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Approaches to Occupational Safety and Health Standards in Construction Sites in Anambra State

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ABSTRACT

This paper investigated the approaches to occupational safety and health standards in construction sites in Anambra State. Three research questions guided the study. The descriptive survey research design was adopted for this study. The study analyzed over one hundred construction projects in the state, focusing on fifteen sites. To gather data, questionnaires were administered to 190 construction workers and engineers of various trades. Out of the total, 148 questionnaires were retrieved and used for analysis, resulting in a response rate of 77.89%. A validated structured questionnaire titled "Questionnaire on Occupational Safety and Health Standards" (QOCHS) was developed by the researcher. Cronbach Alpha method was used to determine the internal consistency of the instrument and an overall value of 0.76 was obtained for the three clusters. Descriptive statistics of mean and standard deviation was used to answer the research questions. The finding revealed that construction workers and construction engineers to a high level are aware of the occupational safety and health regulation on building sites. They also agreed that construction workers and engineers agreed on occupational safety and health practices in the building construction industry. It was found out that construction workers and engineer agreed on the ways for improving awareness of occupational safety to construction among workers in the building construction sites. Based on the findings, it was recommended amongst others that Anambra State government should encourage a culture of safety within construction companies by emphasizing the importance of adhering to regulations and guidelines to prevent accidents and injuries on building sites.

KEYWORDS

Health; safety; occupational health and safety; construction sites

INTRODUCTION

The Nigeria construction industry has continued to occupy an important position in the nation's economy. Industry (including construction), value added (% of GDP) in Nigeria was reported at 30.78 % in 2022, according to the World Bank collection of development indicators, compiled from officially recognized sources. This means that the construction sector is a significant employer in Nigeria, providing jobs for a large portion of the workforce. It employs both skilled and unskilled labor, contributing to income generation and poverty alleviation. The sector's activities stimulate demand for building materials, equipment, and related services, thereby supporting ancillary industries and contributing to broader economic growth. Although, Nigeria is enjoying relatively strong growth in construction activities, efforts towards ensuring improved safety performance have yielded minimal results (Adeagbo, Dakas & Izam, 2019). The enforcement of safety regulations is not widespread within the industry.

It is however disheartening that despite several efforts towards improving the health and safety status of Nigeria construction industry, continuous increases in the number of accidents both reported and unreported on construction sites still go unabated. Furthermore, Nigeria has a very high accident record attributable to lack of effective monitoring, reporting and control practices.

Added to this problem is the incessant collapse of building in the country. Although there has been a dramatic improvement in recent decades, the construction industry safety record has continued to be one of the poorest (Akinwale & Olusanya, 2016). Okoye, Ezeokonkwo and Ezeokoli (2016) believed that improving occupational safety and health (OSH) in the construction industry is a slow but achievable process.

The Occupational safety and health (OSH) in Nigeria are traced back from the slave trade period in Nigeria. Thus, occupational safety and health (OSH) can be seen to concern the physical and mental well-being of the individual at a place of work. This regulation stipulates the general health and safety standards that should be observed by workers and employers in order to prevent accident that may result to illness, injury or loss of life. In more general term the International Labour Organisation (2017) defined occupational safety and health regulation as the science of the anticipation, recognition, evaluation and the control of hazards arising in, or from the workplace that could impaired the safety, health and well-being of workers. This includes their promotion and the maintenance of the highest degree of physical, mental and social well-being of workers in all occupations.

Globally, OSH has not performed to expectation (ILO, 2017). In Great Britain, the construction industry records worse across other industries but second to agriculture, fishery and forestry (Health and Safety Executive (HSE) 2019). Typically, it has accounted for 30 fatalities in 2018/19, but an annual average of 36 fatalities from 2014/15 to 2018/19 (based on provisional data) (HSE 2019). Despite the limited data in developing countries, the case is worse therein. In fact, developing countries record three times as much fatalities than developed countries (Okonkwo, 2019). In Nigeria, between 2014 and 2016, 1385 workers were injured in the construction industry, the highest across all industries, and 238 workers lost their lives in all sectors (ILO, 2017).

As a state on transition, Anambra State is one of the few states in Nigeria that is witnessing tremendous infrastructural development especially with respect to building projects. Almost all these projects are being handled by the local contractors and construction workers. In recent years however, there has been increased cases of construction sites accidents in the state. Majority of these accidents are unreported. Thus, the issue of whether these workers have adequate knowledge on health and safety issues and whether they comply with health and safety rules and guidelines on site come to fore. Like in every other business environment, construction business should be guided by certain regulations to ensure health and safety of its workers. According to (Boadu, Wang & Sunindjo, 2020) safety and health have become an integral component in the workplace as employers, labour unions and others engage in trainings and procedures to ensure compliance with safety standards and also to keep a healthy workforce.

Goh and Chua (2016) asserted that the increasing rate of construction accidents has increased the level of awareness of construction health and safety, thereby involving its inclusion as part of project performance criteria. Labo-Popoola, Mahamadue, Manu, Aigbavboa and Dziekonski (2019) averred that non-existent and/or lack of enforcement of construction health and safety regulations, and bylaws are among the major causes of building failures. They opine that health and safety in construction is a highly practical guide to help any professional understand the implications of health and safety legislation for their role in a project. However, the fact that health and safety performance of the Nigeria construction industry is culturally linked makes the situation more challenging. Nigerian cultures are known to be unique. Like any other African countries, Nigeria culture has been generally characterised as collectivist, high power distance, average uncertainty avoidance, masculinity, having short-term orientation and indulgence (Okonkwo, 2019). This means that Nigeria needs laws and regulations which cannot ordinarily be observed but must be made known and enforced or persuaded to be complied.

According to Manu, Poghosyan, Mshelia, Iwo, Mahamadu and Dziekonski (2019), the physical work environment is not of much value in Nigeria. This is because of the prevalent unemployment, the value attached to life, widespread corruption, the disdain of the ruling class and the labour aristocrats to the plight of the workforce which led to a very weak, outdated and lax health and safety laws and regulations; compounded by bad planning laws and low monetary compensation paid for infringement of even the lax laws (Okoro, Musonda & Agumna, 2016). This means that the approaches to OSH standards amongst construction supervisors and workers remain poor in the state. It is on this premise that this paper examined the approaches to occupational safety and health standards in construction sites in Anambra State.

STATEMENT OF THE PROBLEM

Currently, the adherence to occupational safety and health standards in construction industries in Anambra State is minimal. While there are some safety regulations in place, they are often outdated, poorly enforced, and not comprehensive enough to cover all potential hazards in the construction industry. Many construction sites operate with minimal adherence to these standards. This will consequently increase the risk of accidents and injuries. In some cases, construction projects may not have thorough risk assessments conducted before work begins.

Without identifying potential hazards and developing appropriate safety measures, workers are left unprotected in dangerous environments. Most of these practices happen because employers and project managers in the construction industry are often faced with tight deadlines to complete projects on time. This pressure may lead to a focus on meeting deadlines at the expense of ensuring proper safety protocols are followed, putting workers at risk. These gaps identified in this paper spurred the researcher to examine the approaches employed to OSH standards in construction sites in Anambra State. Specifically, this study therefore examined:

1. The level to which construction workers are aware of occupational safety and health regulations on construction site
2. The occupational safety and health practices in the building construction industry
3. Ways of improving awareness of occupational safety to construction among workers in the building construction sites

RESEARCH QUESTIONS

1. What is the level to which construction workers are aware of occupational safety and health regulations on construction site?
2. What are the occupational safety and health practices in the building construction industry?
3. What are the ways for improving awareness of occupational safety to construction among workers in the building construction sites?

METHODOLOGY

The descriptive survey research design was adopted for this study. The study analyzed over one hundred construction projects in the state, focusing on fifteen sites based on project nature, scope, organization, workers involved, stakeholders, and location. Most projects were privately owned residential building projects, with few workers available when needed. To ensure geographical balance, five sites were selected from each state zone. To gather data, questionnaires were administered to 190 construction workers (artisans) of various trades. Out of the total, 148 questionnaires were retrieved and used for analysis, resulting in a response rate of 77.89%.

A validated structured questionnaire titled "Questionnaire on Occupational Safety and Health Standards" (QOCHS) was developed by the researcher. The questionnaire is divided into two sections A and B. Section A covered the personal profile of the respondents while Section B is sub-divided into three clusters I – III. Cluster I addressed information on the level to which construction workers are aware of occupational safety and health regulations on construction site. Cluster II addressed items on the occupational safety and health practices in the building construction industry; while cluster III focused on the ways of improving awareness of occupational safety to construction among workers in the building construction sites. This questionnaire is structured on a 4-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with nominal values 4, 3, 2 and 1 respectively.

Cronbach Alpha method was used to determine the internal consistency of the instrument and an overall value of 0.76 was obtained for the three clusters. Descriptive statistics of frequency counts and percentages was employed to analyze the bio-data of the respondents while mean score was used to analyze the data to answer the research questions. The benchmark of 2.50 mean score was set for the decision rule for the mean scores. Any mean score below 2.50 is adjudged disagreed/low level while any mean score above 2.50 is rated agreed/high level.

RESULTS

TABLE 1: Respondents' ratings on the level to which construction workers are aware of occupational safety and health regulations on construction site.

S/N	Items on the level to which construction workers are aware of occupational safety and health regulations on construction site	Workers		Engineers		Xt	Remarks
		X_1	SD_1	X_2	SD_2		
1	effective knowledge of operation of fire extinguishing Apparatus provided on the site	3.06	0.73	3.10	0.63	3.08	High level
2	Knowledge of recommended protective clothing and devices such as hand gloves, footwear, goggle, helmets when working	3.10	0.72	3.15	0.75	3.13	High level
3	Knowledge of first aid administration	2.96	0.61	3.00	0.74	2.98	High level
4	Knowledge of tools and equipment handling and maintenance on construction site	2.99	0.78	3.05	0.77	3.02	High level

S/N	Items on the level to which construction workers are aware of occupational safety and health regulations on construction site	Workers		Engineers		Xt	Remarks
		X_1	SD_1	X_1	SD_1		
5	Knowledge of proper collection and disposal of construction waste	2.67	0.76	2.86	0.71	2.76	High level
6	Knowledge of scaffolding and ladder setting up and utilization	2.55	0.87	2.60	0.78	2.58	High level
7	Knowledge of fall protection	1.99	0.76	2.02	0.82	2.01	Low level
8	Knowledge of hazard communication	3.04	0.82	3.10	0.81	3.07	High level

Key
N1 = Number of building construction engineer
SD1 = Standard deviation of building construction engineer
N2 = Number of construction workers
SD2 = Standard deviation of construction workers
X1 = Mean of building construction engineer
X2 = Mean of construction workers
Xt = average mean of building construction engineer and construction workers

The result presented in table 1 shows that the mean value of all the items agree with the level of construction workers awareness of occupational safety and health regulation on building sites, except the mean value of items 7 disagree with the level of construction workers awareness of occupational safety and health regulation on building construction.

TABLE 2: Respondents' ratings on the occupational safety and health practices in the building construction sites.

S/N	Items on the level to which construction workers are aware of occupational safety and health regulations on construction site	Workers		Engineers		Xt	Remarks
		X_1	SD_1	X_2	SD_2		
9	Inspection of soil profile type before erecting structures on site	3.67	0.77	3.80	0.56	3.74	Agree
10	Keeping accidents record properly	3.09	0.73	3.15	0.72	3.12	Agree
11	Following and obeying building construction codes and regulation	2.97	0.71	2.90	0.79	2.94	Agree
12	Utilization of skilled labour on site for safe construction	3.05	0.66	2.95	0.78	3.00	Agree
13	Proper effective communication between the engineers and workers in case of any emergency	2.70	0.65	2.55	0.82	2.63	Agree
14	Utilization of the right machines and tools for the right job	2.78	0.58	2.75	0.58	2.76	Agree
15	Usage of hard harts	2.88	0.61	2.77	0.74	2.82	Agree
16	Safety boots	3.15	0.72	3.05	0.99	3.10	Agree
17	Safety gloves	2.90	0.74	2.95	0.75	2.93	Agree
18	Safety respiratory protection	3.03	0.65	3.10	0.72	3.07	Agree

The result presented in table 2 shows that the mean value of all the items agreed with the occupational and health practices of building construction workers in construction site in Anambra State.

TABLE 3: Respondents' ratings on the ways for improving awareness of occupational safety to construction among workers in the building construction sites.

S/N	Items on the level to which construction workers are aware of occupational safety and health regulations on construction site	Workers		Engineers		Xt	Remarks
		X_1	SD_1	X_2	SD_2		
19	All accidents, irrespective of the degree should be reported and documented	2.71	0.67	3.08	0.66	2.89	Agree
20	Seminars and workshops on safety should be organized on regular basis	2.94	0.83	3.06	0.62	3.00	Agree
21	Indoctrinating new employees into proper safety culture	3.78	0.74	3.91	0.89	3.85	Agree
22	Workers should be trained on how to improve their practical skills	2.85	0.84	3.09	0.88	2.97	Agree
23	Workers should be encouraged to the use correct, the personal protection clothing and devices provided for use.	3.71	0.89	3.50	0.90	3.61	Agree
24	Encouraging maintenance culture for equipment and machineries	3.87	0.78	3.55	0.68	3.71	Agree
25	Training of workers in potential hazard identification	3.88	0.71	3.70	0.73	3.79	Agree
26	Provision of protective equipment such as hand gloves, helmet, goggles etc.	2.51	0.82	3.65	0.94	3.08	Agree
27	Supervisors enforce strict compliance with safety rules and regulation	2.92	0.90	3.56	0.86	3.24	Agree
28	Ensure that safety signs and cautions are always mounted at strategic position	3.33	0.85	3.01	0.77	3.17	Agree

The result presented in table 3 shows that the mean value of all the items agreed with improving awareness of occupational safety to construction among workers in the building construction sites in Anambra State.

DISCUSSION OF FINDINGS

The finding in research question one revealed that construction workers and construction engineers to a high level are aware of the occupational safety and health regulation on building sites. Understanding and adhering to safety regulations help prevent accidents and injuries on construction sites. Workers and engineers know the proper use of equipment, the importance of protective gear, and the protocols for handling hazardous materials. This finding agree with the findings of Ngwama (2016) that knowledge of safety regulations helps in the implementation of safety measures and protocols that reduce the likelihood of workplace incidents. This includes training on emergency procedures, regular safety drills, and routine inspections. The finding of Nweke and Nouban (2022) remarked that workers and engineers are aware of safety regulations because it promotes a culture of safety within the construction site. This culture encourages proactive behavior in identifying and addressing potential hazards, leading to a safer working environment for everyone involved.

The finding in research question two revealed that construction workers and engineers agreed on occupational safety and health practices in the building construction industry. This means that construction workers and engineers on occupational safety and health (OSH) practices in the building construction industry signifies a shared commitment to maintaining a safe and healthy working environment. This finding was in line with the finding of Abass, Musa and Babalola (2019) that construction workers and engineers collectively prioritize safety, therefore, it creates an environment where safety is integrated into every aspect of the project. The finding of Okolie and Okoye (2012) revealed that safety practices significantly reduced the likelihood of workplace accidents. Understanding and implementing OSH protocols—such as proper use of personal protective equipment (PPE), safe operation of machinery, and thorough hazard assessments—mitigates risks. This reduction in accidents not only protects workers but also minimizes project downtime, leading to more predictable project timelines and cost savings.

The finding in research question three revealed that construction workers and engineer agreed on the ways for improving awareness of occupational safety to construction among workers in the building construction sites. This finding means that construction workers and engineers has a unified effort to ensure that all workers on construction sites are well-informed about safety protocols, thereby reducing risks and promoting a safer working environment. This finding agreed is consistent with Dodo (2014) who noted that training of workers will improve safety practices on sites. Conversely, this finding opposed that of Adeagbo, Dakas and Izam (2019) that lack of workers' adaptability to safety practices is the reason for accidents on sites, training of workers is key to effective safety practices.

CONCLUSION

Based on the findings of various approaches to occupational safety and health standards in construction sites in Anambra State, it can be concluded that there is a need for a comprehensive and systematic enforcement of regulations and guidelines to ensure the safety and well-being of workers in the construction industry. Additionally, increased training and awareness programs should be implemented to educate both employers and employees on best practices for maintaining a safe work environment. Collaboration between government agencies, construction companies, and workers is essential to address challenges and improve safety standards in construction sites.

RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. Anambra State government should encourage a culture of safety within construction companies by emphasizing the importance of adhering to regulations and guidelines to prevent accidents and injuries on building sites.
2. Organizations in charge of OSH in Anambra State should conduct joint safety inspections involving both construction workers and engineers to identify potential hazards and develop appropriate solutions to mitigate risks in building construction sites.
3. Construction companies should make sure that occupational safety and health practices are integrated into construction plans and project specifications right from the design and planning phase, with input from both workers and engineers.
4. There is need for construction companies and relevant stakeholders to hold regular safety meetings where construction workers and engineers can discuss safety issues, suggest improvements, and collaborate on implementing preventive measures to maintain a safe working environment.

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