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Compliance to Health and Safety Measures in Selected Construction Firms in Lagos, Nigeria

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Abstract

Non-compliance to safety measures remains one of the factors that endanger construction sites. As one of its contributions to work on enhancing the safety and health of workers and improving project quality delivery, this study examined the level of compliance to health and safety among construction firms in Lagos State, from the perspective of workers. The study adopted a survey research design. The sample size for the study was one hundred and twenty (120) skilled artisans who were randomly selected from among foreign and indigenous construction firms in the state. The research instrument was a questionnaire that collected relevant data, with descriptive and inferential statistics being used for the data analysis. It was found that only 22% of the firms made provision for PPE, in the light of legislative requirements on standards. Moreover, out of three workers, one was afraid to report incidents/accidents while the fraction of workers that wished to report were unaware of the officials to report such matters to. Consequently, a similar percentage of workers was worried that there would be a penalty for reporting safety issues. Regarding contractors' safety policy review, while one out of every three contractors bore their responsibilities under the safety policy, one out of every four contractors was requested to make some amendments. It was thus concluded that workers are not encouraged to report any incident or accident confirming a low level of compliance between the two firms. It is therefore suggested that there should be strict enforcement of measures for improving safety and health practices on construction sites, in addition to motivating workers on incident/accident reporting and specifying the right line of safety actions. Furthermore, risk assessment for work operations should be enhanced to minimise the percentage of work that is halted or executed unsafely.

Keywords: Accident; Compliance; Construction firms; Health and safety; PPE

1.0 Introduction

A key change in the world of work has been the 'virtualisation' of work, leading to an increased demand for 'flexibility' in work organisation, working-time arrangements, and telework (Skibniewski, 2014; Robelski et al., 2019). Despite the unprecedented changes in how people

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interact at work or conduct work activities as a result of the huge development and spread of digitalisation technologies, the nature of construction activities and the uniqueness of the sector continues to demand the use of skilled labour (Eze, Sofolahan & Siunoje, 2020). Therefore, the occupational health and safety of workers remain critical factors, hence the emergence of studies in the area. Although the conclusion and direction of research in the several studies differ, there is a seeming convergence of opinions on the importance of safety and health principles and management, with emphasis on compliance (Izudi, Ninsiima & Alege, 2017). Safety and health compliance, that is, observance of established safety standards and regulations, concerns occupational safety and health and significantly controls the rate at which construction sites are associated with injuries and accidents (Tanko & Anigbogu, 2012). Safety health and compliance should thus be an integral aspect of project management and must be given high priority by construction participants to ensure occupational well-being.

Concerning construction sites, different aspects of occupational safety and health have been researched. Charehzehi and Ahankoob (2012) and Sanni-Anibire et al. (2018) reported that failure to adhere to required safety procedures as well as to take precautions against hazards such as using safety wear is common on project sites. According to Sanni-Anibire et al. (2018), this situation persists because the safety culture has yet to be imbibed. Besides the common failure to use personal protective equipment (PPE), non-compliance of workers to other work procedures and rules is equally prevalent (Sanni-Anibire, et al., 2018). The use of PPE serves as an important measure to safeguard workers from exposure to occupational hazards. However, workers will be motivated when they realise the risks inherent in the non-use of PPE (Izudi, Ninsiima & Alege, 2017; Wong, Man & Chan, 2021). To avert such risks, a few management practices have emerged, including safety policy, safety plan, adequate safety implementation, proper monitoring systems, high levels of safety awareness, workers' knowledge and commitment, and safety managers' support (Shamsuddin et al., 2015; Awwad, Souki & Jabbour, 2016; Okoye, Ezeokonkwo & Ezeokoli, 2016; Adebiyi et al., 2020).

Consequently, given the size, contributions and importance of construction workers in achieving project objectives in Lagos State, this study investigated issues to do with skilled workers on a specific number of safety management practices, namely: the provision of personal protective equipment, safe work practices, safety and health policy, contractor's review policy and workers' level of safety awareness. The study is necessary because site workers are at the forefront as regards issues of compliance with safety and health requirements. In a Nigerian context, Ijaola et al. (2021) observed that construction professionals are aware of the implications of non-compliance to safety and health but differ in six areas of its implication. The present study, therefore, has two objectives which are the level of compliance of selected construction workers based on the selected safety and health factors and their organisations' level of compliance to health and safety. The practical implication of this study is that the importance of ensuring the necessary communication and engagement with skilled workers is seen as a useful factor in engraining a culture of safety and health compliance while the relevant professionals will be able to evaluate the ills of non-compliance to safety measures and mitigate against such.

2.0 Safety Compliance Factors

The literature contains various behaviour-related factors that contribute to employees' safety compliance in the construction industry. Some of these are Management and Organisational Commitment, Knowledge and Effective Safety Training Safety Leadership and Communication, Safety Management System and Guidelines as well Personal Protective Equipment (PPE). These are highlighted below.

Management commitment to safety as a critical component of the safety climate covers workers'

perception and the degree to which managers value and support safe work. The safety climate represents either the perception of individual employees (the psychological climate) or shared employee perception (the group climate) regarding safety procedures, practices, and behavioural norms on aspects of safety (Vrenderburgh, 2002; Umeokafor et al., 2014). Construction managers and safety personnel must communicate to employees about safety issues in their order of priority. The circumstances surrounding workers' behaviour and the ultimate/likelihood of employee incidents, injuries and accidents, as well as workers' obligations and management expectations, are to be well communicated. This is important so that risks are reduced when workers identify what constitutes hazards and thus contribute positively to safety and health support (Vrenderburgh, 2002; Ismail, Doostdar & Harun, 2012).

Good leadership quality energizes employees to prioritize safety measures in the workplace. Such quality transforms good intentions into positive actions and turns a group of individuals into a formidable team. With the right leadership qualities coupled with the ability to communicate what is required, safety management objectives become easy and thus a model for a safe work environment can be built (Apraku et al., 2020; Windapo, 2011).

Effective safety training is important to educate workers on increasing safety awareness. Through training and re-training, the likelihood of accidents occurring reduces while specific task-related accident-mitigating strategies are developed (Kheni et al., 2010; Kolawole, 2014; Awwad, Souki & Jabbour, 2016). With adequate training, accidents are reduced, costs are put within control and lives are saved. Without this, the economic cost of lack of training becomes obvious in the form of non-compliance by workers with H&S legislation. This is so because compliance with the requirements on safety can only be applied to achieve better results when knowledge of the requirements is known. Thus, the level of commitment to H&S legislation will be high when managers have adequate knowledge and awareness of H&S regulatory requirements. This will inevitably improve workers' awareness of the requirements of H&S; that is, the knowledge of health and safety will translate to compliance with minimal enforcement. Consequently, having the proper information with regular awareness will more likely improve the work environment and will in turn boost project delivery. In summary, awareness of possible risk factors through education (and/or training), as well as knowledge on how to reduce such risk factors among workers, will enhance site safety (Shamsuddin et al., 2015; Agbede et al., 2016; Awwad, Souki & Jabbour, 2016; Okoye, Ezeokonkwo & Ezeokoli, 2016).

The importance of a safety management system and guidelines cannot be ruled out. This is of utmost importance in the construction sector as the information required for the entire project cannot be obtained fully at the beginning of any project. Communication that is effective, clear and understood in any format thus becomes imperative. Thus, carrying the employees along, talk about safety and advice on safety matters improve safety motivation and encourage employees' safety behaviour. Therefore, reinforcement of positive motivation is encouraged by many safety practitioners to maintain and improve workers' good safety behaviour, and this is enhanced when incentive schemes are carried out to motivate workers (Zin & Ismail, 2012). As a result, an organisation that creates and maintains good quality employer-employee relationships will benefit from higher levels of employee motivation, commitment, and job satisfaction, which in turn impacts positively on the intention to stay, hence performance. Therefore, management systems such as proper risk assessments, reporting systems, safety plans, clear delegation of responsibilities, provision of adequate resources and ensuring that full information is disseminated to workers are necessary to ensure compliance of workers to safety regulations (Muhammad, 2006; Windapo & Oladapo, 2012; Wong & Soo, 2019).

The Safety and Health Act 1994 provides the legislative framework to promote and encourage high standards of safety and health at work. Thus, the primary aim of the Act is to promote safety

and health awareness and to instil a safety culture in the workforce (Zin & Ismail, 2012). This is key as a worker's poor perception of compliance with safety requirements could lead to negative behaviour and correlate with poor safety performance which carries enormous negative consequences to the individual and the organisation as a whole (Othman, 2012: Zekri, 2013).

Towards the enhancement of safety behaviour, the provision and use of Personal Protective Equipment (PPE) come to the fore. Whether the causes of accidents are viewed from the perspective of unsafe conditions or unsafe behaviour, the use of safety wear is crucial. Personal protective equipment comprises protective headgear, footwear, and protective clothing. When there is suitable protective equipment, safety performance will be improved by preventing injuries/accidents that would otherwise impede work progress (Charehzehi & Ahankoob, 2012; Zekri, 2013; Umeokafor, et al., 2014). PPE, though often considered the most routine of all the facets of health and safety measures, is the last on the hierarchy of controls, although it is the first personal line of defense against most hazards (Tanko & Anigbogu, 2012). A viable construction firm should therefore educate workers on the factors that may hinder the use of PPE while making the necessary provisions that follow the prevailing legislations and guidelines (Wong, Man & Chan, 2021).

3.0 Research Approach

After a thorough review of the literature on issues of safety and health compliance, factors that enhance compliance such as safe work behaviour, personal level of knowledge and awareness on safety and health requirements, contractors' attitude on issues relating to a safe work environment, contractor's policy on safety and health, as well as the use of PPE, were selected. Each of these six variables had between four and seven sub-variables that were used to assess the main variables.

From these, a survey research instrument was developed in the form of a structured questionnaire, which was administered to skilled construction artisans who were purposively selected from indigenous and expatriate firms. With the purposive sampling technique, respondents are identified that could provide the required data. Thus, copies of the questionnaire were purposively distributed among workers who were currently working on sites and who had spent at least six months with their firms and were willing to take part in the survey. One hundred and thirty-three (133) copies of the questionnaire were administered to the artisans, while 120 (representing a 90% response rate) was achieved. These duly filled, returned, and usable copies of the questionnaire were then assessed using descriptive and inferential statistics. This is the part reported in this study. The results are as presented.

4.0 Findings

4.1 Survey Results

Respondents' Characteristics

The characteristics of the workers are presented in Table 1.

Table 1: Respondents' Demographics

	Frequency	Percentage
Gender		
Male	109	91
Female	11	9
Total	**120**	100
Age		
< 30 years	13	11
31-40 years	45	38
41-50 years	35	29
51 years and above	27	23
Total	**120**	100
Educational Qualifications		
Trade test/Technical	49	41
ND	30	25
HND	32	27
B.Sc., B.Eng, B.Tech	9	8
Total	**120**	100
Experience in the present firm		
Below 5 years	11	9
6-10 years	26	22
11-15 years	44	37
16-25 years	29	24
Above 26 years	10	8
Total	**120**	**100**
Category of Firm		
Expatriate	35	29
Indigenous	85	71
Total	**120**	**100**
Firm Years of Establishment		
1-5 years	10	8
6- 10 years	57	48
11-15 years	23	19
16-25 years	14	12
Above 26 years	16	13
Total	**120**	**100**
Projects at hand		
Yes	103	86
No	17	14
Total	**100**	**100**

Amongst other information, Table 1 shows the frequency distribution of respondents by gender. As indicated, 109 respondents, corresponding to 91%, were male, while 11 respondents,

corresponding to 9%, were female. On average, the result shows that more males in the industry were willing to provide answers to the items on the questionnaire. On age, more than 60% of the skilled workers were in the age bracket of 30 to 50 years. This is an indication of their vibrancy in contributing to construction activities in the firms. As regards educational qualifications, all the skilled workers are educated, implying that they have a broad understanding of the terms of reference and the questions on the research instrument.

On experience in their present firms, only 9 percent of the workers had spent up to 5 years. Experience of above 5 years is a good reflection of the worker's aligning with what is obtainable in the firms. In the firms' category, it can be deduced that there are three indigenous firms to one expatriate firm. This is a reflection of the distribution of construction firms in the study area. On firm years of establishment, just like the workers' level of experience in the firms, over 90% of the firms have been operating for over five years. This implies that they have gone beyond the teething period in business history and are thus able to do justice to issues of health and safety compliance. Likewise, the firms with ongoing construction works are above 70%.

Review of Contractor's Safety Policy

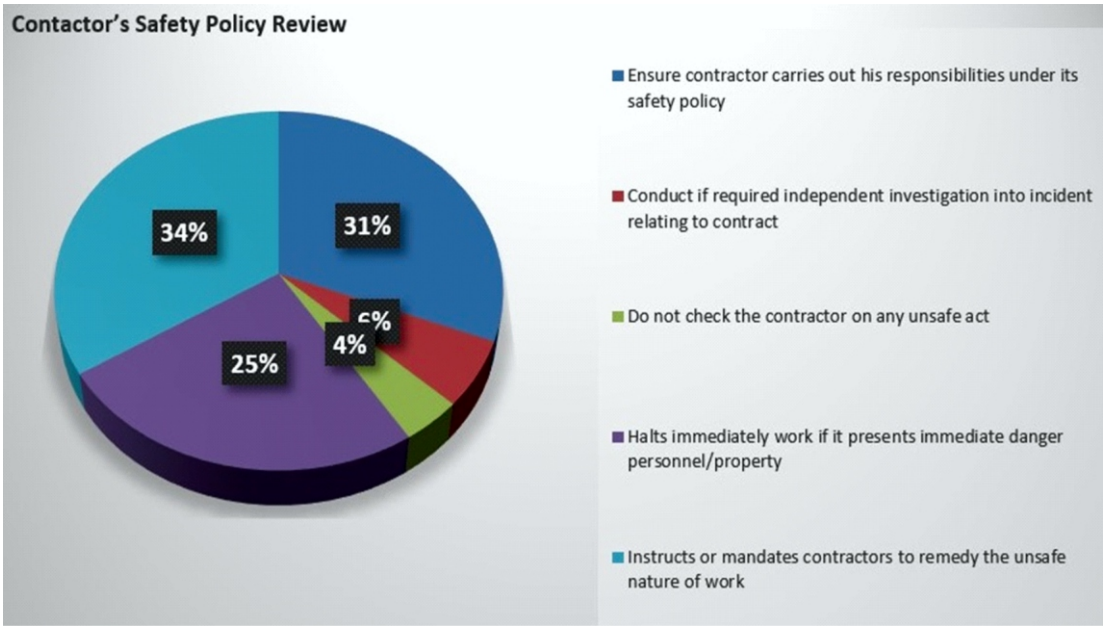

Figure 1: Contactor's Safety Policy Review

Figure 1 shows that only a third of the contractors carry out their responsibilities as stated in the safety policy. More than 30% of the contractors are mandated or instructed to remedy or rectify unsafe work. Thus, we found 25% of contractors whose work was altered. This result implies that only 1 of every 3 contractors operate within the bounds of the safety policy.

Incident/Accident Reporting

Figure 2 reveals that almost half of the respondents agreed that the firms stipulate that every incident or accident should be reported. Yet, approximately 2 out of 3 workers are afraid of reporting an incident/accident or are in the dark about whom to meet when an accident occurs or worried that they would be penalised when a case is reported. This implies that more work needs to be done in sensitising the workers towards incident or accident reporting.

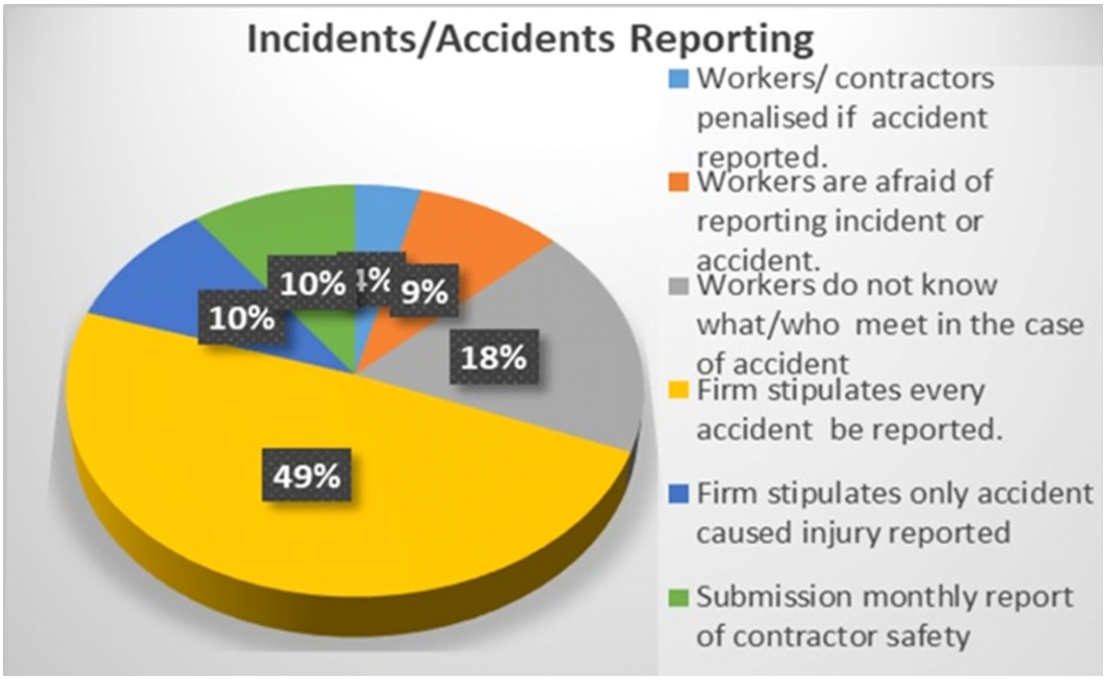

Figure 2: Incidents/Accidents Reporting

PPE Provisions

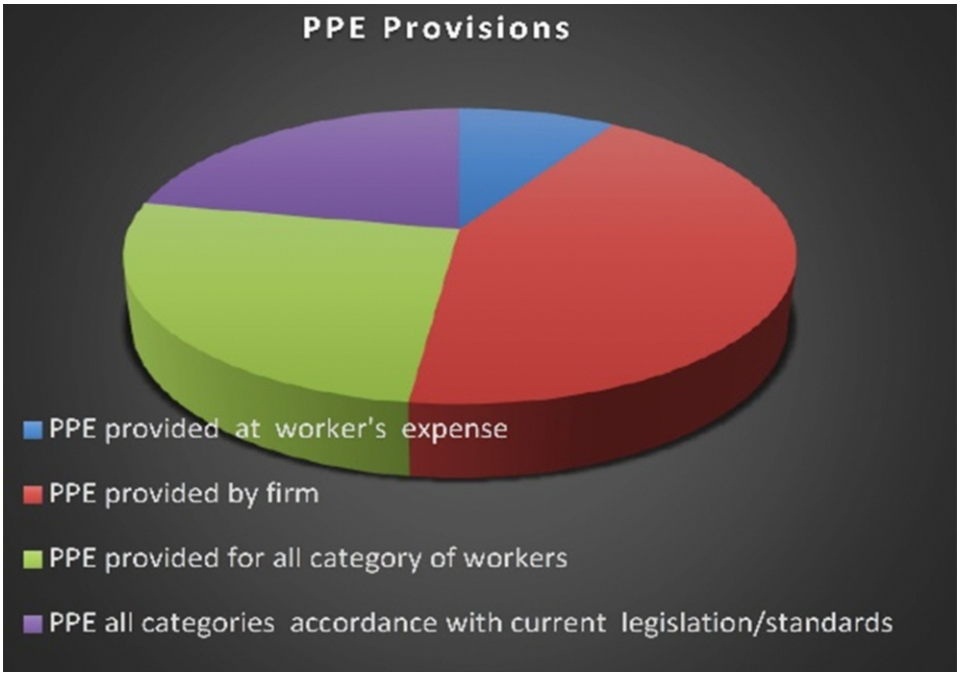

Figure 3: PPE provisions

Figure 3 depicts that although the firms score well on PPE provision at a percentage of 90, only 22% of them make provisions for PPE for all categories of workers, following current legislation and standards. This implies that most of the firms are yet to comply with current legislation and standards in the provision of appropriate PPE.

Level of Safety Awareness by Personnel

Figure 4: Level of safety awareness by personnel

Figure 4 depicts the level of safety awareness by personnel. Most of the contractors, subcontractors, and employees are bound by the health and safety requirements and are notified of and abide by safety requirements as set out in the contract.

Rectification of Unsafe Working Conditions

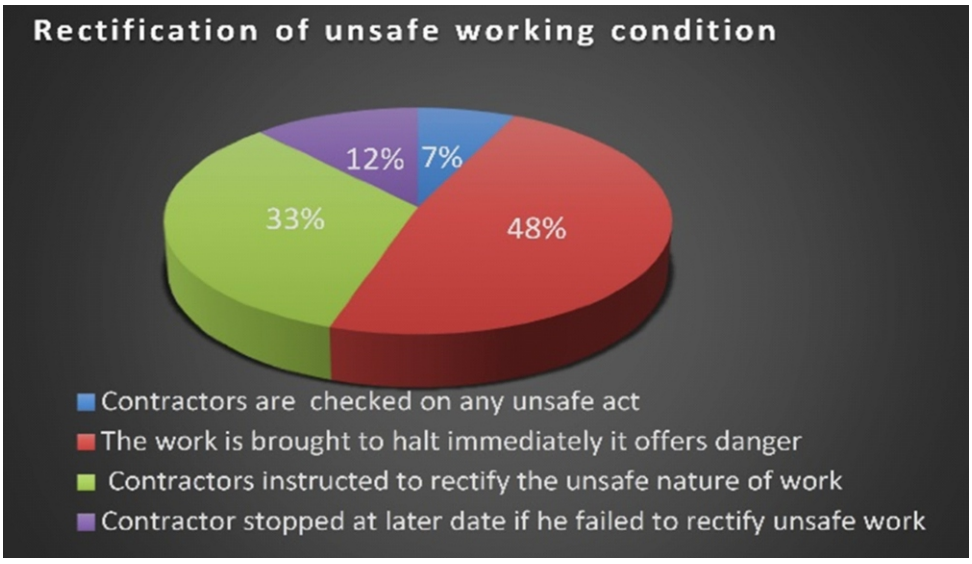

Figure 5: Rectification of unsafe working conditions

Figure 5 revealed that close to half of the firms adopt the method of stopping any work that has an inherent danger. Only 7% of the firms nipped the danger in the bud.

Presence of Safety Policy

As regards safety policy in the firms, over 50% of the workers agreed that the expatriate firms have a safety policy that is well known to the workers. In the case of the indigenous firms, more than 60% of the workers submitted that though there is a safety policy, it is not made known to most of the workers.

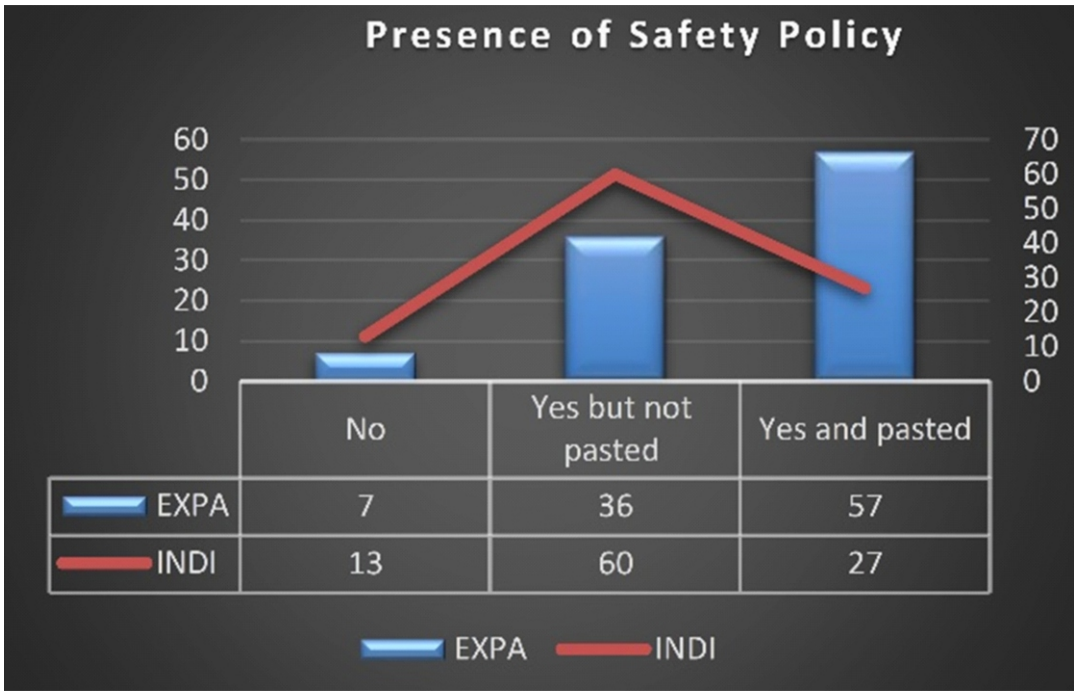

Figure 6: Presence of Safety Policy

4.2 Test of Hypothesis

To test for differences between the two sets of firms, a hypothesis was set out as shown below. The result of the independent T-test is set out in Table 2.

H_0: There is no significant difference in the level of compliance with Health and Safety requirements between foreign and indigenous construction firms in Lagos State

H_1: There is a significant difference in the level of compliance with Health and Safety requirements between foreign and indigenous construction firms in Lagos State.

Table 2: Independent T-test comparison of foreign and indigenous construction firms in terms of the level of compliance with Health and Safety requirements

Variables	Category	N	Mean	SD	T	df	Sig.	pv
Construction Firms in Lagos State	Indigenous Firms	85	4.200	0.985	3.173	118	0.00	<0.05
	Foreign	35	3.342	1.969				
Total		120						

Significant- P < 0.05

Table 2 reveals the closeness of the means for the foreign and indigenous construction firms, in terms of the level of compliance to Health and Safety requirements (Indigenous Firms/Level of compliance to Health and Safety requirement Mean = 4.200, SD = 0.985) and (Foreign Firms/Level of compliance to Health and Safety requirement Mean = 3.42, SD = 1.969); in other words, the difference between the two groups was negligible at 0.05. The t-test results indicated a calculated t-value of 3.173 as against a critical value of 1.96, given 118 degrees of freedom at a 0.05 alpha level. Since the calculated t-value is higher than the theoretical t-value of 1.96, we accept the alternative hypothesis and conclude that there is a significant difference in the level of compliance with Health and Safety requirements between foreign and indigenous construction firms in Lagos State.

4.3 Discussion of Findings

This study investigates the level of compliance with health and safety between selected indigenous and expatriate construction firms. The study evaluated levels of compliance between the firms using six safety and health management practices; it also tested a hypothesis about the level of compliance of the firms. These practices are the provision of personal protective equipment (PPE), level of safety awareness among the workers, incident/accident reporting, rectification of unsafe working conditions, review of the contractor's safety policy, and the presence of safety policy. Regarding the provision of PPE, although the majority of the firms made provisions for PPE, only 22% of them did so based on existing legislation and standards; in other words, only one of every four workers had the appropriate PPE. On incident/accident reporting, two out of three workers were afraid of reporting incidents/accidents or were in the dark about whom to meet when an accident occurs or worried that they would be penalised for reporting a case. This result implies that workers are not encouraged to report any incident or accident. For the rectification of unsafe working conditions, three-quarters of the firms either got instruction on rectification of unsafe working conditions or stopped any work that has inherent danger. For the assessment of the level of safety awareness, most of the workers were bound by existing health and safety requirements, since they were adequately notified of safety requirements as set out in their contract. Only a third of the contractors carry out their responsibilities as stated in the safety policy. For the contractors' safety policy review, while one out of every three contractors carried out their responsibilities under the safety policy, out of every four contractors, one was requested to make some amendments. As for the presence of a safety policy, most firms had safety policies but only a few of them made such policies available to workers.

On PPE, only a quarter of the workers had the ideal type suitable for the work they are doing. A previous study in Uganda (Izudi et al., 2017) revealed that the use of PPP was not only low but also related to the workers' previous knowledge. This indicates that workers would do better in the use of PPE if they had previous knowledge of the negative effects of non-use. As regards the assessment of the level of safety awareness, the majority of the workers were bound by the health and safety requirements in their contracts. Nevertheless, it was found that more than 50% percent of work was done in an unsafe environment or unsafe manner. This agrees with Ijaola et al.'s (2021) study that found that the level of accidents is high despite professionals' understanding of the implications of non-compliance. This implies that management needs additional effort to show that contract requirements on safety and health are adhered to with real evidence on work practices. This result is closely related to that showing that only 30% of the contractors carried out their responsibilities on safety requirements as set out in the contract. In summary, workers posted high scores as regards the level of awareness of safety requirements, although it was also found that PPE usage was poor, unsafe work conditions were preponderant and the culture to report injuries or accidents was almost absent. These findings are similar to those found by Adebiyi et al. (2020) where workers' knowledge level was average and level of compliance was low.

5.0 Conclusion

Starting from issues of safety policy, the studied firms had written safety policies. At least, a quarter of the indigenous firms had their safety policy pasted, while more than 50% of the expatriates also had theirs pasted. With the safety policies pasted, and every person being bound by the health and safety requirements as stipulated, one-quarter of the contractors were still called back to correct unsafe work. This seemed to leave a gap between the policy and the condition of work, being indicative of management and/or workers doing more to reduce unsafe work conditions, as safe work practices are a precondition for zero accidents. Therefore, as regards the first objective of this study, which is on compliance, the level of compliance to safety and health is low based on the percentage of works that are rectified or halted. As regards the test for difference between the expatriate and the indigenous firms, the expatriates had a larger percentage on policy. However, the level of compliance with safety and health between the two sets of firms was negligible. Given this study's focus on the workers' perspective and the consequent neglect of management's view, it is perhaps not possible to be definitive on the actual level of compliance. This observation is a limitation of the study. Nevertheless, as the level of compliance between the two firms is low, both sets of firms need to motivate their workers on incident/accident reporting by working on their policies to enable the right line of action in the case of an occurrence. This will enhance workers' commitment and thus make safety everyone's business, through a bottom-top approach. Moreover, risk assessment for work packages/operations before their commencement would minimise the percentage of works that are executed unsafely or halted. Overall, the research shows a moderately good outlook on the implementation of five of the six safety and health management practices, though compliance with incident/accident reporting is poor.

Finally, a few recommendations are made. Personal Protective Equipment (PPE) should be provided based on legislation and standards or best practice. Aside from this, workers need to be encouraged and motivated to report accidents. This will aid compliance statistics and data and will show where additional efforts on H & S are required. Additionally, the adoption of safety videos can be used with the H & S requirements to minimise incidents/accidents. Workers should not be afraid but realise safety is the job of everyone. In addition, adherence to H & S requirements as well as close monitoring and inspection will be required to detect unsafe work conditions. Consequently, contractors need to abide by H & S rules as stipulated in the H & S policy. Furthermore, there should be continuous training and retraining on H & S. Finally, all incidents/accidents should be reported; currently, most construction firms require workers to report only incidents/accidents that cause injury to personnel or damage to plant, materials, or equipment.

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