



Occupational Stress and Management Strategies among Technology Education Teachers in Higher Institutions

Raymond Emmanuel^{1*} and Hassan Yunusa Jamilu¹

¹Department of Industrial and Technology Education, Federal University of Technology Minna,
Niger State, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Author RE designed the study, wrote the protocol and supervised the work. Authors RE and HYJ carried out all field work and performed the statistical analysis. Authors RE and HYJ managed the analyses of the study. Authors RE and HYJ wrote the first draft of the manuscript. Authors RE and HYJ managed the literature searches and edited the manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJESBS/2016/25361

Editor(s):

(1) Redhwan Ahmed Mohammed Al-Naggar, Management and Science and University, Malaysia.

Reviewers:

(1) Guddi Tiwary, Prasanta Chandra Mahalanobis Mahavidyalay, West Bengal, India.

(2) Hulya Gul, Istanbul University, Turkey.

(3) Ibrahim Habaci, Canakkale Onsekiz Mart University, Turkey.

(4) Michelle A. Bosco, James A. Haley VA Hospital, USA.

(5) Sampson Wireko-Gyebi, Christ Apostolic University College, Ghana.

(6) Sarminah Samad, Universiti Teknologi Mara, Malaysia.

Complete Peer review History: <http://sciencedomain.org/review-history/14294>

Original Research Article

Received 29th February 2016

Accepted 16th April 2016

Published 22nd April 2016

ABSTRACT

The study investigated the occupational stressors and management strategies among technology education teachers in higher institutions in Niger and Kaduna states. The population of the study was 87 technology education teachers. Two research questions and two hypotheses tested at .05 level of significance guided the study. The instrument for data collection was a 76-items Occupational Stress and Management Strategies Questionnaire (OSMSQ) developed by the researchers. The OSMSQ was face validated by three experts in the Department of Industrial and Technology Education, Federal University of Technology Minna, Niger State. The instrument was also trial tested at Federal Polytechnic Kauran-Namoda, Zamfara state. The reliability coefficient of

*Corresponding author: E-mail: emmanuelraymond2@gmail.com;

the instrument calculated using Cronbach alpha method was found to be 0.76. Data collected was analyzed using SPSS statistical software (version 20.00). Mean and Standard deviation were used to answer the research questions while Analysis of Variance and Post Hoc Test were used to test the hypotheses at .05 level of significance. Findings revealed among others that epileptic power supply, teaching and evaluating large class size, doing a lot of work in the job area, frequent attendance of school meetings were occupational stressors among technology education teachers. Also, cultivating good hobbies, developing good communication skills, developing emotional intelligence and others were found to be stress management strategies among technology education teachers. Based on these findings therefore, it was recommended that: (1) Conducive and enabling environment should be created by employers of labour to help reduce stress, (2) More workforce should be employed by government in higher institutions to reduce work load of staff and by extension reduce stress, and (3) Continuous retraining of staff should be carried out to enable teachers cope with stress.

Keywords: Stress; stressors; occupational stress; stress management strategies; technology; technology education teachers.

1. INTRODUCTION

No nation that cherishes industrialization can afford to ignore technology education. The industrialized nations such as the United States of America, Britain, Japan, Germany, Russia and China, are reputed for their scientific and technological imaginations. In Nigeria, the workforces that can bring about industrialisation are trained in higher institutions of learning. According to the Federal Republic of Nigeria [1], higher institutions of learning are established to give higher education, such as technology education, to individuals after secondary school in the universities, colleges of education and polytechnics.

Technology education is a general name given to all forms of education that are concerned with the use of appropriate strategies to impart knowledge about technological skills and concepts as well as the arts of teaching to individuals. This diversified form of education covers areas such as Automobile Technology, Building Technology, Electrical and Electronics Technology, Metal Work Technology and Wood Work Technology. Graduates of these programmes, depending on their levels, are given first, second, or third degrees, as well as National Certificate in Education (NCE) in technology/technical education. One of the problems of this form of education in Nigeria however is lack of adequate and qualified teachers and as such, the few existing ones are overworked and stressed up. Researchers revealed that stressors are higher in teaching than other professions [2]. More so, occupational stress is perceived to even become higher in the teaching of technology education courses [3].

This may be because teachers of technology education have to deal with machines and human beings. Hence, the enormity of the work may lead to a lot of stress.

Stress refers to the feeling that is created when an individual physically or psychologically reacts to a stimulus. The stimuli that elicit stress are called stressors. This ranges from administrative responsibilities to teaching or instructional responsibilities, just to mention a few examples of common stressors among teachers of technology education in the higher institutions of learning [4]. Stress at work is called occupational stress. [5] defined occupational stress as the adverse reaction individuals have to excessive pressures or other types of demands placed on them at work. Occupational stress therefore occurs when there is a disagreement between the demands of the place of work and that of the individual's capabilities.

Typical stressors among the teachers of technology education include: work-overload, role ambiguity, role conflict, group pressure, responsibility, under-participation, powerlessness, poor peer relationship, poor salary and large class size [6]. Work-overload is perceived as workload beyond the scope of the statutory requirements of a position [7]. Work-overload is high in technology education programmes. Teachers must master multitasking to cope with all the demands that accompany this form of occupation. They have to create lesson plans; grade the unending students' assignments; attend infinite school meetings, make series of presentations, attend conferences and project defences; and get involved in extra curricula activities. Teacher's promotion may also

defend on the amount of contributions he made to the world of knowledge through publications in peer reviewed journals, community services and so on. This means that teachers of technology education must frequently use time outside the prescribed work day to complete required tasks at work.

Occupational stress in technology education also includes load ambiguity. Meaning, teachers in most cases are not involved in curriculum planning and development yet, they are expected to implement it effectively. Government reforms in education have been introduced to counter concerns for curriculum innovation managements. Rather than working in partnership with teachers to enact changes in curricula, mandates are rather imposed, making teachers to endure performance anxiety and stresses when implementing the new curricula initiatives.

Furthermore, teachers may not enter the field of technology education to become rich. However, in most cases teachers' salaries are less than those of professionals in business and industries. Insufficient financial rewards combined with other occupational concerns can leave teachers feeling stressed [8]. Technology educational stressors are not only limited to work-overload, poor financial compensations and stresses related to students' behaviours and large class sizes, but also due to inadequate relationship with colleagues teachers, parents, students and administrators [9]. Occupational stress in higher institutions may vary from teacher to teacher depending on their appointments, educational qualifications and years of teaching experience.

Experience refers to the accumulation of knowledge and skills as one continues to participate in a certain activity. Thus, as teachers participate in the teaching activity they are expected to learn or acquire a lot of related skills and knowledge over the years of teaching service. However, a study by [10] revealed no significant correlation between teaching experience and occupational stress. Contrary to this, the early teaching career in higher institutions has been recognized as being highly stressful [11]. Ordinarily one may expect that with maturation in the job, experienced teachers in higher institution have adopted strategies on how to cope with occupational stress. This assumption however, is subject to clarification from empirical evidence which according to available literatures, still proves inconclusive.

Stress may also increase or reduce with teachers' position of appointment. For instance a serious and dedicated head of department may perform the mandates of his position and still take part in the academic activities. Others may use the power and influence of their offices to shift responsibilities or more stressful functions to those without any appointment.

In the same vein, teachers with higher qualification may experience less occupational stress because of their superiority in knowledge. The university environment is often characterized with more teachers that have higher qualifications than polytechnics and colleges of education. Since knowledge is wisdom, teachers with higher qualifications may have better skills of disposing their duties and managing occupational stress than those with lower qualification. This may be why university teaching has traditionally been regarded as a low stress occupation. In historical point of view it could be true, but it is not so at modern universities as there is increasing demand of university qualifications than polytechnic and colleges of education. Surprisingly, [12] found that university teaching is severely stressful. In contrast, [13] reported that occupational stress may be higher among polytechnic teachers. There is need therefore for further inquiry of occupational stress among teachers in different higher institutions even though some scholars argue that occupational stress is not always a negative aspect [14].

While a low level stress may result to low performance and laziness, good stress or optimal level stress (eustress) has the effects of motivating, exciting, increasing productivity and success [15]. Some scholars therefore argue that those who work in a moderate level of stress have high performance. This trend however is now changing, because other scholars challenge as naïve the misconception that the purported increased productivity due to good stressors is a permanent relationship. [16] for instance, revealed that beyond that optimum level of stress, performance may fall off. This may be because human body responds to stressors by activating the nervous system and some hormones. These hormones increase the speed of heart beat, breathing, blood pressure and metabolism. According to [4], this reaction to stressors is known as the stress response. Working efficiently, the response mechanism makes individuals to perform well under pressure. However, this stress response

mechanism can also cause trouble when it persists or fail to reset itself properly. Therefore, long lasting stress also known as bad stress can cause negative effects. These effects include poor performance, absenteeism, bad health and job dissatisfaction [17,18,19]. Stressed up teachers may be less sympathetic toward students, have low tolerance and feel frequently emotionally or physically exhausted. Bad stress leads to frustration among teachers. They may feel anxious, irritable, depressed and less committed to their work. Stress among teachers cannot be totally eliminated but it can be coped with or managed to optimum level [20].

In order to reduce the negative effects of occupational stress among technology education teachers it is highly desirable to consider and adopt some stress management strategies as suggested by experts such as [21]. These include: improved self-esteem; building of self-confidence; developing emotional intelligence competencies, exercising regularly, fostering good friend circle, cultivating hobbies, developing good communication skills, and seeking for professional help. [4] categorized stressors among teachers as intrinsic and situational. Intrinsic stressors are permanent in the teaching profession. Situational stressors on the other hand are seasonal within the school calendar. While teachers have to understand and learn how to cope with the intrinsic stressors, the situational can be managed with experience and common sense. Certainly, occupational stress needs to be managed among teachers of technology education.

1.1 Statement of the Problem

In the present era of technological advancement and consequent increasing needs in technological imaginations and economical breakthrough among developing nations, there is a perceived high level of negative stress among technology education teachers. Nigeria has realized the importance of technology education for socio-economic development, yet till date, there are only few colleges of education (technical) and universities of technologies to accommodate its ever increasing populace [22]. Even the few higher institutions of learning still suffer from shortage of qualified teachers [23] and lack of appropriate instructional materials [24]. These could be sources of occupational stress among teachers of technology education. For instance, due to shortage of manpower in the department of Industrial and Technology

Education, Federal University of Technology Minna, no admission slot was given to the postgraduate candidates in the 2014/2015 academic session. More so, the practicality of technology education may increase the level of stress involved in its teaching.

It is therefore pertinent to investigate occupational stress and management strategies among technology education teachers to preclude the negative effects of stress and stressors. [25] Cautioned that failure to account for the extent of negative stressors among teachers may lead to cancer, hypertension, kidney failure, suicide, death, lost of vision and some other physical and psychological disabilities. Hence, the problem of this study, put in form of a question is: What are the occupational stress and management strategies among technology education teachers in higher institutions in Niger and Kaduna states?

1.2 Theoretical Framework

1.2.1 Transactional theory of stress

This theory of occupational stress was postulated by [26]. It states that cognition appraisal and coping process are the two important processes that mediate between environmental (occupational) stressors and resulting coping responses by an individual. According to this theory, when an individual happen to be under the influence of some stressors, he engages in what Lazarus refers to as a primary cognitive appraisal process. This consists of an assessment of whether the stress involved is a bad one (a threat to the individual's well-being) or perhaps it can be disregarded as harmless. If the individual senses a threat to well-being, the secondary appraisal process is engaged to find out whether anything can be done to cope with it or manage the stressors. This theory therefore suggests that any imbalance between environmental pressures and individual's ability to cope with the pressure produces strain.

The theory is related to the present study as it highlighted how individuals under the influence of occupational stress are able to manage or disregard them as nonthreatening elements. For instance, following this theory, we can say that the manifestation of negative effects of occupational stress (strain) among technology education teachers is a clear indication that the primary and secondary cognitive appraisal processes have been exhausted. Thus, stress

level should not be allowed to go beyond the coping capability of the teachers. The theory is therefore adopted for the present study.

1.2.2 The Effort-Reward Imbalance theory (ERI)

This Theory was propounded by [27]. It states that the imbalance between individual's efforts at work and the rewards that follow the efforts produces stress. This is derived from a more general approach towards explaining the psychological dimensions of human health and well-being. This theory implies that the well-being of an individual in an occupation is largely dependent on social exchange. Thus for a balanced situation, there should be a social reciprocity characterized by cooperative investment between what the occupation provides as reward and what the individual provides as work input. Hence, failed reciprocity (high effort spent and low reward received in return) leads to a sustained stress response by an individual.

This theory applies to the present study as it suggests ways of coping with occupational stress through effort-reward balancing. Following this theory, teachers' rewards should reciprocate their efforts as much as reasonably practicable. This is against the popular saying that "teachers reward is in the heaven". The theory is therefore adopted for the present study.

1.3 Aim and Objectives of the Study

The present study sought to determine:

1. The occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states;
2. The stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states;

1.3.1 Research questions

The following research questions guided the study:

1. What are the occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states?
2. What are the stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states?

1.3.2 Research hypotheses

The following hypotheses, tested at 0.05 level of significance further guided the study:

1. There is no significant difference between the mean rating of University teachers, College of Education teachers and Polytechnic teachers on the occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states;
2. There is no significant difference between the mean rating of University teachers, College of Education teachers and Polytechnic teachers on the stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states.

2. METHODOLOGY

A descriptive survey design was adopted for this study. The population for the study consists of 87 subjects distributed as follows: 22 technology education teachers from Federal University of Technology Minna, Niger state; 11 technology education teachers from College of Education Minna, Niger state; 18 technology education teachers from College of Education Kafanchan, Kaduna state; 21 technology education teachers from Kaduna Polytechnic in Kaduna state; and 15 technology education teachers from Nuhu Bamalli Polytechnic Zaria, Kaduna state.

Data was collected using a 76-items questionnaire developed by the researchers and known as Occupational Stressors and Management Strategies Questionnaire (OSMSQ). The OSMSQ was made up of sections A and B based on research questions 1 and 2 respectively. In both sections, the OSMSQ was structured using five point rating scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). These ratings weighted 5, 4, 3, 2 and 1 beginning from the highest to the lowest respectively.

The instrument was face validated by three experts in technology education from Federal University of Technology Minna, and their comments and suggestions were considered in preparing the final draft of the instrument. The instrument was trial tested in Federal Polytechnic Kauran-Namoda, Zamfara state and data collected was used to determine internal consistency of the items of the instrument using

the Cronbach alpha method which resulted to a reliability coefficient of 0.76.

SPSS statistical software (Version 20.00) was used to analyze data collected. Mean, Standard Deviation were used to answer the research questions while the Analysis of Variance (ANOVA) and Post Hoc Test were used to test the hypotheses at 0.05 level of significance. Mean score of 3.00 and above was considered agreed while mean score of 2.99 and below was considered disagreed by the respondents.

3. RESULTS

3.1 Research Question 1

What are the occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states?

Data presented in Table 1 reveals that the respondents agreed with all items as occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states except items 3, 4, and 20 which are on lack of capabilities/skills to carry out assigned work, being defamed and badmouthed by colleagues, and working with persons they disliked.

3.2 Research Question 2

What are the stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states?

The result emerging from Table 2 reveals that the respondents agreed with all the items concerning the stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states except item 24 which is on being strict to students.

3.3 Hypothesis 1

There is no significant difference between the mean rating of University teachers, College of Education teachers and Polytechnic teachers on the occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states.

Result Presented in Table 3 shows a One-Way Between-Groups Analysis of Variance on occupational stressors among technology education teachers. With F at 6.63 and significant at .001, which is less than .05, the

null-hypothesis is rejected. Hence, there is a significant difference between the mean rating of university teachers, polytechnic teachers and college of education teachers on the occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states.

Data presented in Table 4 reveal that the mean ratings of college of education teachers on occupational stressors among technology education teachers in Niger and Kaduna states is 3.30; that of Polytechnic teachers is 3.47; and that of university teachers is 3.38. This means that occupational stress is higher among polytechnic teachers than university teachers, followed by college of education teachers. The average standard deviation of 1.19 among all the three categories implies that the responses of the teachers are tightly clustered around the stated means.

3.4 Hypothesis 2

There is no significant difference between the mean rating of University teachers, College of Education teachers and Polytechnic teachers on the stress management strategies among technology education teachers in higher institutions in Niger and Kaduna states.

Result presented in Table 5 shows a One-Way Between-Groups Analysis of Variance on stress management strategies among Technology Education teachers. With F at 21.80 and significant at .000, which is less than .05, the null-hypothesis is rejected. Hence, there is a significant difference between the mean rating of university teachers, polytechnic teachers and college of education teachers on the stress management strategies among Technology Education teachers.

Data in Table 6 shows that the mean ratings of college of education teachers on the stress management strategies among technology education teachers in Niger and Kaduna states is 3.85; that of Polytechnic teachers is 4.06; and that of university teachers is 4.14. This means that University teachers have more strategies of managing occupational stress than polytechnic teachers followed by college of education teachers. The Grand Mean score of 4.00 reveals high stress management strategies among all the categories of teachers. The average standard deviation of 0.99 among all the three categories implies that the responses of the teachers are tightly clustered around the stated means.

Table 1. Mean responses of technology education teachers on occupational stressors among technology education teachers

SN	Items	\bar{X}	SD	Remark
1.	Lack of cooperation from colleagues.	3.33	1.24	Agreed
2.	Epileptic electrical power supply.	4.39	0.73	Agreed
3.	Lack of capabilities/skills to carry out assigned work.	2.64	1.14	Disagreed
4.	Some of my colleagues and subordinates try to defame and badmouth me.	2.76	1.10	Disagreed
5.	Teaching and evaluating large classes.	4.12	0.96	Agreed
6.	Doing a lot of work in my job area.	3.94	0.94	Agreed
7.	Frequent attendance of school meetings.	3.63	1.00	Agreed
8.	Getting more work as a result of efficiently performed duties.	3.79	0.92	Agreed
9.	Supervising many students' research projects.	3.75	1.09	Agreed
10.	Risky and complicated assignments.	3.00	1.18	Agreed
11.	Bearing the burden of efficiency and productivity of many employees.	3.26	1.03	Agreed
12.	Uncertainty and ambiguity of the scope of my jurisdiction and authorities.	3.21	1.12	Agreed
13.	Contradictory instructions regarding my works.	3.23	1.21	Agreed
14.	Inadequate instructions and insufficient facilities regarding assignments entrusted to me.	3.78	1.16	Agreed
15.	Students' negative behaviours in and outside classrooms.	3.82	1.02	Agreed
16.	Assigned responsibilities are not based on experience.	3.32	1.11	Agreed
17.	The great responsibility for the progress and prosperity of this organization/department is placed on me.	3.21	1.11	Agreed
18.	Excessive abuse of power by superior employees.	3.33	1.27	Agreed
19.	Management of ill-equipped workshop.	4.05	0.87	Agreed
20.	Working with persons whom I dislike.	2.38	1.05	Disagreed
21.	Monotonous nature of assignments given to me.	3.00	1.01	Agreed
22.	Working under tense circumstances.	3.64	2.54	Agreed
23.	Working with obsolete machines and equipment.	3.79	1.11	Agreed
24.	Frequent improvisation of consumable materials in workshops.	3.34	1.15	Agreed
25.	Lack of opportunity to develop my aptitude and proficiency properly.	3.28	1.20	Agreed
26.	Working unwillingly owing to certain group/political pressures.	3.02	1.27	Agreed
27.	I often feel that my work has made my life cumbersome.	3.05	1.14	Agreed
28.	Increasing domestic and personal problems as a result of too much official work.	3.08	1.24	Agreed
29.	Managing scarce tools and instructional materials during teaching.	3.69	0.96	Agreed
30.	Higher authorities do not care for my self-respect.	3.32	1.14	Agreed
31.	Inadequate reward of teaching efforts.	3.85	1.06	Agreed
32.	Frequent seeking of my cooperation in solving administrative or other work related problems at higher level.	3.39	1.09	Agreed
33.	The objectives of my work-role are not clear and adequately spelt out.	3.00	1.29	Agreed
34.	Insufficient team-spirit among the employees of this organization/department.	3.36	1.24	Agreed
35.	My suggestions and co-operation are not sought in solving even those problems for which I am quite competent.	3.22	1.19	Agreed
36.	Less salary is paid in comparison to the quantum of my labor/work.	3.71	1.19	Agreed
37.	I have to do such work as ought to be done by others.	3.33	1.13	Agreed
38.	Interference with my jurisdiction and working methods by my superior officers.	3.05	1.29	Agreed
39.	The hazards in my job	3.57	1.17	Agreed

Key: \bar{X} = Mean, SD = Standard Deviation

Table 2. Mean responses of technology education teachers on the stress management strategies among technology education teachers

SN	Items	\bar{X}	SD	Remark
1.	Improved self-esteem.	4.24	0.56	Agreed
2.	Building self confidence.	4.40	0.53	Agreed
3.	Fostering good friends or social circle.	4.26	0.76	Agreed
4.	Exercising regularly.	3.97	0.84	Agreed
5.	Being aware of my emotions and feeling and those of others.	4.01	0.86	Agreed
6.	Cultivating good hobbies.	4.19	0.62	Agreed
7.	Developing good communication skills.	4.31	0.72	Agreed
8.	Seeking for professional help.	4.08	0.87	Agreed
9.	Up-skilling opportunities for effective accomplishment of assignments.	4.08	0.85	Agreed
10.	Less workload.	3.52	1.14	Agreed
11.	Increased reward (salary and allowances).	4.03	1.15	Agreed
12.	Being promoted as at when due.	4.27	0.91	Agreed
13.	Being recognized publicly.	3.66	1.12	Agreed
14.	Spending good time with family.	3.86	1.10	Agreed
15.	Separating office assignments from home activities.	4.11	0.88	Agreed
16.	Going on vocation occasionally.	3.86	1.06	Agreed
17.	Regular electrical power supply.	4.11	1.15	Agreed
18.	Working with good tools and instructional materials.	4.42	2.28	Agreed
19.	Socializing responsively.	4.10	0.87	Agreed
20.	Designating responsibilities accordingly.	4.17	0.82	Agreed
21.	Seeking for help from religious leaders.	3.68	1.14	Agreed
22.	Going for medical checkup regularly.	3.97	0.93	Agreed
23.	Being nice and friendly to students.	3.94	0.94	Agreed
24.	Being strict to students.	2.98	1.36	Disagreed
25.	Having higher educational qualifications.	4.80	1.14	Agreed
26.	Being in a position of appointment.	3.40	1.08	Agreed
27.	Having longer years of teaching experience.	3.57	1.01	Agreed
28.	Being in control of my emotions and feeling and those of others	4.00	0.96	Agreed
29.	Adequate reward of teaching efforts.	4.59	5.43	Agreed
30.	Recognising benefits of the job.	3.95	0.99	Agreed
31.	Practicing anger management.	3.79	1.06	Agreed
32.	Delegating responsibilities.	4.13	0.80	Agreed
33.	Keeping informed and professionally active.	4.18	0.82	Agreed
34.	Clear instructions on assigned jobs.	4.31	0.59	Agreed
35.	Responsibilities should be assigned based on experience.	4.34	0.78	Agreed
36.	Working in properly equipped workshops.	4.43	0.78	Agreed
37.	Sufficient supply of consumables in the workshop.	4.17	1.06	Agreed

Key: \bar{X} = Mean, SD = Standard Deviation

Table 3. Analysis of variance on occupational stressors among technology education teachers

	Sum of squares	df	Mean square	F	Sig.
Between groups	18.83	2	9.41		
Within groups	4814.30	3390	1.42	6.63	.001
Total	4833.13	3392			

Table 4. Post hoc test on the three groups

Group	N	Mean	SD	Std. error	95% confidence interval for mean		Min	Max
					Lower bound	Upper bound		
COE	29.00	3.30	1.22	.36	3.22	3.37	1.00	5.00
POLY	36.00	3.47	1.16	.31	3.41	3.53	1.00	5.00
UNIV	22.00	3.38	1.19	.04	3.30	3.46	1.00	5.00
Total	87.00	3.39	1.19	.02	3.35	3.43	1.00	5.00

Key: COE = College of Education Teachers, POLY = Polytechnic Teachers, UNIV = University Teachers, N = Population, SD = Standard Deviation

Table 5. Analysis of variance on stress management strategies among technology education teachers

	Sum of squares	df	Mean square	F	Sig.
Between groups	42.20	2	21.10		
Within groups	3063.63	3165	.97	21.80	.000
Total	3105.84	3167			

Table 6. Post hoc test on the three groups

Group	N	Mean	SD	Std. error	95% confidence interval for mean		Min	Max
					Lower bound	Upper bound		
COE	29.00	3.85	1.09	.03	3.79	3.92	1.00	5.00
POLY	36.00	4.06	.90	.03	4.00	4.10	1.00	5.00
UNIV	22.00	4.14	.96	.03	4.07	4.20	1.00	5.00
Total	87.00	4.00	.99	.02	3.97	4.04	1.00	5.00

Key: COE = College of Education Teachers, POLY = Polytechnic Teachers, UNIV = University Teachers, N = Population, SD = Standard Deviation

4. DISCUSSION

The findings of this study revealed on Table 1 that there are a lot of occupational stressors among technology education teachers in Niger and Kaduna states. These include lack of cooperation from colleagues, epileptic power supply, teaching and evaluating large class size, doing a lot of work in the job area, frequent attendance of school meetings, getting more work as a result of efficiently performing duties, inadequate reward of teaching effort, supervising many students' research projects, inadequate instructions and insufficient facilities regarding assignments entrusted to teachers among others. This finding is not surprising considering the nature of teaching of technology education courses in higher institutions because teachers have to work with both machines and human beings. This is in consonance with the findings of [6] that discovered work-overload, role ambiguity, role conflict, group pressure, responsibility, under participation, powerlessness and large class size to be some of the typical stressors among technology education teachers. In agreement

with the findings of this study also, [9] noted that inadequate relationship with colleague teachers, parents, students and administrators is a stressor to teachers in higher institutions.

Furthermore, results from Table 3 for hypothesis two revealed a significant difference between the mean rating of university teachers, polytechnic teachers and college of education teachers on occupational stressors among technology education teachers in higher institutions. This implies that there is difference in the level of occupational stress among teachers in the universities, polytechnics and colleges of education. The result of the Post Hoc Test presented in Table 4 further shows that polytechnic teachers are more stressed up compared to university teachers followed by colleges of education teachers. This finding is in line with that of [13] who discovered high level of occupational stress among polytechnic teachers compared to teachers in the universities. Even though [12] discovered high level of occupational stress among university teachers, the finding of this study is not misleading as some of the

polytechnics in the area of study have been offering degree courses in technology education courses which might have reduced the number of candidates going to the universities thereby reducing the level of occupational stress among the university teachers. Furthermore, this finding counteracted the predictions of [28] who projected that occupational stress among university academics has the tendency to increase in all continents due to continuous rise of demands at universities.

Result from Table 2 reveals stress management strategies among technology education teachers in Niger and Kaduna states. These include: improved self-esteem, building confidence, fostering good social circle, exercising regularly, being aware of emotions and feelings of self and others, cultivating hobbies, developing good communication skills, and separating office assignments from home activities among others. This finding is in line with that of [21] who noted that improved self-esteem, building confidence, fostering good social circle, exercising regularly, developing emotional intelligence, cultivating hobbies are stress management strategies among teachers. Result from Table 5 showed that there is significant difference between the mean rating of university teachers, polytechnic teachers and colleges of education teachers on the stress management strategies. This means that among the three categories, some teachers possess higher skills of curtailing occupational stressors as they continuously emerge in their working environment. The result of Post Hoc Test as shown in Table 6 reveals that university teachers have more stress management strategies than polytechnic teachers followed by colleges of education teachers. The possible explanation to this finding may be that there are more teachers with higher educational qualifications in the universities than in the other higher institutions. A more knowledgeable teacher therefore is enlightened on how to go about disposing his duties and managing stress than a teacher who is less qualified educationally. This is more so as there is a high mean score of 4.80 among all the teachers on having higher educational qualification as one of the stress management strategies as shown in Table 2.

Moreover, the item on "inadequate reward of teaching efforts" as one of the occupational stressors among technology education teachers in Table 1 and "increased reward" as a stress management strategy in Table 2 scored a mean

of 3.85 and 4.03 respectively. These results are in harmony with the Effort-Reward Imbalance Theory (ERI) that was put forward by [27]. The theory states that the imbalance between individual's efforts at work and the rewards that follow the effort produces stress. This implies that increasing technology education teachers' salaries and allowances to balance the efforts they put at work can actually reduce the level of occupational stress among them. Furthermore, the present findings support the Transactional Theory of Stress as postulated by [26]. The theory states that cognition appraisal and coping process are the two important processes that mediate between occupational stressors and resulting coping responses by the teachers. Thus, as revealed in the findings in Table 1, technology education teachers have appraised all the occupational stressors as bad ones except the items on "lack of skills to carry out assignment; some of my colleagues and subordinates try to defame and badmouth me; and working with persons whom I dislike". On the other hand, in Table 2, all the coping strategies were appraised and agreed upon by the teachers.

5. CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it can be concluded that there are a lot of occupational stressors among technology education teachers in higher institutions in Niger and Kaduna states. Under the influence of occupational stress, teachers' job satisfaction, performance and productivity decreases as they show unwanted behaviours like absenteeism, mistakes during work and violence towards colleague teachers and other technology education stakeholders. Based on the findings of this study therefore, it was concluded that it is important for teachers to improve their own self-esteem and confidence; foster good social circle; exercise regularly and develop their own emotional intelligence to manage the enormous number of occupational stresses that are involved in the teaching of technology education courses.

Based on the findings of this study, the following recommendations were made:

1. Conducive and enabling environment should be created by employers of labour to help reduce stress among technology education teachers.

2. More workforce should be employed by government in higher institutions to reduce work load of staff and by extension reduce stress among technology education teachers.
3. Continuous retraining of staff should be carried out to enable teachers cope with occupational stress.
4. Salaries and allowances of technology education teachers should be increased reasonably as this can reduce the level of stress among them.
5. Workshops and other forums should be organised by both state and federal Ministries of Education to create awareness among technology education teachers on occupational stress and management strategies.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Federal Republic of Nigeria (FRN). National policy on education (4th Ed.). Lagos: NERDC Press; 2004.
2. Kyriacou C. Teacher stress: Directions for future research. *Educational Review*. 2001;51(1):27-35.
3. Teichmann M, Ilvest J. Sources of occupational stress in technical university academics. *Latest trends on engineering education*. 2010;448-453. Available: <http://www.researchgate.net/publication/234783868> (Accessed on 28 June, 2015)
4. Surinder K. Comparative study of occupational stress among teachers of private and government schools in relation to their age, gender and teaching experience. *International Journal of Educational Planning and Administration*. 2011;1(2):151-160.
5. Gail K, Siobhan W. A survey of Occupational Stress and Well-Being among Prison Educators. United Kingdom: University College Union; 2013. Available: www.ucu.org.uk (Accessed on 28th June, 2015)
6. Borg MG, Riding RJ, Falzon JM. Stress in teaching: A study of occupational stress and its determinants, job satisfaction and career commitment among primary school teachers. *Educational Psychology*. 1991; 11(1):59-75.
7. Tytherleigh MY, Webb C, Cooper CL, Ricketts C. Occupational Stress in UK higher institutions: A comparative study of all staff categories. *Higher Education Resources Development*. 2005;24:41-61.
8. Reigh SA, Paquette KR, Chen Y. Coping with Stress an Investigation of Novice teachers' Stressors in The Elementary Classroom. *Education*. 2007;128(2):211-226.
9. Schlichte J, Yssel N, Merbler J. Pathway to burnout; case studies in teacher isolation and alienation. *Preventing School Future*. 2005;50(1):35-40.
10. Johannsen SE. An analysis of the occupational stress factors identified by certified teachers Electronic thesis and dissertation. *Educational Administration Dissertation*; 2011. Available: <http://hdl.handle.net/10518/3842>
11. Mokdad M. Occupational stress among Algerian teachers. *African Newsletter on Occupational Health and Safety*. 2005; 15(2):46-47.
12. Blix AG, Cruise RJ, Mitchell BM, Blix GG. Occupational stress among university teachers. *Journal of Education Research*. 1994;36(2):157-169.
13. Hardie-Boys N. Workload and stress a report of association of staff in tertiary education (ASTE) members. New Zealand: Wellington; 1996.
14. Elizabeth K, Patricia M, Veronica O, Samantha B. A report to the workers' compensation and rehabilitation commission. Western Australia: Workcover; 2000.
15. Nydegger RV. Stress and job satisfaction in white and blue-collar workers. *International Business and Research Journal*. 2002;1(12):35-44.
16. Jing L. Faculty's job stress and performance in the undergraduate education assessment in China a mixed-methods study. *Educational Research and Review*. 2008;3(9):294-300.
17. Van Dick R, Phillips U, Marburg M, Wagner U. Stress and strain in teaching: A structural equation approach. *British Journal of Educational Psychology*. 2001;71:243-257.
18. Al-Naggar RA, Al-Dubai SA, Alshagga M A, Rampal KG. Stress and coping strategies of students in a medical faculty

- in Malaysia. Malaysian Journal of Medical Science. 2011;18(3):57-64.
19. Al-Naggar RA, Sami AR, Karim AJ, Chan R, Zaleha MI. Stress and coping strategies among management and science university students: A qualitative study. 2009;8(2):11-16.
 20. Vipinder N. Occupational stress and health among teacher doctors. International Journal of Advanced Research in Management and Social Science. 2013; 2(8):1-13.
 21. Lokanadha R, Vijaya A. Occupational Stress of Higher Secondary Teachers Working in Vellore District. International Journal of Educational Planning and Administration. 2013;3(1):9-24.
 22. Miller A. Analysis of the problems and prospects of the technical college teachers in Nigeria. Proceedings of the 2011 international conference of teaching, learning and change. International Association for Teaching and Learning (IATEL); 2011.
 23. Saifullahi KT, Chekum C, Muhammah AR. Strategies for retraining highly qualified and experienced technical teachers in teaching profession in Katsina state, Nigeria. International Journal of Asian Social Science. 2015;5(8):461-468.
 24. Ogwo BA, Oranu RN. Methodology in formal and non-formal technical/vocational education. Uwani, Enugu: Ijejas Printers and Publication Coy; 2006.
 25. Fernando PK. Occupational stress in public sector school teachers in western province of Sri Lanka. Indian Journal of Applied Research. 2015;5(8):430-432.
 26. Lazerus RS. Emotion and adaptation. London: Oxford University Press; 1991.
 27. Siegrist J. Effort-Reward Imbalance (ERI) at work and health. In P. Perrewe and D. Ganster (Eds). Research in occupational stress and well being. New York: Elsevier; 2002.
 28. Leung T, Siu O, Spector PE. Faculty stressors, job satisfaction and psychological distress among university teachers in Hong Kong: The role of locus of control. International Journal of Stress Management. 2000;7(2):121-138.

© 2016 Raymond and Hassan; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/14294>