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on Nigerian Construction Sites

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1. Impact of Stress Management on the Productivity of Workers on Nigerian Construction Sites 1  
*L. O. Oyewobi, A. D. Adamu, B. O. Ganiyu and O. M. Odelade*
2. Attitudes Towards Sustainable Construction Amongst Construction Contractors 9  
*Malik M A Khalfan, Tayyab Maqsood and Muhammad Ali Noor*
3. Exploring Waste Minimization Measures in the Ghanaian Construction Industry 22  
*Ayarkwa, J., K. Agyekum and E. Adinyira*
4. Constructability for Reducing Construction Waste and Improving Building Performance 31  
*Ayman Ahmed Ezzat Othman*
5. Critical Evaluation of Conscious and Unconscious Construction Resources Wastefulness Towards Achieving Sustainable Construction 55  
*Fapohunda, Julius Ayodeji, Fatokun, A. O. and Ogunsanmi, O. E.*

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# IMPACT OF STRESS MANAGEMENT ON THE PRODUCTIVITY OF WORKERS ON NIGERIAN CONSTRUCTION SITES

L. O. Oyewobi<sup>1</sup>, A. D. Adamu<sup>2</sup>, B. O. Ganiyu<sup>3</sup> and O. M. Odelade<sup>4</sup>

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## ABSTRACT

Productivity in the construction industry to a large extent is influenced by the performance of the workers in the industry. Poor construction output or productivity is as a result of varying factors such as type, complexity, construction method, weather, stress, etc. The objectives of this study are: to identify the determinant, effects and management of stress in the construction industry. The opinion of respondents on the causes of stress, effects and management of stress as identified in the literature reviewed were obtained by administering a well structured questionnaire. The respondents include the workers (professionals, tradesmen and labourers) in the Nigeria construction industry. This study employed the use of mean score and percentile as statistical tools to rank the degree of potency of each factors identified. The study revealed that out of the causes of stress, inadequate temperature control in the most occurring factor, time pressure and ambitious deadline were also common while poor communication is not a common factor. The study showed that most of the construction workers in Nigeria feel headache and get angry due to issues relating to their job. Also it was observed from the respondents opinion on the ways by which stress can be reduced that the industry do not have a well designed payment scheme for work done. It was however concluded from the study that weather condition is the major causes of stress and that good payment scheme would reduce the psychological effect of stress. It was recommended that construction works should be carried out under a condition that favours both the construction and the workers and the trade union should rise up to issues relating to welfare of worker in the industry.

## Keywords:

## 1. INTRODUCTION

The Construction Industry which is vital to growth<sup>1</sup> and development of any nation, is one of the oldest in the world, indeed as old as civilization itself. Construction activity forecasts the general direction of an economy and for this reason; the industry is often described as a leading economic sector. The Nigerian construction market is among the largest construction markets in Africa, which has recorded impressive growth over the years (Odeyinka 1993). The continuous decline in the contributions of the industry is traceable to many factors plaguing the construction sector of the economy of which low productivity is inclusive. Productivity is of concern to many sectors of the economy. Stress is one of the major factors responsible for low productivity in the industry this is because construction process requires a lot of physical activities that are stressful to the participants in the industry (Wahab, 2010). Though these physical activities are usually carried out by the artisans who occupy the lower part in the pyramid of personnel that contribute to the construction buildings but all participants in the industry are in one way or the other exposed to stressful acts. Pretorius and Taylor (1986) found in the United Kingdom that the confrontational nature of construction projects produced significant levels of stress for construction professionals. All stress factors as it affects both professionals and labourers in the industry have effect on their productivity which in turn affects work output (Iyagba & Ayanda, 1999). Loosemore and Waters (2004) posited that wider trend has been reflected in the construction industry and that it is evident that professionals are increasingly exposed

to a working environment that places their health at risk through workplace stress and difficulties in maintaining an effective work-life balance.

Therefore, stress is part of life and is a universal phenomenon that essentially manifests itself in humans as a result of pressures emanating from several experiences or challenging situations (Ugoji and Isele, 2009). Goldenhar, Williams and Naomi (2003) viewed the nature of construction processes that characterized the industry as an inherently dangerous occupation and that are highly prone to stressful environment. Stress on construction site is always an increasing problem capable of culminating into enormous costs both for the construction organization, professionals involved and for the individual employees (labourers). Many research on stress in the industry have been conducted across the globe, this is because many researchers believe that stress is becoming a major contributor to absenteeism, low employee morale, high accident and turnover rates, decreased productivity and increased company medical expenses (Whetten and Cameron 1991; Steers, 1991). Many employers of labour assumed that stressful working conditions are essential evil - that companies must exert pressure on workers and set aside health concerns to remain productive and profitable in today's economy. But many research findings have challenged this erroneous belief. Studies have shown that stressful working conditions are actually associated with increased absenteeism, tardiness, and intentions by workers to quit their jobs - all of which have a negative effect on the bottom line. Stress has a positive effect on employees of any organization but the extent up to which an employee can handle with it, mostly it exceeds the tolerable level. Imtiaz & Ahmad (2009) supported that stress can't be eliminated as it serves as a driving force if kept at a certain level, so stress needs to be managed in the sense that the level of patient can enhance job satisfaction and other factor that affect it are optimized or minimized.

Sutherland and Davidson's (1993) discovered significant levels of stress on construction site managers and identified the main causes as time pressures, long working hours, insufficient leisure time, paperwork, insufficient family time, travel, poor communication, staff shortages, and imbalances of power and responsibility. Djebarni (1996) built on this and found that high levels of stress among site managers damaged productivity, although the level at which stress became destructive was peculiar to an individual.

Also, Langford (1996) beamed his search light on site managers and found that the greatest sources of stress were, paradoxically, the greatest sources of satisfaction. Langford (1996) produced a list of stress inducers similar to, but more extensive than Sutherland and Davidson (1993) and concluded that while stress could be damaging to personal health and organizational productivity, many site managers seemed to have a propensity for this type of working environment. Indeed, some deliberately sought out challenges and stresses, finding boredom and underutilization unbearable.

Gunning & Cooke (1996) argued stress is more of a problem for the construction industry as almost any other profession, but submitted that individual in the industry felt that admitting to stress was a major sign of weakness and can affect productivity. Thus, the paper examined the causes, effect and management of stress as it affects productivity of construction workers in Nigerian construction site.

## **2. STRESS OVERVIEW**

American Institute of Stress (n.d.) was of the opinion that there is no any agreed definition of stress that everyone agrees on and submitted that what is stressful to one person may be pleasurable or have little effect on others, and we all react to stress differently. Subbulaxmi (2002) asserted that since people differ widely in age, economic position and level of maturity people react differently to situations. What might be more stressful to one person may be less to another person. Stress is the physical, mental, or behavioral reaction to a situation or event, is considered a normal part of life; however, there is a threshold in which too much stress can have negative impact on a person's health. A person's productivity is a bell-shaped curve. The normal, good stress that motivates a person to accomplish daily tasks is called eustress, which increases productivity until the apex of the curve. At the apex, eustress becomes distress, and productivity decreases. The apex of the curve is called the comfort zone (Albrecht, 1986).

Over the decades stress is emerging as a growing impasse in many constructing organizations. Stress is dynamic state in which a person is confronted with an opportunity, demand related to what the individual wishes and for which the conclusion is perceived to be both unclear and essential. Job stress can be defined as the harmful physical and emotional responses that occur when the

requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury (Steven et al. 1998). Job stress is a frequent problem across occupations and it impacts on job performance. It has become very imperative to take an all-inclusive picture of surroundings of job stress by including the effects of personality, the organizational factors and the work- family interaction in the perception of job stress.

The concept of job stress is often confused with challenge, but these concepts are not the same. Challenge energizes us psychologically and physically, and it motivates us to learn new skills and master our jobs. When a challenge is met, we feel relaxed and satisfied. Thus, challenge is an important ingredient for healthy and productive work. The importance of challenge in our work lives is probably what people are referring to when they say “a little bit of stress is good for you. Nearly everyone agrees that job stress results from the interaction of the worker and the conditions of work. Views differ, however, on the importance of worker characteristics versus working conditions as the primary cause of job stress. These differing viewpoints are important because they suggest different ways to prevent stress at work (Steven et al. 1998).

According to one school of thought, differences in individual characteristics such as personality and coping style are most important in predicting whether certain job conditions will result in stress or not in other words, what is stressful for one person may not be a problem for someone else. This viewpoint leads to prevention strategies that focus on workers and ways to help them cope with demanding job conditions. Although the importance of individual differences cannot be ignored, scientific evidence suggests that certain working conditions are stressful to most people. (Steven et al. 1998).

### **3. SOURCES AND EFFECTS STRESS**

#### **• Sources of Stress**

Subbulaxmi (2002) argued that “there are many physical sources of stress such as work overload, irregular work hours, loss of sleep , noise, improper lighting. Psychological sources of stress may be due to a particular situation such as boring job, inability to socialize, and lack of autonomy, responsibility of results, without sufficient authority, unrealistic objectives, role ambiguity, role conflict and dual career marriages” (p.27).

Many workers on Nigerian construction site and across other occupations work stressful working conditions, many construction workers are faced with: downsizing/privatization, hiring freezes, contingent work (e.g. part-time or temporary), shift work/rotating schedules, quality programs/worker participation schemes.

These changes foster an environment which gives rise to a number of sources of stress, including: little autonomy or control over one’s job, non-existent career ladders, inadequate resources to do the job, high demands, workload, time pressures, lack of job security, understaffing, mandatory overtime, violence/harassment(Kenneth, 2006).

#### **• Effects of Stress**

Selye (1976) opined that stress is not always negative or harmful and indeed, the absence of stress is death. Stress is the non-specific response of the body to any demand, positive or negative, made upon it. Acute, or short-term, stress causes an immediate reaction in the body. If the threat or demand passes quickly, the body generally returns to normal. However, with prolonged stress, many health problems can develop. Some of the early symptoms of stress-related problems include: Physical Symptoms such as headache, stomach problems, eating disorders, sleep disturbances, fatigue, muscle aches & pains, chronic mild illnesses and psychological & behavioral: anxiety irritability, low morale, depression, alcohol, & drug use, feeling powerless, isolation from co-workers.

Occupational stress inadvertently consequences low organizational performance (Elovainio et al. 2002), Job stress although has belittling impact on any organization and individual’s performance but can shape dire consequences when related to health care. (Mimura e.t al. 2003). Job stress is considered rising and has become challenge for the employer and because high level stress is results in low productivity, increased absenteeism and collection to other employee problems like alcoholism, drug abuse, hypertension and host of cardiovascular problems (Meneze 2005).

If exposure to stressors continues for a longer period of time, chronic health problems can develop. Stress manifests itself in a variety of ways. The consequential effects of stress could physiological, psychological or behavioural in nature and all of these have significant effect on all the participants in the industry as well as their level of performance with respect to productivity. The physiological

symptoms of stress are headache, high blood pressure, ulcer and loss of appetite. The psychological symptoms are job dissatisfaction, tension, anxiety, boredom and difficulty in making routine decisions. The behavioral symptoms are absenteeism, turnover, remarkable changes in productivity both increase and decrease. The other behavioural symptoms are increased smoking or consumption of alcohol, fidgeting and sleeping disorders, serious depression, suicidal behaviour, domestic violence, substance abuse and burnout (Kenneth, 2006).

#### **4. STRESS MANAGEMENT**

Wahab (2010) described “Stress management as strategies of coping, recovering, reinterpreting, refraining and cognitive restructuring adopted by an individual who is under stress, making changes that can reduce stress or taking actions that can alter stress impacts”. Stress management helps us to focus our attention on the most serious sources of stress in our life, so that we work on bringing these under control (Mohanta and Thooyamani, 2010). Subbulaxmi (2002) posited that each individuals and organizations have different approaches in dealing with stress in various ways. Individuals, for instance, may try to reduce stress through better management of their time, nutritious food, exercises, career planning, change in jobs, promotion of psychological health, relaxation, meditation and prayer. Most of the stress not only do they reduce our performance as we divert mental effort into handling them, they can also cause a great deal of unhappiness, they emanates from many sources such as work overload, conflicting priorities, inconsistent values, over-challenging deadlines, conflict with co-workers, unpleasant environments etc (Mohanta and Thooyamani, 2010).

Mohanta and Thooyamani (2010) suggested the followings methods to reduce stress:

- *The Schedule of Recent Experience (SRE)* is a useful technique for understanding the long term stress that we are experiencing.
- *Stress Diary* is useful for understanding the causes of short-term stress in our life. It also gives us an insight into how we react to stress.
- *Managing Stress With Rational Thinking* - In many cases, situations do not cause all of the stress that we experience. Sometimes, our reaction to circumstances contributes to the stress we experience.
- *Stress SWOT Analysis* helps us to understand our unique position with respect to stress management. By looking at strengths, we ensure that we recognize all of the personal strengths, skills, resources and social networks that can help us manage stress.
- *Stress Management Plan* helps us to focus our attention on the most serious sources of stress in our life, so that we work on bringing these under control.

#### **5. RESEARCH METHODOLOGY**

This part present the research procedure and methods adopted for the study. In order to get relevant and precise data to fulfill the aim, a questionnaire survey was carried out on some construction sites in FCT Abuja, to get the views of professional and the workers in the industry. In order to analyze the impact of stress on construction site workers productivity, we performed a study on a random sample of 25 construction sites. The population of our study consists of employees working in both private and public organizations within the Federal Capital territory. A list of all companies operating in Abuja made available by Federation of Construction Industry (FOCI, 15) and the Nigeria Business Directory (NBD, 10) and this list was used as sampling frame. The entire population was used as suggested by Gay and Airasian (2003) in order for the sample to be representative, random and as large as possible.

#### **6. ANALYSIS AND RESULTS**

- *Factors responsible for stress, effects of stress and ways of reducing stress*

Tables 1, 2 and 3 shows the mean score ranking for the factors that are responsible for stress, the effects of stress and way of reducing stress Nigeria the construction industry; the ranking are done in order of their degree of potency.

Table 1 shows the different factors responsible for stress and how they affect the workers in the industry. Inadequate temperature is the most rated factor causing stress with a mean score of 4.19, followed by time pressure with 3.67, the third factor is ambitious deadline with 3.33 the least being insufficiently skilled for the job in 24<sup>th</sup> position with mean score of 2.00; inadequate managerial



*Impact of Stress Management on the Productivity of Workers on Nigerian Construction Sites*

support and poor communication are also among the least factors both with mean score of 2.28. This show that inadequate temperature control is the major problem facing construction site worker in Nigeria.

**Table 1:** Factors responsible for stress

| S/No | Factors causing Stress             | Mean | Ranking |
|------|------------------------------------|------|---------|
| 1    | Inadequate Temp. control           | 4.19 | 1       |
| 2    | Time pressure                      | 3.67 | 2       |
| 3    | Ambitious Deadline                 | 3.33 | 3       |
| 4    | Site Safety                        | 3.3  | 4       |
| 5    | Insufficient leisure/family time   | 3.27 | 5       |
| 6    | Inadequate equipment               | 3.25 | 6       |
| 7    | Lack of career Progression         | 3.23 | 7       |
| 8    | Mandatory overtime                 | 3.15 | 8       |
| 9    | Conflicting Demand                 | 3.11 | 9       |
| 10   | Job insecurity                     | 3.07 | 10      |
| 11   | Long working hour                  | 3.05 | 11      |
| 12   | Too much work                      | 2.94 | 12      |
| 13   | Understaffing                      | 2.91 | 13      |
| 14   | Poor Payment for work done         | 2.85 | 14      |
| 15   | Noise Level                        | 2.85 | 14      |
| 16   | Problem with Office Accommodation  | 2.80 | 16      |
| 17   | Lack of Privacy                    | 2.74 | 17      |
| 18   | Inadequate Ventilation             | 2.73 | 18      |
| 19   | Lack of Clarity about job          | 2.68 | 19      |
| 20   | Working in isolation               | 2.63 | 20      |
| 21   | Poor Site Condition                | 2.49 | 21      |
| 22   | Inadequate managerial support      | 2.28 | 22      |
| 23   | Poor communication                 | 2.28 | 22      |
| 24   | Insufficiently skilled for the job | 2.00 | 24      |

**Table 2:** Effects of stress

| S/No | Effects of stress    | Mean | Ranking |
|------|----------------------|------|---------|
| 1    | Head ache            | 3.14 | 1       |
| 2    | Anger                | 3.00 | 2       |
| 3    | Trouble sleeping     | 2.96 | 3       |
| 4    | Tensed up            | 2.93 | 4       |
| 5    | Back pain            | 2.85 | 5       |
| 6    | Sad                  | 2.60 | 6       |
| 7    | Stomach ache         | 2.58 | 7       |
| 8    | Drug and alcohol use | 2.33 | 8       |
| 9    | Chronic/mild illness | 1.91 | 9       |

**Table 3:** Management of stress

| S/No | Management of stress             | Mean | Ranking |
|------|----------------------------------|------|---------|
| 1    | Time off                         | 4.35 | 1       |
| 2    | Prompt wages and incentives      | 4.25 | 2       |
| 3    | Offloading/delegating work       | 4.23 | 3       |
| 4    | Occupation health representative | 3.94 | 4       |
| 5    | Talking to your Superior         | 3.77 | 5       |
| 6    | Support from Colleagues          | 3.75 | 6       |
| 7    | Trade union                      | 3.00 | 7       |

Table 2 shows all the effects of stress as they affects site workers. The most occurring effect is Headache with mean score of 3.14 followed by anger with 3.00; chronic/mild illness being the least effect with 1.91 and drug and alcohol use with 2.33.

Table 3 shows how stress could be reduced. The respondents gave their opinion by ranking each

factor that helps in coping with stress. Time off being the most rated factor with mean score of 4.35 and the least is trade union with 3.00. All of the factors mentioned here are rated high as it can be seen from the mean score; this implies that all these factors are important to reduce stress among construction site workers.

## **7. FINDINGS AND DISCUSSION OF RESULTS**

From the study, the most occurring factor responsible for stress is inadequate temperature control, which could be as a result of the weather condition in Nigeria as at the time of study. Inadequate temperature control has the highest mean score and it is being grouped among the physical work place stress, increased stress has been posited leads to reduced productivity and increased satisfaction leads to increased productivity (Halkos and Bousinakis, 2010) . Other occurring factors are time pressure and ambitious deadline. The least occurring factors from the study are poor communication and insufficiently skilled for the job with mean score. This result is in tune with the assertion of Muya (2006) who argued that symptoms of the challenges besetting the industry could stem from shortage of quality craft skills include avoidable rework, waste, idle etc.

The common effects of stress among construction site workers are headache and anger; headache being a physiological effect and anger a psychological effect. Chronic/mild is not common among the site worker as shown from the study. All these have the consequential effect of reducing workers output and lack of job satisfaction. This is in line with the opinions of (Schabracq and Cooper 2000; Murphy, 1995; McHugh, 1993) that occupational stress contributes to low motivation and morale, decrease in performance, high turnover, sick leave, accidents, low job satisfaction, low quality products and services, poor internal communication and conflicts.

Research revealed some factors that can assist in coping with stress and showed that all the factors are very important and to a great extent will assist when implemented. From the study, time off was the most rated factor followed by prompt wages and incentive. Trade union intervention is seen as the least factor that can help in coping with stress. Occupational stress if not managed properly may lead to increase in absentee rates, internal conflicts and low employee morale (Christo and Pienaar, 2006) Occupational stress is ubiquitous and increasingly costly (Katherine, George, Mary and Linda, 2008).

## **8. CONCLUSION AND RECOMMENDATION**

This paper has demonstrated that stress do exist on construction sites, and therefore, participant in the industry must come up with various interventions to manage occupational stress to improve productivity. It has been discussed that the traditional approach of counseling employees is not enough to manage stress. Therefore, there is need for radical shift in managing occupational stress in order to minimize its impact on the employees lives and the consequential effect on output. The findings of this study indicate that stress on construction sites is mainly caused by exceptional inclement weather, time pressure due uncertainty about the future, ambitious or unrealizable deadline, poor communication in organizations, insufficient resources and conflicts, understaffing, job insecurity etc. The findings also reveal that the stress could be effectively managed by Time off, Prompt wages and incentives, Offloading/delegating work, Occupation health representative, Talking to your Superior , Support from Colleagues, Trade union.

The study recommended that recreational activities should be created within the work environment; build a repertoire of techniques and strike a balance between work and social; Provide adequate corporate communication channels; Job redesign and rotation; take time off and relax from routine work; build a supportive network; deliberately avoid stressful situations; and take vital medications. Trade union in the construction industry should be more effective as to issues relating to the welfare of workers in the industry with respect to prompt payment of wages and incentives because there intervention is preferred to be best in increasing the welfare of workers.

## **REFERENCES**

- Albrecht, K. (1986). *Stress and the Manager: Making it Work for You*. New York: Simon and Schuster.
- American Institute of Stress (n.d.). Retrieved December 12, 2008 from: <http://www.stress.org>.
- Cameron, K.S. and Whetten, D.A. (1983) Organisational effectiveness: one model or several, in

*Impact of Stress Management on the Productivity of Workers on Nigerian Construction Sites*

- Organisational Effectiveness: A Comparison of Multiple Models*. Cameron, K.S. and Whetten, D.A. (eds) Academic Press, San Diego 1–24.
- Christo, B. and Pienaar, J. (2006), South Africa Correctional Official Occupational Stress: The Role of Psychological Strengths, *Journal of Criminal Justice*, 34(1): 73-84.
- Cooper, C. L. and Cartwright, S. (1994), Healthy Mind; Healthy Organisation . A Proactive Approach to Occupational Stress, *Journal of Human Relations*, 47(1): 455-71.
- Djebarni, R. (1996). “The impact of stress in site management effectiveness.” *Constr. Manage.Econom.*, 14(2), 281–293.
- Elovainio, M, Kivimaki, M and Vahtera, J 2002, ‘Organizational justice: evidence of a new psychosocial predictor of health’ *American Journal of Public Health*, Volume 92, Issue 1, 105-108.
- Gay, L.R. and Airasian, P. (2003), *Educational Research: Competencies for Analysis and Application*, 7th ed., Prentice-Hall, Upper Saddle River, NJ.
- Goldenhar, L., Williams, L., & Swanson, N. (2003). Modelling the relationship between job stressors and injury and near-miss outcomes for construction labourers. *Work & Stress*, 17 (3):218-240.
- Gunning, J. G., Cooke, E. (1996). The influence of occupational stress on construction professionals. *Building Research and Information*. 24(4), 213-221.
- Halkos G. and Bousinakis D. (2010). The effect of stress and satisfaction on productivity. *International Journal of Productivity and Performance Management* 59 ( 5), 415-431.
- Iyagba, R and Ayanda, O. (1999) Analysis of factors Affecting Nigerian Workers Productivity. *Journal of the Nigerian Institute of Quantity Surveyor*. 2-4.
- Katherine, P. E., George, J. A., Mary, B. and Linda, S. P. (2008), Stress Management in the Work Place, *Journal of Computers in Human Behaviour*, 24(2): 486-496.
- Kenneth Brynien 2006 Occupation Stress Factsheet. *PEF Health & Safety Department*, New York.
- Linda M. Goldenhar, L., Williams, J. and Naomi, G. S. (2003). Modeling Relationships between Job Stressors and Injury and Near-His Outcomes for Construction Labourers, *Journal of Work and Stress*, Vol. 17, No. 3, July-September, pp.218-240.
- Lingard, H., and Sublet, A. ~2004!. “The impact of job and organizational demands on marital or relationship satisfaction and conflict among Australian civil engineers.” *Constr. Manage. Econom.*, in press.
- Loosemore, M. and Waters, T. (2004) Gender differences in occupational stress among professionals in the construction industry. *Journal of Management in Engineering*, 20(3), 126–32.
- Loosemore, M., Dainty, A.R.J. and Lingard, H. (2003) *HRM in Construction Projects: Strategic and Operational Approaches*, Spon Press, London.
- McHugh, M. (1993), Stress at Work: Do Managers Really Count the Costs, *Journal of Employee Relations*, 15(1): 182-32.
- Meneze M. M, 2005, The Impact of Stress on productivity at Education Training & Development Practices: Sector Education and Training Authority.
- Mimura, C and Griffiths, P 2003 ‘The effectiveness of current approaches to workplace stress management in the nursing profession: an evidence based literature review’, *Occupational and Environmental Medicine*, Volume 60,Pages 10-15.
- Mohanta G. C. and K. P. Thooyamani. (2010). Perception of Top Level Knowledge Workers on Productivity Improvement through Tools and Techniques. *Journal of Management Research*, 2 (1): 1-18.
- Murphy, L. R. (1995), Occupational Stress Management: Current Status and Future Directions, in Cooper, C. L., Rousseau, D. M. (Eds.), *Trends in Organisational Behaviour*, pp. 1-14, John Wiley, Chichester.
- Muya M. , Price, A. D.F. and Edum-Fotwe T. F (2006). Construction craft skills requirements in sub-Saharan Africa: a focus on Zambia. *Engineering, Construction and Architectural Management*, 13 (3), 223-241.
- Odeyinka, O. (1993) Risk and its effects on construction cost. *Construction in Nigeria* 10(1) 12- 14.
- Pretorius, F. I. H., and Taylor, R. G. (1986). “Conflict and individual coping behaviour in informal matrix organizations within the construction industry.” *Constr. Manage. Econom.*, 4(2), 87–104.
- Schabracq, M. J. and Cooper, C. L. (2000), The Changing Nature of Work and Stress, *Journal of Managerial Psychology*, 15(3): 227- 42.
- Selye, H. (1976). “Further thoughts on ‘stress without distress.’” *Med. Times*, 104, 124–132.

Subbulaxmi S. (2002). Productivity and Stress. *Management* . **II**(3),26-28.

Subha Intiaz & Shakil Ahmad. (2009). Impact Of Stress On Employee Productivity, Performance And Turnover; An Important Managerial Issue. *International Review of Business Research Papers*, 5 (4) . 468-477.

Sutherland, V. and Davidson, M.J. (1993) Using a stress audit: the construction site manager experience in the UK. *Work and Stress*, 7(3), 273–86.

Ugoji E. I. and Isele G. (2009). Stress Management & Corporate Governance in Nigerian Organisations. *European Journal of Scientific Research*, 27(3), 472-478.

Wahab A. B (2010). Stress Management among Artisans in Construction Industry in Nigeria. *Global Journal of Researches in Engineering*, 10 (1) (Ver 1.0). 93-103.