

## **IMPACT OF STRESS ON NUTRITION AND PRODUCTIVITY (A STUDY OF SOUTHERN CROSS RIVER STATE, NIGERIA)**

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**ABSTRACT:** *Stress is any action or activity that threatens the homeostatic stability of an organism or any response of the body to demands made upon it. It is usually produced by responses to a specific stressor. Stress has been implicated in a wide array of medical illnesses including nutritional disorders. The study is aimed at investigating the effect of stress on nutrition and productivity in Southern Cross River State, Nigeria. Random sampling measures are adopted to survey seven (7) Local Government Areas that constitute southern senatorial district in Cross River and respondents cut across Civil servants, Public servants, Business men, Students, Academic and Administrative staff of schools. Results reveal effects of stress on nutrition is wide ranging, affecting different aspects of our nutrition from food intake to food handling and indirectly by providing an environment for diseases which influence productivity. Stress may induce unhealthy eating habits which includes increasing the desire for certain diets. It also places many metabolic demands on the body and thus may alter the body's metabolism. Multiple stressors have been found to cause increased catabolism and protein loss. It is recommended that in managing stress and nutritional disorders, a multidisciplinary approach involving professionals from various fields in medical practice should be adopted. The most appropriate management of stress disorders is the elimination of the stressor but where this approach is not feasible or has previously failed other methods to assist the individual cope with the stress can be adopted.*

**KEYWORDS:** Stress, Nutritional Disorders, Productivity.

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## **INTRODUCTION**

The growing nature of competition in today's workplace environment and its attendant consequences overtime has been alarming. This scenario brings adverse psychological, physical and health effects which hampers nutrition and productivity. Some of these demands could arise from inflexibility in working hours, excessive workload and multi-tasking, unfair performance evaluation, poor reward system, and pressures from clients etc.

Stress has become a household name and manifests in various ways beginning from the home front, work place and social circles. For instance, the inability of parents to meet up with school demands of their wards and other obligations can lead to stress. Also, inability of students to cope with academic requirements and peer pressure leads to stress. Stress can sometimes enhance work and achievement but it brings adverse effects when it becomes chronic and forms part of one's lifestyle. Some of the major symptoms of stress are anxiety, shallow breathing, muscle tension and fatigue, chronic headaches, mood swings, anger management issues, memory problems, and increased blood pressure etc.

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Family Services Employee Assistance Program (FSEAP, 2013) reveals that this development leads to lack of concentration and time and as a consequence, victims can sometimes forget to eat breakfast or resort to coffee, fast food and then rush to work probably without eating throughout the working hours. This development could sometimes repeat the next day and goes on and on.

When an individual is subjected to stress, his or her body releases stress hormones including cortisol which helps the body deal with the stress situation. Prolonged cases of stress are known to overwork adrenal glands and results to feelings of intense fatigue that is not relieved by sleep. The reduced function of the adrenal glands affects many of the body's functions including metabolism, blood sugar balance and cardiovascular system.

Just as stress affects nutrition, good nutrition and dietary practices have also been found to improve the poor state of individuals suffering from stress and its resultant illnesses. However, the trust of this work is to unravel the level of awareness and exposure to information vis-a-vis stress and nutrition in Southern Cross River, investigate the spread and prevalence of available food types with respect to the people's nutrition and lifestyle, as well as, investigate the relationship existing between stress and productivity at the work place especially among academic institutions.

## LITERATURE REVIEW AND CONCEPTUAL ISSUES

### Stress

Stress as defined by McGrath (1976) in Walonick (1993), is a situation in which a person is required to perform the tasks that threaten to exceed the person's ability and resources for meeting it, under conditions where he or she expects a large difference in the rewards from meeting the demands or not. It is a physical, chemical, or emotional response to a demand made on an individual. According to the stress management society and bodychef (n.d), there are three stages of stress which include; the initial stage, resistance stage and the exhaustion stage.

There is a difference between a stressor and stress. Whereas the former is the demand, stress is the response. Stress could be manifest in different forms; this could be a seemingly uphill task, deadlines, multi-tasking or workload and pressures at the work place, home front or social circles. Work stress as defined by Greiner (1998) in Hira and Anam (2012) is a situation where an individual's jobs demands are not compatible or mismatches with the mental regulation processes, such as information processing, planning and movement execution.

Responses to stress can be Physical, Psychological and Emotional.

### Physical Responses:

- Fatigue
- Headache
- Stomach upset etc.

**Psychological and Emotional Responses:**

- Insomnia or sleeping too much
- Lack of concentration
- Sadness, confusion, fear and anxiety
- Anger, yelling and shifting of blames.
- Depression

Overtime, cases of stress results into cardiovascular diseases, depressed immune system, cancer, allergies, asthma and migraines. The body also responds to stress by increasing heart rate, blood pressure and muscle tension. It has been found that some stress is actually normal for an individual but prolonged stress that is not backed with healthy coping skills will result to physical and emotional exhaustion and other related complications.

**Nutrition**

Nutrition simply refers to food or nourishment needed to keep an organism growing, healthy and viable. It is the act of ingesting nutrients and other life-supporting substances and their assimilation into tissues of the body. The importance of nutrition needed for the optimal functioning and wellness of the body cannot be over-emphasized; by taking adequate and healthy meals, one can prevent a lot of health issues.

A diet is what an organism consumes and is substantially determined by the perceived palatability of food, availability and its nutritional composition. There is a relationship between diets and health, research shows that not having breakfast and adequate meals can affect intellectual performance especially among children. This is due to the fact that the body cannot be healthier than the food man eats and also, lifestyle has been proven to determine lifespan (Pollit *et al*, 1998) in Iyam *et al* (2013).

**Stress and Nutrition Nexus**

The choice of diets and food patterns are usually not a function of chance conjunctions but rather, a reaction to stress related body demands. There is a connection between stress and nutrition; stress leads to poor nutrition and poor nutrition can also lead to stress. Studies such as Eiji *et al* (2004), and Awosan *et al* (2014) have shown a similar pattern of nutrition among stressed up persons. Eiji *et al*(2004) associates Night Eating Syndrome (NES) to stress. This phenomenon is characterized by three basic criteria, viz; no appetite for breakfast, 50% or more of daily food intake after 6.00p.m, and trouble sleeping appropriately. The common observations of these studies show that eating is more often than not suppressed during prolonged periods of stress and junk foods such as snacks, coffee and over sweetened foods are usually more preferable. This implies that prolonged stress has the capacity to influence one's immune system and bring about need for certain nutrients.

Some foods such as excess caffeine, sugar, alcohol, high fat foods and processed foods can cause stress in the body. As a result, stress usually leads to either unhealthy weight loss or weight gain which might happen suddenly. In either case, it is confirmed that such development is unhealthy because sudden changes can lead to severe cases of stress. Also, pre-occupying one with weight, food, and body image can lead to higher levels of stress. Examples include,

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constantly being on diet and not eating adequate meals, also, trying to make perfect food choices often leads to stress.

### **Combating Stress using Functional Foods**

Foods as proposed by Eiji *et al* (2004) has three basic functions which include: primary nutritional function needful for human survival, secondary functions which are connected with flavour and texture to satisfy one's sensory needs, and, the third function is linked with physiological characteristics such as regulating biorhythms, controlling aging, immune system and body defense. However, the third aspect connected with physiological characteristics is usually referred to as functional or brain foods and are known to modify the genetic and psychological aspects of human life, and helps to combat a substantial amount of stress-induced mental disorders.

It has also been established by Family Services Employee Assistance Program (FSEAP, 2013) that certain nutrients will help support your adrenal glands and hence combat stress. These include;

- Vitamin C: bell peppers, spinach, broccoli, dark leafy greens, citrus, cabbage and berries.
- Vitamin B Complex: dark leafy greens, whole grains, beans, nuts and meats.
- Calcium and Magnesium: dark leafy greens, beans, lentils, nuts, seeds.
- Zinc- nuts, seeds, organic whole grains, eggs and meat.

Others include;

- Protein-rich Foods: beans, lentils, split-peas, hummus, nuts and seeds, nuts and seed butters such as almond, cashew, sunflower, pumpkin seed. Also, eggs, fish, quality poultry/red meat dairy are rich in protein.
- High fibre foods: fruits, vegetables, whole grains, beans, lentils, split-peas
- Cinnamon: activates insulin receptors on cells.

Eating these foods every 2-3 hours will help stabilize your blood sugar level and prevent aggravation to adrenal glands. This will reduce the need for medical treatment and improve the quality of life. It's imperative to also avoid foods such as caffeine, coffee, sugar, alcohol and cola etc as they contribute to the stimulation of adrenal glands.

### **Stress and Productivity**

Productivity as defined by dictionary.com is the quality, state, or fact of being able to generate, create, enhance, or bring forth goods and services. In this context, it refers to the ratio of results or output to an individual's potentials. Productivity is a related concept and depends on work environments and conditions, as well as the ability of an individual to organise, manage and translate labour time into products or services.

Some of the manifestations of stress at the work place include; inability to meet up with targets and deadlines, excessive workload, pressures from clients and management, as well as multi-tasking. However, an individual subjected to stress is characterized by lack of concentration, focus and inefficient organisation of time and one-self which reduces productivity.

Several researches have been conducted in this connection. A review of some will suffice. Hira and Anam (2012) investigated the impact of job stress on the counter-productive work behaviour (CWB) using a cross sectional analysis. They linked job stress with increased absenteeism, low productivity, low motivation, financial loss and counter-productive work behaviour. Their results further revealed that high degree of attention demanded by their work which is beyond job range, excessive workload than normal work, poor communication, no appreciation received from management, unfair performance evaluation system, inappropriate working conditions such as low salaries and rewards are common factors heightening stress and counter-productive work behaviour.

Syed, Muhammad, AftabQadir and Shabana (2013) investigated the relationship between job stress and productivity in Azad Kashmir public health sector. Self-administered structured questionnaires were distributed among 400 public sector health employees out of which, 210 responses were got and analyzed through SPSS, Pearson correlation and Regression. Results revealed that, lack of financial awards, inflexibility in work hours, personal issues and bureaucratic management system are negatively correlated with employee productivity while, lack of financial rewards contributed more in creating job stress among the public health sector employees.

George H. and Dimitrois B. (2008) used factor analysis to identify the responsible factors for correlation among a large number of quantitative and qualitative variables and their influence on productivity. However, the extracted factors showed that productivity is an element affected by two qualitative factors – stress and satisfaction.

Menyezwa (2006) worked on the impact of stress on productivity of employees at the education training and development practices sector in Pretoria, South Africa. Descriptive statistics were utilized in this regard and it was gathered that there were many stress factors that employees endured and the enquiry proved that the impact of stress affected productivity negatively. Lack of care from employers was also found to be a reflection of huge dissatisfaction that undoubtedly lowered productivity as reported in the study.

## METHODOLOGY

Data for this study were generated through primary sources of data collection. Well structured questionnaires were administered to the randomly selected respondents. In designing the research, the probability sampling method was adopted. We considered probability sampling method convenient for the researcher. The probability sampling technique deployed for this study is the simple random sampling technique through which questionnaires were administered to the randomly selected respondents.

The study is based on one hundred and forty (140) respondents drawn from the following groups; civil servants, employers and employees of private organisations, academic and administrative staff of schools. A carefully structured questionnaire was designed and administered by the researcher on the above categories of people. The above sample is a representative of the entire population of Southern Cross River State whose responses are used as a representation of a wider view.

## Analysis and Discussion of findings

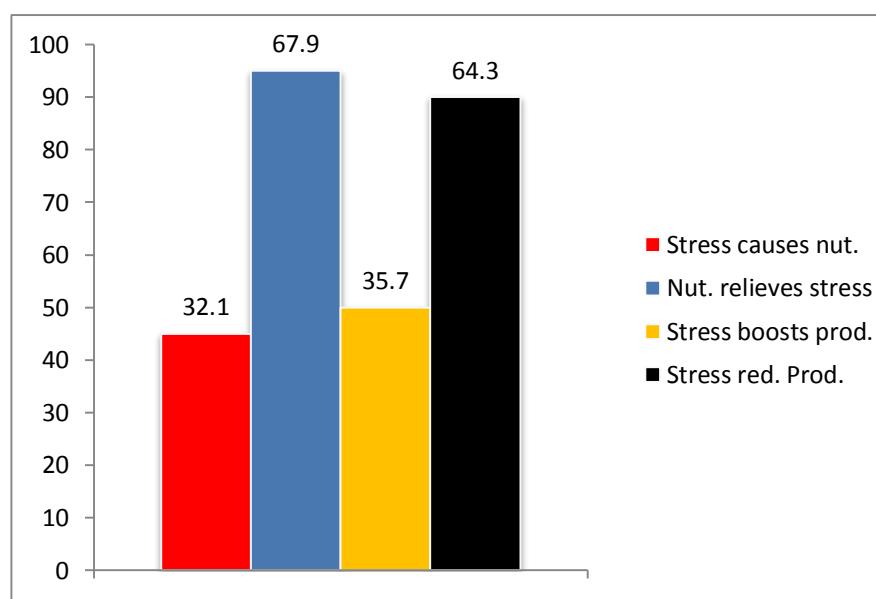
Data collected for this study were analyzed using qualitative as well as quantitative techniques. Descriptive statistics such as graphs, frequencies and percentages are employed in most of the analysis in summarizing trends, changes and comparisons across certain characteristics.

The use of frequencies enabled us to determine with accuracy, the degree of occurrence or extent of severity of a variable under consideration; percentages helped us to determine the values of frequency distribution of a given variable in relation to the sum of other variables.

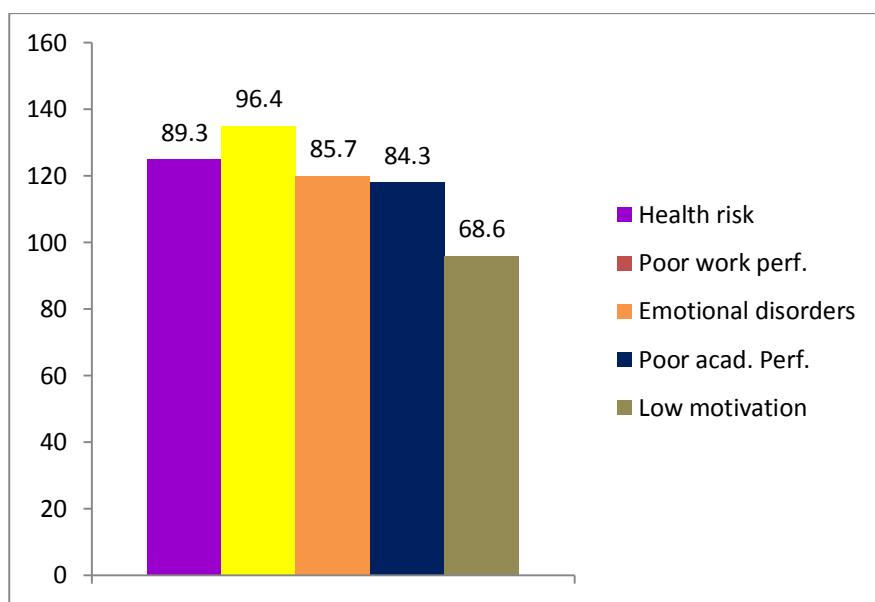
**Table 1: Analysis of awareness and exposure to information on stress, nutrition and productivity**

S/No	Variables	Freq (X)	Per (%)
1.	Stress can cause nutritional disorders	45	32.1
2.	Good nutrition can be used to relieve one of stress	95	67.85
3a.	Stress can have a positive effect on productivity	50	35.7
3b.	Stress does not have any positive effect on productivity	90	64.28
4.	Stress can expose one to health risk	125	89.28
5.	Over-worked and poorly fed persons are more likely to put up poor performances at work	135	96.4
6.	Stress influences one's emotional, psychological and physical state	120	85.7
7.	Stress and nutrition can influence a student's academic performance	118	84.28
8.	Stress can reduce motivation and result to counter-productive work behaviour	96	68.57
	<b>Total</b>	<b>874</b>	

Source: Field Survey, February, 2014.



*Figure 1: Level of awareness on stress and nutrition*



*Figure 2: Effects of stress on nutrition and productivity*

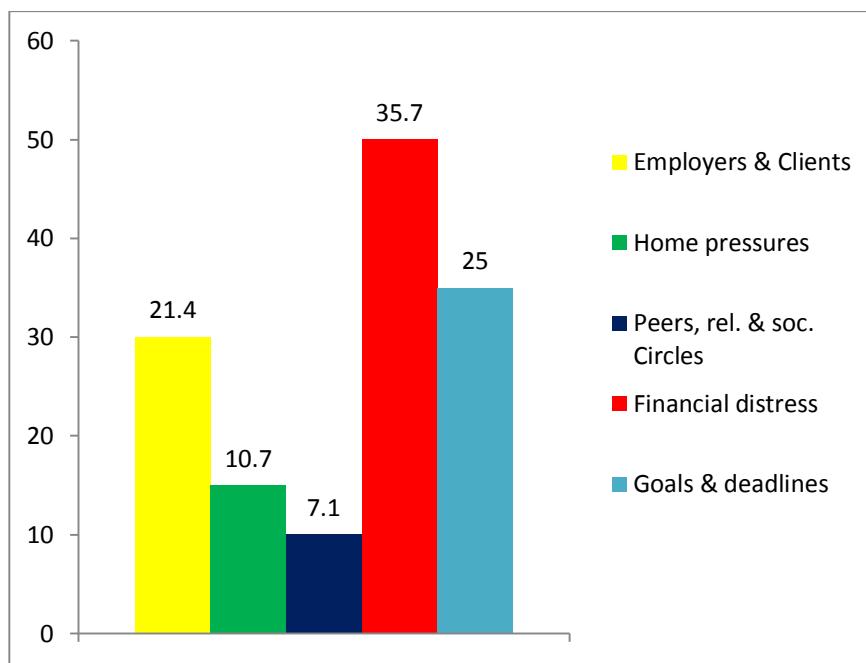
Fig. 1 above shows the level of awareness and exposure to information regarding stress, nutrition and exposure to information. From the responses gathered from our sample population in Southern Cross River, a frequency of 43 representing 32.1% of the sample believe stress causes nutritional disorders whereas, 95 (67.9%) respondents submit that good nutrition can help relieve one from stress. Also, 50 respondents (35.75) hold that stress can sometimes exert positive influence on productivity while 90 respondents (64.3%) believe stress only reduces productivity. In sum, we can deduce from these results that there is average awareness and exposure to information on the subject of stress, nutrition and productivity.

Fig. 2 shows the effect of stress is wide-spread, ranging from exposure to health risk with a frequency of 125 (89.3%); poor performance at work 135 (96.4%); emotional, psychological and physical disorders 120 (85.7%); while low motivation and counter-productive work behaviour has a frequency distribution and percentage of 96 and 68.6% respectively. It shows therefore that there is a high adverse effect of stress on productivity in Southern Cross River and can expose victims to health risks and untimely death in the absence of early detection, care and effective management.

**Table 2: Analysis of major causes of stress and poor nutrition**

S/No	Variable	Freq. (X)	Per. (%)
1.	Work pressure from employers and clients	30	21.4
2.	Pressures at home which are associated with running the family	15	10.7
3.	Peer pressure and pressures from religious and social circles	10	7.1
4.	Financial Distress	50	35.7
5.	Inability to meet up with goals and deadlines	35	25
	<b>Total</b>	<b>140</b>	

Source: Field Survey, February 2014.



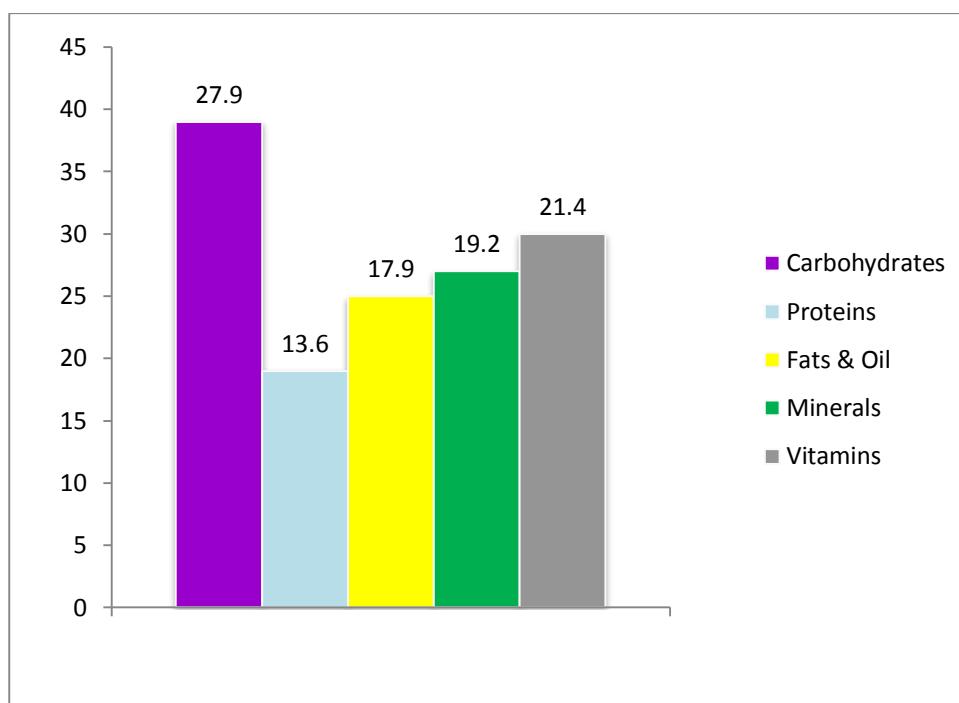
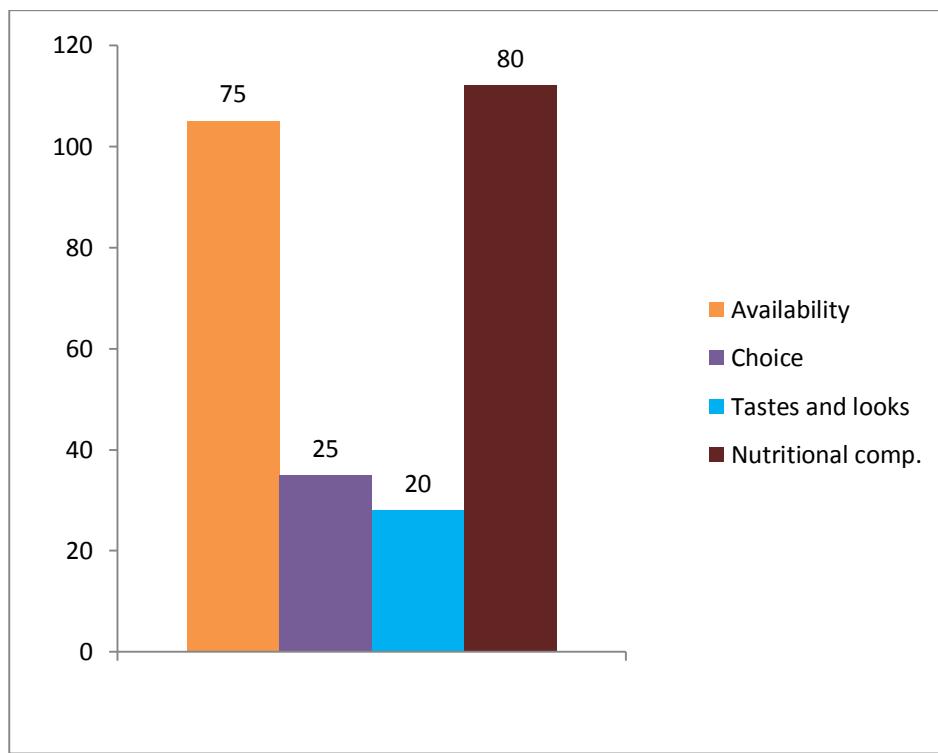
*Figure 3: Causes of stress*

Fig. 3 shows the major factors responsible for stress and poor nutrition and responses show that financial distress has the highest contribution with a frequency of 50, i.e. 35.7%. This is closely followed by inability to meet up with goals and deadlines 35 (25%) and pressures arising from employers and clients at work 30 (21.4%). Pressures at home were found to have a frequency of 15 (10.7%) and pressures arising from peers, social and religious circles had the lowest frequency distribution of 10 and 7.1%.

Fig. 4 below shows the common foods available for household consumption in southern Cross River and findings reveal that the area has carbohydrates as dominant food with a frequency of 39 showing a percentage of 27.9. This is followed by Vitamins 30 (21.4%); Minerals 27 (19.2%); Fats and Oil 25 (17.9%) and lastly Proteins 19 (13.6%).

In Fig. 5, it is found that the type of food available at a particular time and nutritional composition of foods/health information are the major determinants of consumption patterns in southern Cross River State. The former has a frequency of 105 (75%) whereas the latter has 112 (80%). Other less influencing determinants are ability to make choice and nutritional needs (due to financial constraint) as well as physical appealing nature of meals.

The importance of regular and periodic exercises as a panacea for stress reduction is also tested and result as found in Fig. 6 shows that people hardly make time for exercises. 90 respondents representing 64.3% of the sample were found not to have engaged in regular exercises during the last three months; 19 (13.6%) exercised thrice per week; 15 (10.7%) exercised twice a week; 11 (7.9%) exercised once a week, while only 5 respondents (3.6%) were found to be engaged in regular exercises on daily basis. These results show that people are so clogged up with work so much so that they rarely have time for exercises. The result also buttresses the performance of the fourth variable in table 3 (i.e. vacation, rest and recreation), as only 29 (20.7) have time and means to embark on vacations, rest and recreation while, 111 respondents (79.2%) do not have the opportunity to do travels or take vacations.

*Figure 4: Food prevalence**Figure 5: Determinants of foods consumed*

**Table 3: Analysis of Food Prevalence, Lifestyle and Nutrition**

S/No.	Variable	Freq(X)	Per (%)
1.	The following classes of food are common and are mostly used for meals; a) <b>Carbohydrates:</b> Garri, rice, yam, bread, cereal b) <b>Protein:</b> Fish, meat, eggs, beans, chicken, milk c) <b>Fats and Oil:</b> Pear, fish, butter, vegetable oil d) <b>Minerals:</b> Pepper, salt, sea food, cheese, nuts, bananas e) <b>Vitamins:</b> Butter, fruits, vegetables, tomatoes, egg yolk, milk	39 19 25 27 30	27.85 13.57 17.85 19.2 21.4
2.	a) Food consumption is based on availability, not choice b) Food consumption is based on choice and nutritional needs c) In choosing meals, tastes and how physically appealing a meal looks is a major determinant d) Choice of meals are determined by knowledge of its nutritional composition and health information	105 35 28 112	75 25 20 80
3.	During the last three (3) months exercise and workouts are done at least; a) On daily basis b) Once a week c) Twice a week d) Thrice a week e) Not at all	5 11 15 19 90	3.57 7.85 10.7 13.57 64.28
4.	a) There is sufficient time for vacations, rest and recreation b) There is no time at all and means to rest, do travels and vacations	29 111	20.7 79.2
	<b>Total</b>	<b>700</b>	

Source: Field Survey, February 2014,

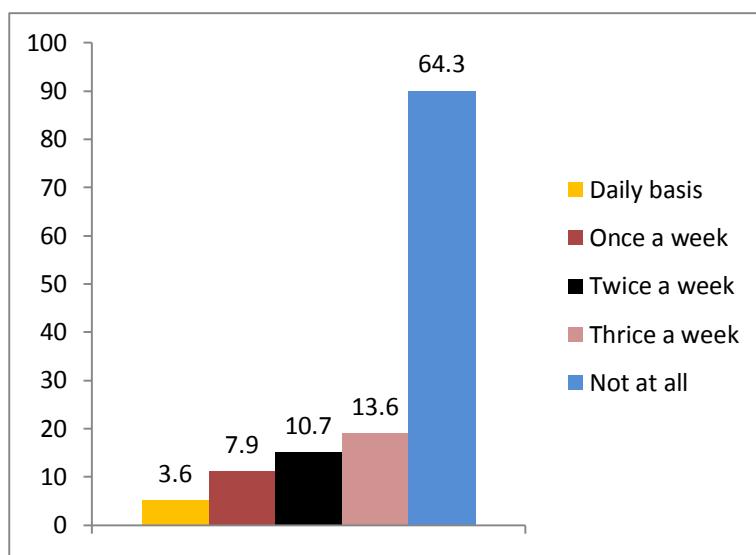
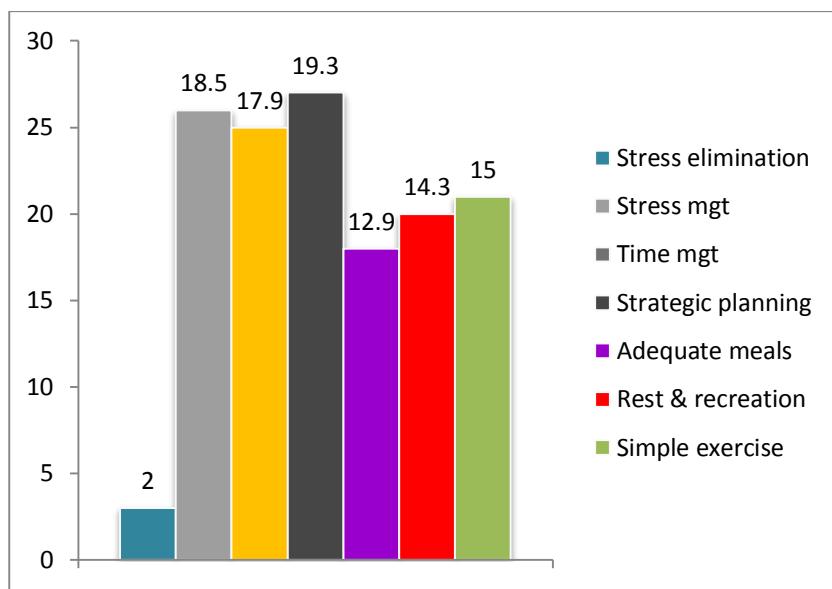


Figure 6: Exercises

**Table 4: Analysis of measures to combating stress and improving nutrition/productivity**

S/N0.	Variable	Freq (X)	Per (%)
1.	Stress can and should be completely eliminated	3	2
2.	Stress has no preventive measure but can be successfully managed	26	18.5
3.	Efficient time management can enhance productivity, reduce work load and stress	25	17.85
4.	Strategic planning and sharing of responsibilities can help complete tasks on time, reduce stress and boost productivity	27	19.28
5.	Intake of adequate meals can boost health conditions and reduce stress-induced illnesses	18	12.85
6.	Time should be taken off from work for rest, vacations and recreation	20	14.28
7.	Simple exercises should be carried out at regular and periodic basis	21	15
<b>Total</b>		<b>140</b>	

Source: Field Survey, February 2014,



*Figure 7: Combating stress and improving nutrition/productivity*

Fig. 7 as shown above indicates that elimination of stress is more or less an impossible task in the world of work and competition as shown by a frequency of 3 (2%). Thus factors such as stress management, efficient time management, strategic planning and sharing of responsibilities, intake of adequate meals, simple and regular (periodic) exercises, rest and recreation are the major ways of combating stress and improving nutrition/productivity.

## CONCLUSIONS AND RECOMMENDATIONS

The study explored the nexus between stress, nutrition and productivity in southern Cross River State, Nigeria. It is found that there is average awareness and exposure to information regarding the subject matter under consideration. Pressures arising from employers, clients, home and financial distress are among the major causes of stress and poor nutrition while, carbohydrates such as yam, garri, rice, cereals, bread etc, minerals and fats and oil are the most prevalent food varieties in the study area. Also, consumption patterns are further determined by food availability rather than choice, although, so much attention is often paid to nutritional composition of food and health information in making consumption decisions.

However, attempts towards elimination of stressors have been found to be weak and untenable given the growing nature of competition and demands at home, work and social fronts. Effective management of stress is one of the most potent ways of combating stress where it cannot be eliminated.

Efficient time management and scheduling should be considered as a means of organizing and completing tasks. This will reduce stress and boost productivity.

Strategic planning and careful assigning of responsibilities at home, office and other areas of involvement is highly recommended, as planning is a pre-condition for any successful human endeavour.

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Regular and periodic exercises, recreation and rest should of necessity be considered as a norm. This will prevent the body from certain illnesses and instead, instil energy and vitality needed to surmount work pressure into productive gains both at work and social fronts.

Finally, sampling ideas and opinions from professionals in different fields of endeavour especially among the medical sciences could also evolve practicable ways of combating stress and boosting nutrition and productivity.

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