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INDUSTRIAL ACCIDENTS AND SAFETY MEASURES IN THE OIL MILL SECTION OF THE NIGERIAN INSTITUTE FOR OIL PALM RESEARCH, BENIN CITY, NIGERIA

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Abstract

This research study focused on the common types of industrial accidents, causes, safety measures and the plausible consequences to employees and the management of the Oil Mill section of the Nigerian Institute for Oil Palm Research (NIFOR). Reduction of industrial accidents to barest minimum and the constant improvement of work role is possible through appropriate attitude by industrial workers and the management towards safety precautions and measures. The causes of industrial accidents often lie in either unsafe conditions or unsafe acts. A total of 30 respondents which consisted 5 management staff and 25 production workers was the population as well as the sample of the study. Mean statistics and Standard Deviation were used to analyze the research questions that guided the study. The result of the study showed that: falls accident type occurs frequently and accident due to unsafe conditions were in a low rate. Following from the result of the study, it was recommended that the oil mill workspace should be kept clean regularly. On-the-job workers should always wear protective equipment and stop the use of defective equipment.

Keywords: Industrial, accident, unsafe conditions; workers

INTRODUCTION

It is now recognized that most industrial accidents are foreseeable and that they can therefore be prevented by appropriate safety measures (Akinseinde 1998). However, there are as many possible degrees of safety as there are risks but the degrees of safety may vary depending on physical circumstances and human acts. Therefore, the required degree of safety has to be checked at regular interval so as to prevent frequency of the accidents which may result to injury, death, permanent/temporary disability, fall in production, payment of compensation, loss of time and damage to industrial equipment.

The oil mill section which is the focus of the study is one out of the six sections in NIFOR. It has a manager as the head of the overall section and a production engineer as the head of the production section. Besides, the section is made up of five management staff and twenty-five production workers respectively. In the production section, there are machines, equipment, facilities and tools with hazards and risks inherent in their use.

Problem Statement

There is the growing interest in industrial safety and the need to reduce injury, death and property loss (Chiejile, 2001). The causes of accidents remain unacceptably high in many industry and research establishments. It seems that the Nigerian Institute for Oil Palm Research has not done enough comprehensive research into accident causes and preventive measures.



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If the effect of accident can cause great loss, it is necessary to reduce industrial hazards and risks. This study, which focused on the oil mill section of the Nigerian Institute for Oil Palm Research, Benin-City, Nigeria where evidence from the statistical accident record in safety division had shown that on-the-job accident was highest, intends to find lasting solutions that will eliminate or reduce to the barest minimum the frequency of industrial accidents.

Aim

The aim is to determine the safety measures that will be adopted to curb the industrial accidents.

Objectives

1. To identify the various types of industrial accidents,
2. To identify their causes and the frequency of occurrence,
3. To identify common accident preventive techniques

Significance of the Study

This study will reveal the effect of accident on Organizational output and provide rationale for the introduction of safety measures and/or programme designed to prevent industrial accidents.

The study will be useful to technical students, teachers, principals trainees, factory workers, safety officers, industry based supervisors, foreman and company/industrial establishment management staff.

Research Questions

1. What are the common types of industrial accidents in the oil mill section of Nigerian Institute for Oil Palm Research, Benin-city, Nigeria?
2. What are the common causes of industrial accidents in the Oil Mill Section of Nigerian Institute for Oil Palm Research, Benin-city, Nigeria?
3. What are the common accident preventive techniques in the Oil Mill Section of Nigerian Institute for Oil Palm Research, Benin-city, Nigeria.

Scope of the Study

The study was restricted to the oil mill section of the Nigerian institute for oil palm research, Benin-city, Nigeria?

Population and Sample

The population for this study consisted of all management staff and production workers in the oil mill section of the Nigerian institute for oil palm research, Benin-city. Altogether, there are five (5) management staff and twenty-five (25) production workers. The population of the workers was not large and the whole population was used for the study. As a result, there was no sampling.



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Instrument for Data collection

The instrument used for this study was a questionnaire designed "Accidents and Preventive measure Questionnaire" (APMQ).

The questionnaire was designed to elicit from the respondents the types of accident that occur, the extent to which accidents occur in their section and the accident preventive techniques adopted.

The questionnaire consisted of three sections. Each section was intended to elicit a set of information from the respondents.

Validation of the Instrument

The instrument was face validated by four experts in industrial safety department; two academic staff from University of Nigeria, Nsukka and two from Nnamdi Azikiwe University, Awka, Nigeria and one measurement and evaluation expert from University of Benin, Benin-city, Nigeria. Their corrections and amendments were made before producing the final draft of the instrument.

Method of Data Collection

The "Accidents and Preventive Measure Questionnaire" (APMQ) was used for data collection. The distribution of the questionnaire was carried out by the researcher. A summed number of thirty (30) copies of questionnaire distributed for the study were correctly filled and returned. This represents 100 per cent return.

Method of Data Analysis

A survey research design was adopted for this study. A structured questionnaire was used for data collection. The 38-item questionnaire was established at a reliability of 0.89. Three research questions guided the study. Mean statistics and Standard Deviation were used to analyse the data collected. The respondents were expected to indicate their level of acceptance of Not Often or Often of the variables by checking (√) on a five point Likert scale. The decision rule is as follows:

Range		Point	Real Limit
Highly Not Often	(HNO)	5	4.50 - 5.00
Not Often	(NO)	4	3.50 - 4.49
Moderately Often	(MO)	3	2.50 - 3.49
Often	(O)	2	1.50 - 2.49
Very Often	(VO)	1	1.00 - 1.49

Variables with mean scores of 3.50 and above were considered Not Often while the variables with mean scores of less than 3.50 as cut-off point were considered Often.



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Results of the Study

Table 1 Mean and Standard Deviation of responses as regard the common types of industrial accidents in the oil mill section of Nigerian Institute for Oil Palm Research, Benin-City, Nigeria.

S/N	VARIABLES	X	SD	REMARK
1.	Falls	3.37	0.12	Often
2.	Falling objects	3.67	0.11	Not Often
3.	Losing finger or thumb	3.93	0.11	Not Often
4.	Electric shock	3.83	0.10	Not Often
5.	Electrocution	3.79	0.10	Not Often
6.	Gas Poison	3.65	0.12	Not Often
7.	Fainting	3.88	0.10	Not Often
8.	Extreme temperation	3.80	0.10	Not Often
9.	Exposure to radiation energy	3.56	0.10	Not Often

The analysis presented in Table 1 showed that the mean scores of the respondents on the nine Variables (common types of industrial accidents) ranged from 3.37 to 3.88. All the variables have mean scores of 3.50 and above and were considered not often common types of industrial accidents that occur except variable 1 which had a mean score of 3.37 and was considered often that is common type of industrial accident that occurs frequently.

Table 2 Mean and Standard Deviation of responses as regard the types of burns industrial accidents that occurred in the oil mill section of Nigerian Institute for Oil Palm Research, Benin-City, Nigeria.

S/N	VARIABLES	X	SD	REMARK
10.	Electric Current burn	3.89	0.11	Not Often
11.	Chemical burn	3.78	0.12	Not often
12.	Steam burn	3.67	0.11	Not often
13.	Fire burn	3.33	0.10	Often

Table 2 revealed that the mean scores of the respondents ranged from 3.33 to 3.89. All the variables had mean scores of 3.50 and above and were considered not often types of burns accidents that occur while one variable (fire burn) had a mean score of 3.33 and was considered often meaning that fire burn industrial accident occurs frequently.

Table 3 Mean and Standard Deviation of responses as regard the unsafe conditions in the oil mill section of Nigeria Institute for Oil Palm Research, Benin-City, Nigeria.

S/N	VARIABLES	X	SD	REMARK
14.	Unguarded Machinery	3.61	0.12	Not Often
15.	Un-insulated live electric cable	3.98	0.11	Not often
16.	Poor House-keeping	3.89	0.11	Not often
17.	Harmful dusts	3.52	0.10	Not Often
18.	Improper ventilation	3.67	0.13	Not Often
19.	Improper Illumination	3.93	0.11	Not often

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Table 3 represents' mean scores for the variables on unsafe conditions. The mean scores ranged from 3.52 to 3.98. All the variables had mean scores qualifying them not often having been scored more than 3.50 which is the cut-off point.

Table 4 Mean and Standard Deviation of Responses as regard the unsafe acts in the oil mill section of Nigerian Institute for Oil Palm Research, Benin-City, Nigeria.

S/N	VARIABLES	X	SD	REMARK
20.	Horseplay	3.70	0.11	Not Often
21.	Failure to use protective equipment	3.33	0.13	Often
22.	Using defective tools	3.50	0.10	Not Often
23.	Using defective equipment	3.00	0.11	Often
24.	Operating equipment without authority or clearance	3.83	0.11	Not Often
25.	By-passing safety devices by removing or disconnecting them	3.33	0.12	Often
26.	Working on moving or dangerous equipment	3.83	0.10	Not Often
27.	Smoking in dangerous areas	3.98	0.11	Not Often

The result of the analysis as shown in Table 4 revealed that the mean scores of the respondents on the eight variables ranged from 3.33 to 3.99. By the mean scores therefore, five variables were considered not often while three were considered often having been scored less than 3.50 which is the cut-off point.

Table 5 Mean and Standard Deviation of responses as regard the accident prevention techniques adopted in the Oil Mill Section of Nigeria Institute for Oil Palm Research, Benin-City, Nigeria.

S/N	VARIABLES	X	SD	REMARK
28.	Enforcement of Safety Practices	3.35	0.10	Often
29.	Training in safety Operational Procedures	3.40	0.12	Often
30.	Supervision of Work activities	3.44	0.10	Often
31.	Seminar/Symposium on safety	3.32	0.11	Often
32.	Identifying and eliminating hazards in the establishment	3.39	0.10	Often
33.	Organization of safety campaign	3.33	0.12	Often
34.	Employee co-operation in accident prevention	3.45	0.11	Often
35.	Provision of Safety gadgets	3.90	0.11	Not often
36.	Good plant layout	3.50	0.13	Not Often
37.	Appropriate Planning for accident prevention	3.37	0.11	Often
38.	Getting to the source of causes of the accident and report finding honestly	3.36	0.10	Often



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Analysis in Table 5 revealed that variables on Provision of Safety gadgets and Good plant layout had mean scores of 3.90 and 3.50 respectively and were considered not often indicating not frequently adopted accident preventive techniques. However, Enforcement of Safety Practices ; Training in safety Operational Procedures ; Supervision of Work activities ; Seminar/Symposium on safety; Identifying and eliminating hazards in the establishment; Organization of safety campaign; Employee co-operation in accident prevention; Appropriate Planning for accident prevention and Getting to the source of causes of the accident and report finding honestly variables had mean scores below 3.50 and were considered often meaning frequently adopted accident preventive techniques.

FINDINGS AND DISCUSSION

The research study and on-the-spot assessment of the oil mill environment reveal the followings:

1. Falls delete is the accident type occurs frequently.
2. Poor plant layout
3. Accident due to unsafe conditions were totally in a low rate
4. There was an extreme temperature in the production area of the mill. This makes the workers to continuously feel dizzy and uncomfortable (on-the-spot assessment)
5. Accident preventive techniques adopted by the management have help to reduce the frequency of the on-the-job accidents.
6. Supervisors do not play their role efficiently in accident prevention and the promotion of occupational health work life.

The findings of the study indicated that majority of the employees and the management staffs of the oil mill section of NIFOR, Benin-City, Nigeria were categorical in their Opinions regarding the accident types and conditions that frequently caused on-the-job accidents. The findings of the study also indicated the respondents' agreement as regard the accident preventive techniques adopted.

The evidence gathered from Table 1 indicated that greater numbers of the accident types were not often recorded in the area of study. It should be noted that the respondents viewed falls (accident type) to have occurred frequently. These findings aligned with the findings of (Ofulue 2009) and (Okoro 1999) who in their separate studies discovered that falls is the most frequent type of accident that occurs in schools and colleges workshops.

They both went further to attribute the cause to poor workshop/housekeeping. The findings in safety in technical College laboratories and workshops are consistent with (Ukor 2000) who also found the falls accident type happening frequently. Probably, good equipment and machines layout was not adopted and that the management pays little or no attention to getting to the source of causes of accident and reporting findings honestly as well as profiling immediate solutions to avert future occurrence.



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What has become apparent also from the findings of this study was that burn types of accidents rarely occur. And this could be as a result of appropriate planning for chemical, gas and electric burn accident prevention. However, there is indication from the study that fire burn preventive measures have not been adequately harnessed as it was viewed to occur frequently. No wonder Ekpu (2002) stated in a similar study that fire burn cannot be totally avoided in oil milling centres. With reference to the data regarding the unsafe acts as causes of accidents, it was found that majority of the workers had the view that failure to use protective equipment and the use of defective equipment was high. This could be because of carelessness and negligence of safety measures and precautions on the part of the workers.

Generally, there was a consensus of opinion from the respondents that accidents preventive techniques which include provision of safety gadgets and good plant layout are not frequently adopted. Probably, the management did not implement efficiently these aspects of accident prevention techniques.

Undoubtedly, prevention of on-the-job industrial accidents and promotion of health work life is depended on the safety knowledge and attitudes on the workers in particular and the management in general. Safety as Ebiegbe (2002) puts it, is not a destination but a process.

Implications of the Study

Industrial organisations, establishments and college managements should show absolute seriousness and total commitments to the causes of on-the-job accidents so as to improve and constantly ensure the safety and health of work.

CONCLUSION

It is the overall duty of industrial workers to reduce and prevent industrial accidents (Evis, 2004). In this study, various accident types, common causes of accidents and measures of preventing industrial accidents have been highlighted. From the research findings, it has been revealed that in order to constantly improve safety and health of work in the oil mill section of the Nigerian Institute for Oil Palm Research, both the employers and the employees should exhibit a high degree of appropriate attitude towards the eradication of the causes of on-the-job accidents. This will no doubt help to maintain continuous relative output of production, improve work life, and reduce litigation and payment of compensation to the workers (Donnelly 1980). Also increase of cost and time loss in training another worker into the new job should be considered as disadvantages on industrial accidents.

Recommendations

In the light of the findings, the following recommendations are made which if implemented will help to reduce to the barest minimum the frequency of industrial accidents.

1. That the oil mill workspace should be kept clean regularly



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2. That on-the-job workers should always wear protective equipment and stop the use of defective and tools.
3. That the workers should not be left to perform a job for long hours without rest or shift. The researcher, therefore, recommend that the management should employ more skilled production personnel.
4. That adequate working space between one machine or/and equipment and another should be provided to avoid collision of subjects (workers) and objects (machines and equipment) during on- the-job work performance.

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