

# Worker's Utilization Of Preventive Measures Against Occupational Hazards In General Cotton Mill Onitsha, Anambra State

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## Abstract

Occupational injuries and work related diseases can cause direct cost, loss of jobs, loss of productivity, disability and indirect cost on families and the community. Personal protective equipment (PPE) can be a significant factor to determine workplace accidents and safety. Workers need to wear PPE to be protected from injury, disease and death caused by exposure to hazard in the work place. Compliance with safety measures among workers has been revealed to be inadequate. **AIM:** This study aims to examine causes of occupational hazard, assess workers knowledge and utilization of preventive measures. **Method:** The descriptive survey design was used to examine the workers' utilization of protective measures against occupational hazards. This study was carried out at General Cotton Mill, Onitsha, Anambra State. The factory mainly process raw cotton fibers into finished fabric or garment. In the course of production, effluent and poisonous dust fumes are released into the atmosphere which is carcinogens. The workers working in General Cotton Mill, Onitsha were used. Stratified random sampling technique was used to select 230 workers. Structured questionnaires were used to collect data. The data were entered using SPSS Version 11 for Windows, calculated with descriptive statistics and relevant tables were generated for better analysis. **Result:** findings revealed the cause of occupational health hazards to be: consumption of alcohol at work, smoking during work, lack of knowledge of possible hazard and not adhering to safety rules. The awareness rate for PPE was high, though most of them had incorrect knowledge of the suitable device for the different departments. Furthermore, it was revealed that the participants' choice of the use of protective device was wrong. **In conclusion,** though there was adequate supply of PPE in this study, workers' utilization was poor. Hence, measure aimed at promoting safety, routine staff training and adequate reinforcement of staff capacity training and proper use of PPE should be implemented. There should be appropriate health policy to guide workers' behavior at work, restriction on smoking and alcohol consumption for optimal function in the work place.

**Keywords:** occupational health, hazard, preventive measures, utilization.

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## I. Introduction

Prevention of occupational hazards is one of the many challenges facing occupational health professionals, management and workers in the work place. Occupational injuries and work related diseases can cause direct cost, loss of jobs, loss of productivity, disability and indirect cost on families and the community (Hildegunn, 2007; Aghera, 2013; Tadesse & Israel, 2016). There is huge impact on the suffering caused by injuries on the employers, employees, their families, and huge cost on the community and the government (Larsson and Field, 2002; Eid & Sewefy, 2009; Moradinazar, et al, 2013). Report showed that there are over 270 million occupational accidents causing over 2 million deaths annually (International Labour Organisation [ILO], 2002), while the United States spent \$177.2 billion on occupational injuries and 35 million working days were lost annually (Larsson and Field, 2002; Tadesse & Israel, 2016), with over 300 million non-fatal accidents recorded yearly (ILO, 2015).

The Cotton Mill Industry is a part of the textile industry, in which exposure to various health hazards happen. Workers' are exposed to different environmental factors especially polluted air with cotton dust, which can cause respiratory disease (Conn and Barclay, 2008; Daly, Gawenda, Hudson and perea, 2008). Other hazards include physical hazards, excessive noise, chemical, and biological hazards. It was discovered that 80% in the developing and newly industrialized countries are exposed to physical factors, noise induced hearing loss (Nelson et al., 2005; Ayele and Yemane, 2009; World Health Organization [WHO], 2009). Furthermore, the WHO (2009) emphasized that work-related diseases are very often difficult to determine due to the latency period to produce an obvious effect on the workers' health. By the time the disease is identified, it may be too late to do anything about it. More so, changing of jobs and some personal behavior (smoking tobacco or

drinking alcohol) might further increase the difficulty of linking workplace exposure to the disease outcome. However, it was argued that man cannot be given absolute protection against the human element. In addition, stipulations opined that factors such as environment, emotions, equipment and materials available and the process of how work is done can determine occupational health hazards (Runyan et al., 2008; Calvin & Joseph, 2009).

Personal protective equipment (PPE) can be a significant factor to determine workplace accidents and safety. Workers need to wear PPE to be protected from injury, disease and death caused by exposure to hazard in the work place. Compliance with safety measures among workers has been revealed to be inadequate (Haila, Engeda & Abdo, 2017). Nonetheless, some studies found that when workers are aware of the potential health risk in the workplace, achieving full compliance would be more likely to be attained. Conversely, workers' use of PPE is influenced by socio-demographics: level of education, behavioral, work environmental factors, existing policies and managerial factor (Jaiswal, 2012; Eyayo, 2014; Tadesse, Keleye & Assefa, 2016; Amulla, 2017). In Nigeria, unguarded machinery safety and preventive measures against occupational hazards, dangerous tools and poor workplace keeping are some of the most prevalent hazards in workplaces (Adebiyi, Charlse-Owoba & Eneyo, 2009). Notwithstanding, the role of the employer is to ensure safety within the immediate work environment and neighboring communities; by observing the laid-down government rules and regulations. But, some critics claimed that some problem are related to different workers' beliefs and attitudes towards certain occupational hazards, preventive measures and treating preventable diseases (Bergamini et al., 2009). Hence, measure aimed at promoting safety, routine staff training and adequate reinforcement of staff capacity training and drills should be implemented (Aluko et al., 2016).

Upsurge of occupational hazard in recent times coupled with many hours loss and revenue loss had become a worrisome development to the management in the factories in Nigeria. Work-related injuries present a major public health problem resulting in serious socio-economic consequences that could be prevented if appropriate measures are taken.

#### **Aim of this Study**

This study aims to assessed workers knowledge; examine factors that can influence utilization of preventive measures and utilization of preventive measures.

#### **Research Question**

- [1] How informed are participants about occupational hazards in their department?
- [2] What are the factors that can influence the utilization of preventive measures?
- [3] What is the level of utilization of preventive measures?

## **II. Materials And Method**

#### **Study Design**

The descriptive survey design was used to examine the workers' utilization of protective measures against occupational hazards. This method was deemed suitable for this study to depict the characteristics of the sample population.

#### **Study Setting**

This study was carried out at General Cotton Mill, Onitsha, Anambra State. The factory mainly process raw cotton fibers into finished fabric or garment. In the course of production, effluent and poisonous dust fumes are released into the atmospheres which are carcinogens.

#### **Target Population, Sampling and Sample Size**

The total number of workers working in General Cotton Mill, Onitsha was 500. The workers working in General Cotton Mill, Onitsha were used. Convenience sampling technique was used to select 230 workers. This was to ensure a good coverage of the sample population.

#### **Data Collection and Analysis**

Prior to the commencement of the study in the factory, three workers working in the factory were trained to be research assistants. This was to facilitate data collection process. The researchers made use of the various shifts (morning, afternoon and night) and move from one department to another to distribute the questionnaires. This was necessary for the successful retrieval of the questionnaires.

Structured questionnaires were used to collect data. The data were entered using SPSS Version 11 for Windows, calculated with descriptive statistics and relevant tables were generated for better analysis.

#### **Validity and Reliability**

Face and content validity were used to validate the questionnaire. Then, a test retest method was used to assess the reliability of the instrument.

**Ethical Consideration**

Approval to conduct the study was obtained from the management of the factory. Also, each participant's consent was obtained before questionnaires were distributed.

**III. Results**

**4.1 Demographic Characteristics of the Participants**

Table 4.1 demographic characteristics of the participants

Variable	Level	Frequency	Percentage %
Age Mean=29 Max=61 Min=29 SD=13.14	21-25	11	4.8
	26-30	53	23.0
	31-35	38	16.5
	36-40	35	15.2
	41-45	35	15.20
	46-50	32	13.9
	50+	24	10.4
	No Response	2	0.9
	Total	230	100.0
Gender	Male	172	74.8
	Female	58	25.2
	Total	230	100.0
Educational qualification	First School Leaving Certificate	29	12.6
	School Certificate: GCE, NECO, WAEC	109	47.4
	Diploma OND	35	15.2
	HND	19	8.3
	First Degree	35	15.3
	Others	3	1.3
	Total	230	100.0
Marital Status	Single	52	49.6
	Married	169	30.0
	Widowed	6	9.6
	No Response	3	10.8s
	Total	230	100.0

Two hundred and thirty questionnaires were distributed, retrieved and analyzed. The demographic characteristics of the participants were presented in Table 4.1. From the table, the modal age group distribution was age group 26-30 years, having the highest frequency of 53. The modal gender distribution was the male having the highest frequency of 172. The mode for the educational qualification distribution was realized as those participants who have school certificate qualification, having the highest frequency of 109, with mean of 38.3. The mode for the marital status distribution was realized as the respondents who are married, having the highest frequency of 169.

**4.2 Participants' Knowledge on the use of Safety Devices**

Table 4.2 Participants' utilization of Safety Devices

Device	Personalized		General	
	Frequency	Percentage %	Frequency	Percentage %
Helmet	188	81	42	18.3
Goggles	156	67.8	74	32.2
Face shield	162	70.4	68	29.6
Respirators	196	85.2	34	14.8
Gloves	98	42.6	132	57.4
Apron	56	24.3	174	75.7
Ear plugs	112	48.7	118	51.3
Barrier cream	36	15.7	194	84.3
Over all coats	21	9.1	209	90.9
Safety boots	43	18.7	187	81.3
Nose mask	145	63.0	85	27.0

Questions on the knowledge of protective devices were asked. The awareness rate was high, though most of them had incorrect knowledge of the suitable device for the different departments. Furthermore, it was revealed that the participants' choice of the use of protective devices was wrong. Helmets, respirator and gloves were wrongly used. This could be the situation because these three devices are needed for general purpose and not individual purpose in the factory. However, face shield (162), and nose mask (145) which tend to be of personalized purpose were correctly worn and utilized. Nonetheless, overall have lowest frequency (21) for personalized purpose and the highest frequency for generalized purpose.

**4.3 Participant' Knowledge of that factors that can influence the utilization of preventive measures**

Table 4.3 Participant' Knowledge of that factors that can influence the utilization of preventive measures

Hazard	Yes	Percentage %	No	Percentage %	Total
Consumption of alcohol at work	181	78.7	49	21.3	230
Smoking during work time	163	70.9	67	29.1	230
Lack of knowledge of possible hazards	155	67.4	75	32.6	230
Not adhering to safety rules	168	73.0	62	27.0	230

The cause of occupational hazard was represented in table 4.3. From the table, reasons were identified which include: consumption of alcohol at work, smoking during work, lack of knowledge of possible hazard and not adhering to safety rules. In the study, consumption of alcohol at work has the highest frequency (181) and followed by not adhering to safety rules (168). Also, lack of knowledge of possible hazards (155) was identified.

**4.4 Utilization of Personal Protective Devices**

Table 4.3 Utilization of Personal Protective Devices

Utilization of PPE	Frequency
I always use PPE	79
I occasionally use PPE	84
I never use PPE	67
Total	230

From the above table, most of the participants (151) do not use PPE, despite their opinion and knowledge of PPE on the above table.

**IV. Discussion**

Industrial health and safety concerns are becoming major challenges in Nigeria. There is high rate of low occupational hazards awareness, lack of workplace safety, problem of unimplemented health policy and inefficient safety management protocol. These have effect on employers, employees and the government; incurring huge cost. More so, injuries and disabilities still remain the major occupational health problems among factory workers (Eid & Sewefy, 2009; Aghera, 2013; Tadesse & Israel, 2016). Hence, prevention of occupational hazards, though challenging, is essential; through evaluating strategies and re-enforcing protocols and policies.

In the study, the socio-demographic characteristics revealed that 74.8% of the total populations were male. In line with a previous finding, 80.8% were male in a study done in textile factory, in Ethiopia. The implication of the gender as observed is that in Nigeria, men tend to be engaged in more hazardous jobs while the females are more assigned less physically demanding job. The study also demonstrates that majority (60%) have low level of education (i.e primary and secondary education). This is in line with other studies (Eyayo, 2014, Amulla, 2017). Low level of education can affect knowledge level. In this study, one third of the population demonstrated lack of knowledge with respect to the cause of occupational hazards. Some people claimed that some individuals might not have high level of education, but they are well skilled in what they do, as they tend to do it over long period of time. Nonetheless, low level of education can affect reasoning, ability to adopt health promotional measures at workplace (Obarhoro et al., 2020). Furthermore, a study opined that precautions are not adhered to by low level education workers, who are mainly at the work site.

Personal protective equipment is significant to determine workplace accident and safety. Full cooperation and compliance with laid-down protocols and health policies are important to achieve adequate health, reduced accident and enjoy the maximum benefits of personal protective equipment. Finding from the study revealed that 73% of the participants responded not adhering to safety rules that can lead to occupational health hazard. However, when their compliance level was assessed, it was discovered that though they have knowledge of what the different personal protective devices are, majority of them used them wrongly. In previous study, lack of PPE, inadequate quantity of PPE, lack of training on the use of PPE, lack of comfort etc; were the main reasons for non-compliance and reduced utilization of PPE (Obarhoro et al., 2020). Awosan et al. (2014) carried out a study on the knowledge and safety practices related to utilization of PPE, it revealed low utilization of PPE. Furthermore, Tadesse & Israel (2016) in their study found out that more than three-fourths of their research participants did not use PPE during work. They related it to poor provision of PPE from employers, and lack of awareness about its importance by the workers; and recommended that it is crucial that safety programs need given more attention, provisions made and use of PPE emphasized.

The findings of this study showed that there is adequate supply of PPE by the management but other factors like consumption of alcohol at work, smoking during work time and lack of knowledge of possible hazards have reduced compliance to using PPE properly. This might be due to the fact that abuse of mind altering substances; this might cause a change in the behavior and alter workers' concentration and performance. There can be danger to safety and reduced efficiency when these substances accumulate in the blood while at

work, thereby making them prone to mistakes, poor decision making and errors in judgment (Tadesse, Keleye & Assefa, 2016). As the result of this fact the industries' safety policy should consider control of substance abuse at workplace. Hence, it is important to know that when PPE are not properly used and proper precautions not taken, hazards can cause injuries and could lead to life-long disability (World Health Organization, 2008).

In conclusion, though there was adequate supply of PPE in this study, workers' utilization was poor. Hence, measures aimed at promoting safety, routine staff training and adequate reinforcement of staff capacity training and proper use of PPE should be implemented. There should be appropriate health policy to guide workers' behavior at work, restriction on smoking and alcohol consumption for optimal function in the work place.

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