ASSESSMENT OF THE IMPACT OF STRESS ON THE PERFORMANCE OF CONSTRUCTION PRACTITIONERS IN KADUNA STATE

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Abstract.
In today's workplace, across different industries, stress has become one of the world's most common health concerns requiring considerable attention. Therefore, this study assessed the impact of work stress on the performance of construction practitioners with a view to suggesting strategies for effective management of stress. 201 questionnaires were administered to the research population and 200 were retrieved representing a response rate of 95.5 %. Analysis of the data was carried out with the use of Percentages, Mean Item Score (MIS), and Pearson product correlation. The study found that poor working conditions (MIS = 3.72); and work overload (MIS = 3.72) are the most prevalent factors contributing to stress among practitioners in the construction industry. Findings from the study also revealed that reduced job satisfaction (MIS = 3.90) is the most significant impact stress has on construction practitioners performance while task performance (MIS = 3.80) and technical performance (MIS = 3.76) are the most commonly used performance measures for construction practitioners. The study also found that work stress has a significant positive and slightly strong relationship with performance of construction practitioners with a value of 0.393. It was therefore concluded that workplace stress is a double edge sword and has both positive and negative impacts on the performance of professionals in the construction industry. The major recommendation from the study was that management should ensure that personnel are up-to-date and get sufficient training in order to effectively execute their jobs and track their progress.

Keywords: Construction practitioner, Performance, Stress,

Introduction

The building construction industry as witness transformations across the globe in the last few decades. Continuous changes in the development of building process, pace and complexity of work and increasing demand for higher productivity have become common features of the construction industry (Wong *et al.*, 2010). In addition, practitioners and other work force in the industry operate in an extremely competitive environment where projects are designed, constructed and delivered within tight budgets and a short duration. The whole processes have made works in the industry mentally and emotionally demanding and stressful (Wahab, 2010). According to Daniel (2019), an average employee in the construction industry spends almost one third of his life on work, and sometimes has to face a lot of stress during his/her job. Daniel (2019) further lamented that stress in a workplace has touched almost all professions, from executive to workers who are directly engaged in the production. Job stress ultimately affects the physical as well as mental health. Stress has impact considerable impact on the lives of individuals. Although stress is a common concept, it is often misunderstood by many individuals. Stress is the way in which an individual respond to a range of environmental stressors. It is individualistic in nature and affects different people in different ways. Thus, what affects one person may not affect another (Blonna, 2012).

Lath (2010) asserted that although every person including a child, an adult, employed or unemployed faces stress in his/her everyday life. He defined stress as any challenge that exceeds the coping abilities of the individual. According to Patching and Best (2014), stresses a manifestation of different psychological factors such as an individual's personality type, their ability to be flexible, their understanding and use of avoidance and/or coping mechanisms, an individual's sleep and behaviour patterns, as well as their cognitive style, and how they learn. Lath (2010) opined that stress is the physical and emotional responses that occur when workers perceive an imbalance between their work demands and their capability to meet such demands.

The causes and effects of psychological and occupational stress varies across different sectors of the economy. In the construction industry, professionals are exposed to stressful working conditions (Edwards and Irani, 2010). Sommovigo *et al.* (2019) added that construction related jobs are complicated, dynamic, crisis-ridden and involves high speed. These make construction employees vulnerable to occupational and psychological disorders and this has effects on themselves and the industry.

In education sector, Yusoff and Khan (2013) emphasized that stress is due to imbalance between job demands and their ability to respond. Employees are under pressure due to heavy workload, job demands and publication efforts given rise to tiredness, sleeping problem and concentration which are more visible when more workload is expected to attract external research funds. Similarly, Nithyajothi (2019) said that work life in the telecom industry is both challenging and stressful. Thus, employees are exposed to experiencing damage to critical

brain structures and circuitry (McEwen and Morrison, 2013), reduced ability to cope with future stress and expanded nervousness and constant discouragement (Miller and Hen, 2015). . Globalization and changes in the nature of work has necessitates people to deal with increasing work-related stress. Furthermore, Farber (2012) believes that we cannot eliminate stress but we can try to manage or cope with it at an optimal level. As such, understanding the causes is important in order to manage it. In developed economies, people are becoming more familiar with what work-related stress is and how to manage it. However, in developing countries like Nigeria.

Since the human resource is an important resource to construction related organizations, efforts must be made to guard against any threats to this resource. It is important to understand the stress factors and make an effort to reduce those stressors in order to make effective and efficient use from of human resource (Sharma and Devi, 2011), and for them to be retained within the organization. Therefore, this study assessed the impact of work stress on the performance of construction practitioners with a view to suggest strategies for effective management of stress.

The following objectives were formulated in order to minimise stress within the construction sector in the study area:

i. To assess factors contributing to stress among practitioners in the construction industry;
ii. To examine ways of assessing performance of stressed workers in construction sector; and
iii. To assess the impact factor of stress on construction practitioners' performance.

Literature Review

Factors Contributing to Stress among Construction Practitioners

Employees experience and feel stressed due to a set of various reasons and therefore the reactions to stress at the workplace are not a separate aspect (Fairbrother, and Warn, 2003). Increasingly, the stress level is changing rapidly among the employees due to various reasons, such as work overload, over crowdedness at the workplace, of loud noises generated by machines and arousal of conflicts among the employees and the employer due to poor or inadequate decisions (Richardson, 2014). Stress can arise because of transitions made in our personal lives. Personal issues that contribute to stress are domestic problems in the house, like losing loved ones, financial problems and divorce. These could be categorized as individual causes that lead to stress. On the other hand, there is also stress that is caused by organizational factors; these factors are those faced by the employees at the workplace. Issues such as role uncertainty; that is not being able to know exactly what one is supposed to do and

what others expect from us and also having too much work at hand with little time to accomplish it, can cause stress at the work place.

Further, organizational factors that causes stress are poor working conditions where the employee is often too distracted, where there is noise, where it is chilly or too hot and where the workplace is often filled with people running here and there. Whereas issues that contribute to stress are lack of control, suddenness, and ambiguity; especially role ambiguity is the foremost reason of stress at work (Richardson, 2014). Some organizational factors that can be considered as stressors mostly depend on the types of job and specification of works. These play important role regarding the issues related to stress, for instance, if the job is high-stress prone. High stress jobs are the kind of jobs that require plenty of time, and put the employees under the pressure of work. It is also notable that, often the employees suffer from poor working situation, if the work is performed in an unpleasant environment (Bloisi *et al.*, 2007). Scholars have stated that a large number of features of occupational life, is connected to stress. Okeke *et al.* (2016), concluded their study by conducting a sample study of 7,099 employees from 13 different companies and occupations. They reported that a significant statistical relationship between workplace factor and negative symptoms of health or disorder of mental situation such as, anxiety, depression and irritation. Employees usually feel stress at their jobs due to the following reasons (Okeke *et al.*, 2016);

a) Work overload
b) Misuse of power
c) Inadequate decisions or leader behavior
d) Overcrowd and noise.

Work and workplace in them are stressful phenomenon and therefore, various aspects of work situations are connected to stress (De Silva *et al.*, 2017). According to Boschman *et al.* (2013), the factors related to roles in a work environment are namely existence of low-level power, role indefiniteness or role dispute. They added that increase in physical conditions at the workplace such as concurrent permanent noise, overcrowding and lack of secrecy, are associated to stress. The behaviour of the leader or chief can also affect the level of stress (Fairbrother, and Warn, 2003).

Impact of Work Stress Factors on Construction Practitioner's Performance

The findings of the investigation regarding the consequences of work stress experienced by employees at Khairun University showed a negative and significant effect on employee performance (Nur, 2013). Research conducted Ramli (2017) and Yang and Hwang (2014) have tried to test the impact of work stress on employee performance whose findings turned out to show that organizational performance is an element that collectively will be born from the achievement of each employee's performance. According to Barlian (2016) if we can find

out the causal relationship between the achievement of employee performance with organizational performance, it will be able to assist managers in directing the limited organizational resources in the right direction, which is the cause of improved employee performance, so that Organizations with workforce will be more satisfied and more efficient. Job stress according to Basri (2012) can be explained as a negative feeling and arises because of an individual's inability to face the weight of a workload that has an inappropriate capacity or encounters pressure at work.

According to few of the researches the productivity is considered to be at the peak with moderate level of work stress, but as it goes beyond that certain level, the productivity starts decreasing with increasing rate (Kakkos & Trivellas, 2011). It also has been found that the performance of employees remains poor at very low level of stress as well as at very high level of stress, because at low level of stress employees may not be sufficiently energized and may not be whole-heartedly dedicated to their job, resulting in low productivity. And at the peak of stress, employees want to get out of that stressful situation, result in no concentration on work. Job stress can be viewed as an individual's reactions to characteristics of work environment that are perceived to be emotionally and physically threatening to the individual (Shahriari *et al.*, 2013). It points to a poor fit between the individual's capabilities and his work environment, in which excessive demands are made of the individual or the individual is not fully prepared to handle the situation (Shahriari *et al.*, 2013). In general, the higher the imbalance between the demands and the individuals' abilities, the higher will be experienced job stress (Jamal, 2007).

Job performance can be viewed as an activity in which an individual is able to accomplish successfully the task assigned to him, subject to the normal constraints of the reasonable utilization of available resources (Shahriari *et al.*, 2013). At the conceptual level, four types of relationships were proposed earlier to exist potentially between the measures of job stress and job performance; a negative linear relationship, a positive linear relationship, a curvilinear / u-shaped relationship and no relationship between the two. Since the nature of the relationship between job stress and job performance, to the best of our knowledge, has not been empirically examined under a two-dimensional model of job stress, a brief review of the four relationships is warranted. A negative relationship between job stress and performance was conceived by those who viewed job stress as essentially dysfunctional for the organization and its employees (Tourigny *et al.*, 2016).

Job performance can be considered as "an activity in which an individual is able to accomplish successfully the task/goal assigned to him, subject to the normal constraint of the reasonable utilisation of available resources (Goswami, 2015). Job stress is often described as closely associated with performance and have serious implications on individual and organizational performance. Stressed employees are most probably unhealthy, poorly motivated, less productive and less safe at work (Goswami, 2015; Lopes & Kachalia, 2016; Park, 2007).

Sources of job stress contribute to reduced job satisfaction, reduced quality of labour, high worker's turnover, absenteeism, reduced worker overall performance and reduced organizational performance. Too much stress is clearly evidenced by a substantial decline in performance and organizational effectiveness (Manderson, 2014).

Measures of Performance of Stressed Construction Practitioners

A systematic literature review of 213 studies published in reputed journals or a period of only three years (2006-09) revealed 207 different measures used for assessing performance. There are various ways of assessing performance in construction sector, few of these ways are discussed below:

i. Technical Performance

Technical Performance Measurement is a process by which project management can measure the risks inherent in a given project. Technical Performance Measurements provide insight as to the parameters of the specific design elements of the system. Technical Performance Measurement is used by project management to define the measures of performance and acceptable variables during project implementation (Ahmad *et al.*, 2016). Use of Technical Performance Measurement benchmarks should be limited to factors which negatively effect the primary measures of performance, which are schedule and budget. Project management should not use Technical Performance Measurement to measure typical project goals, but strictly as a preventative measure to ensure that the project is delivered on time, and for the targeted budgetary goals. Studying these technical performance measurements provides the opportunity for management to develop tolerable risk ranges to evaluate the parameters of the project (Dziekonski *et al.*, 2018).

ii. Social Performance

Social performance of construction projects reflects the extent to which the lifecycle of construction projects meets the demands of anticipated or existing social demands. Therefore, social performance of construction projects could be obtained by analyzing social impacts of construction projects and the requirements for social sustainability by diverse stakeholders. Shen *et al.* (2007) explored the indicators for social sustainability performance evaluation of different stages. Valdes-Vasquez *et al.* (2012) identified 50 processes for social sustainability consideration during planning and design phase of construction projects, and these processes were categorized into six categories, namely stakeholder engagement, user considerations, team formation, management considerations, impact assessment, and place context. Zuo *et al.* (2012) interviewed domain experts and 26 criteria of social sustainability were identified, which were further discussed from three dimensions, i.e., macro level, external stakeholders, and internal stakeholders. Almahmoud *et al.* (2015) studied social core functions (SCFs) of a construction project from perspectives of diverse stakeholders. Capital performance, health and physical comfort, accessibility, integration, usability psychological comfort, and operation

health and safety were identified as SCFs of a construction project. Liu et al. (2018), studied social impacts of an affordable housing project and indicators reflecting social impacts were discussed from three aspects as socio-economic effects, adaptabilities, and social risks. Wang *et al.* (2016); Shi *et al.* (2015), and Liu *et al.* (2016) also addressed the social risks of the construction projects. They suggested that the projects should not only be compliant with the regulations but also meet the requirements of diverse stakeholders, especially the end-users, which will improve project social flexibility and thereby contribute to project social sustainability.

iii Personal Performance

Personal Performance means each employee's work performance during the performance period which may be assessed by the administrator based on one or more criteria, including, but not limited to: personal or team performance and measures such as teamwork, interpersonal skills, communication skills, employee development, project management skills, and leadership, or individual or team business objectives such as performance versus budget and attainment of safety, operational incident and environmental standards (Jin *et al.,* 2013).

iv. Organizational performance

There are possibly many interpretations of the term organizational performance. Luo *et al.* (2012) who conducted a meta-analysis of organizational performance suggested that it should be measured in economic and operational terms: The economic performance looks at financial and market outcomes which assess the profits, sales, return on investment for shareholders, and other financial metrices.

The operational performance, on the other hand, focuses on the observable indices like customer satisfaction and loyalty. the firm's social capital, and competitive edge derived from capabilities and resources. Organizational performance is measured for different levels of hierarchy and can be assessed for individuals, groups, and the entire organization as a whole (Knies, Jacobsen and Tummers, 2016). The researchers settled on a multi-dimensional construct of organizational performance with financial performance, product market performance, and shareholder return forming three crucial aspects.

Research Methodology

This study adopted quantitative research design via questionnaire survey administered on construction practitioners in Kaduna State. Questionnaire survey adopted allows large coverage since there are various professional in the construction sector, it is alsoconvenient and relatively inexpensive. Kaduna is selected because is one of the epicenters of construction activities in North West, Nigeria with high population of construction practitioners. There are 429 construction professionals in Kaduna based on the information gotten from each professional bodies in the State (such as Nigerian Institute of Architects (NIA), Nigerian Institute of Quantity Surveyors (NIQS), Nigerian Institute of Building (NIOB) and Nigerian

Society of Engineers (NSE). Those that constitute this target population are financially up to date members of these professional bodies. A sample is a small proportion of a population selected for observation and analysis. The sample size for this study was calculated using a formula proortion as illustrated by Glenn (2013).

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

Where;

n = Sample size

N = Population size in the sample unit

e = Level of precision which is + 5% (0.05)

$$n = \frac{429}{1 + 429\ (0.05)2} = 201$$

n= 201 (1)

To arrive at a sample size that served as a representative of the entire population in the study area equation 1 showed above was used and an estimated sample size of 201 was gotten. The analysis of the data was carried out using descriptive statistic such as percentage, mean item score, and Pearson product correlation. A simple random sampling technique was adopted for the study. The questionnaire was designed on a five-point Likert scale format to address issues relating to the research objectives set.

Results and Discussion

Factors Contributing to Stress Among Practitioners in the Construction Industry

A total of thirteen (13) stress factors were identified from literature, and respondents were asked to rank these factors as contributing to stress among practitioners based on their impact. Table 1 shows the factors contributing to stress among practitioners. It can be seen that the top three (3) are poor working conditions, work overload, and financial problems, with MIS values of 3.72, 3.72, and 3.64 ranked 1st, 1st, and 3rd, respectively. At the bottom were the domestic problems in the home, overcrowding at work, and divorce are the least prevalent (3) factors, with MIS values of 2.62, 2.44, and 2.36 ranking 10th, 11th, and 12th, respectively. The Table shows that all factors considered were considered medium and low because they fall between the MIS values of 3.72 and 2.36, respectively.

However, a close look at the results in Table 1 shows that all the identified factors contributing to stress among practitioners had an average MIS value of 3.11. This implies that, to a considerable extent, all the 13 factors contributing to stress among practitioners have the tendency to positively affect building projects. The finding of this study here agrees with Okeke *et al.* (2016) and De Silva *et al.* (2017), where it was established that employees usually

feel stressed at their jobs due to work overload, misuse of power, and loud noises generated by machines.

Table 1: Factors contributing to stress among practitioners in the construction industry

S/No	Factors	MIS	Rank
1.	poor working conditions	3.72	1
2.	work overload	3.72	1
3.	financial problems	3.64	3
4.	Ambiguity of tasks	3.36	4
5.	behaviour of the leader	3.36	4
6.	Economic uncertainties such as redundancy and downsizings.	3.26	6
7.	Misuse of power	3.18	7
8.	loud noises generated by machines	3.12	8
9.	Role uncertainty by the employee	3.00	9
10.	Advancement in technology	2.62	10
11.	domestic problems in the house	2.62	10
12.	over crowdedness at the workplace	2.44	12
13.	Divorce	2.36	13
	General Average	***3.11***	

Measures of Performance of Construction Practitioners

Five (5) measures of performance were identified from literature, and respondents were asked to rank their level of agreement with the identified measures. Table 2 shows the result of the analysis of the measures of performance of construction professional practitioners. Task performance and technical performance are the most commonly used measures of performance for construction professional practitioners in all types of workplaces, with MIS values of 3.80 and 3.76 ranking first and second, respectively. The least used measures of performance are personal performance and social performance, with MIS values of 3.62 and 3.30, ranked 4th and 5th, respectively. Table 2 shows that all the measures of performance of construction professional practitioners had an average MIS value of 3.63. This implies that, to a considerable extent, all 5 identified types of stress were experienced by the respondents.

Table 2: Measures of Performance of Construction Professional Practitioners

S/No	Measures of Performance	MIS	Rank
1.	Task performance	3.80	1
2.	Technical Performance	3.76	2
3.	organizational performance	3.68	3

		3.62	4
4.	personal performance	3.30	5
5.	Social Performance	*3.63*	
	General Average		

Way by which Stress affect Construction Practitioner's Performance

In order to achieve objective three which is impact factor of stress on construction practitioners' performance) Table 3 shows that the most significant impact factor of stress on a construction practitioner's performance is reduced job satisfaction (mean = 3.90). This was followed by inefficiency in performance (mean = 3.86), absenteeism from work, reduced quality of labour, and absenteeism (mean = 3.82, 3.78, and 3.64). The least rated were creating obstacles for subordinates (3.20) and high worker turnover (2.94).

Table 3 : Way by which Stress affect Construction Practitioner's Performance

S/No	Impact factor	MIS	Rank
1.	Reduced job satisfaction	3.90	1
2.	Inefficiency in performance	3.86	1
3.	Absenteeism from work	3.82	3
4.	Reduced quality of labour,	3.78	4
5.	Absenteeism	3.64	4
6.	Wastage of operational resources	3.40	6
7.	Reduced organizational performance	3.24	7
8.	Reduced worker overall performance	3.24	8
9.	Creating obstacles for subordinates	3.20	9
10.	High worker's turnover,	2.94	10
	General Average	*3.11*	

Impact factor of stress on construction practitioner's performance

In determine the impact of stress on construction practitioner's performance an null hypothesis was formulated:

H_0: There is no significant relationship between work stress and Performance of construction practitioners.

H_1: There is a significant relationship between work stress and performance of construction Practitioners'

The responses to the administered questionnaire on question, on stress factors influence on construction practitioner's performance were correlated with the most significant measures of performance of construction professional practitioners (task performance). The analysis of the relationship between work stress and the performance of construction practitioners

revealed that there exists a positive, slightly strong, and significant relationship between work stress and task performance. The result of the Pearson product moment correlation analysis is presented in Table 4. The correlation value was positive and slightly strong (0.393). The correlation was therefore found to be significant at a 1% (0.01) level of significance ($p = 0.00$). Therefore, the alternate hypothesis that states there is a significant relationship between work stress and the performance of construction practitioners was accepted. The relationship between stress and job performance or the impact of occupational stress on performance has been a topic of academic interest over the years. The findings of this study on correlation analysis agree with the findings of other studies where a relation between stress and performance has been proved in various sectors of society, such as the banking industry (Shaik *et al.*, 2013), hospital industry (Nabirye, 2010), hotel industry (Olaniyi, 2013), high-tech industries (Hsieh, Huang, & Su, 2004), business (Dar, Akmal, Naseem, & Khan, 2011) and the educational sector (Riyadi, 2015; Suandi, Ismail, & Othman, 2014).

Table 4: Results of Pearson Product Correlation Analysis

Correlations		Work stress	Task performance
Work stress	Pearson Correlation	1	.393**
	Sig. (2-tailed)		.000
	N	200	200
Task performance	Pearson Correlation	.393**	1
	Sig. (2-tailed)	.000	
	N	200	200

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

Conclusions and Recommendations

The results of the analysis carried out led to the conclusions of this study. The study identified poor working conditions and work overload as the most prevalent factors contributing to stress among practitioners. The most significant ways stress impacted on construction practitioner's performance is reduced job satisfaction. Task performance and technical performance are the most commonly used measures of performance for construction professional practitioners. The most effective strategies for mitigating stress among practitioners in the construction industry are: to understand when there is a decrease in performance and absenteeism. Stress usually builds up gradually in a normal situation and more stress causes more problems. There is a significant relationship between work stress and the performance of construction practitioners Stress has both positive and negative impacts on the performance of professionals in construction.

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