

Managing Physical Hazards for Academic Staff Productivity in Public Universities in Rivers State, Nigeria

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Abstract:- This study investigated management of physical occupational hazards for academic staff productivity in public universities in Rivers State. The study adopted descriptive survey research design. It was guided by two research questions and two hypotheses. The population consisted of 2,498 academic staff of the three public universities in Rivers State. A sample of 250 academic staff was drawn through proportionate stratified random sampling technique. This represented 10% of the population. A researchers' structured instrument entitled, "Management of Physical Occupational Hazards for Academic Staff Productivity Questionnaire (MPOHASPQ)" was used for data collection. The instrument was properly validated and the reliability tested through Cronbach Alpha Method yielded a reliability index of 0.83. Data collected were analysed using statistical package for social science (SPSS), mean and standard deviation to answer the research questions while independent sample z-test was used to test the hypotheses at 0.05 significant level. The study revealed among others that the strategies for managing physical occupational hazards for academic staff productivity include: providing well ventilated lecture theatres/offices, air-conditioned/well ventilated laboratories/workshops and providing fire extinguishers in office/lecture areas. The study also revealed the challenges of managing physical occupational hazards to include among others; inadequate provision of safety tools for conducting practicals, inadequate funding of public universities and lack of viable monitoring team that monitors and evaluates the conditions of physical structures/tools/equipment in the universities. Based on these findings, conclusion was drawn and the following recommendations among others were made: caution signs should be provided around lecture theatres/lecturers offices as a way of controlling noise and there should be well established regulation directing members of staff and students to switch off electrical appliances in their offices/classrooms before they close for the day.

Keywords: Physical hazards, Management, Public universities, Academic staff and productivity.

I. INTRODUCTION

The desire of most organizations is to manage available resources effectively by channeling all their efforts towards achieving set organizational goals. The university as a citadel of learning has the mandate of carrying out three major activities, namely: teaching, research and community service. The academic staffs are at the centre state of executing these

activities. They work very hard to ensure that none of these activities is relegated to the background. The productivity of these academic staff is impeded by various forms of occupational hazards confronting them in the course of delivering their services. They are faced by physical hazards, chemical hazards, ergonomic hazards. Managing occupational hazards, psychosocial hazards and biological hazards. Managing occupational hazards for effective productivity among academic staff of universities has become an issue of great concern in most Nigerian universities. This is because the university sector is one complex organization with different persons from divert socio-cultural and religious backgrounds. As organizations, they aim at achieving maximum staff productivity from their work force. However, occupational hazards such as heat, faulty electrical connections and appliances, over crowded classrooms, noise etc. serve as factors impeding optimum staff productivity.

An occupation refers to a job someone engages on in relation to his/her profession, or the way in which a person spend time to earn his or her livelihood. On the other hand, hazards are anything that may cause risk, harm, accident, injury or ill health. Occupational hazards is therefore a work substance, process or situation that predisposes to or itself causes accident or diseases. Okpako and Amadi (2015) defined occupational hazards as a risk that is peculiar to a particular type of employment or workplace and which arises as natural incident of such threat to life, health, property or environment. This implies that occupational hazard can be dormant or potential withonly a theoretical risk of harm. Occupational hazards are on the increase in most Nigerian universities due to inadequate attention paid to the management of these hazards. This has a negative effect on the productivity of the academic staff of these universities.

Productivity or lack of it, is a key issue among academic staff universities. Productivity is good for individuals, companies and university. Productivity can be viewed from the quantitative and qualitative angles. The quantitative is the amount of work done per unit time or more aptly as total work/total time worked. Qualitatively, it is the quality of a product which evokes images of durability, versatility and universality. Staff productivity could simply be

seen as the amount of output per employee. The productivity of an academic staff of a university could be measured by the number of students taught and other responsibilities assigned to staff by his/her employer. On the basis of the ratio of output to input.

Productivity equally captures the ability of academic staff to transform the physical and human resources to generate the research, teaching and community service desired goals set by the university management team. It is through academic staff productivity improvement and the effective use of available manpower that guarantee the future development of the universities. Therefore, the university management team needs to focus on ways of providing enabling environment that can help their academic staff to manage occupational hazards in their work lives so that they have more time to do what they want to improve the university.

According to Cole (2006), management is an act of managing. It is derived from the word "to manage" meaning to handle, plan, coordinate, direct and control. This act of managing could be referred to as the controlling in an organization. This implies that the aim of management in any organization is to achieve maximum level of productivity. However, the academic staff of universities as monitoring and supervising their workplace such as their offices, classrooms and the university environment. This will help to curtail the risk of getting involved for the achievement of educational goals.

It is believed that people perform better when they are physically and emotionally able to work and they have the willingness to work. This leads to higher productivity. This belief can be achieved, when there are effective rules and regulations to guide academic staff in managing physical occupational hazards within their domain. Hence, improving the quality of the workplace or environment will also promote productivity.

The current set up in most universities in Nigeria is such that academic staff performs strenuous tasks and work longer hours so as to increase their productivity. The strategies of managing physical hazards appear not to be very clear to people because, despite the concerns on physical occupational hazards, academic staff of public universities in Rivers State are experiencing discomfort in their health and safety due to hazardous substances and risk of accidents. It therefore becomes imperative that this study examine managing physical occupational hazards for academic staff productivity in universities in Rivers State.

Statement of the Problem

Universities are established to traditionally teach, carryout research to create new knowledge as well as render various community services in order to promote the growth and development of the society. The rate of achievement of these core mandates is limited by various forms of occupational hazards such as physical occupational hazards.

When academic staff of universities are conversant with the various types of physical occupational hazards within the university environment strategies of coping with them, there will be safe and healthy workplaces for effective productivity.

The researcher identified this as a problem and it is against the backdrop that the researcher is motivated to investigate the means of managing physical occupational hazards for improved academic staff productivity in public universities in Rivers State.

Aim and Objectives of the Study

The aim of this study was to investigate management of physical occupational hazards for academic staff productivity in public universities in Rivers State. Specifically, the study sought to:

1. ascertain the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State.
2. identify the challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State.

Research Questions

The following research questions were posed to guide the study;

1. What are the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State?
2. What are the challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State?

Research Hypotheses

The following research questions were tested at 0.05 level of significance:

- H₀₁:** There is no significant difference between the mean response of male and female academic staff of public universities in Rivers State on the strategies for managing physical occupational hazards for academic staff productivity.
- H₀₂:** There is no significant difference between the mean response of male and female staff of public universities in Rivers State on the challenges of managing physical occupational hazards for academic staff productivity.

II. LITERATURE REVIEW

Physical hazards according to Okpako and Amadi (2015) are the types of occupational hazards that arises from within the normal physical work environment, but are hazardous either in excess or deficiency, such as:

- a. **Heat or cold:** Excess heat or cold which could cause decrease efficiency and increase fatigue.

- b. **Light:** poor illumination could cause eye stress, poor vision and accident. Excessive brightness can also result to blurring of vision especially for those academic staff who works in engineering work shops. There should be sufficient and suitable lighting in workshops and laboratories.
- c. **Noise:** Prolonged speaking in class with a loud voice, especially in a noisy environment can lead to vocal cord disorder, distraction or lack of concentration, hearing loss among other.
- d. **Pressure:** most of the engineering lecturers are faced with this pressure hazard because sometimes the platform of working environment they find themselves during research or consultancy services expose them to be on a spinning platform like rig, which can cause equalization imbalance and ear drum disorder.

Physical hazards are hazards that can be seen or felt. They are circumstances that can cause injury or illness such as: noise, high and low temperature and pressure. Electricity, poor lighting, slips, trip and falls, vibrations among others.

Noise: Noise is an unwanted, unpleasant sound that interferes with one's hearing process and concentration. Noise attracts attention when the wave is heard. It is a potential hazard that causes temporary or permanent loss of hearing and distraction when it exceeds prescribed standard. Academic staff often encounter teaching moments where noise from students interfere with their teaching and no matter what you do students will not be quiet, especially when lecture periods clashes at lecture venue.

Overcrowded classrooms also generate a lot of noise at the background while teaching is going on. Noise from private generators within the classrooms area and offices also pose a lot of threat to teaching and learning processes. Therefore noise needs to be properly managed to enhance academic staff productivity. Safe Work Australia (2015) outlined the following ways of managing noise in work places:

- a. Eliminating or reducing noise from the source.
- b. Providing an alternative less noisy equipment for use.
- c. Insulate classrooms/offices from noise producing equipment.
- d. Making provision for hearing protection.
- e. Making provision for regular hearing test for staff who are often exposed to sources of noise for immediate identification of early hearing impairment.

In the same vein, Smith (2007), noted that noise within the classrooms could be managed through:

- a. Placement of caution warning signs such as, "Silence Please", "No Noise Please", "Out of Bound" among others, around the classrooms and office areas.
- b. Tracing to identify the source of noise by observing the class when the noise level increases. Loughborough (2016) as well as Greaves (2014) stated that noise could be managed by:
 - i. Assessment of the risk from noise exposure.
 - ii. Taking major steps in reducing noise exposure where a risk assessment has been done.
 - iii. Providing hearing protection where necessary, if risk cannot be adequately reduced or eliminated.
 - iv. Providing training information for employees on the risk from noise and measures in place to reduce it.
 - v. Providing health surveillance where risk level is high.

Jain and Rao (2014) noted that there is a significant effect between noise, speed and accuracy of performance, that errors tend to be greater where the noise level is high. The effect of noise on communication and concentration is a very serious factor to consider in teaching and learning process. Hence, continuous exposure to noise without proper protection should be seriously discouraged in academic environment.

Overcrowded Classroom: Overcrowded classrooms had become a serious hazard of academic staff in the universities. Nwideduh in Chukwuemeka (2010) noted that when students are overcrowded in a classroom, it makes it difficult for the teacher to organize students into smaller groups. It also hinders the teachers' movement within the lecture hall. This implies that teachers' performance and quality of teaching and learning is hindered. According to Onwu and Stoffel in Muthusamy (2015) overcrowded classrooms can result to lack of physical space for teacher to move around in class; decreased learners opportunity of participating actively in class; excessive workload for teachers and it equally hinders opportunity of meeting individual learners needs.

Nirashnee (2015) suggested the following as strategies for managing overcrowded classrooms:

- 1. Using positive behavioural support as against shouting and screaming.
- 2. Modification of tasks to catch students attention and interest.
- 3. Team teaching and peer teaching to allow more than one person to teach and
- 4. Encouraging interactive learning by engaging the students in group activities among others.

Heat: Working in heat can be unpleasant. Heat stress is a common and most often ignored hazard in the workplace. Heat hazard is capable of causing discomfort and adverse effect on physical and mental performance. Academic staff teaching in classrooms, laboratories and workshops that are poorly ventilated are at risk of heat hazard. Jain and Rao

(2014) suggested strategies that can be used to curb heat hazard to include:

1. Increasing the air movement using fans.
2. Installation of air-conditioners or evaporative coolers to lower air temperature.
3. Altering of work schedules to ensure that certain work is done at cooler times.
4. Providing well-ventilated classrooms and offices and
5. Ensuring that appropriate clothing is used in designated areas such as laboratories.

Electrical Shock: Electricity has the potential of causing serious injury, fire explosion or death. Electric shock from faulty electrical appliances, poor installations and wiring are part of the hazards academic staff face in their workplaces. Safe Work Australia (2015) stated some measures for managing electrical hazards. They include:

1. Ensuring that only licensed electricians carryout electrical work within the work environment.
2. Switching off all electrical appliances, sockets, bulbs and fans before leaving the office at the close of work.
3. Maintaining regular check/inspection on all equipment and fittings to ensure maximum safety standard.
4. Removing damaged unsafe electrical cords/cables and other appliances from offices/classrooms.
5. Providing safety precautions where faulty tools are located.

The strategies of curbing physical hazards are seen as the principles of hazard control and disease prevention in occupational health and safety. Asuzu (2009) contended that, once anything poses hazard in workplace, the thing to do is to totally eliminate such a hazard. Mato (2016) in agreement with Asuzu (2009) added containment of hazards at source or

reduction in exposure, total and partial ex-closure or segregation, adjunct measures such as general cleanliness, safety monitoring and evaluation, health education and appropriate laws as measures of curbing physical hazards in workplaces.

Health and Safety Inspection/Supervision of Physical Facilities: Health and safety supervisions and inspection are effective strategies that can be used for managing physical occupational hazards in workplaces. This should be carried out on a regular basis to ascertain the conditions of physical facilities in workplaces. In doing this, the management should allocate the responsibility for conducting supervision and inspections to some members of staff. Define the points to be covered in the form of checklist and define the frequency with which supervision and inspection should be carried out. Set up a reporting system and corrective action should be taken where necessary (Berewari, 2008).

III. METHODOLOGY

The study adopted the descriptive survey design. The population comprised of all the 2,498 (1,575 male and 923 female) academic staff of the three public universities in Rivers State. A sample of 250 academic staff was drawn through proportionate stratified random sampling technique (158 male and 92 female), which represented 10% of the population. A researcher's structured instrument entitled, "Management of Physical Occupational Hazards for Academic Staff Productivity Questionnaire (MPOHASPQ)" was used for data collection. The questionnaire was properly validated and the reliability was tested using Cronbach Alpha method which yielded a reliability index of 0.83. The data collected were analysed using Statistical Package for Social Sciences (SPSS), Mean and standard deviation were used to answer the research questions while independent sample z-test was used to test the hypotheses at 0.05 level of significance.

IV. RESULTS

Research Question One: What are the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State?

Table 1: Weighted mean and standard deviation scores of academic male and female academic staff of public universities in Rivers State on the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State.

S/N	Strategies for Managing Physical Occupational Hazards for Academic Staff Productivity.	Male N = 158		Decision	Female N = 92		Decision
		\bar{X}_1	SD ₁		\bar{X}_2	SD ₂	
1.	University provides caution signs around lecturers' offices/classrooms as a way of controlling noise for academic staff productivity.	2.36	0.78	Disagreed	2.42	0.74	Disagreed
2.	Generators are located far away from lecturers' offices/classrooms as a way of controlling noise for academic staff productivity.	2.38	0.76	Disagreed	2.34	0.79	Disagreed
3.	University provides sound proof generators around lecturers' offices/classroom as a strategy for controlling noise and improving academic staff productivity.	2.34	0.79	Disagreed	2.32	0.80	Disagreed
4.	University provides well ventilated lecture theatres/offices as a strategy for curbing heat for academic staff productivity.	3.08	0.65	Agreed	3.03	0.68	Agreed
5.	University provides air conditioned/well ventilated laboratories/workshops as a strategy for managing heat during lectures for academic staff productivity.	3.01	0.69	Agreed	3.00	0.70	Agreed

6.	There are well established rules/regulations in the university on switching off electrical appliances before leaving the office/classroom.	2.28	0.81	Disagreed	2.30	0.80	Disagreed
7.	University mandates only licensed/qualified electricians to carry out electrical work within lecturers' offices/classrooms.	3.06	0.66	Agreed	3.04	0.67	Agreed
8.	University provides fire extinguishers in offices/lecture areas.	3.12	0.63	Agreed	3.10	0.64	Agreed
	Aggregate mean and standard deviation	2.70	0.72		2.69	0.73	

Table 1 showed that items 1, 2, 3 and 6 had various mean score values that were below the criterion mean value of 2.50 and they were disagreed on by the respondents as the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State. On the other hand, items 4, 5, 7 and 8 had various mean score values that were above the criterion mean value of 2.50 and they were agreed on by the respondents as the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State.

Aggregate mean scores of 2.70 and 2.69 for male and female academic staff respectively showed that both respondents have a common understanding of the strategies for managing physical occupational hazards for academic staff

productivity in public universities in Rivers State. Therefore, the strategies for managing physical occupational hazards for academic staff productivity in public universities in Rivers State include: universities provide well ventilated lecture classrooms/lecturers' offices; universities provide air conditioned well ventilated laboratories/workshops, universities mandate only qualified/licensed electricians to carry out electrical works within lecturers offices and classrooms, and universities provide fire extinguishers in lecturers offices/lecture blocks.

Research Question Two: What are the challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State?

Table 2: Weighted mean and standard deviation scores of academic male and female academic staff of public universities in Rivers State on the challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State

S/N	Challenges of Managing Occupational Hazards	Male N = 158		Decision	Female N = 92		Decision
		\bar{X}_1	SD_1		\bar{X}_2	SD_2	
1.	Inadequate provision of safety tools for conducting practical studies serves is a challenge in managing physical occupational hazards for academic staff productivity.	2.93	0.61	Agreed	2.92	0.62	Agreed
2.	Lack of proper pre-employment orientation on physical occupational hazards/safety management is a challenge in managing physical hazards.	2.83	0.64	Agreed	2.85	0.63	Agreed
3.	Inadequate funding of public universities in Rivers State is a challenge in managing physical occupational hazards.	3.02	0.59	Agreed	3.00	0.60	Agreed
4.	Lack of a viable monitoring team that monitors and evaluates the conditions of physical structures/tools/equipment serve as a challenge in managing physical occupational hazards for academic staff productivity.	2.62	0.71	Agreed	2.71	0.67	Agreed
5.	Lack of enforcement of government policies/regulations constitute a challenge in managing physical occupational hazards for academic staff productivity in public universities in Rivers State.	3.24	0.53	Agreed	3.12	0.56	Agreed
6.	Lack of occupational hazards and safety units in the universities serve as a challenge in managing physical hazards in public universities in Rivers State.	3.18	0.57	Agreed	3.15	0.58	Agreed
7.	Inadequate commitment in reporting risk level encountered by academic staff constitute a challenge in managing physical occupational hazards for academic staff productivity in public universities in Rivers State.	2.73	0.67	Agreed	2.95	0.61	Agreed
	Aggregate mean and standard deviation	2.94	0.62		2.95	0.61	

Table 2 showed that all the items had mean score values that were greater than the criterion mean of 2.50. All the items (1 to 7) were agreed on by the respondents as the challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State. The aggregate mean scores of 2.94 and 2.95 for male and female respondents respectively showed that they had a

common view about the challenges of managing physical occupational hazards for academic staff productivity.

The challenges of managing physical occupational hazards for academic staff productivity in public universities in Rivers State therefore includes: inadequate provision of safety tools for conducting practical studies, lack of proper pre-employment orientation on physical occupational

hazards/safety management, inadequate funding, lack of viable monitoring team, lack of enforcement of government policies/regulation, lack of occupational hazards and safety units in the universities and inadequate commitment in reporting risk level encountered by academic staff.

Test of Hypotheses

Ho₁: There is no significant difference between the mean response of male and female academic staff of public universities in Rivers State on the strategies for managing physical occupational hazards for academic staff productivity.

Table 3: z-test analysis of the mean scores of male and female academic staff of public universities in Rivers State on the strategies for managing physical occupational hazards for academic staff productivity.

Academic Staff	n	\bar{X}	SD	Df	z-Cal	z-Critical	Decision
Male	158	2.70	0.72				
				248	0.11	±1.96	Ho ₁ Retained
Female	92	2.69	0.73				

Table 3 showed that male academic staff of public universities in Rivers State had mean score and standard deviation of 2.70 and 0.72, while female academic staff had mean score and standard deviation of 2.69 and 0.73. With a degree of freedom of 248, the calculated z-test value of 0.11 was less than the critical z-table value of ±1.96. Therefore, the null hypothesis was retained. By implication, there was no significant difference between the mean response of male and

female academic staff of public universities in River State on the strategies of managing physical occupational hazards for academic staff productivity.

Ho₂: There is no significant difference between the mean response of male and female academic staff of public universities in Rivers State on the challenges of managing physical occupational hazards for academic staff productivity.

Table 4: z-test analysis of the mean scores of male and female academic staff of public universities in Rivers State on the challenges of managing physical occupational hazards for academic staff productivity.

Academic Staff	n	\bar{X}	SD	Df	z-Cal	z-Critical	Level of Sign.	Decision
Male	158	2.94	0.62				0.05	
				248	0.13	±1.96		Ho ₂ Retained
Female	92	2.95	0.61					

Table 4 showed that male academic staff of public universities in Rivers State had mean score and standard deviation of 2.94 and 0.62, while female academic staff had mean score and standard deviation of 2.95 and 0.61. With a degree of freedom of 248, the calculated z-test value of 0.13 was less than the critical z-table value of ±1.96 at 0.05 level of significance. Hence, the null hypothesis was retained. This implies that, there was no significant difference between the mean response of male and female academic staff of public universities in Rivers State on the challenges of managing physical occupational hazards for academic staff productivity.

IV. DISCUSSION OF FINDINGS

The study revealed that the strategies for managing physical occupational hazards in public universities in Rivers State include provision of well ventilated lecture theatres/offices, provision of air conditioned/well ventilated

laboratories/workshops, mandating only licensed/qualified electricians to carry out electrical works within lecturers' offices and classrooms, and providing fire extinguishers in offices/lecture areas. These findings are in line with Safe Work Australia (2015), Jain and Rao (2014), Asuzu (2009) and Mato (2016). These scholars have outline many strategies for managing physical hazards in workplaces which included but not limited to only the findings stated above.

The findings revealed that caution signs are not provided around lecture theatres/lecturers offices as a way of controlling noise, sound proof generators are not used around lecture classrooms and lecturers' offices, generators are not located far away from lecture classrooms and lecturers offices and there are no well established rules/regulations directing staff and students to switch off electrical appliances before leaving their offices or classrooms. These are very important strategies that should be included in the management of

physical occupational hazards in the universities. If these measures are incorporating in the management of physical hazards, they will yield viable results. The noise level from students and generators will drastically reduce. Also, the issue of fire out break as a result of faulty electrical gadgets or very high voltage will be reduced.

The study equally revealed the challenges of managing physical occupational hazards to include: inadequate provision of safety tools, lack of pre-employment orientation, poor funding of public universities, lack of viable monitoring team, inadequate enforcement of government policies, lack of occupational hazards and safety units in the universities and inadequate commitment in reporting risk level encountered by academic staff. These findings are in agreement with Onumbu (2008) and Echeta (2010) who emphasized on the need for proper pre-employment training and orientation of employees as a viable means of managing physical occupational hazards in workplaces.

The findings of this study also agrees with Ugwulashi (2014) who indicated that lack of funds in the universities hinders adequate provision of health and safety facilities, as well as proper maintenance of the existing ones. This enhances the exposure of employees to various forms of occupational hazards especially physical hazards. The university management needs to institute hazard reporting and monitoring units in their institutions as a means of managing occupational hazards in their institutions. Policies aimed at reducing occupational hazards should be formulated and enforced. For instance, employees should be made to develop the habit of switching off all electrical appliances and lights in their offices before leaving at the close of work every day.

V. CONCLUSION

Based on the findings of this study, the researchers conclude that physical occupational hazards are very much experienced by academic staff of public universities in Rivers State. These hazards affect academic staff productivity in a number of ways: such as lowering their level of concentration and health status. The university management adopts some strategies to curb the presence of these hazards. The management strategies adopted by the universities are not adequate enough. More measures should be involved in managing physical occupational hazards in public universities in Rivers State in order to achieve better results and enhance academic staff productivity.

VI. RECOMMENDATIONS

The researcher recommend as follows:

1. Caution signs should be provided around lecture theatres and lecturers offices as a way of controlling noise.
2. There should be well established regulation directing members of staff and students to switch off electrical appliances in their offices/classroom before leaving their offices/classrooms.
3. Government should increase the funds allocated to public universities to enable them purchase required safety and health facilities and also carry out proper maintenance of the existing ones.

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