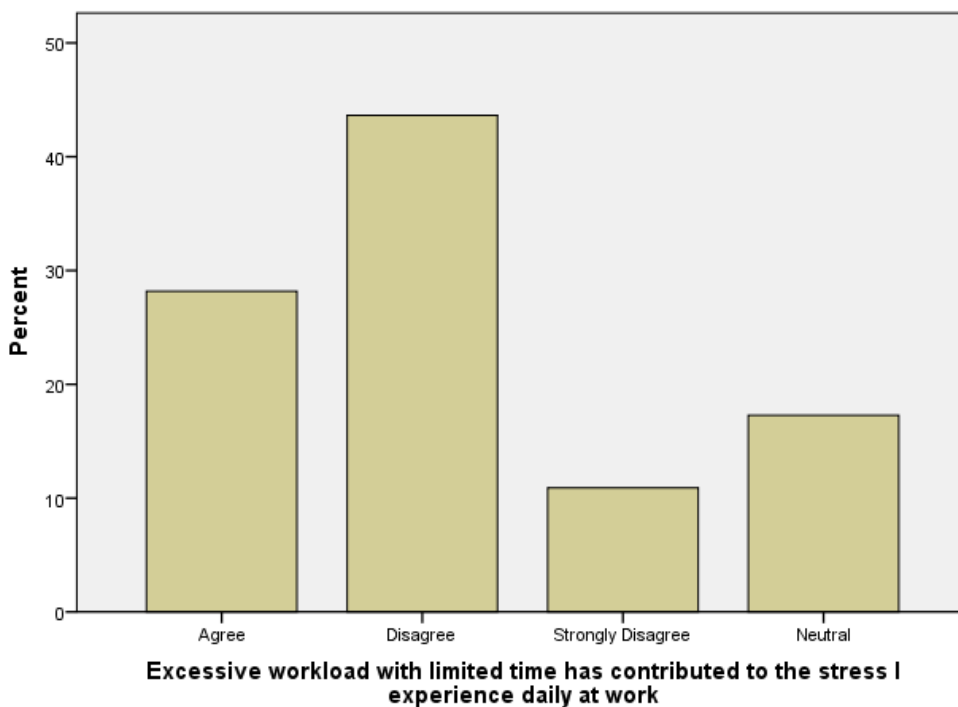


**Fig. 7e:** Inability to think clearly after work

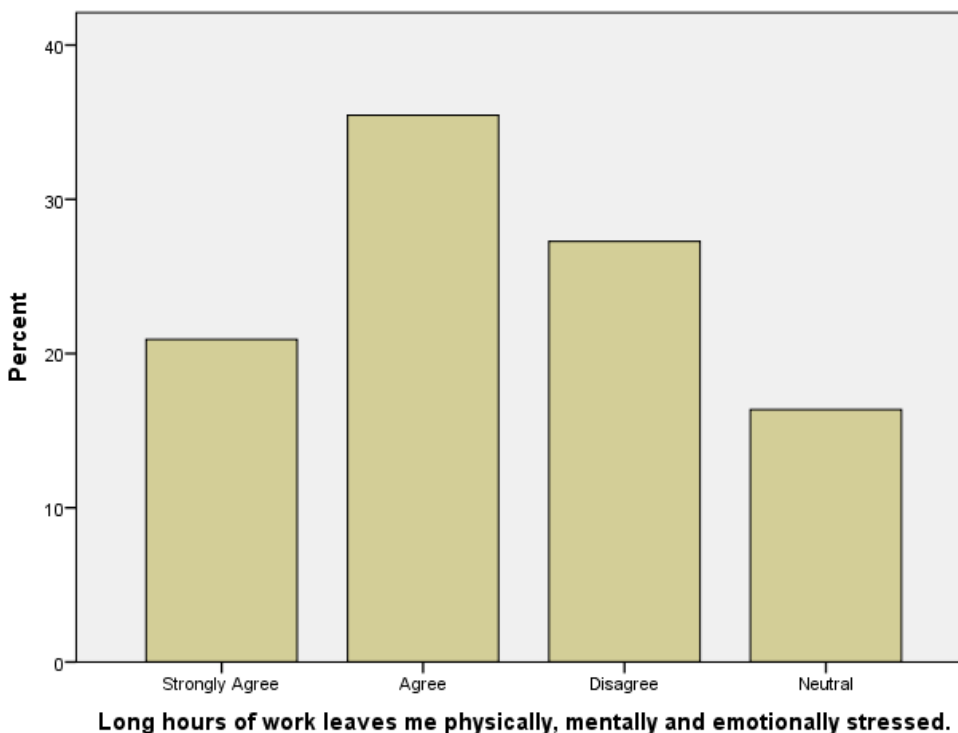
### 3.4 Factors responsible for occupational stress

Fig. 8a depicts that 28% of the respondents agreed that excessive workload has contributed to their work stress, 55% (D=44% and SD=11%) disagreed, while 17% neither agreed nor disagreed. Fig. 8b shows that 57% (SA=21% and A=36%) of the respondents agreed that long hours of work is responsible for occupational stress in their workplace, 27% disagreed while 16% neither agreed nor disagreed. Fig. 8c revealed that 80% of the respondents (SA=21% and A=56%) agreed that pollution and other environmental factors have contributed to occupational stress in their workplace, while 8% disagreed, and 7% neither agreed nor disagreed. Also, 59% agreed that insufficient infrastructure is one of the factors responsible for their occupational stress, but 41% disagreed as shown in Fig. 8d. Fig. 8e shows that 91% (SA=44% and A=50%) acknowledged that insufficient time for assigned task is responsible for

occupational stress in their workplace. However, 6% neither agreed nor disagreed. To insufficient manpower as a factor of occupational stress, 94% agreed (SA=47% and A=47%), only 6% of the respondents strongly disagreed (fig. 8f). Fig. 8g shows that infrastructure is also a factor responsible for occupational stress in the studied company with 65% (SA=16% and A=49%) in agreement and 35% (SD=6% and D=29%) in disagreement. Lack of training is shown in Fig. 8h as a factor responsible for occupational stress with 87% (SA=45% and A=42%) in agreement and only 13% in disagreement. For poor leadership and lack of team management, 59% agreed while 41% disagreed as shown in Fig. 8i. This observation agrees with the findings of Osibanjo et al. (2019), Akanji (2015) and Langlille (2017) that some causes of stress are excessive workload, lack of manpower, lack of information, poor leadership, etc.

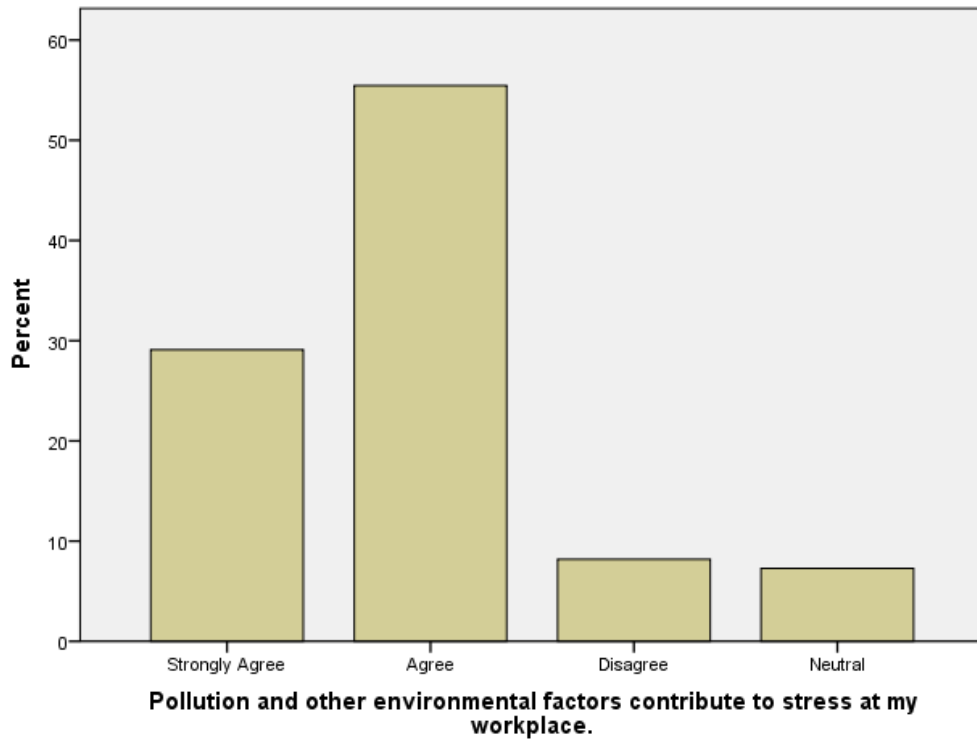


**Fig. 8a:** Stress induced by excessive workload

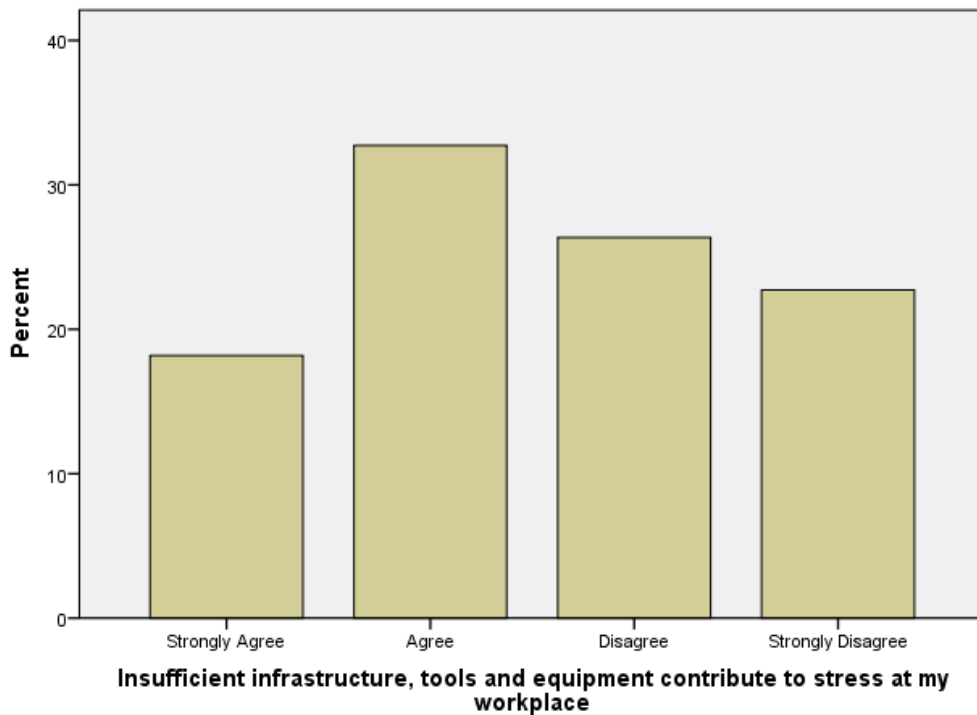


**Fig. 8b:** Stress induced by long hours of work

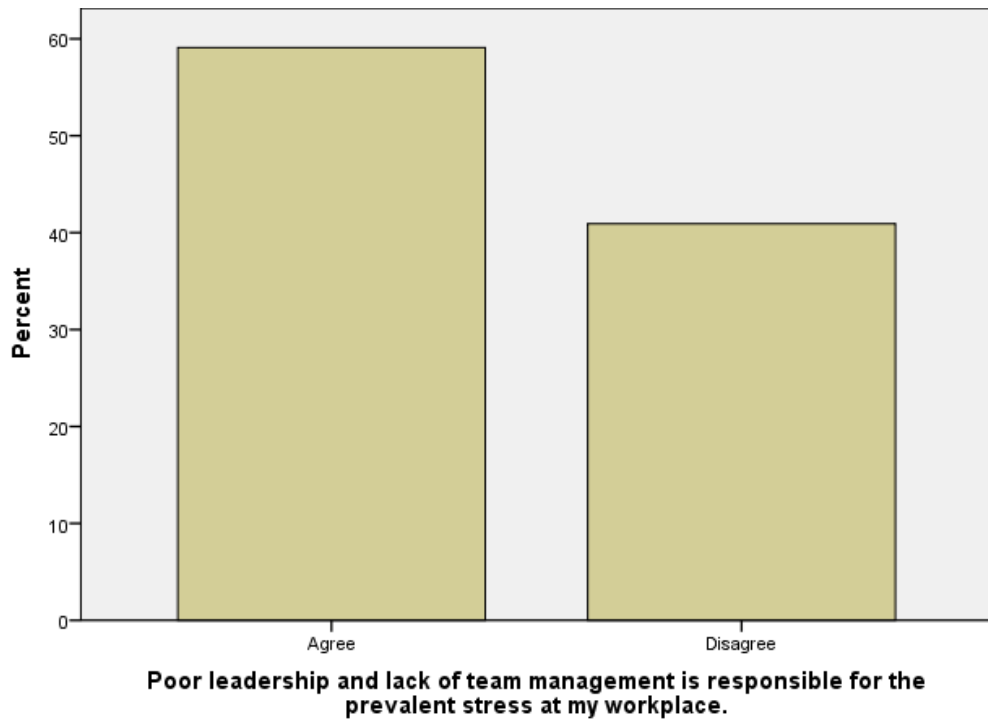
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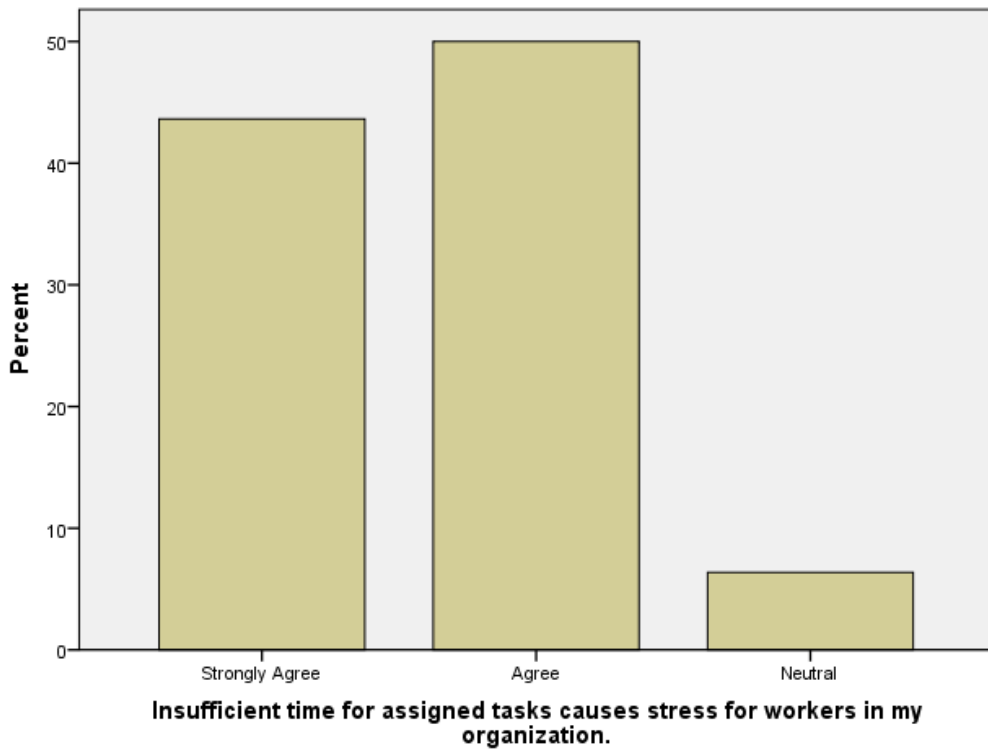
**Fig. 8c:** Stress induced by pollution



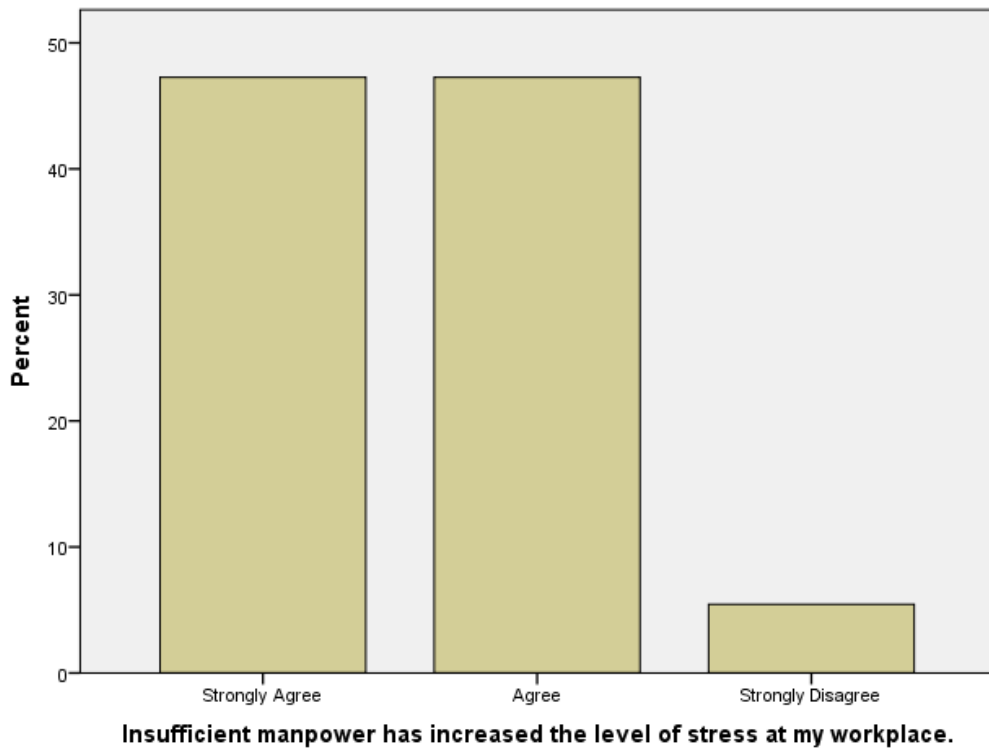
**Fig. 8d:** Stress induced by insufficient infrastructure



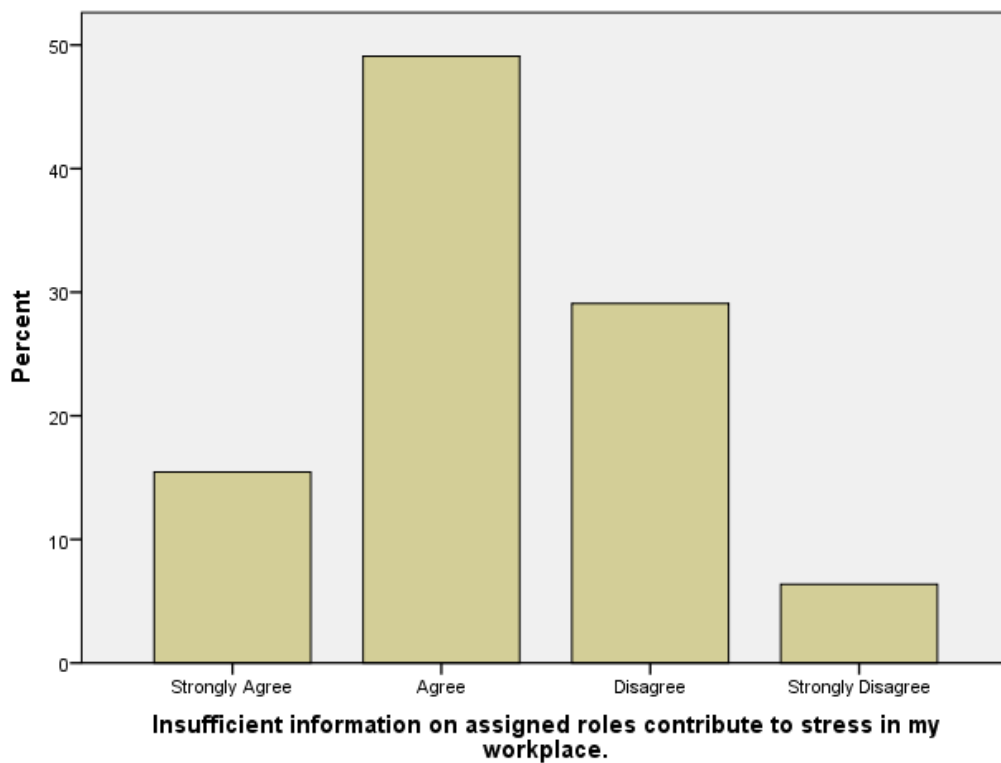
**Fig. 8e:** Stress induced by poor leadership



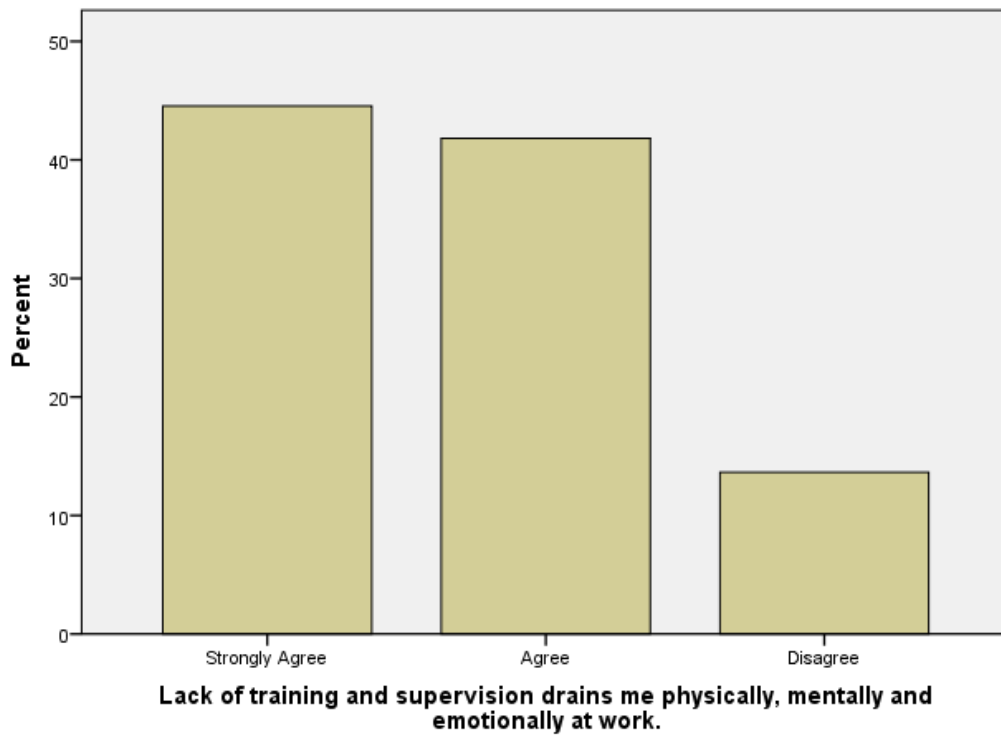
**Fig. 8f:** Stress induced by time allotted to complete task



**Fig. 8g:** Stress induced by insufficient manpower



**Fig. 8h:** Stress induced by insufficient information on assigned roles



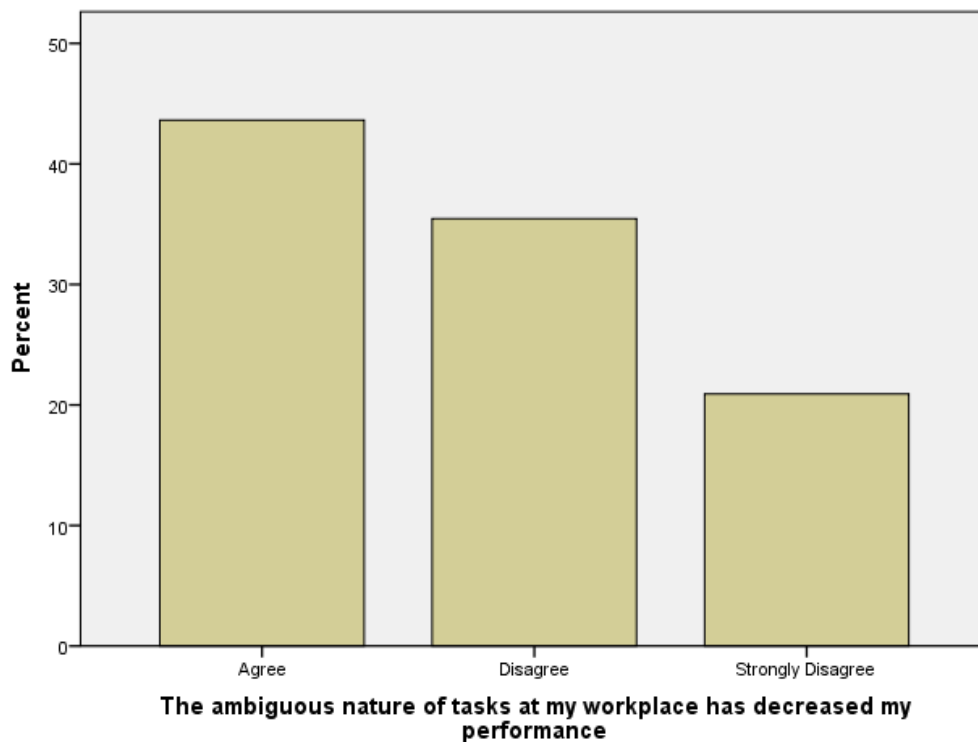
**Fig. 8i:** Stress induced by lack of training and supervision

### 3.5 Effects of stress on job performance

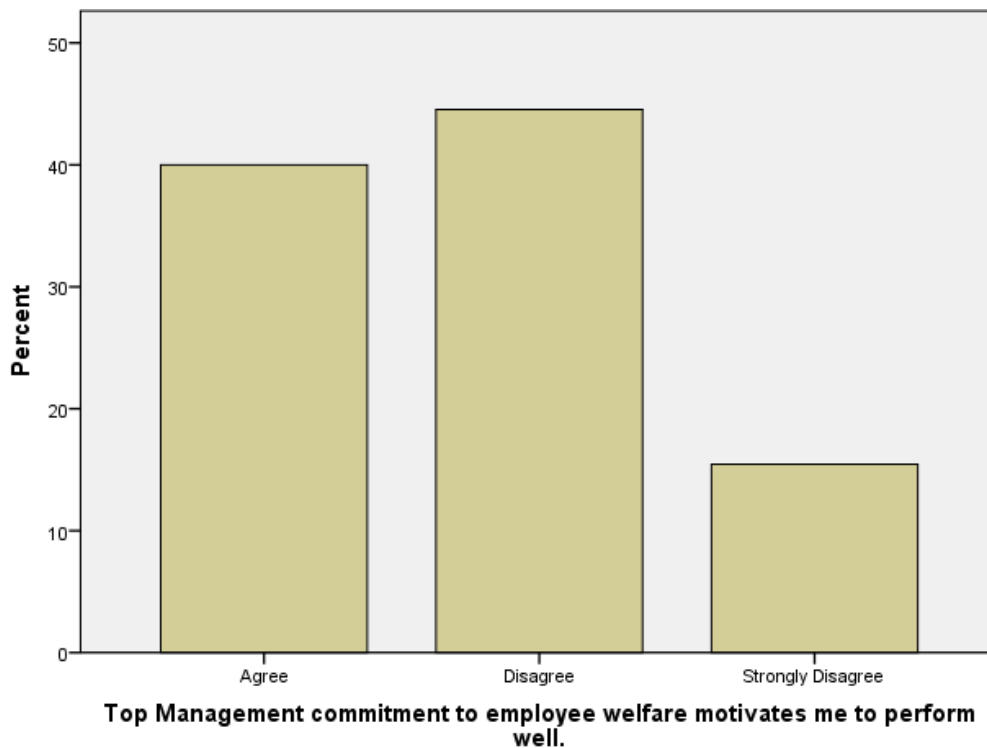
On ambiguous nature of task leading to decrease in performance, 44% agreed, 34% disagreed and 21% strongly disagreed (Fig. 9a). Fig. 9b shows that while 40% of the respondents agreed that top management commitment to employee welfare has decreased their performance, 45% disagreed and 15% strongly disagreed as well. Fig. 9c depicts the existing stress management procedures and practice implemented has improved employee performance with 38% agree, 34% disagree and 26% strongly disagree recorded from the respondents. Lack of proper communication has reduced employee

performance in the studied company with 82% (SA=36% and A=46%) in agreement and 18% in disagreement (Fig. 9d). Also, insufficient information led to poor performance was agreed by 75%, strongly agreed by 18% and disagreed by 7%. On daily performance being negatively affected by excessive workload, 56% respondents agreed while 44% disagreed. This study is in line with the findings of related previous studies that productivity decreases with stress and that job performance is decreases with increased stress (Adaramola, 2012; Akanji, 2015; Shin and Lin, 2017; Feddeh and Daranad, 2020).



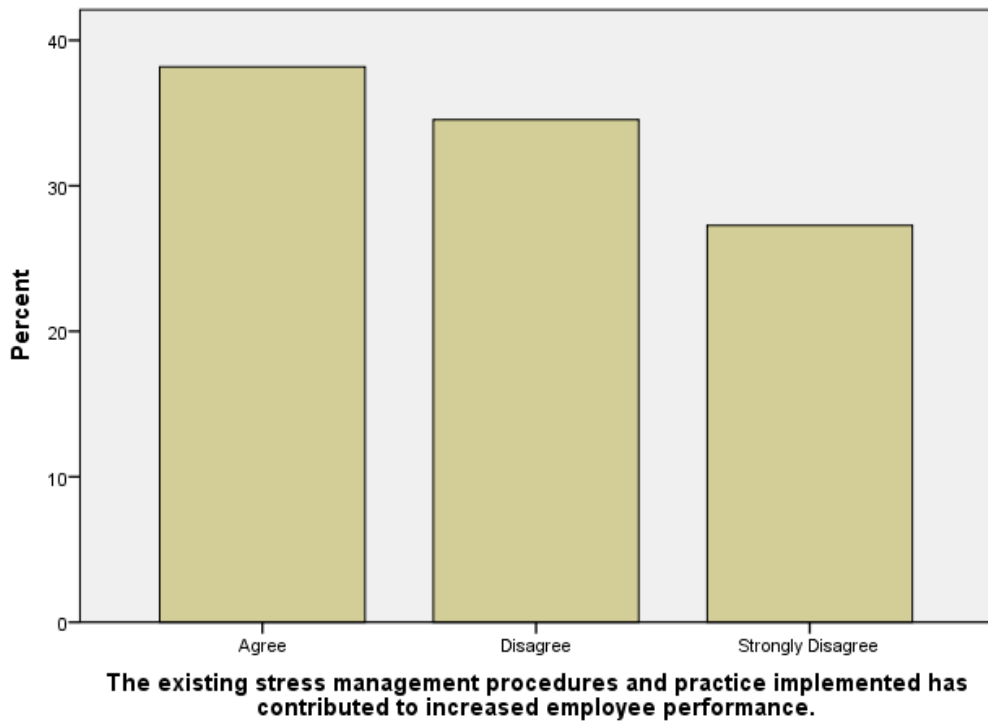


**Fig. 9a:** Reduced performance due to stress

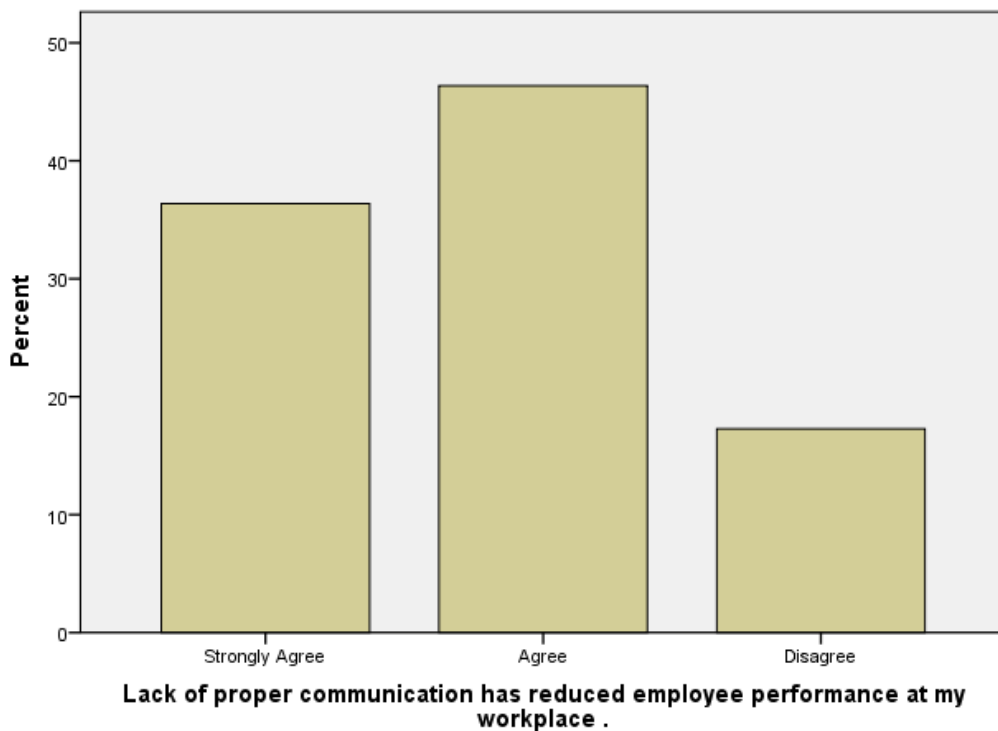


**Fig. 9b:** Management commitment to staff welfare and employee performance

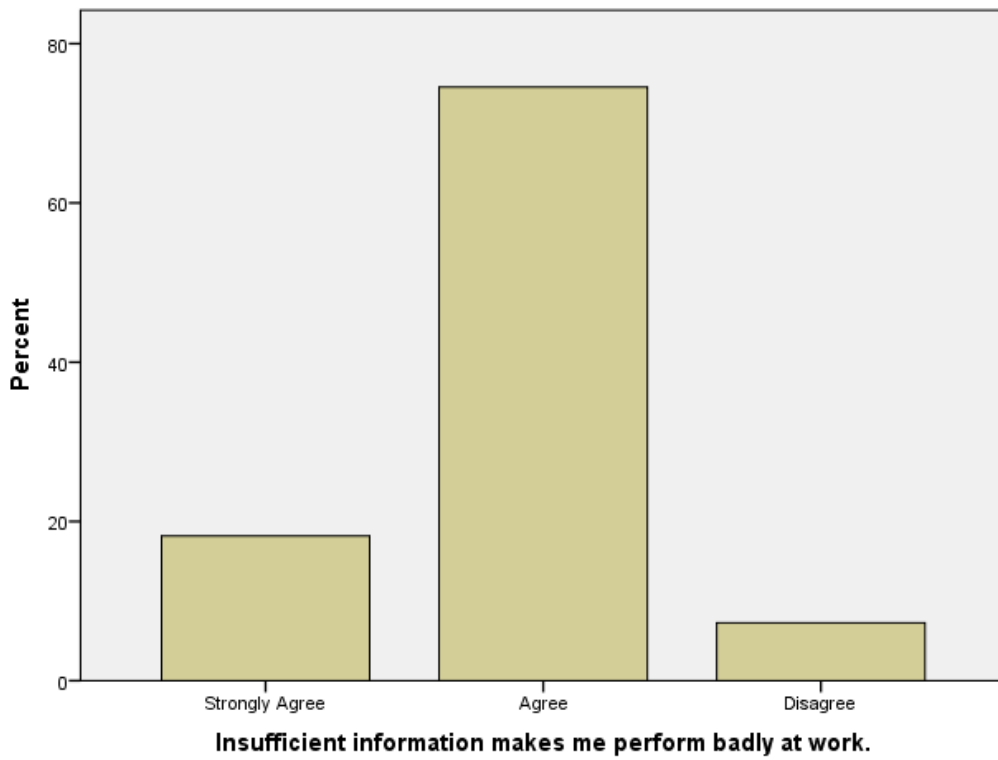
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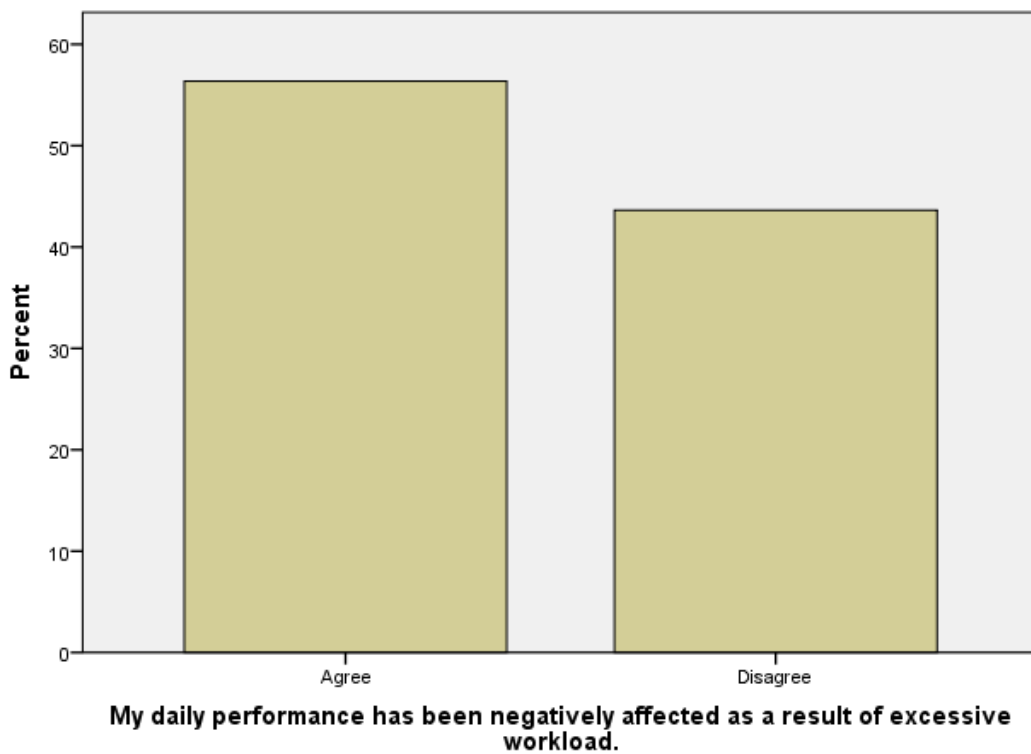
**Fig. 9c:** Stress management procedures and employee performance



**Fig. 9d:** Proper communication and employee performance



**Fig. 9e:** Insufficient information and employee performance



**Fig. 9f:** Excessive workload and employee performance

**3.6 Relationship between factors of occupational stress and employee performance**

The correlation output reveals a very strong relationship between the variables (employee performance and factors of occupational stress).

There's an association factor (Pearson correlation) of 1 to 0.35 which is significant at p-value <0.001 as shown on Table 1. A further analysis with regression (Table 2) revealed that the model is statistically significant and that 12.4% of the dependent variable (employee performance) can be explained or predicted by the constant (factors of occupational stress). The coefficients further

revealed that a 1 unit increase or improvement in the factors of occupational stress will cause a 0.26-unit increase in employee performance and this is also statistically significant at  $p < 0.0001$ . This result is in line with the studies conducted by Akanji (2015), Shin and Lin (2017), Feddeh and Daranad (2020) and Osibanjo et al. (2019) that occupational stress determines job performance.

**Table 1:** Relationship between factors of occupational stress and employee performance  
**Correlations**

		Employee performance	Factors of Occupational stress
Employee performance	Pearson Correlation	1	.352**
	Sig. (2-tailed)		.000
	N	110	110
Factors of Occupational stress	Pearson Correlation	.352**	1
	Sig. (2-tailed)	.000	
	N	110	110

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 2:** Effect of factors of occupational stress on employee performance

Variables	B	R <sup>2</sup>	F
a. Dependent variable - Employee performance			
b. Predictors (constant) - Factors of occupational stress	0.26 (0.67)	12.4	15.28*

\* Significant at the .0001 level of significance ( $p < .0001$ )

**Table 3a:** Regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.007 <sup>a</sup>	.000	-.009	.480

<sup>a</sup>Predictors: (Constant), Factors\_of\_Occupational\_stress

**Table 3b:** Regression Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.334	.174		13.389	.000
	Factors_of_Occupational stress	.006	.080	.007	.070	.945

<sup>a</sup>Dependent variable: Employee\_performance

#### 4. Conclusion

This study assessed the occupational stress among workers and its effect on employee performance in a refining company in Port Harcourt. Excessive workload, lack of training, pollution, insufficient manpower, insufficient information and long hours of work are some of the factors responsible for occupational stress in the company studied. Also, lack of proper communication and insufficient information are

considered to likely cause a disruptive effect on performance of workers. They are also seen as more problematic compared to the other causes of stress. The study reveals that workers through the stress factors react to these stress factors by performing poorly at work. A substantial number of respondents (82%) confessed that they have experienced physical exhaustion in the course of their duty. Though Clinics may have been made available to attend to these problems caused by

stress, it was evident that most workers will prefer a stress-free working environment to a palliative treatment they would receive in clinics.

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