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EXAMINATION OF THE APPLICATION OF HEALTH AND SAFETY PLAN ON CONSTRUCTION SITES IN LAGOS STATE, NIGERIA

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ABSTRACT: *The construction industry is an important part of the economy in many countries and is often seen as a driver of economic growth especially in developing countries. Owing to its relatively labour intensive nature, construction works provide opportunities for employment for a wide range of people skilled, semi-skilled and unskilled. Despite its importance, construction sites are considered risky with frequent and high accident rates and ill-health problems to workers. However, knowledge on health and safety management and related factors on construction sites in Lagos State is not well documented. This study was therefore undertaken to examine the current practice of application of Health and Safety Plan during project implementation. In pursuing this objective, a descriptive case study research design was used where 32 construction project sites in Lagos State were selected through random sampling. A total of one hundred and twenty eight (128) copies of questionnaire were administered to participants with years of experience on construction management in Lagos State, Nigeria. Data obtained based on snowball and random sampling technique were analysed through Statistical Package for Social Sciences (SPSS) Version 21 using Mean Scores and Relative Importance Index (RII). The significance of each of the associated variables as impacted on construction workers health and safety practices on buildings project were determined using Independent Samples Test, Mann-Whitney U Test. Descriptive outcome of the statistical analyses showed a high prevalence need of safety practices. The findings of the study established dissatisfaction with effective use of health and safety plan and its implementation among site operatives because workers find it difficult to adapt to as it was against their traditional practices(RII=0.776), unethical practice of workers due to human attitudinal peculiarities (RII=0.766),inadequate engagement of safety managers on sites (RII=0.764), inadequate engagement of safety managers and ineffective supervision on site(RII=0.762) as well as poor communication between site managers and site operatives (RII=0.756) as factors preventing effective use of health and safety plan among the categories of respondents sampled. The study concluded based on Mann-Whitney U Test result on health and safety improvement measures and control systems available for health and safety practices and workers performance on construction sites. The study recommends use of a more proactive and integrated management mechanism to enforce the existing Safety and Health regulations in construction sites, in order to prevent accidents, injuries and ill health on the site.*

KEYWORDS: Construction sites, Examination, Health & Safety, Management, Plan, Relative Importance Index

INTRODUCTION

Construction industry in any country is associated with vital contributions to national economic development through strategic planning, design, and construction in transforming various production processes into constructed facilities **(**Isa, Jimoh, and Achuenu, 2013). The industry is unique among all other sectors because it provides the necessary infrastructures that stimulate national development **(**Jackman, 2010 and Olanrewaju and Abdul-Rashid 2015).In Nigeria, approximately 25% of the Nigeria's workforce were attributed to construction industry (Ibrahim and Musa-Haddary, 2010). Construction industry is also viewed as labour intensive because labour cost amounts to 40-65% of the overall cost of a project (Rao, Sreenivasan and Babu, 2015). Therefore, the labour intensive nature of the industry will demands more human involvement at the production stage. However, the industry compared with other sectors of the economy, due to caliber of casualty suffered in execution of building projects across the globe, has made the construction industry the most dangerous or highly hazardous industry in view of (International Labour Organisation, 1999; Smallwood and Haupt 2002).

Ayangade (2000) indicated that the industry is a project-based firms that comprises many parties working together towards achieving common goal. Moreover, the means of achieving this goal is characterised by hazards which pose threat to workers life. Muiruri and Mulinge (2014) noted that the complexities of activities required in the building production process pose different challenges to workers health inherent risks in the production stage. (Smallwood and Haupt 2002) viewed accidents as part of the building production process that is unavoidable because construction industry is inherently dangerous, therefore, compliance or not to safety practices will forfeit the impact of health and safety regulations. Factors adding to occurrence of construction fatalities were known as the uniqueness of the sector that differentiates it from other industries. This uniqueness include: short life span of projects, location are differs from time to time, workers turnover is high, large number of unseasonal workers which are not familiar with construction processes, workers turnover, high rate of small firms and self-employed workers(Safety Manual for Construction Handbook). These accidents do not only result in pain and physical damage to the workers but also reduce productivity, time, and quality performance, thereby pose treat to project success and escalate production cost (Muiruri and Mulinge, 2014).

Several codes and regulations have been in existence to provide succor in management of health and safety at work. Recently, Nigerian National Building Code empowered registered builder to prepare health and safety plan among other builder's document in minimizing and managing causes of accident during the construction stage. In the same vein, there are stand out obligation explicitly highlighted in the Construction (Design and Management) Regulations on the stakeholders engagement in execution of project management, and it also seek the support of the client, designer, CDM coordinator, and principal coordinator on construction projects. The goal and essence of establishing safety practices' code and regulations on construction site is to focus on preventing, eliminating, curbing, limiting and total eradication if possible the occurrence of accidents and injuries during and after the construction processes and as well train site operatives on safety programmes that will put all of these into place. The degree of confidence that accidents

will not occur throughout the duration of construction projects may not be ascertain from the inception, but compliance with these specified health and safety practices will enhance site safety, it will eliminate the causes and reduce the negative impact as well as the level of damage to parties involves. Hinze (1997) asserted that enabling work settings enhances workers productivity at a reduced cost but increase in profit margin.

Diugwu, Baba, and Egila (2012); Okolie and Okoye (2012), Idubor and Oisamoje (2013) and Umeokafor, Umeadi and Jones (2014) contend that the numbers and magnitude of accidents occurring and recorded on construction sites in Nigeria underscored low level of health and safety practices. According to Dodo (2014) occupational health and safety is an integral part of construction operation due to the uniqueness of the industry, different trades and skills are needed to be carried in a safe environment, however individual's contributes determine the successful outcome of the projects. The authors further stressed that compliance with health and safety regulations remains one of the integral parameters to which successful projects delivery can be obtained. This fact is buttressed as health and safety plan/policy is one of the parameters in prequalifying suitable contractors for the award of construction projects in Nigeria (Windapo, 2013 and CDM, 2015).

Construction accidents remained an ongoing concern in the developing countries, despite the level of awareness in promoting health and safety practices over the decades. Health and Safety practice is anchored on workers behavior regarding safety provisions, conducts that guides workers attitude in caring out their tasks at work in order to reduce or even eliminate accidental losses and injuries and maximize the nominated objective of the organization (Umoh, 2013). Perceived increment in number of casualties and illnesses reported on project sites are unacceptably high considering the numerous regulatory standards and control systems for construction projects, thereby creating serious menace to construction workers health at work. Thus, proactive step must be taken to identify this factors and be averted accordingly.

Many studies have gone down the line on the subject of construction safety provisions, practices and implementation/enforcement but focus have been on the cause of accidents, condition of work settings, workers attitudes, and provision of health and safety training (Aniekwu, 2007; Ismail, Doostdar and Harun, 2011; Olutuase, 2014; Umeokafor *et al*., 2014; Dodo, 2014). Alinaitwe, Mwakali, and Hansson (2007) studied factors affecting productivity of building craftsmen. The study revealed that improper supervision and inadequate skills among workers are the most significant factors affecting workers productivity. However, there exist limited study on examination of health and safety plan on construction sites. That is why Umoh, (2013) lamented that, in the construction industry how health and safety practices affect workers productivity are less documented especially in the developing countries like Nigeria.

Unsafe practices have been pronounced among the workers on construction sites. Clark (2006) reported that failure to adhere with the required health and safety procedures and as well take precautions against hazards such as wearing safety wears are common on project sites. Awwad, *et al.,* (2016) added that health and safety practices lack necessary implementation due to absence of proper monitoring system, low level of safety awareness and inadequate support from safety

managers. Che Hassan, Basha, Wan Hanafi (2007) and Shamsuddin *et al.*, (2015)argued that workers knowledge and understanding of health and safety at work setting remained vital in promoting safety among themselves on construction site.

One of the top hill always confronted by any construction company is the frequent occurrence of accidents during construction stage, Abdelhamid and Everett (2000) and Shamsuddin *et al.*, (2015) argued that workers omission amounts to cause of construction injuries and this was explained as behavior and human factor approach. Behavior approach underscored that construction operatives are the original reason for fatality due to their unlimited number of costly mistakes at different stages of building production process. However, human factors approach argued that not because of individuals' unsafe behaviour rather; the emphasis was on nature of workplace settings. However, what remained unknown is how safety practices affect workers output. To ensure optimum productivity of the workers, adequate safety gadgets couple with other necessary safety training must be provided for the site operatives to safeguard them against the possibility of any work related hazards. Though workers related hazard is not a new phenomenon at work, as this has been established in some of the past studies. What remain new is the persistence of accidents and how health and safety practices are violated in the management of construction project.

Looking at the side effect of construction related injuries on workers and the project success in Lagos State, health and safety practice should be integral aspect of project management and must be given high priority by the construction participants to ensure human safety against the frequent occurrence of accidents on construction site. Consequently, given the size, the contributions and importance of construction workers in achieving project objectives in Lagos State, research on health and safety must go beyond appraising traditional causes of health and safety problem rather proactive approaches that focus on the unsafe behaviours exhibited by workers before it result into accident. It is against these identified gaps in construction health and safety practices literature in Nigeria, this study will be focusing on the examination of health and safety plan in a bid to reduce causes of accident on construction sites. This study examined health and safety practices of the construction operatives in Nigeria with a focus on the effects of health and safety plan on workers operation. Possible strategies to tackle all the identified problems during the literature review will be recommended at the completion of the work.

Research aim and objectives

The aim of this research is to examine the application of health and safety plan among construction firms in Lagos State with the view to form the basis for developing a health and safety framework for construction sites.

To accomplish the stated aim, these objectives are proposed to give direction to this study.

The objectives of the research are as follows:

1. To examine the current state of health and safety practices on selected building construction sites;

2. To identify factors preventing site operatives from using safety wears on construction sites;

3. To determine the effects of safety wears on workers operation on construction sites;

4. To investigate respondents perception on the importance of integrating Builder's document and others safety control systems on construction projects; and

5. To examine health and safety improvement measures and control systems available for safety practices and compliance on construction sites.

Research questions

This study proposed the following research questions to give direction to the study.

1. What are the current states of health and safety practices on selected building construction sites in Lagos State?
2. What are the factors preventing site operatives from using safety wears on construction sites?
3. What are the effects of safety wears on workers operation on construction sites?
4. What are the respondents perception on the importance of integrating Builder's document and others safety control systems on construction projects?
5. What are the health and safety improvement measures and control systems available for safety practices and compliance on construction sites in Lagos State?

Overview of the Study Area (Lagos State)

Lagos State is an African megacity that is located in South Western Nigeria on the West Coast of Africa, within latitudes 6°23′N and 6°41′N and longitudes 2°42′E and 3°42′E. The State is flanged from the north and east by Ogun State, in the west by the Republic of Benin and the south by the Atlantic Ocean/Gulf of Guinea. Lagos was established as a state on 27th of May, 1967 as a result of State Creation and Transitional Provisions Decree No. 14 of 1967 that restructured then Nigeria's Federation into 12 states. Lagos therefore, has been known to be the Nigeria's 'premier city' since the year 1861. Lagos is best known for her pivotal role as a distribution center for the whole West African coast as judged by geography. Lagos served as Federal capital until the relocation of the Federal capital to the Federal Capital Territory, Abuja on December 12th, 1991. 'Lagos has a total of 1380.7 square miles (3577 square kilometers), of which 303.8 square miles (787 square kilometers) is made up of lagoons and creeks'. However, the geometric increase in the estimated population of Lagos state since the first census in the year 1871 from over 28,000 people to 6,000,000 (1990 census) suggest Lagos city to be one of the most migrant's city. The city of Lagos is deemed to grow up to 24.5 million population mark and become one of the top ten most populous cities in the world come year 2015 according to (UN study 1999 and Iwugo, D'Arcy and Andoh, 2003). Population densities is also high as 20,000 per square mile in some places. Over two-thirds or 70 percent of the city's population are Yorùbá-speaking, with the remainder divided between non-Yorùbá speaking Nigerians, Africans, and non-African residents (Encyclopedia.com).

Construction activity makes some parts of Lagos city seem poorly planned physically. The City comprises of both the modern and the traditional, with skyscrapers and glass houses sitting alongside old residential buildings. 'Lagos remain Nigeria's economic, commercial and industrial centre housing more than 2,000 manufacturing industries and more than 200 financial institutions (Banks, Insurance companies etc) without neglecting the Nigeria Stock Exchange. It also houses the nation's monetary authority, the Central Bank of Nigeria (CBN) and the Security and Exchange Commission. Adelekan, (2009) opined that the Lagos is the economic and financial capital of Nigeria. The State alone control 60% of the Federation's total industrial investments and foreign

trade while also attracting 65% of Nigeria's commercial activities. It also accounts for more than 40% of all labour emoluments paid in the country. Indeed, the headquarters of multinational conglomerates like UAC, Unilever, John Holts, BEWAC/VYB, Leventis, Church gate, Chevron, Shell, Mobil and the nation's giant public enterprises are all located within the State (Lagos state government).

LITERATURE REVIEW AND EMPIRICAL STUDIES

Alli (2008) defined Occupational Safety and Health (OSH) as the study of the expectation, acknowledgment, assessment and control of hazards emerging in or from the work environment that could impede the safety of operatives. Safety policy is a strategy and commitment together with the arrangements on ground to create adequate safety education among workers on hazards related to their work and the role an individual/person needs to play at work settings in ensuring healthy working conditions. The goal and essence of establishing safety practices' code and regulations on construction sites is to prevent, eliminate, curb, limit and total eradication if possible, the occurrence of accidents and injuries during and after the construction processes and as well train site operatives on safety programmes that will put all these in place.

The health and safety status in any construction shows the level of adherence to the safety standard guidelines. An effective safety and Health construction system has several critical components. These include: Government Policy, Administrative factors, Provision of education and training in safety and health issues and availability of emergence facilities. The implementation of these requirements will expedite the achievement of an effective safety- and health program for construction staff in any construction. Once safety and health needs of the staff are met, they were motivated to work harder to achieve competence and recognition which are higher needs as per Maslow's hierarchy of needs.

Safety and health preparedness is an indication of the safety and health concern in construction and it's determined by a number a number of factors. One of the factors is the government through the various policies which give direction concerning safety and healthy in all educational institutions which if implemented could significantly improve safety in constructions. It's then the responsibility of the construction administrators to ensure that the government safety and healthy guidelines are adhered to. The leadership style determines the workers and even staff behavior towards health and safety guidelines Workers will also not be involved in incitement. Another administrative responsibility is to check against the vice of drug abuse which, as revealed by the Task Force Report on staff performance (2001) shows health safety as the cause of employees poor performance in construction and in the process endangering not only their own lives, but also the lives of the community.

Current State of Construction health and Safety Practices and Performance

Safety can be viewed as a point at which all associated risks with a particular job are well managed in a reasonable manner (Brueggman, 2001). Weick (1991); Brueggman (2001) and Ahmad, Iqbal, Rashid, Iqbal and Roomi (2016) defined safety as unique event that is paramount to continuous attainment of productivity. In the same vein, Ahmad, Iqbal, Rashid, Iqbal and Roomi (2016)

opined that safety focus on curbing accidents at work setting and its negative effect on the workers in all manner. Assessment of various researchers such as: Aniekwu (2007); Idoro 2011; Okolie and Okoye (2012); Idubor and Oisamoje (2013); Dodo (2014); and Umeokafor *et al.*, (2014); on provisions and management of health and safety in construction project reveals that adoption and compliance with health and safety provision served as catalyst in optimizing construction production process. On the other hand, without compliance to health and safety practices, more accident will result in pains, accidents and legal actions thereby escalating production cost. Based on this, Famakin &Fawehinmi (2012) stated that health and safety practices are parameter to measure successful project delivery which is most paramount to the client because they greatly influenced in achieving efficiency and effectiveness amongst professionals and even workers in the construction industry.

The anomalies as seen in the construction firm's failure to comply with minimum requirement of health and safety practices might cause the victim waste of time and loss of money to the firms. Although construction firms may be covered with life assurance for their staffs from certain direct costs resulting from injury suffered, however some tectonic cost may be involved which cannot be insured against, such as loss of trained personnel, loss of production hours due to other operatives stopping the progress of the work out of concern or assisting the injured persons (Aniekwu, 2007). Thus, the lack of adherence to health and safety practices will delay the production process of construction activities.

Several attempts have been considered by the construction industry towards improving its health and safety performance. However, the paradigm shift from monitoring health and safety performance to preventive measures of improving safety performance. Ikechukwu, and Dorothy (2013) and Muhammad, Abdulateef and Ladi (2015) stated that some of the developing nations like Nigeria among the developing nations that lacks adaptive laws and regulations on health and safety practices. The study added that, effective management of health and safety practices are aided by various factors such as: socio-humanitarian perspective, and financial-economic perspective. George, Geoffrey and Matthew (2013) added that construction company should provide awareness particularly on each project, that covers an outline of the project, a top to bottom survey of the safety necessities and desires, clearing arrangements and systems, disciplinary activities, substance manhandle testing policy and proactive management methods needed for the project.

A nationwide survey was conducted by Boustras, Hadjimanolis, Economides, Yiannaki and Nicolaides (2015) on management of health and safety of micro-firms in Cyprus. The study looked at the determinants factors of safety performance at the work environment in small scale firms. The study was purposive in nature, therefore copies of structured questionnaire were used to gather data needed. Going by the outcome of the study, work settings safety in small scale firms can be improved by embracing "training", "risk assessment,' and "safety policy formulation." The research findings showed that, the nature and characteristic of management systems demonstrated in an organisation, methods designed for attaining work objectives, and resources available have significant influence on small scale firm. The study contradict some previous research outcome on

the ground that adoption of "quality management system" cannot be said to have significance collaboration with safety outcome in the final model.

Awwad, El Souki and Jabbour (2016) examined construction health and safety practices and challenges in a Middle Eastern developing country. Face to face survey were conducted using structured questionnaire with the construction practitioners, insurance firms and government agencies. The findings of the study however showed the availability of construction labour safety law but lack necessary implementation, absence of monitoring, failure of safety awareness and inadequate support from the entire participant concerned with implementations of safety practices on construction sites. This study called for appropriate awareness within the construction firms' which might be helpful in curbing these challenges.

Kolawole (2014) assessed health and safety measures on building sites: a case study of Minna, North Central Nigeria. The study examined safety approach adopted in Minna construction firms, it also evaluated if implementation of safety regulation will reduces workers claim for accident on sites or motivate them for better performance. Population needed for the study were randomly selected among building construction firms through copies of structured questionnaire. Result from the analysis noted that site workers embraced "safety training" as this enhances their performances and reduced accidents on site and also government did not have well defined safety act for construction activities. The study recommended training and re-training of their workers on the relevance of safety practices, while government should develop and enact "safety act" for controlling site based injury.

Idoro (2011) studied effect of mechanization on Occupational Health and Safety (OHS) performance of the Nigerian construction industry. This study evaluated the level of mechanisation and its relationship to the Occupational Health and Safety (OHS) performance in the industry and also established impact of mechanisation on OHS performance and implored the commitment of contractors to effective OHS management. Questionnaire was adopted and analysed by percentages, means, *t*-tests and Spearman's correlation tests. The results of the study indicated that increase in mechanisation also increased the rates of accident and injury occurrences. This study concluded that failure to effectively manage mechanisation worsen OHS performance on project sites. However, construction managers should devise means of effective measures that will implement control of OHS performance before using new or additional safety wears.

Agwu (2012) conducted a study on total safety management (TSM) an approach for improving organisational performance in selected construction firms in Nigeria. The study adopted stratified and random sampling technique for the copies of questionnaire distributed among the selected six most famous construction firms operating in Nigeria, they include: (Julius Berger Nigeria Plc, Setraco Nigeria Ltd, Fourgerolle Nigeria Ltd, Arab-Contractors Nigeria Ltd, Dantata & Sawoe Nigeria Ltd and Costain Nigeria Ltd). The outcome of the research suggested that integration of total safety management as part of the organisational policy would lead to improving safety practices on construction projects. The study therefore recommended that, to sustain the advantage of total health and safety practices in Nigerian, operatives need to maintain good attitudinal behavior and structural modifications in management of construction safety. Babu (2015) study

aimed at investigating safety performance on the construction sites. The study soughed the opinion of construction participant using copies of structured questionnaire to appraised safety performances on their construction sites. The outcome revealed inadequate support from the government, insurance companies, ministry of labour, and construction participant.

Okoye, Ezeokonkwo, and Ezeokoli (2016) studied building construction workers' health and safety knowledge and compliance on sites in Anambra State, Nigeria. The research employed Mean Score Index and Pearson's Product-moment Correlation Coefficient (**r**) to analyze the data randomly sampled from the fifteen (15) selected construction sites in the study area. However, the outcome of the research showed that, low health and safety awareness and compliance among the sites operatives, this resort into low project performance. The study recommended that, knowledge and compliance with health and safety practices alone cannot achieve optimum project performance, it would require safety culture which encompassed other factors are as follows: management commitment, workers involvement and strict enforcement of safety regulation should be adopted. In view of this, Akinwale and Olusanya (2016) studied implications of occupational health and safety intelligence in Nigeria via cross-sectional research design and risk society and sense-making theories'. The study conducted 15 in-depth interviews ranges from the managers and senior staffer of the selected organizations in Lagos State, Nigeria. Data were subjected to content analysis and ethnographic technique. However, the study affirmed that managers and employees are the major target of occupational health hazards, such as loss of man-hours, productivity, and job security. High level of awareness on the importance of occupational safety was recorded but inadequate investment in the capacity building on safety' programmes in the organisation. The study therefore recommends good policy on occupational health with adequate investment in precautions and safety intelligence will enhance individual and organizational development in Nigeria.

Causes of Accident on Construction Sites

The causes of occupational accidents have been classified into unsafe conditions and unsafe behaviour. Elufidipe (2009) believed that accidents occurrence can be attributed to either unsafe working conditions or unsafe acts. The study stressed that some accidents occur by giving operatives task that they are not trained to undertake, such tasks could be summarized as follows: improper handling of tools or equipment, failure to use safety wears/personal protective equipment, Unsafe loading, arranging and placing, unsafe exposure to hazardous materials or tools. In arguing the cause of accidents and injuries on projects sites, the artistic perceptions of the causes of accidents on construction sites were viewed in diverse opinions such as 'accident is an act of God,' 'accident is as a result of unknown causes, unsafe conditions, and unsafe acts (Idubor and Oisamoje 2013), 'accidents happen due to bad luck or people's ignorance' (Guldenmund, Cleal and Mearns 2013).

However, Abdelhamid and Everett (2000), Mullen (2004), Sadullah and Kanten (2009), Mui Zin and Ismail (2011), Oostakhan, Mofidi, and Talab (2012) and Solis-Carcano and Franco-Poot (2014) argued that though accidents occurred due to combination of various factors, the largest proportions of the accidents causes are attributed to unsafe behaviours rather than unsafe conditions. This was corroborated with Sherratt (2014) argument that, people that operates in the

industry are responsible for the problem of the industry. Smallwood (2002) viewed accidents as part of the building production process that is unavoidable because construction industry is inherently dangerous, therefore, compliance or non-compliance with health and safety regulations will abridged the importance of safety regulations. The research of Aniekwu, (2007) on accidents and safety violations in Nigerian construction sites identified human factors as the major cause of accident and it will require pro-activeness of safety managers to effectively coordinate both human and materials resources on site. This was against the view of Kolawole (2014) as workers indiscipline, inadequate communication and site characteristics were expressed as causes of accidents. Okoye (2012) listed out the following: working bare footed, use of bamboo scaffolds, hand mixing of concrete without protective safety wears as some of the unsafe practices among workers on construction sites in Nigeria.

In arguing the cause of accidents on construction sites in Nigeria, Lehaney, Diugwu, Willemyns and Hosie (2012) noted that the failed occupational health and safety system in Nigeria could be traced back to weak statutory regulations and provisions. Umeokafor *et al*., (2014) study unearthed key issues affecting health and safety compliance in Nigeria as owner`s character and lack of clarity in the health and safety provisions, inadequate enforcement and lack of adequate regulations. The outcome of Okeola (2009) study articulated that, workers are prone to injuries at work setting because they lack appropriate approach and right attitude in which contractors disregarded compliance with Occupational Health and Safety (OHS). According to Dodo (2014) meaningful safety practices for construction workers has not been embraced.Interestingly, numerous authors has contributed to the issues of safety practices in managing building production process with different view on causes of construction accident, but there have been little effort to bring together major causes and factors responsible for construction fatality in unified state.

Overview of Personal Protective Equipment (Safety Wears)

Health and Safety management and accident prevention remained an issue of debate in construction industry. Personal protective equipment (PPE) is a preventive safety wears against the occurrence of injuries at work. According to the International Labour Organization (ILO) codes of practice, it is important for employers to make available personal protective equipment (Safety Wears) appropriate for the nature of work to be carried out. Safety wears should fit perfectly and be suitable to work with. In order to properly use safety wears the nature and degree of the anticipated risk must be studied, known and then selection of appropriate safety wears should be in conformity with the specified standards. Users must be trained on right usage and adequate maintenance must be provided for safety wears after use.

Farooqui *et al.* (2007) opined that, unsafe conditions coupled with the use of improper safety wears contributed to high rate of accidents in construction industry. In the same vein Abdelhamid and Everett (2000) believed that, continuous monitoring of safety wears compliance and framing comprehensive purchase policy are the responsibility of safety department. In Prasad and Rao (2013) study, safety wears was at the last stage of hierarchy of controls and its enforcement will be implemented after engineering and administrative controls**.** Management is responsible for training, monitoring and compliance with the use of safety wears in ensuring workers safety on construction sites. The provision and use of safety wears can be significant element in terms of

accident prevention and control on construction sites. Krishnamurthy (2006) conducted study on safety in high rise design and construction, the study argued that workers ignorance, negligence, carelessness and over-confidence were the major perceived reasons workers disregard wearing of safety wears properly.

Winder and Makin (2006) and Prasad and Rao (2013) opined that, safety can be achieve through systematic approach (engineering controls, administrative controls and implementation of personal protective equipment usage) or hierarchy of control (elimination, substitution; isolation; administrative controls and personal protective equipment). Systematic approach to occupational health safety management system offers better approach than the five traditional treatment options agitated by the hierarchy of controls. Safety wears can enhance the safety of worker as indicated in some of the past research studies.

Abdel Hamid and Everett (2000) conducted depth study by arranged causes of low use of safety wears into human and physical elements. Human elements neglected to wear individual defensive hardware such as: safety wears, clowning around, working at risky speed, individual component, evacuate security gadget, overhauled moving and empowered wears, took hazardous position or stance, and utilized inadequate device or hardware, and other dangerous activity. While, physical elements were because of perilous demonstration of someone else dismiss known endorsed strategies, deformities of mischance source, dress or attire risk, ecological danger, fire danger, dangerous course of action, risky strategy, housekeeping peril dishonorable task of work force, insufficiently protected, open danger, and other hazardous conditions.

Safety wears is not necessary, not adequate, and inconvenience were some of the reasons responsible for non-compliance with effective use of safety wears among the workers. In Osonwa, Eko and Ozah (2015) study of utilization of safety wears among wood factory workers in Calabar municipality, Southern Nigeria. However, the finding further revealed the need for training on the use of safety wears this could create awareness on the implications of inhaling wood dust on workers' health.

Factors Responsible for non-compliance with Health and Safety Practices on Construction sites.

The importance of operational health and safety regulations has been taken with a levity hand due to individual acceptance that construction accidents is an unavoidable act due to the characteristic of activities involved on project sites, thus making non-compliance with operational health and safety a common believe (Smallwood, 2002). Several authors has worked on health and safety management on construction site, but adequate consideration have not be given to the effect of safety wears on workers output. Olutuase (2014) studied safety management in the context of Nigerian industry with an intention to compare level of compliance with the international standards. The study outcome established existence of safety regulations in the management of construction projects. However, the system seems to be poorly characterised by ineffectiveness and poor documentation. The study called for urgent attention on construction managers to strictly adhere with the provisions safety regulation requirements for site management.

Ismail, Doostdar and Harun (2011) evaluated factors influencing the implementation of safety management system for construction sites. The study was conducted using structured questionnaire designed for the construction workers and as well interviewed skilled labourers. The result from the survey found personal awareness and communication to be the most influential safety management factors. It became imperative for the site managers to conduct enlightenment programs among their workers to get them familiar with the necessities safety consciousness on site. The study recommended the use of personal protective gadgets, reduction of manual work without neglecting the appropriate use of equipment and tools.

Umeokafor *et al.,* (2014) adopted strategic overview of past researchers effort on the subject of health and safety, they study unearthed reasons regarding not compliance with health and safety requirement in Nigerian construction sites, as owner's impact and weak implementation. The study concluded that, safety personnel should consider importance of implementing safety provision to attract construction manager and contractors in building a robust safety management on construction site, while client should use health and safety records as a required document for prequalifying contractors.

Okoye, Okolie and Aderibigbe (2014) conducted exploratory study on the cost of health and safety performance of building contractors in south-east Nigeria and the correlation between the cost of performance and projects outcome. 150 copies of structured questionnaire were randomly distributed to the respondents involving the clients, contractors and professionals across the study area and the data obtained were statistically analysed using Chi Square statistics to test the correlation. The findings show the impact of safety performance of contractors on successful projects delivery. Similarly, it also supported opinion of the construction practitioners that, implementation of programmes and policies regarding safety management would resort in increasing the overall project cost.

Famakin and Fawehinmi (2012) studied perceptions of quantity surveyors' on construction health & safety regulations in Nigeria. The study argued that, the industry lacks health and safety regulations and challenges like low quality, time overrun, cost overrun, absenteeism of workers due to injuries etc. affected projects objectives. Recommendation was made on the importance and inclusion of health and safety policies and programmes at the design stage, up through the completion stage because of its influence on projects delivery.

Olanrewaju, Sharafadeen, and Akinpelu (2014) conducted their study on the impact of national building code on workers' health and safety. The study analysed divers mean by which national building code can provide succor for builders to practice and monitor the challenges associated with safety policies in construction industry. The result showed the importance of National building code on safety practices and management on construction projects. However, the study scope did not cover the aspect of adoption and compliance of the code by individual construction firms sampled, and as well the impact on those firms that complied with the provision of the code. Interestingly, the level of awareness among the construction workers on safety practices have been on increase level over the year, as supported by (Muhammad, Abdulateef and Ladi, 2015; Ezeokonkwo, and Ezeokoli, 2016 and Akinwale and Olusanya, (2016). Muhammad *et al.*, (2015)

assessed cost implication of health and safety on construction projects. The study affirmed high rate of accidents in the Nigerian construction industry and high cost incurred as a result of injuries and hazards on site. However, any attempt to implement health and safety programs on construction site would increase the overall cost of the projects. Therefore, non-conformance to the policy gives possibility of accidents and also will increase the overall cost of the projects. The study recommended the following: health and safety policies, safety managers/supervisor must be appointed to ensure compliance, while severe punishments should be place on any contractors who violate the said safety policy.

Workers Perception on the Importance of Safe Working Environment in Enhancing Projects' Delivery

In understanding and defining operational health and safety competency on construction sites using workers opinion, Dingsdag, Biggs and Sheahan (2007) assessed the feelings, skills, behaviors and knowledge of construction participants that contribute to safety culture. The study adopted structured questionnaire via e-mail and self-addressed pre-paid envelopes to obtained needed data. However, results of the study revealed that workers have four most "influential safety critical positions to be at construction sites and not at head office, workers opinion on safety culture promotion via training and education, a strong knowledge of rules and regulations, good communication and interpersonal skills, behaviour and actions that could enforce and monitor safety. The study called for an improvement on workers training and as well maximise safety practices.

Che Hassan, Basha, Wan Hanafi (2007) and Shamsuddin, Ani, Ismail, Ibrahim (2015)argued that workers knowledge and understanding of health and safety practices at work setting remain vital in promoting safety among themselves on construction site. Abdelhamid (2000) and Shamsuddin, *el al*., (2015) added that worker omission is the cause of construction injuries and can be view under behavior and human factor approach. Behavior approach underscores that construction workers are the original reason for fatality due to their unlimited number of costly mistakes at different stages of building production process. However, human factors approach makes suggestion that workers are the original victim of construction fatality not because of individuals' unsafe behaviour rather, the emphases was on the working environment settings.

Hinze and Gambatese (2003) study aimed at identifying factors that impact the safety commitment of specialty contractors. The work surveyed three different specialty contractor populations through structured questionnaires by e-mail. The outcome of research shows that safety performance of specialty contractor were often affected by numerous factors that reduce workers profit. However, staff motivation were not seen as better means of safety performance. The study recommends training and suggests that, safety motivations should be embraced with caution.

Cheng, Ryan, and Kelly (2011) studied the impact of safety and health practices on construction output. The study examined three safety management practice categories "information, process and committees"; safety management process was seen by the construction gaffers as most important, seconded by safety management information and committees. However, by testing the impact of the "three safety management practice categories on a composite projects performance the result showed that the safety management information and safety management panel categories

have positive significant to project performance. The study recommended that, construction industry should embrace health and safety committee' in managing site safety.

Examining the Importance of Some of the Health and Safety Codes

The purpose of building codes and construction regulations cannot be over emphasized in project development and management, they ensure health and safety of workers, it provide habitable facilities and commercial property, promotion of energy efficiency, it also facilitate sustainable development and contribute greatly to meeting the demands construction stakeholders. Ratay (1997) asserted that code and regulations is not stand alone to improve construction safety at reduce cost, rather poor codes and regulations can only add to project cost without any solution to construction safety compliance. The cost arises from delays in construction progress include both direct and indirect cost on the employers and employees.

Health and Safety at Work Act (1974) is an Act of the Parliament of the United Kingdom that defined the fundamental structure and authority for the encouragement, regulation and enforcement of workplace health, safety and welfare within the United Kingdom. The Act defines general duties on employers, employees, contractors, suppliers of goods and substances for use at work, persons in control of work premises, and those who manage and maintain them, and persons in general. Bamisile (2004) recommended adoption of project health and safety plan, as part of building production documents. The numerous numbers of codes and regulations that support management of health and safety practice include: The provision and use of Equipment Regulation (1992), ILO code of practice-International Labour Office (1992), The Manual Handling Operations Regulations (1992), The Personal Protective Equipment at Work Regulations(1992), The occupational safety and health act of (2007), The Health and Safety (Display Screen Equipment) Regulations (1991), Health and Safety (First-Aid) Regulations (1981), Management of Health and Safety at Work Regulations (1999), Control of Substances Hazardous to Health Regulations (2002), Construction Design and Management Regulations 2015 (CDM 2015), Nigerian National Building Code (2007) (Bamisile, 2004 and Muiruri and Cornelius, 2014).

Improvement strategy on health and safety practices in construction industry

The issue of Health and safety on construction project should be a concern to every construction participant, especially client and their representative need to avert the risk associated with their project right from the planning stage by adopting sustainable strategies that will eliminate possibility of accident. However any improvement strategy proposed must be capable of offering practical solutions in the developing countries.Bust, Finneran, Hartley and Gibb (2014) stated that professionals' interests must be enhanced towards health and safety practices and usage of awareness measures, must be put in place and demonstrated by the operatives as one of the real needs to upgrade construction project safety. McDonald (2003) added that safety manager must be employed on all construction sites to ensure both behaviour and operatives' practices conform to safety requirements thereby, positively influenced by his/her role. Hence, safety manager should be empowered to play their roles in ensuring safety management system.

Mitropoulos, Cupido, and Namboodiri (2009) expressed why conventional use of the exterior way to deal with safety good for making health and safety practices, it overlooks how the inside attributes of the individual and the associations impact the work practices and influence the likelihood of errors and injuries. Firstly, it doesn't represent the individual elements that all in all characterize a specialist's expectation for security. Then again, the approach does not represent the social components that shape the workplace.

Dedobbeleer and German (1987) assessed the connections between site operatives safety performance file and attitudinal variables identified with safety. The study concluded that inclining component alone clarified the vast majority of the variety in safety performance. Majority of workers under the age group of 26 years had generally low sense, moderately little information about health and safety and a troublesome state of mind towards safety performance. The researcher considered three elements; strengthening variables, empowering elements, and inclining elements. Strengthening components measure the demeanors of different towards security; empowering variables measure the accessibility of safety elements (e.g. safety wears) at the work put; inclining variables measure the information and states of mind towards security of the individual specialist. Some different components like statistic were likewise utilized for connection.

Agwu and Olele (2014) worked on fatalities in the Nigerian construction industry. The study believed that, inclusion of positive safety culture by investing in machines and technology (socio-technical investments) in the Nigerian construction industry would resort in better safety performance of employees (reduced rate of unsafe acts) and the company (reduced rate of fatalities). This was conducted for a year, with the respondents randomly selected from twelve construction industry, two each across the six geopolitical zones in Nigeria. There is significant different between poor safety culture and increased rate of fatalities in the Nigerian construction industry. Agwu and Olele (2014) recommended regular staff training could improve hazard identification skills, engage managers and workers in addressing safety related issues, regular site safety, safety committees and eliminate potential workplace hazards and making hazard identification/reporting everyone’s duties.

From the literature review it is evident that health and safety measures are necessary in a work place environment to ensure worker’s safety and wellbeing so as: To maintain and improve productivity and quality of work; To minimize absenteeism and labour turnover; To reduce indiscipline and accidents; To improve employee motivation and morale; To reduce spoilage and cost operations and; To reserve the physical and mental health of employees. But for this to be realized a good health and safety management system and program should be put in place by providing; a written statement of safety policy, organization and allocation of responsibilities for health and safety matters, train employees in health and safety matters, establish safety committee, ensure first aid facilities, provide appropriate procedures and documentations to minimize accidents and to regularly consult with employee representatives. Construction firms should have training and induction to all employees so that they made aware of potential hazards and given instruction on how to avoid the possible risks. Risk control measures to be put in place with the aid of sound risk assessment procedures to identify specific hazards and quantify the risks attached

with the aim of hazard elimination through design improvement and change, substitution through replacement, use of barriers, use of warning systems and use of personal protective clothing. Procurement procedures and contract documentation can be a useful way to enhance health and safety in construction projects by ensuring compliance with existing legislation and with the terms and conditions of a project. The government on the other hand should intensify measures to strengthen the institutional framework and inspectorate activities in order to achieve a meaningful administration of the occupational health and safety act, (2007). This therefore forms the thrust gaps of this work which focuses on the examination of health and safety plan on construction sites in Lagos State in which the research is designed to address the research gaps.

A close look at the synthesis of literature however shows some glaring lacuna, which the present study seeks to fill.

1. It is true that there are studies conducted by authors on health and safety plan on construction sites but none has exploited the concept of examination of application of health and safety plan analysis.
2. Application of health and safety plan in construction sites is far below international best practices hence; more research needs to be done in this regard.
3. Presently, studies on the application of health and safety plan on construction sites have not been conducted in sufficient details for construction sites in Nigeria, particularly building construction sites at Lagos Mainland, Lagos Island and Lagos suburb respectively.

These gaps found in literature will be filled by this study.

MATERIALS AND METHODS

The literature review findings informed survey components of this research work and this includes a review of journals, articles, textbooks, and other published and unpublished materials which were considered relevant to the stated aim of this research work. The study is descriptive in nature and designed to obtain information from operatives concerning health and safety practices and the effects of safety wears on their operation in building production process. This research engaged desk review of related literature covering a period of 16 years (2002-2018). The study adopted survey research design, with the help of structured questionnaire to the Professionals, Contractors and Artisans (both skilled and unskilled) that operate in Lagos State, Nigeria. By adopting survey research the authors believed that it is proper as accumulation of information will not be more than one case and at a particular point in time to gather a group of quantitative or quantifiable information regarding at least two or more variables (Bryman, 2012). This research critically assessed and analyzed health and safety practices in relation to effects of safety wears on workers operation in execution of construction projects.

The population for this study covers medium scale construction companies that operate in Lagos State. The target population was the study group that has been selected for the purpose of the research and whose results were generalized for the whole population (Hart, 2005). As far as this study is concerned, the target population was the 32 construction firms in Lagos State who registered with Federal Registration Board of Nigeria. The choice of Lagos State among other South-West States was based on its fast growth in development and increase in the demands for

housing unit both for residential and industrial purposes. Lagos Island being a coastal zone has enjoyed tremendous increase in modern construction activities and development such as: Eko Atlantic city, Lekki free trade zone, Dangote petroleum refinery, Lekki deep sea port and Lagos Island international airport (Ogunde, *et al.,* 2017).Furthermore, Lagos State fairly represents an open market of construction companies for all and sundry. Thus, most of the Nigerian locally owned construction contractors that register with the Federal Registration Board of Nigeria shown that over 80% have their addresses in Lagos, Abuja and Port Harcourt as adopted by Fagbenle, Aderemi, and David (2004) and Olaleye (2008). It can be stressed further that a standard construction site will have a Site Manager, Supervisors to manage activities of workers on their various sites (CDM, 2007:2015)

The sample frame refers to the number of individual that made up the study population that can be sampled by the researcher. The sample frame for this study therefore, comprises of professionals, contractors and artisans (both skilled and unskilled) randomly selected from the study area.This study adopted both probability and non-probability sampling techniques. Since the research is purposive in nature, it required data from the on-going construction sites and not the number of construction companies in the study area, snowball sampling technique was used to locate medium scale construction sites that engaged in construction project at some selected location in Lagos State before choosing the targeted respondents. However, in bid to reduce the degree of bias of the respondents' opinion to ensure adequate coverage of targeted population and to gain clarity of data, questionnaire were personally administered to the respondents while he ensured that all artisans and labourers involved were capable enough to answers the questions.

Snowballing sampling is a form of non-probability sampling in which the researcher begins by identifying an individual perceived to be an appropriate respondent. Faugier and Sargeant (1997) defined snowball as sampling technique capable of providing efficient and economical ways of finding cases that otherwise are difficult or impossible to locate and contact. This opinion is married with (Alexander, Kurlander and Wynia 2005) as snowball sample techniques are used in survey where participants are recruited through other potential participants, by asking physicians in retainer medical practices to name other physicians in similar type practices that might be contacted to participate in the survey.

To determine the minimum sample size of these registered construction companies in Lagos State, Kish (1965) formula which gives a procedure for calculating minimum sample size has to be applied.

$$n = \frac{K}{1 + \frac{K}{N}}$$

Where;

n = sample size, $k = \frac{S^2}{V^2}$

N = population size

S = maximum standard deviation in the population element

(total errors= 0.1 at a confidence level of 95%).
V = standard error of sampling distribution = 0.05
P = the population elements
$S^2 = P(1 - P) = 0.5(1 - 0.5) = 0.25$

Therefore in determining the minimum sample size of construction companies in South-West region,

Given that N = 2400

$$k = \frac{S^2}{V^2} = \frac{.25}{.05} = 100$$

$$n = \frac{K}{1 + \frac{K}{N}}$$

$$n = \frac{100}{1 + \frac{100}{2400}} = 96$$

n = 96 means that, the minimum sample size of building construction companies in Lagos State to be used for the study is approximately 96. The 96 number of construction companies will help in establishing the actual sample size for the study. Saunders et al (2007) however, put forward a formula for calculating for actual sample size. This formula according to Saunders et al (2007) considers irregularities such as refusal to respond to questionnaires, ineligibility to respond to questionnaires, inability to locate respondent which occur during distribution and collection of data. The formula is presented here as;

$$n^a = \frac{n \times 100}{re\%}$$

Where n^a is the actual sample size required,
n is the minimum sample size, re% is the estimated response rate expressed as a percentage.

Oladapo (2005) and other researchers such as Newman and Idrus (2002), Ellhag and Bousssabaine (1999) and others, have indicated that a response rate of 30% is good enough in construction studies.

This given that n = 96,
re% = 30. n^a will compute as;

$$n^a = \frac{96 \times 100}{30}$$

= 320

Drawing from the assertion from Oladapo (2005) and the formula from Saunders et al (2007), 320 is the actual sample size, however 128 respondents was decided due to time constraints.

Table 3.1: Selected study population by geographical location

Geographical Distribution of respondents Location	Projects	Administered Questionnaire
Lagos Mainland	6	24
Lagos Island (Victoria Island, Lekki and Ajah)	21	84
Lagos Suburb (Badagry, Ikorodu)	5	20
Total	32	128

Therefore, based on the above formula thirty two (32) construction project sites were selected from the sample frame and four (4) i.e. two professional, one skilled and one unskilled respondents were randomly sampled from each of the project sites these equals to **128 copies of** structured questionnaire administered.According to Ofo (1999) where the questionnaire survey method is used, the entire analysis procedure usually involves calculation and interpreting descriptive analysis. For the purpose of this research, the data obtained were presented and analyzed by statistical package for social sciences (SPSS v21)and Microsoft Excel, 2016 using descriptive and inferential analytical tools such as, frequency percentage distributed table, mean, Relative Important Index.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Discussion of Findings and Justification of Research Objectives

Objective one examined current state of health and safety practices on building construction projects

The research result compared the mean scores of the professional and site operatives' perception on how health and safety are currently practiced on construction sites with the overall mean score ranking. Out of eighteen listed parameters, five most frequently embraced among the site practice parameters listed on project sites were provision of temporary fence at the boundary of the site and provision of accidents prevention strategy and safety consciousness on site, development and frequent review of health and safety policy for building projects, daily health and safety briefing, provision of first aid box, health and safety gadgets site accommodation and welfare facilities. All of these are within the capacity of the construction company; any attempt to improve and subscribe to these practices the longer way it will go in solving the challenges confronted by the industry. This is consistent with George, Geoffrey and Matthew (2013) findings that stressed the need for construction company to provide adequate awareness particularly on each project, that will cover an outline of the project, a top to bottom survey of the health and safety are necessitated and desired, clear arrangements and systems, disciplinary activities, substance manhandle testing policy and proactive management methods needed for the project.

In contradiction to recommendation of Construction (Design and Management) Regulations (CDRM, 2005:2015) engaging resident health and safety manager on construction sites was lowly ranked, it was not surprising but only justified the outcome of low percentage of respondents who are health and safety managers, effort must be focused on engaging health and safety managers on

each construction projects, because they are trained to implement construction safety and ensure workers compliance with safety practices on site.

Objective Two examined the factors preventing site operatives from using safety wears on construction sites

Relative Importance Index (RII) rankings of the responses on the thirteen listed factors that prevent site operatives from using safety wears on construction sites revealed five top-ranked factors: adaptability of workers to safety practices as it was against the traditional practices of workers (**RII=0.776**), closely followed by unethical practices of worker due to human attitudinal peculiarities and traditional practices (**RII=0.766**) insufficient instructions about the working condition (**RII=0.764**), inadequate and ineffective supervision by safety personnel on site (**RII=0.762**), unsafe practices of worker due to religious assertions (**RII=0.756**). All of these factors are within the control of the safety or site manager and if averted it will go a long way in addressing the issues of safety practices.

It is therefore not surprising that workers have problem adapting to safety practices especially the use of safety wears, firstly it was not part of their training during apprenticeship, and subjecting them to use this gadgets mighty requires time, training and close monitoring techniques.However, there is still a gap on effective supervision by safety personnel on site and knowledge on hazards management, proper training on the effective use of safety wears by site/safety managers as they were perceived factors preventing safety practices as suggested. This call for more importance to be attached to supervision and controlling of workers on the use of safety wears, while workers must have adequate knowledge on associated risk to their tasks. It is also important to stress the fact that site operatives lacked proper training on the effective use of safety wears on sites as this has resort into ineffective communication between safety personnel and workers.

Objective three on Respondents' level of Agreement on the Effects of using Safety wears on workers Operations on Construction sites.

Respondent's level of agreement on the effects of using safety wears on workers operations. There was agreement between the professional and site operatives' respondent on the effects of using safety wears on workers operation on construction sites, this includes: safety wears will improved safety among workers.

Objective four Respondent's Perception on the Importance of Integrating Builder's Document and others Safety Control Systems on Construction Projects.

It can be said that integrating Builder's document and others safety control systems on construction projects would provide helpful information to all construction participants, gives understanding about the importance of safety practices, ensure continuous improvement of safety performance and help construction participants to takes into consideration health and safety matters right from the design phase. However, professional respondents perceived that integrating Builder's document and others safety regulations in controlling safety on construction projects would provide helpful information to all construction participants and gives understanding about the importance of safety practices.

Objectives five on Health and Safety Improvement Measures and Control Systems Available for Safety Practices and Compliance on Construction Sites.
The use of safety audio, video and visual displaying gadgets on site, daily check of scaffold and ladder etc., inclusion of health and safety matters from the planning phase, setting health and safety guidelines into conditions of contract, reward workers that exhibit excellent health and safety performances, conduct in-house health and safety training, provide health and safety booklets in various languages and waste management on site were found to be statistically significant.

Summary of Findings
The findings of the study are therefore summarized below:

i. Alleviating the problem of workers adapting to health and safety practices especially the use of safety wears, because it was not part of their training during their apprenticeship.
ii. The study found out that training of construction workers' has significant impact on the effective use of safety wears.
iii. As a result, constant training of workers on the use of safety wears would go a long in improving operatives' safety practices.
iv. The study established low and inadequate engagement of safety managers on constructions sites for project execution.
v. Willingness of workers to meet their daily output was disregarded as factor preventing operatives from using safety wears.
vi. The study also noticed poor channel of communication between site managers and workers
vii. And finally suggested health and safety improvement strategy that are significant to safety practices on construction sites.

CONCLUSION

In conclusion, the outcome of the study showed the need for constant re-evaluation of health and safety practices of the construction companies in the study area because of its vital contributions to economy development. It is evident that this study outcome explored advantage of proactive approach in managing safety practices by examining health and safety plan in construction sites thereby curtailed possibility of accidents on counteractive action against future mishaps. Assumption must not be made when recruiting workers especially for companies that have workable control systems and safety policy. It is of utmost importance to ensure that every new workers employed on project sites are given necessary awareness talk regarding health and safety practices and use of safety wears.

More proactive measure must be put in place right from the planning stage by the clients and their representative to avert possible risk associated with their project this is a stage where all contract documents such as priced bills of quantities by registered Quantity surveyor, Contract drawings by Architect, Builders' document by licensed builder, condition of contract etc. are prepared. Therefore adopting sustainable strategies that will eliminate possibility of accident and the builders or contractors stating the degree of confidence at which the work could be executed will go a long way in addressing the issue of health and safety practices.

However, based on personal observation on sites, safety implantation and compliance has been so much neglected and suffered great set-back due to the willingness of the workers to meet their daily output and the goal of site manager in ensuring workers' wages justified their output, secondly, level of hunger also contributed to workers willingly undertaken risky jobs as means of survival or maximize their wages on construction site.

The findings of this study has pointed out the need for the construction industry to review their health and safety policies and make systematic approach to accommodates some of the critical points raised regarding the issue of safety practices challenging Nigerian construction companies. This depicted that the variables influenced each other greatly and cannot work in isolation. It equally underscored the importance of their collective interplay in improving safety performance of construction workers.

Furthermore, high demand for improvement of health and safety practices and use of prescribed safety wears on construction site, safety training must be taking serious most especially the site operatives that are more vulnerable to accidents, this will help them to know the safety demands of each construction projects. Safety inspections should be conducted on sites and any identified hazards should be taken care of as soon as detected.

Therefore workers must be trained on safety awareness, risk identification, hazard management, use of safety wear, use of first aid and proper use of varieties of safety equipment, such as fall arrest systems because no matter how good health and safety policy of construction companies is without passing knowledge or safety awareness to the workers the policy may failed and accident will persist. The study established positive relationship which suggests that training of workers on health and safety knowledge and use of safety wears were related.

Recommendations

The following recommendations were made on improvement strategy on health and safety practices among the construction workers as a rationale for this study and to serves as additions to existing knowledge, availability of literature and reference documents on the subject of health and safety practices in Nigeria and world at large.

i) Clients are advised to use past record on health and safety performance to prequalified contractors.

ii) Construction managers should engage the use of safety audio, video and visual displaying gadgets on site to demonstrate safety consciousness among workers. Workers who are majorly vulnerable to accident on site can be controlled with this approach on sites; this might include appointing a personnel that will keep reminding workers about their safety.

iii) Construction managers should be embraced strategic approach on site such as: creating health and safety awareness, health and safety briefing, include health and safety matters right from the planning phase, set health and safety guidelines into conditions of contract, reward workers that exhibit excellent health and safety performances.

iv) Training and appointment of resident health and safety personnel/manager that will implement health and safety policy and form a monitoring control system that will keep reminding

workers that they are absolutely responsible for their safety on site using public address system throughout the working hours.

v) Also in-house health and safety training, provision of safety booklets in various languages and ensure effective waste management on site can reduced accident to barest minimum on site.

vi) The industry can also form partnership with the government and Professional bodies' regulatory team for site inspection at a regular interval on construction stage this will collaborates the effort of contractors' safety manager to ensure safety practices are compiled with and documentation of any case of accident, towards building a health and safe working environment in enhancing successful project delivery.

vii) Construction manager should adopt require site base training for the operatives especially on the use of health and safety plan while safety managers should regularly attends safety training course.

viii) The study also seeks for improvement on the involvement of safety managers' and suggest at least one safety managers each on every project site.

ix) It is on this note the study call for an improved channels of communication between site managers and workers, to ensure that the objectives and health and safety needs for each of the projects are well communicated to site operatives

x) However, in improving health and safety practices among the workers, non-financial rewards and award could be instituted to workers that exhibited excellent safety performance among others. Lastly, implementation of health and safety code in execution of building production process should be improved, considering the manner workers disregard health and safety practices as pointed out by the finding of the study.

xi) Finally, Government should intensive their effort towards health and safety implementation by partnership with professional bodies in the built environment to organizing special training on health and safety practice on construction site for the tradesmen, Nigerian Institute of Building (NIOB) has started already.

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