

**AN ASSESSMENT OF OCCUPATIONAL HEALTH AND SAFETY AMONG WORKERS  
IN A TIMBER MARKET /SAWMILL IN BAUCHI, NORTH -EASTERN NIGERIA**\*<sup>1</sup>Titus Onyi, <sup>2</sup>Abdulkadir Isa Itopa, <sup>3</sup>Rebecca Titus<sup>1</sup>Medical Academic, Department of Public Health/Community Medicine, College of Medical Sciences, Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria.<sup>2</sup>Directorate of Information Communications and Technology, DICT, Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria;<sup>3</sup>Researcher at the Department of Political Science, Ignatius Ajuru University of Education, Port Harcourt, Nigeria.**\*Corresponding Author: Dr. Titus Onyi**

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**ABSTRACT**

**Background:** Occupational Health and Safety, OHS, prevent work-related accidents, injuries and deaths especially at the timber markets and saw mills with enormous amount of job hazards. Past studies on OHS in the wood processing industries in Nigeria focused on the South-Western part of Nigeria. The study therefore assessed OHS in Bauchi timber market/saw mill, which is a major small industry that provides vital economic activities in Bauchi, North-East Nigeria. **Objectives:** The study assessed: the utilisation of Personal Protective Equipment (PPE); the workplace safety training and the workplace safety rules and policy at the study site. **Method:** Self-designed questionnaires (structured and open-ended) were filled following face-to-face interviews with 121(N=500) consented respondents. Data was analysed using SPSS version 23 and Microsoft Excel 2013. **Results:** Most(52.1%) of the respondents did not use any Personal Protective Equipment, PPE. Only 2.5% utilised all the PPE for full personal protection. Most(95.9%) of the respondents had no previous training on workplace safety. Only 0.8% of the respondents had work place training through workshops organised at the market/saw mill. There were no clear operational work place rules/safety at the study site with majority(67.8%) of the respondents having no knowledge of safety rules/policies at the timber market/saw mill. **Conclusion:** The study found that there was poor awareness and utilisation OHS at the Bauchi timber market/saw mill. This underscores the need for Nigeria government and other relevant bodies to address the OHS at the study site. This will optimize the health of the traders and workers and increase the productivity from the timber market/saw mill.

**KEYWORDS:** Occupational Health and Safety, work place, safety, timber market, Saw mill.**1.0 INTRODUCTION**

Occupational health includes the actions for occupational medicine, occupational hygiene, occupational psychology, safety, physiotherapy, ergonomics, rehabilitation, etc. Safety on the other side involves the protection of people from physical injury.<sup>[1],[2]</sup> Occupational Hygiene Association (IOHA) defines occupational health and safety (OHS) as the science of anticipation, recognition, evaluation and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment.<sup>[3]</sup> OHS involves the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations, safety precautions, safety communication measures and personal protection equipment.<sup>[4]</sup>

The World Health Organisation, WHO, considers OHS a priority for health promotion<sup>[5]</sup> especially in industries where occupational injuries alone account for more than 10 million Disability-Adjusted Life Years (DALYs) lost, or healthy years of life lost whether to disability or premature death, and 8% of unintentional injuries worldwide.<sup>[6]</sup>

In the wood and timber related industries, which make significant contribution to the Nigeria economy, there is associated enormous level of occupational accidents, diseases and deaths. These have huge health and economic implications on the industry/market.<sup>[7]</sup> Therefore, there is the need for studies on workplace safety at the market/industry to ensure continuous improvement in these industries in terms of health and productivity.<sup>[8]</sup> Such studies will provide data that is currently lacking for adequate OHS management in

developing countries<sup>[9]</sup> including Nigeria. Many studies on OHS in sawmill and timber industries in Nigeria have focused on the southern part of Nigeria, where most of the saw mills and timber markets are situated. The Timber market/sawmill in Muda Lawal, Bauchi, North-Eastern Nigeria, is a key industry that provides employment for about 500 workers and provides timber products for Bauchi State and beyond. Only very few studies have been conducted on OHS at the timber market/saw mill. The present study was therefore aimed at assessing the occupational health and safety practices among the workers at the Bauchi timber market/saw mill. The specific objectives of the study were: the utilisation of Personal Protective Equipment, PPE at the Bauchi timber market/saw mill; the workplace safety training among the traders and workers at the study site and the workplace safety rules and policy at the study site. The research questions were: 1. What are the Personal Protective Equipment (PPE) utilized by the traders/workers at the Bauchi timber market/saw mill? 2. What workplace safety trainings were undergone by the workers at the Bauchi Timber market/Saw mill? 3. What are the workplace safety rules and precaution at the Bauchi Timber market/Saw mill?

The study identifies the safety needs of the workers of the industry/ market. This will in turn influence possible interventions aimed at improving the OHS of the industry and in turn lead to increased production from the timber market/saw mill.

## 2.0 METHODS

### 2.1 The setting

The Bauchi timber market/saw mill is located in Bauchi metropolis in North-Eastern Nigeria. Bauchi State is located on the geographical coordinates of 10.314159° N, 9.846282 ° E<sup>[10]</sup>. The timber market/saw mill is a combination of a timber market and a saw mill that are adjacent to each other and is located at the Muda Lawal area of Bauchi metropolis near the Muda Lawal Market in Bauchi metropolis. The economic activities at the timber market/saw mill are privately owned but regulated by the Bauchi State Government. It provides employment for about five hundred workers—mostly timber traders. Other workers include saw mill machine operators, drivers and labourers etc. The study was conducted between August and October 2017.

### 2.2 Study design

The study was a cross-sectional survey that utilised self-designed questionnaires (structured and open-ended). They were filled following face-to-face interviews with consented respondents.

### 2.3 Population for the Study

The study population consisted of an estimated 500 workers that work at the timber market/saw mill.

### 2.4 Sample and Sampling Technique

A sample of 121 out of 500 workers, who were randomly selected, was utilised for the study. This was a higher sample size than the calculated sample size using Taro Yamane formula for sample size estimation.

### 2.5 Research tool

Data was collected using questionnaires that were filled during face-to-face interviews on all the respondents. The questionnaires were designed based on the objectives of the study and themes identified from the review of literature. In order to obtain a wide range of information, the questionnaires were a combination of structured questions and open-ended questions.

### 2.6 Validity of research tool

Two university academics, in the department of Public Health, reviewed the questionnaires for content validity. Modifications were made based on the feedback from these reviewers. After due corrections, the final questionnaires were adopted for the study. The questionnaires were filled by research assistants following face-to-face interviews with the consented respondents.

### 2.7 Data analysis

Data was analysed using SPSS version 23 software and Microsoft Excel 2013.

### 2.8 Research ethics

The ethical approval for the research was obtained from the Bauchi State Ministry of Health. Permission was also obtained from the timber market/saw mill union heads. Participation in the research was not compulsory. Consent was sought from each respondent and their records were anonymous.

## 2.0 RESULTS

All the 121 copies of questionnaires were correctly filled through face-to-face interviews that were aided by research assistants. These 121 copies were utilised for the study.

### 3.1 Socio-demographic profile of the participants

**Table 1: Socio-demographic profile of the participants.**

<b>SEX</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Male	121	100.0
Female	0	0
Total	121	100
<b>AGE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Less than 20 years	11	9.1
20-29years	55	45.5
30-39years	25	20.7
40-49years	8	6.6
50-59 years	11	9.1
60 years and above	11	9.1
Total	121	100.0
<b>MARITAL STATUS</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Single	37	30.6
Married	80	66.1
Divorced	4	3.3
Total	121	100.0
<b>ETHNICITY</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Ibo	22	18.2
Hausa	99	81.8
Total	121	100.0
<b>HIGHEST EDUCATIONAL QUALIFICATION</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
No formal education	18	14.9
First School Leaving Certificate	27	22.3
WAEC/NECO SSCE/GCE	62	51.2
HND/BSC	14	11.6
Total	121	100.0
<b>JOB TYPE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Labourer	23	19.0
Wood trader	60	49.6
Machine operator	29	24.0
Vehicle Driver	9	7.4
Total	121	100.0
<b>JOB DURATION</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Up to 6 months	5	4.1
6 months-1 year	2	1.7
1-5 years	23	19.0
6-10 years	37	30.6
11 years and above	54	44.6
Total	121	100.0

From table 1. above, all the respondents were males. This male dominance may be due to the masculine nature of the jobs at the timber market/saw mill.

Most(45.5%) of the respondents were in the age bracket of 20-29 years. This was followed by the respondents of the age bracket of 30-39 years(20.7%).The least response was from the age bracket of 40-49%(6.6%).The response showed a dominance of young and active labour force in the timber market/saw mill.

Majority(81.8%) of the respondents were Hausas.18.2% respondents were Ibos.

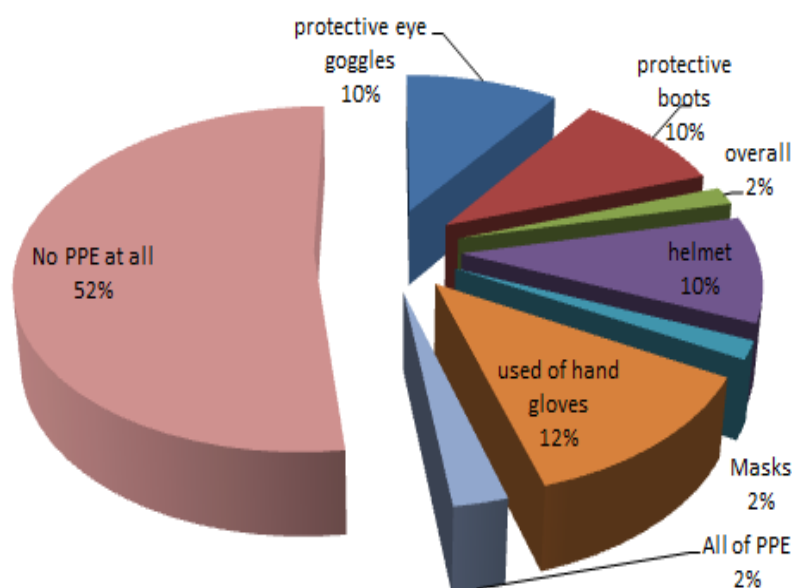
About half(51.2%) of the respondents had the Senior Secondary School Certificate (SSCE) or General Certificate Examination(GCE) conducted by the West African Examination Council(WAEC) or the National Examination Council(NECO) as their highest education qualification.14.9% of the respondents had no formal education.22.3% and 11.6% of the respondents had First School Leaving Certificate and Higher National Diploma/Bachelor's degree their highest educational qualifications respectively.

Most (49.6%) of the workers were wood traders.19.0% and 24.0% respondents were labourers and machine operators respectively. The least(7.4%) response was for vehicle drivers.

Most (44.6%) of the respondents had worked for 11 years or more. 1.7% had worked for 6 months to 1 year. 30.6% had worked for 6-10 years. Overall, most of the respondents had long working experience.

### 3.2 The utilisation of Personal Protective Equipment, PPE.

The utilisation of Personal Protective Equipment, PPE, among the respondents is shown in Figure 1 below.



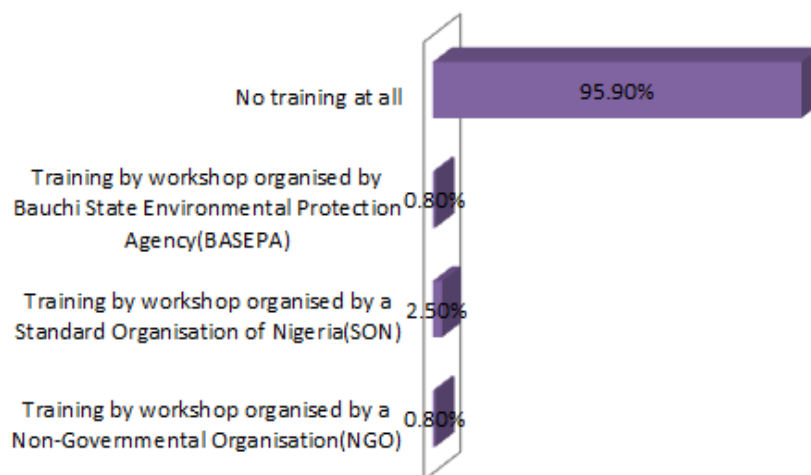
**Figure 1: Response to the utilisation of Personal Protective Equipment among the workers (Researcher's computation 2018 using SPSS version 23 and Microsoft Excel 2013).**

From the pie chart above, most (52.1%) of the respondents did not use any of the Personal Protective Equipment, PPE. 12.4% of the respondents used hand gloves; 9.9% used protective eye goggles, boots and helmet each; 1.7% of respondents used masks and overall

each. Only 2.5% of respondents used the whole PPE together for optimal protection. Generally, there was a poor utilisation of PPE among the respondents at the study site.

### 3.3 Work place safety training

The response to workplace safety training is presented in figure 2 below.



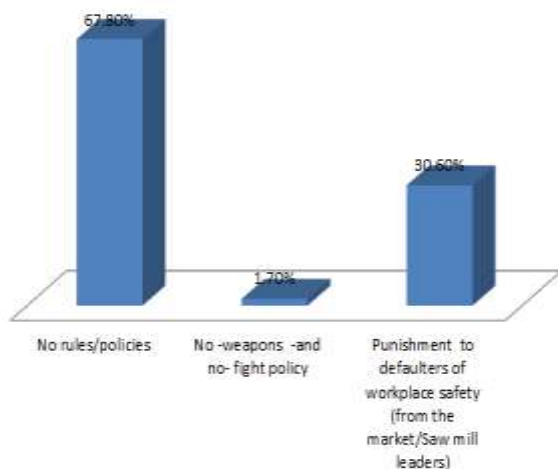
**Figure 2: Response to workplace safety training (Researcher's computation 2018 using SPSS version 23 and Microsoft Excel 2013).**

From the bar chart above, most (95.9%) of the respondents did not receive any training on workplace safety. 0.8% of the respondents had received training on workplace safety through workshop organised by Bauchi

State Environmental Protection Agency (BASEPA) and a Non-Governmental Organisation, NGO each. 2.5% of respondents had received safety training from the Standard Organisation of Nigeria (SON).

### 3.4 Work place rules and policies

The response to workplace rules and policies is shown in figure 3 below.



**Figure 3: Response to work place rules and policies(Researchers' computation 2018 using SPSS version 23 and Microsoft Excel 2013).**

From the bar chart above, most respondents said that there were no work place rules/policies at the timber market/saw mill. 1.7% of the respondents said that there was a non-weapon, no-fight policy to reduce occupational injuries at the timber market/saw mill. 30.6% of the respondents said that there was a form of punishment from the leaders to defaulters of the workplace safety at the study site.

### 3.0 DISCUSSION

The study assessed the occupational health and safety among workers at the Bauchi Timber market/Saw mill. The study established the poor use of Protective Personal Equipment among the respondents. The PPE include crash helmet, protective eye goggles, safety boots, ear plugs for excess noise and overalls, etc. The findings are similar to the observations made by<sup>[11]</sup> in South Western Nigeria. However, the importance of use of PPE cannot be over emphasised against the background of the enormous prevention of workplace injuries and deaths achieved through the use of PPE. Although ignorance and poverty play key roles in the level of the utilisation of these useful tools, 'good safety is good business.'<sup>[12]</sup> The use of these PPE in the industrial work place is a survival strategy which should be sustained for the prevention of occupational accidents and deaths. Unfortunately, only 5-10% of workers in developing countries have adequate access to proper OHS.<sup>[13][14]</sup> Hence,<sup>[15]</sup> advised for the integration of safety culture, for example through the use of PPE, for safety. It is therefore pertinent to integrate the use of PPE in the safe culture of the timber market/saw mill in order to obtain the benefits of the PPE.

The study found that there was deficiency of work place training among the respondents. The finding is closely

related to the study of<sup>[16]</sup> which highlights serious gap in work place trainings in the developing countries, where work place trainings have not been prioritized and therefore disregarded.<sup>[17]</sup> Work place trainings for industrial workers help in the enlightenment of work place safety and practice.<sup>[18][19][20][21]</sup> advises that the implementation of low-cost work place practices and hazard control through basic training and work place accidents. Such trainings on work place safety for the timber traders/workers should be addressed not only by government, but also in synergy with professional bodies, trade unions and educational institutions. This will ensure that safety culture<sup>[22]</sup> becomes part of timber market/saw mill.

The study also established that there is lack of operational work place safety rules / policy at the timber market/saw mill. This finding is similar to the finding of.<sup>[23][24]</sup> The Inspectorate Division of the Federal Ministry of Labour and Productivity of Nigeria enforces OHS regulation in Nigeria. The regulation is based on the Factories Act (1958, 1987 & CAP.126 L.F.N.1990, CAP. F1 L.F.N.2004.<sup>[25]</sup> However, the law is not robust in coverage and its implementation has poor.<sup>[25]</sup> This underscores the need for the Nigeria government to review this extant law in relation to the present global and industrial realities. This will in turn influence the work place policies at the timber market/saw mill. It is important to implement these regulations through the appropriate channels including the stakeholders and market and industrial leaders.

The study was carried out within the scope of some work place safety. It did not cover other aspects of OHS, for example it did not explore the occupational hazards and injuries at the study site. However, the study provides useful information on occupational work place at the timber market/saw mill. Further studies are needed to explore other aspects of OHS at the study site.

### CONCLUSION

The study suggests that there was a poor awareness and practice of occupational health and safety at the Bauchi timber market/saw mill. This underscores the need for a holistic intervention to address the occupational health and safety practice at the timber market/saw mill. The Bauchi State government of Nigeria, the Federal Ministry of Labour and Productivity of Nigeria, the National Council for Occupational Safety and Health, professional bodies, Non-Governmental Organisation (NGOs) and Stake holders should all collaborate to address the deplorable state of OHS at the Bauchi State timber market. This will improve the health of the workers and increase productivity from this vital market /industry.

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