



Barriers To The Practice Of Safety Measures Among Sawmill Workers In Rivers State, Nigeria

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ABSTRACT

Use of safety measures is a base line necessity in the prevention and control of occupational hazards and accidents in the work places. Every occupation has its own inherent hazards including sawmill which must be prevented or controlled for the health and well being of the workers and improve efficiency towards goal attainment of the industry. This study investigated the barriers to the practice of safety measures among sawmill workers in Rivers state, Nigeria. Three objectives, three research questions and three hypotheses guided the study. A cross sectional descriptive survey research design was adopted to study all the sawmill workers in Rivers state with an estimated population of 5,100. A sample size of 407 was used and a self structured questionnaire was the instrument for data collection. The reliability of the instrument was established through test retest which yielded a reliability co-efficient of 0.83. The data were coded and analysed using SPSS version 23. Linear regression model was used to answer the research questions and to test the hypotheses at 0.05 level of significance. The findings of the study showed that knowledge ($r = 0.91$), unavailability of safety equipment ($r = .97$) and workers' negligence ($r = .91$) constituted barriers to the practice of safety measure among sawmill workers in Rivers State. The study as well revealed a statistically significant relationship between safety practice and knowledge, availability of safety equipment, and workers' negligence $p < 0.05$. Therefore, it was recommended among others that; Safety personnel should organize safety training for sawmill workers in Rivers State from time to time to keep them updated about current safety practices in sawmilling, this will help to sustain a good knowledge of safety among them, and the managers in the sawmill industries should ensure adequate procurement of safety equipment to avoid any lapses in safety practices brought about due to unavailability of safety equipment.

Keywords; Barriers, knowledge, practice, safety equipment, safety measures, sawmill, worker's negligence.

INTRODUCTION

Every work has inherent occupational hazards which must be prevented or controlled using safety measures. These occupational hazards cut across all occupations including sawmill. Working in sawmills has been identified by the Occupational Safety and Health Administration (OSHA) (2018) as one of the most dangerous occupations even in countries with high levels of compliance with occupational health and safety regulations, situation is even worse in the sub-Saharan African countries where compliance rates are generally low. Global reports have shown that there is a substantial increase in work-related mortality from 2.33 million per year in 2014 to 2.78 million in 2017, accounting for 5% of the global total deaths, and presenting the biggest share of work-related mortality due to work-related diseases which accounted for 2.4 million (86.3%) of the total estimated deaths, while fatal accidents accounted for the remaining 13.7% (Thepakson et al., 2018; Ankama-Lomotey et al., 2018). Several continents such as,

Asia was the highest contributor and constituted about two-thirds of the global work-related mortality, followed by Africa at 11.8% and Europe at 11.7%.

Reports from different African countries have shown that there are about 250 million cases of occupational injuries and illnesses occurring annually worldwide, with prevalence studies from Botswana, Zimbabwe, Zambia, Ghana and Nigeria suggesting that there is a high occurrence of occupational disease in Africa (Magauzi et al., 2011; Birabi et al., 2012; Siziya et al., 2013). In sub-Saharan African countries including Nigeria, studies conducted among sawmill workers reported poor training on occupational health and safety with concomitantly poor knowledge of their workplace hazards (Agbana et al., 2016; Mong et al., 2017). Eroke (2013) posited that, though in Nigeria, there appears to be an increase in work related injuries and illnesses, the records of occupational diseases with relevant Government agencies are poor due to inadequate reporting. Specifically, in Nigeria, Awosan et al. (2018) reported a high prevalence of workplace-related health problems (55.3%) among sawmill workers.

Sawmill is a place where timbers are sawn into different sizes of planks or boards by a machine (Labreche et al., 2018), there are several hazards in the sawmill industry, one of which is dust. Wood dust refers to the tiny sized and powdery waste that occurs while processing wood. It is estimated that at least 2 million people are routinely exposed occupationally to wood dust worldwide (Siew et al., 2016). Wood processing procedures such as sanding, cutting, or milling generate dust which might result in several health problems including carcinogenicity (Osuchukwu et al., 2017). Evidence abounds of the carcinogenic effects of wood dust, particularly hardwood on the nasal cavity, paranasal sinus, and nasopharynx. Many other respiratory symptoms common among wood workers as a result of dust inhalation include cough, breathlessness, eye irritation, sneezing, and rhinitis (Adeoye et al., 2018). Statistics has shown that there is an urgent need to bring the safety of the sawmill workers to limelight.

Safety measures are measures put in place to ensure that workers are free from danger or harm. Fazoranti (2015) defined safety as the condition of being free from harm. It is very important that sawmill workers practice safety measures in order to maintain their health.

Barriers to the practice of safety measures are those things that could prevent workers from adhering and utilizing safety measures in the work place, including sawmills. Alonso-Sardon et al. (2015) documented that lack of knowledge of what to practice, poor attitude of workers, lack of usage of personal protective equipment etc could be barriers to the practice of safety measures among sawmill workers. Onowhokpor et al. (2017) reported that despite the hazards and health issues often encountered by workers in sawmills, there is still low or non-usage of personal protective Devices (PPD). This could be as a result of non availability of these protective devices and other safety materials needed to prevent the worker from injuries and occupational diseases. Therefore, Lack of knowledge, unavailability of safety equipment, negligent attitude of workers among others can be barriers to the practice of safety measures among sawmill workers.

Study conducted among sawmill workers revealed poor awareness of the occupational hazards inherent in the occupation (Mitchual et al., 2015), one cannot practice what he does not know. Knowledge/awareness of the health hazards associated with any occupation is very important, Knowledge is often regarded as a prerequisite in the practice of any safety measures. Hence, lack of adequate knowledge required for any job could be a barrier to the practice of safety measures in that job. Cheung (2017) referred to knowledge as the fact or condition of being aware of something or knowing something with familiarity gained through experience. Thus, knowledge of safety measures refers to the condition of being aware of the safety measure in the sawmill work. The occupational health and safety regulations mandated employers of labour to educate their employees on the workplace safety and hazards to which they are exposed to, but studies have shown that majority of sawmill workers never had any training on occupational health and safety, and were either unaware, or became aware of safety measures and their workplace hazards after experiencing the diseases and injuries associated with them (Diwe et al., 2016).

Similarly, the attitude of the workers is another vital factor to be considered in any effort geared towards enforcing safety among the workers. Attitude can be referred to as a person's disposition or readiness to engage in a particular health practice. Negative attitude of the worker such as negligence or non compliance to safety rules can be a serious barrier to the practice of safety measures. In a study of

Awosan et al. (2018), it was observed that quite a number of safety practices was observed by only a few of the sawmill workers. The authors furthered that such safety practices for sawmill workers included the use of personal protective devices at work, regular maintenance of machines, enclosure of noisy or delicate machines, use of coverall, use of water and soap for washing of the hand, disconnection of electrical connections of machines that are not in operation and keeping worksite clean and orderly. Non compliance or negligent attitude is therefore, any omission or refusal to adhere to these safety practices. Unavailability of safety equipment as well as PPD constitute another barrier to the practice of safety measures among sawmill workers. Safety equipment like fire extinguisher, first aid box, safety information board, water and soap etc as well as personal apparels (Personal Protective Wears) (PPW) such as hand gloves, ear plug, goggle, face mask, cover all etc are necessary to the practice of safety measures. In a study conducted by Agbana et al. (2016), it was observed that a few workers used PPD, this was due to the fact that these equipment are not available or health and safety standards were neither practiced nor enforced. Tadesse et al. (2016) in Ethiopia found out that more than 17.0 % of the workers reported that they did not use all the necessary PPD during work, the reasons for not using PPD were lack of PPD, lack of practice, uncomfortable to use, and lack of safety education. How then can one use what is not available; the first is to put in place the necessary equipment and facility before thinking of utilization.

Despite the importance of practice of safety measures in mitigating occupational hazards, it was reported that less than 20% of sawmill workers used or enforced the use of protective devices during work activities, this increased their exposure to health hazards such as inhalation of saw dust (Osagbemi et al., 2018). Also, sawmill workers who frequently inhaled saw dust are said to report an increased incidence of acute health symptoms such as respiratory disorder (Mumuni, 2015; Aguwa et al., 2017). Other conditions include injuries from machines (particularly when used improperly or without proper safeguards), excessive noise resulting in irreversible noise induced hearing loss (NIHL), irritation, allergic skin reactions, conjunctivitis, hay fever, asthma, cough and adenocarcinoma of the nasal sinus. These hazards if not guided against by eliminating the barriers to the adoption of safety measures could have devastating effects on the health of the sawmill workers. It is believed that the sawmill workers can maintain their health conditions and improve in the practice of their occupation, if the barriers to the practice of safety measures in the sawmills are put on checked. It was in view of these problems that this study examined the barriers to the practice of safety measures among sawmill workers in Rivers State, Nigeria.

Purpose of the study

The study aimed at investigating the barriers to the practice of safety measures among sawmill workers in Rivers State, Nigeria. In specific terms, the objectives of the study included to;

1. assess the relationship between knowledge and the practice of safety measures,
2. examine the relationship between availability of safety equipment and the practice of safety measure,
3. investigate the relationship between workers negligence and the practice of safety measures.

Research questions

The study provided answers to the following questions:

1. What is the relationship between knowledge and the practice of safety measures among sawmill workers in Rivers State, Nigeria?
2. What is the relationship between availability of safety equipment and the practice of safety measures among sawmills workers in Rivers State, Nigeria?
3. What is the relationship between workers negligence and the practice of safety measures among sawmill workers in Rivers State, Nigeria?

Hypotheses

The following hypotheses postulated were tested at 0.05 level of significance:

1. There is no significant relationship between knowledge and the practice of safety measures among sawmill workers in Rivers State.

2. There is no significant relationship between availability of safety equipment and the practice of safety measures among sawmill workers in Rivers State.
3. There is no significant relationship between workers' negligence and the practice of safety measures among sawmill workers in Rivers State.

Review of Related Literature

Literature was reviewed under the conceptual review; the basic concepts discussed include concept of safety, knowledge of safety measures, unavailability of safety equipments, negligence as a barrier to safety practice, concept of sawmill and work hazards associated with sawmill. Theoretical framework (knowledge attitude and practice model, theory of planned behavior and integrated theory of human behavior change) were the theories that the study anchored on while empirical and appraisal of reviewed literature were also done.

Safety as a concept has been defined by different authors in different ways. Fasoranti (2015) defined safety as the condition of being free from harm while Herington (2017) referred to safety as being free of dangers and prevention from mundane accidents such as falls, and protection from emergencies like fire, adding that maintaining a safe workplace is important not only for the safety of oneself but for the safety of co-workers, and other people who may be working in the environment. Workplace safety on the other hand is the control of recognized hazards in the workplace in order to achieve an acceptable level of risk (Neumann, 2019). Standard precautions is necessary in safety, it includes; hand hygiene, use of Personal Protective Devices (PPD) (including personal protective wears e.g hand gloves, coverall, face-mask, ear plug), cough etiquette, respiratory hygiene, safe handling of potential contaminated surface of equipment in the working environment etc. Park (2009) posited that various measures for the prevention and control of occupational hazards and diseases may be group under three headings, medical, engineering and statutory or legislative. Medical measures include pre-placement examination, periodic examination, medical and health care services, notification, supervision of working environment, maintenance and analysis of records, health education and counselling. Such measures as building design, good housekeeping, use of protective devices etc are engineering measures, while legislative measures involve laws, rules and regulations that protect the health, safety and welfare of the worker. The use of protective clothing ensures that any injurious substances handled at work and the chances of the worker going home with contaminated skin or clothing is minimized. The head, eye, nose, hands and feet can also be protected from various forms of hazard. Personal protection with personal apparels can be achieved by use of facemask, earplugs or muffs, hand gloves, boots, coverall, goggles, helmets etc. But most workers default in the use of personal protective effects (WHO, 2018).

Lance (2016) noted that some control measure for physical hazard is to ensure that generator sets are kept at a distant place to reduce noise, for example, the timber industries should be built with consideration of adequate space, use of ear muff, eye shield, nose mask etc are necessary. Control measure for chemical hazard is to ensure that all chemicals are labeled properly with indicated signs and symbols, the worker should avoid spillage of chemicals when handling chemicals, workers should wear gloves to avoid skin burn as well as cover cloths. Similarly, biological hazard should be controlled with appropriate measures by disinfecting the molds and fungi in the industries, the workers should put on hand gloves while carrying woods. Also, control measures for psycho-social hazard is to ensure that the industries are conducive, no long work hours, stress free, etc while ergonomic control measure is to ensure adequate or comfortable work stations to avoid being cut or rolled over by machine in the industries.

Sawmill involves the use of different machine, and is the process of converting log from the forest into lumber by using a variety of machine, such as the band saw also known as the head saw or chain for breaking down logs into desired specification, circular machine for further production of two by two wood, spanning machine to give shape and further production of one by one, half inches, one by three or two by three wood (Paul & Hugh, 2012). The processing procedures such as sanding, cutting, or milling in the sawmill generate dust which might result in several health problems (Osuchukwu et al., 2017).

Knowledge of safety measures could be referred to as the state of awareness about safety or been able to understand what safety measures are based on experience. One major action that enhances knowledge of

workers in any occupational setting is training. Training constitutes a basic concept in human resource development. It is concerned with developing a particular skill to a desired standard by instruction and practice. Training is a highly useful tool for improving workers' knowledge and competency. It increases the knowledge of workers to a position where they can do their job correctly, effectively and conscientiously knowing what safety measures to adopt. Cheung (2017) defined training as the organized procedure by which people learn knowledge and/or skill for a definite purpose. Training refers to the teaching and learning activities carried on for the primary purpose of helping members of an organization acquire and apply the new knowledge, skills, abilities and attitudes needed by a particular job and organization (Edward, 2015).

Negligence has caused many workers to sustain serious injuries, damages, death as a result of carelessness and failure to adhere to standards at work place. Adebola (2014) reported that negligence could be seen as failure of a person to exercise sufficient care in his or her conduct when carrying out work surrounded by hazards. When a person's conduct falls below the reasonable expectation of organization and causes foreseeable harm to another, the person has acted negligently. He also noted that so many of the workers do not adhere to the standards at work place which exposes them to danger. Negligent conduct may consist an act or omission, in doing un- reasonably dangerous acts or in omitting to take such precautions as reasonably requires against damage. Negligence is unsafe for instance, an incident of fire outbreak in a sawmill workshop damaged machines, timbers and wood as a result of small light dropped in the workshop which ignited up fire (Agbana et al., 2016). Negligent worker is one who acts as he should not have acted (or omits to act when he should have acted), and thereby creating an unreasonable risk of injury to others (Jerie, 2019). Not paying attention to rules, regulation and details governing sawmill operation should no doubt be linked to the occupational hazards experienced among sawmill workers. Diwe et al. (2016) revealed that quite number of the safety practices such as disconnecting the electrical connections of machines that are not in operation, keeping the worksite clean and orderly, compliance with many of the key practices, including using personal devices at work, providing fire extinguishers, segregating/enclosing noisy of delicate machines are not practice among sawmill workers in Nigeria.

Availability of safety equipment is a crucial and necessary, according to Paulin et al. (2017) the protective equipment needed for the different part of the body include; Helmets, bump caps, guards, and hard hats used for the protection of the head against head bumps, objects falling from height or flying through the air, chemical drips and splashes or getting your hair tangled in machinery. Safety glasses, eye shields, over specs, face shield, visor and safety goggles used for the protection of the eye and face against radiation, gas, projectiles, chemical splashes and dust. Also, Acoustic foam, ear plugs, communication sets, noise meters and ear defenders used for the protection of the ear against noise. Others are work hand gloves used for the protection of the hand against cuts, impact, extreme heat or cold, radiation, chemical spills, vibration and electric shock. Similarly Safety willies, used for the protection of the foot against wet, cold or hot conditions, cuts, slipping, heavy loads, falling objects and vehicles (such as forklifts). Hi-visibility clothing and coverall used for the protection of the whole body against cuts, impact, extreme heat or cold, radiation, chemical spills, vibration and electric shock. Safety harnesses, fall arresters, elbow and wrist supports and back supports used for fall management. It should be noted that safety cannot be practice in any occupational setting when the equipment needed for practice is lacking.

RESEARCH METHODS

This study was conducted in Rivers State which is one of the nine States that make up the Niger Delta region of Nigeria. The State was created in 1967 with Port Harcourt as its capital. The State was so named (Rivers) because of the numerous rivers that border the terrain with a population of more than five million, one hundred and eighty five thousand, four hundred (5,185,400) individuals (National Population Commission, 2006), and the people of Rivers State are referred to as "Riverians". The State is bounded on the South by the Atlantic Ocean, on the North by Imo and Abia States, on the East by Akwa Ibom State, and on the West by Bayelsa and Delta States. The State is made up of 23 Local Government Areas (LGAs). Rivers State is well known for its vast natural gas reserves, crude oil, and natural resources such

as silica sand, clay, and glass sand and an epicentre of the country's oil industry. These are probably why more than 60% of Nigeria's Crude oil output is obtained from the State (Rivers Digest, 2019). The vast resources in Rivers State have made it an epic-centre for entertainment, business, commerce, and administration which has attracted all kinds of firms and industries with local and foreign origins. These industrial activities have necessitated the construction of various structures in the State which has made sawmilling to thrive in the State. Several sawmill industries are found at different locations in the State, carrying out their activities with some paying attention to safety measures and others not paying much attention.

A descriptive survey research design was adopted for this study. According to Nwankwo (2013), the descriptive survey research design is one that generates data from a given population, studying and describing events as they occur in their natural setting at a particular time. In the present study, the researcher collected data on the barriers to the practice of safety measures and subjected the data to statistical analysis without manipulating any variable hence this design was considered appropriate for the study. The population of this study comprised all the sawmill workers in Rivers State with an estimated population of 5,100. This estimate was made by the researcher as there was no source to get the definite population of the sawmill workers in Rivers State. The sample size of 407 was used for the study and a multistage sampling procedure adopted to select the sample. At first, a clustered sampling technique was used to classify the State into three clusters based on the senatorial districts which are: Rivers East, Rivers West, Rivers South-East senatorial districts. The second stage was the use of simple random sampling technique to select three Local Government Areas (LGAs) from each of the three clusters, thus; Port Harcourt City, Obio-Akpor and Ikwerre LGAs were selected from Rivers East senatorial district; Ahoada-East, Ahoada-West and Abua-Odua LGAs for Rivers West senatorial district while Oyibo, Eleme and Khana LGAs were selected from Rivers South East senatorial district. At the third stage, purposive sampling technique was used to select eleven sawmill factories from the selected LGAs putting the factories size into consideration and the fourth stage involved the use of non-proportionate sampling techniques to selected 37 respondents from each of the selected factories. The selected sawmill factories include; Iloabuchi, Marine-base, Rumosi, Aluu, Igwuruta, Ahoada, Mbiama, Emelagham, Oyibo, Bori and Aleto. Data was collected using a self-structured questionnaire titled, "Barriers to the practice of safety measures questionnaire (BPSMQ)". The questionnaire focused on the barriers to practices of safety measures on dichotomous response of 'Yes or No' for knowledge. It was also designed to gathered information on the negligence attitude of the respondents towards practices of safety measures and availability of safety equipment on a modified four point Likert scale of "very high extent, high extent, low extent and very low extent" as well as "always, sometimes, rarely or never".

The reliability of the instrument was established using test-retest method, 20 copies of the instrument were served to 20 sawmill workers in Bayelsa State (which is homogenous to the study area) and were retrieved, the same instrument was later served to the same group of people after two weeks. A reliability coefficient of 0.83 was obtained using the Spearman Rank Order. Data was collected by the researcher with the help of two assistants within two months. The data analysed with the aid of the statistical product for service solution (SPSS) version 23.0, linear regression model was used to answer the research questions and test the hypotheses at 0.05 level of significance.

RESULTS

Research question 1: *What is the relationship between level of knowledge and practice of safety measures among sawmill workers in Rivers State, Nigeria?*

Table 1: Regression analysis on relationship between level of knowledge and practice of safety measures among sawmills workers in Rivers State

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	Decision
1	0.91	0.83	.83	1.07	1.36	Very High relationship

The findings in Table 1 illustrated that there was a very high positive relationship between knowledge and practice of safety measures ($r = 0.91$). The result further showed that knowledge contributed 83.3% of the variance in the safety practice ($R^2 = 0.83$). Therefore, the relationship between level of knowledge and practice of safety measures among sawmill workers in Rivers State was very high.

Research question 2: *What is the relationship between availability of safety equipment and practice of safety measures among sawmills workers in Rivers State, Nigeria?*

Table 2: Regression analysis on relationship between availability of safety equipment and practice of safety measures among sawmills workers in Rivers State

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	Decision
1	.96	.93	.93	.65	1.02	Very High relationship

The findings in Table 2 illustrated that there was a very high positive relationship between availability of safety equipment and practice of safety measures ($r = 0.96$). The result further showed that availability of safety equipment contributed 93.7% of the variance in the safety practice ($R^2 = 0.937$). Therefore, the relationship between availability of safety equipment and practice of safety measures among sawmill workers in Rivers State was very high.

Research question 3: *What is the relationship between workers' negligence and practice of safety measures among sawmill workers in Rivers State, Nigeria?*

Table 3: Regression analysis on relationship between workers' negligence and practice of safety measures among sawmills workers in Rivers State

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	Decision
1	-.914	.835	.835	.65	1.02	Very High relationship

The findings in Table 3 illustrated that there was a very high negative relationship between workers' negligence and practice of safety measures ($r = -0.91$). The result further showed that workers' negligence contributed 83.5% of the variance in the safety practice ($R^2 = 0.835$). Therefore, the relationship between workers' negligence and practice of safety measures among sawmill workers in Rivers State was very high.

Test of Hypotheses

Hypothesis 1: There is no significant relationship between knowledge and practice of safety measures among sawmill workers in Rivers State

Table 4: Regression analysis on significant relationship between knowledge and practice of safety measures among sawmill workers in Rivers State

Model		Sum of Squares	df	Mean Square	F	p-value	Decision
1	Regression	2288.088	1	2288.088	1995.7	.000	Rejected
	Residual	458.582	400	1.146			
	Total	2746.670 ^d	401				

P < 0.05

The findings of the study in Table 4 revealed that there was a significant relationship between knowledge and practice of safety measures among sawmill workers [$F(1,400) = 1995.79, p < 0.05$]. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and practice of safety measures among sawmill workers in Rivers State was rejected.

Hypothesis 2: There is no significant relationship between availability of safety equipment and practice of safety measures among sawmill workers in Rivers State

Table 5: Regression analysis on significant relationship between availability of safety equipment and practice of safety measures among sawmill workers in Rivers State

Model		Sum of Squares	Df	Mean Square	F	p-value	Decision
1	Regression	2574.17	1	2574.17	5969.3	.000	Rejected
	Residual	172.49	400	.43			
	Total	2746.67	401				

P < 0.05

The findings of the study in Table 5 revealed that there was a significant relationship between availability of safety equipment and practice of safety measures among sawmill workers [$F(1, 400) = 5969, p < 0.05$]. Therefore, the null hypothesis which stated that there is no significant relationship between availability of safety equipment and practice of safety measures among sawmill workers in Rivers State was rejected.

Hypothesis 3: There is no significant relationship between workers' negligence and practice of safety measures among sawmill workers in Rivers State

Table 6: Regression analysis on significant relationship between workers' negligence and practice of safety measures among sawmill workers in Rivers State

Model		Sum of Squares	Df	Mean Square	F	p-value	Decision
1	Regression	2293.583	1	2293.583	2024.8	.000	Rejected
	Residual	453.087	400	1.133			
	Total	2746.670 ^d	401				

P < 0.05

The findings of the study in Table 6 revealed that there was a significant relationship between workers' negligence and practice of safety measures among sawmill workers [$F(1, 400) = 2024.84, p < 0.05$]. Therefore, the null hypothesis which stated that there is no significant relationship between workers' negligence and practice of safety measures among sawmill workers in Rivers State was rejected.

DISCUSSION OF FINDINGS

The result of the study showed that there was a very high positive relationship between knowledge and practice of safety measures ($r = 0.91$). The result further showed that knowledge contributed 83.3% of the variance in the safety practice ($R^2 = 0.83$). The finding of this study was expected therefore not surprising because knowledge is said to be a prerequisite to any behaviour including safety practice. This finding of the study was similar to other studies including those of Agbana et al. (2016) whose study on the knowledge of occupational hazards among sawmill workers in Kwara state, Nigeria revealed a link between knowledge and safety practice. The result of this study showed a significant statistical relationship between knowledge and practice of safety measures among sawmill workers [$F(1,400) = 1995.79, p < 0.05$], it is in keeping with Manjula and De-Silva (2014) whose research on the factors influencing safety behaviours of construction workers in Sri-Lankan construction industry found that knowledge on safety ($X = 4.55$ vs. 3.00) and safety training and awareness ($X = 4.44$ vs. 3.00) are among others factors that influenced safety behaviour of construction workers. The finding of this study gives credence to Amabye (2016) whose study on occupational risks and hazards exposure, knowledge of safety practice and safety measures among workers in Wikkro Tigray, Ethiopia observed that majority of workers (66.7%) had good knowledge of occupation health and safety practices and there was a significant association between knowledge of occupational risks and hazards, hence, increased knowledge

and awareness of risks and hazards is vital for improve safety practices that limit the occurrences of such hazards. Also, This finding of the study gives credence to the result of Osagbemi, et al. (2018) whose research on the awareness of occupational hazards and safety practices among timber workers in North central Nigeria indicated that the level of awareness had significance influence on the level of safety measures ($p < 0.05$). Thus as knowledge increased, practice of safety measures increased, and the reverse becomes the case when knowledge decreases.

The result of this study as well showed that there was a very high positive relationship between availability of safety equipment and practice of safety measures ($r = 0.96$). This finding of the study could be explained by the notion that safety measures cannot be practices satisfactorily if the needed safety equipment are unavailable. This finding corroborates that of Jilcha and Kitaw (2016) which investigated the influence of inadequate safety equipment on industrial occupational safety on health innovation for sustainable development among industrial workers in Kastina State, Nigeria which found that inadequate safety equipment significantly influenced safety measures of industrial workers and by extension, constitute a barrier to practices towards safety measures. It is in tandem with that of Cloutier and Champoux (2016) whose study on the risk of injury and unavailability of safety equipment among sawmill workers in Quebec found that there is a high significant relationship between unavailability of safety equipment and risk of injury and if there are no safety equipment, the risk of injury increased among the study group. It is as well in consonance with Girard et al. (2015) whose research work on Personal Protective Equipment (PPE) as a preventive measure of accident among workers in Ilorin, Nigeria revealed that unavailability of hearing protections affected the noise exposure of the workers. The result of this study also revealed that there was a significant relationship between availability of safety equipment and practice of safety measures among sawmill workers [$F(1, 400) = 5969, p < 0.05$]. This finding of the study is consonance to that of Douwes and Pearce (2019) which investigated the influence of availability of safety equipments on safety practices of sawmill workers in New Zealand and found that unavailability of safety equipments significantly influenced safety practices of the sawmill workers. This supports Nangih (2017) who conducted a study on safety practices and performance of servicing companies in Port Harcourt, Nigeria and revealed a statistically positive correlation between safety practices and the performance of oil and gas companies. This was attributable to regular provision and use of safety equipment. The finding of this study could be explained that unavailability of safety equipment decreases practice of safety measures among the sawmill workers.

Furthermore, the result of this study showed that there was a very high negative relationship between workers' negligence and practice of safety measures ($r = -0.91$). This finding may not be surprising because anywhere non compliance exist, safety practice becomes a mirage. This finding is similar to those of Manjula and De-Silva (2014) whose research indicated that workers negligent attitude influenced their behaviours and constituted a barrier. The tested hypotheses showed a significant relationship between workers' negligence and practice of safety measures [$F(1, 400) = 2024.84, p < 0.05$]. This finding of the study is in terms with Jerie (2019) whose investigation on the implication of negligence attitude on safety measures of sawmill workers in Zimbabwe revealed that negligence has a direct implication on safety practice of sawmill workers. Similarly, it conformed to the study of Olusoga and Fagbemi (2018) which examined the influence of negligence on health and safety management practice of building construction workers in Akure, and reported that negligence was identified as a major barrier that hinders safety practice among the respondents. This finding of the study therefore indicated that practice of safety measures among sawmill workers decreased when negligence increased.

CONCLUSION

Based on the findings of the study, it was concluded that the barriers to the practice of safety measures among sawmill workers in Rivers State were level of knowledge about safety, unavailability of safety equipment and workers' negligence. Also, knowledge, availability of safety equipment and workers' negligence had statistical significant relationship with safety practices.

RECOMMENDATIONS

The following recommendations were made based on the findings:

1. Safety personnel should organize safety training for sawmill workers in Rivers State from time to time to keep them updated about current safety practices in sawmilling, this will help to sustain a good knowledge of safety among them.
2. The managers in the sawmill industries should ensure adequate procurement of safety equipment to avoid any lapses in safety practices brought about due to unavailability of safety equipment.
3. The sawmill workers should make conscious effort on their part to ensure they do not approach safety practices with negligence as such act could be detrimental to their health.
4. The managers in the sawmill industries should ensure all personal protective devices are provided for all workers and such are also used always during work to ensure adequate safety of the workers in the industry.

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