



Availability And Level Of Personal Protective Equipment Utilization Among Building Construction Workers In Port Harcourt Metropolis In Rivers State

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ABSTRACT

The study investigated availability and level of personal protective equipment utilization among building construction workers in Port Harcourt Metropolis in Rivers State. The study adopted descriptive cross-sectional survey design. The population of the study was 4332 building construction workers in Port Harcourt Metropolis, Rivers State. The sample of the study was 800 building construction workers drawn through multi-stage sampling technique. The instrument for data collection was designed by the researcher and titled: Questionnaire on Determinants of Personal Protective Equipment Utilization among Construction Workers (QDPPEUCW). Mean rating and standard deviation were used to answer the research questions while One Way Analysis of Variance (Anova) was used to test the null hypothesis at .05 level of significance. The result of the study showed that building construction workers sometimes utilize personal protective equipment in Port Harcourt Metropolis, Rivers State, to a high extent ($\bar{x} = 2.67$), availability of PPE determined the utilization of personal protective equipment in Port Harcourt Metropolis, Rivers State ($\bar{x} = 2.70$). In addition, there was no significant difference ($p < 0.05$) in the mean ratings of the construction workers on the extent to which availability of PPE determine their utilization of personal protective equipment in Port Harcourt Metropolis, Rivers State. The study recommended amongst others that the government and stakeholders should organize pre-examination and training to construction workers on the basis of safety devices and utilization in order to improve health and safety well-being. Building construction workers should ensure that protective devices are available for other workers in the workshop and must be worn up before engaging in any form of operation.

Keywords: personal protective equipment, construction workers, building

INTRODUCTION

Utilization of safety devices are health promoting practices that reduce the chances of accidents and injury among workers. Personal protection equipment (PPE) and safety gadgets have existed for the purposes for which they were intended, but poor usage awareness has increased the rate of exposure to harmful working conditions or circumstances. Personal protection equipment has been used by people all over the world as a form of accident and safety prevention. Since the advent of industrialization and technology, the adoption of safety equipment has led to a decline in accidents and injuries among workers worldwide. A worker's risk of exposure to or contact with any harmful material or energy that results in injury, disease, or even death can be reduced by using or wearing safety gear, also called as protective devices (Alemie et al., 2020). To decrease occupational injury and disease in the workplace, using safety equipment or personal protection equipment is always required by law. Building construction is a

dangerous profession with many factors that can harm the health of construction workers, including the use of oils to disinfect wood during roofing, fumes, dust from exposure to cement and other materials, uncomfortable positions or postures involved in the work, especially when climbing, improper positioning of scaffolds, sawing of wood, and nailing etc.

According to Achalu (2019), all workers, including contractors and visitors, should have access to personal protection equipment or devices to prevent harm or illness. Pneumoconiosis, asthma, dermatitis, skin rashes, fractures, injuries, upper arm injuries, and eye difficulties are a few of the repercussions of inadequate use of safety gear on building construction workers. The risk of exposure to dangerous compounds that could cause injury has grown due to inadequate usage of personal protection equipment and infrequent use of safety devices.

According to Johnson et al. (2016), employees who haven't had any kind of training on workplace safety rarely use protective gear. Regular training is required to raise knowledge levels on the relationship between the use of safety equipment and workplace health and safety. A thorough understanding of PPE can be converted into safety habits, such as using PPE. The majority of workers in building construction organizations, such bricklayers, may obtain instruction from their engineer, who also offers safety training to older and newer apprentices. This would make it possible to give quality services and instill a changeable safety consciousness in their employees. In light of this, Tezera et al. (2017) published studies showing that employees with safety and health training were 4.5 times more likely to demonstrate good safety behaviors than employees who did not attend safety training. Workers in various industries experience fewer accidents thanks in large part to safety training. Employees who defend themselves better also train themselves more. They are at a great risk of injury due to the extremely poor safety and sanitation records of the building construction industry. Workers are close together when engaging in unscheduled tasks, which increases the likelihood of accidents (Nghah et al., 2022). Safety training makes it possible to recognize potential risks associated with painters and promotes safety habits even in the workplace. A strong grasp of safety procedures and the acquisition of new abilities are all improved by adequate training, which also helps to boost overall wellbeing.

Another aspect that affects worker safety procedures in construction organizations is the accessibility of personal protection equipment. It may be obvious that PPE are offered and supplied by the company, and superior personnel may use the tool wisely to ensure at work. Any piece of equipment intended to be worn or handled by a worker or other person while at work in order to protect against one or more dangers can be referred to as personal protective equipment (PPE) (Nghah et al., 2022). PPE includes safety boots, water-resistant clothes, safety helmets, gloves, goggles, high visibility clothing, personal fall restraints, respirators, and belt (Allan, 2009). The availability of this PPE likely determines effective safety practices especially in building construction. According to Alehegn et al. (2020), almost half of workers who utilize PPE do so because it is accessible on the job site. Construction workers who are aware of safety precautions are more likely to receive training before using PPE, according to Izudi et al. (2017). According to Nielsen et al., 2022 (2009), "people's actions and conditions at the workshop" constitute the foundation of site safety. The condition calls for the usage of PPEs that can forecast the degree of safety precautions. According to research by Nghah et al. (2022), the usage of PPEs on building sites increases safety to some level. Construction site safety can be increased by the contractors' policy of using protective equipment (PPE) and by providing workers with the necessary training. According to Nghah et al. (2022), that availability of personal protective equipment (PPE) by the building construction may lead to achievement of standardize safety practices. Moreover, most workers in building construction hardly use PPE to obtain safety for reasons not necessary. Studies of Tadesse et al. (2016) reported that construction workers felt uncomfortable with the use (20%) of PPEs. Refusal of using PPEs is tantamount to cause injuries among negligible workers. Effective use of PPE and availability minimize workplace exposures to accident thereby predict huge level of safety practices. The urbanization of Port Harcourt metropolis have brought about construction of houses as well as building that requires workers with carpentry, bricklaying, plumbing skills. It was observed that building construction workers make use of wood or stick to form scaffold for the construction of building which create the tendency for

accidents to occur and reoccur among workers with less consideration on the use of protective devices. Sequel to this background, this study seeks to investigate the determinants of utilization of personal protective devices among building construction workers in Rivers State.

Aim Of The Study

The aim of this study was to examine the availability and level of personal protective equipment utilization among building construction workers in Port Harcourt Metropolis in Rivers State.

METHODOLOGY

The area of the study Port Harcourt Metropolis. A descriptive cross-sectional survey design was adopted for this study. The population of study comprised of workers of building construction companies in Port Harcourt meropolis of Rivers State. A sample size of 800 construction workers was estimated using Taro Yamane. A multi stage sampling procedure was adopted to select the participant which was carried out in three stages. The instrument used for eliciting information was a self-structured questionnaire titled; “Questionnaire on Determinants of PPE Utilization among Construction Workers” (QDUPPECW). The instrument was validated by the supervisor and two other experts from the Department of Human Kinetics, Health and Safety Studies. Cronbach Alpha reliability method was employed to determine the degree of consistency of the validated instrument. The instrument was distributed to the participants with the help of three trained research assistants and they were briefed and guided on the purpose of the study. The instrument were retrieved immediately after the completion. 820 copies of the instruments were administered and 800 retrieved. Insrrument retrieved were coded and analyzed using Statistical Products for Service Solution (SPSS) version 25.0. Descriptive statistical tools such as mean, standard deviation were adopted to answer the research questions. However, the criterion mean was 2.5 while chi-square and ANOVA were used to test the null hypotheses at 0.05 leve of significance.

RESULTS

This chapter presented the results of the study. The results were presented based on the research questions and null hypotheses earlier presented in the study. The chapter was discussed under the following subheadings: presentation of result and summary of findings.

Table 4.1: Demographic Variables

Variables	F	%
Job Description		
Engineer	58	7
Foreman	204	26
Forklift	96	12
Labourer	442	55
Total	800	100
Wor Experience		
5 years and below	467	58
6-10 years	214	27
11 years adn abvoe	119	15
Total	800	100
Work Status		
Daily	421	53
Casual	163	20
Permment	216	27
Total	800	100

Research Question 1: *What is the level of personal protective equipment utilization among building construction workers in Port Harcourt Metropolis in Rivers State?*

Table 4.2: Mean and Standard Deviation of Utilization of Personal Protective Equipment among Building Construction Workers in Port Harcourt Metropolis in Rivers State

S/N	Items	Utilization (n = 800)		
		Mean (\bar{x})	SD	Remarks
1	I use personal protective wears	2.62	.56	Sometimes
2	I use coverall and aprons at workplace	2.58	.54	Sometimes
3	I use ear muff at workplace	2.53	.47	Sometimes
4	I use face shield at workplace	2.55	.51	Sometimes
5	I wear mask at the workplace	2.56	.52	Sometimes
6	I wear handgloves at the worplace	3.11	1.08	Regularly
7	I wear eye gogges at workplace	2.57	.53	Sometimes
8	I wear helmet at workpalce	2.61	.58	Sometimes
9	I war safety booth at workplace	2.78	.74	Sometimes
10	I wear reflector at workplace	2.75	.71	Sometimes
Grand Mean Rating		2.67	.62	

Table 4.2 showed the level of personal protective equipment utilization amogn building construction workers in Port Harcourt Metropolis in Rivers State. The result revealed that the grand mean rating of the building construction workers on their utilization of personal protective equipment is 2.67. This value is greater than the criterion mean (2.5). Thus, the building construction workers sometimes utilizes the personal protective equipment in Port Harcourt Metropolis, Rivers State.

Research Question 2: *To what extent does availability of personal protective equipment determine its utilization among building construction workers in Port Harcourt Metropolis in Rivers State?*

Table 4.3: Mean and Standard Deviation Analysis on the Extent Availability of PPE Determines its Utilization

S/N	Items	Utilization n = 800		
		Mean (\bar{x})	SD	Remarks
1	Availability of PPE enable me to use them	3.43	1.12	VHE
2	Coverall adn aprons are available and this encoruages its use at workplace	2.58	.53	HE
3	Ear muff are provided adn this allows for its use at workplace	2.63	.57	HE
4	Face shield adn mask are usually made available for use at workplace	2.54	.48	HE
5	The use of PPE is made mandatory at workplace	2.66	.62	HE
6	Eye goggles adn hand gloves are available and provided on request	2.89	.81	HE
7	Helmet are distributed at workplace for use	2.57	.52	HE
8	Safety booths are provided adn this necessitates its use	2.53	.47	HE
9	Reflectors are made available and this enables me to use it	2.62	.57	HE
10	I request and is given PPE at the work palce	2.55	.51	HE
Grand Mean Rating		2.70	.62	

Table 4.3 revealed the extent to which the availability of personal protective equipment determine its utilization among building construction workers in Port Harcourt Metropolis in Rivers State. The grand mean ratings of the building construction workers showed that to high extent, the availability of personal protective equipment determines its use utilization among building construction workers in Port Harcourt Metropolis in Rivers State. This is because the grand mean ratings ($\bar{X} = 2.70$) is higher than the criterion mean ($\bar{X} = 2.50$).

Hypothesis 1

There is no significant difference in the mean ratings of building construction workers on the extent to which availability determined the utilization of personal protective equipment in Port Harcourt Metropolis, Rivers State.

Table 4.4: Analysis of Variance (Anova) showing Differences in the Mean Rating of Building Construction Workers on Availability and Utilization of PPE

Source of Variation	Sum of Sources	Df	Mean Sum of squares	Cal F-value	p-value	Decision
Between	128.983	9	14.331	2.265	.562	p > .05
Within	4996.692	790	6.325			Ho ₁ is Accepted
Total	5225.675	799				

Not significant p > .05

Table 4.4 revealed that the mean ratings of building construction workers on the extent to which availability determined the utilization of personal protective equipment among them in Port Harcourt Metropolis, Rivers State does not significantly differ at .05 level of significance (Cal F-value = 2.265, Df = 9/799, p > .05). The result is that the null hypothesis is accepted while the alternate hypothesis was rejected. The result of this null hypothesis is that there is no significant difference in the mean ratings of building construction workers on the extent to which availability determined the utilization of personal protective equipment among them in Port Harcourt Metropolis, Rivers State.

DISCUSSION OF FINDINGS

Utilization of Personal Protective Equipment

The result of research question one (Table 4.2) revealed that building construction workers to a high extent utilizes personal protective equipment in Port Harcourt Metropolis, Rivers State. The result of the study may be because of the importance of the use of personal protective equipment in the building construction industry. This result is in agreement with Hardy and Nurhasanah (2019) that personal protective equipments are very important in building construction. This result may be due to the fact that building construction workers climb height and need to properly protect themselves. In addition, head protective devices such as safety helmets, or hat protect the head from injury as result of falling or protecting self from flying objects, eye goggles protects the eyes from harm, ear muff protects the ear from noise etc. Thus, several personal protective equipment are required to protect different parts of the body from harm. In a nutshell, the environment where building construction workers carry out their activities are hazardous and therefore requires the protective of parts of the body from harm and danger.

Availability and Utilization of Personal Protective Equipment

The result of research question two (Table 4.3) showed that availability to a high extent determines the utilization of personal protective equipment among building construction workers in Port Harcourt Metropolis, Rivers State. When the differences in the mean ratings of the building construction workers was subjected to One Way Analysis of Variance (Anova) (Table 4.9), the calculated F-value was found not to be statistically significant at .05 level of significance. This result is in agreement with Ngaruiya et al. (2019) that availability of personal protective equipment precedes its utilization. The finding of the study is also in agreement with Sambo et al. (2012) that availability of personal protective equipment significantly predict its utilization. The result of the present study may be due to the fact that the availability of personal protective equipment is very important in building construction companies and

there are usually provided due to regulations in the industry. Thus, the availability of personal protective equipment necessitates the utilization of such equipments.

CONCLUSION

Personal protective equipment are very important in the construction industry among the construction workers. Such equipment are useful in protecting the construction workers from harm or danger and preventing unnecessary accidents that may result in injury at the work environment. The result of the study revealed that while there is no significant difference in the mean ratings of construction workers on the extent to which availability determined the utilization of personal protective equipment in Port Harcourt Metropolis, Rivers State.

RECOMMENDATIONS

In respect to the findings of this study, the following recommendations were made:

1. Government and stakeholders should organized pre-examination and training to building construction workers on the basis of safety devices and utilization in order to improve health and safety well-being.
2. Building construction workers should ensure that protective devices are availability for other workers in the workshop and must be worn up before engaging in any form of operation.
3. Safety professional bodies and managers should organize safety training programme for building construction workers so as to provide them with basic knowledge about safety tips to promote and maintain good health.
4. Building construction managers should form an organization or association to regulate the activities and review the service of workers so as checkmate their health and safety welfare. This will enable building construction workers to liaise with others non-government organization and professional bodies to improve the standard of workplace safety.
5. Stakeholders and donors of safety should make provision for donation of safety gadgets for workers especially building construction workers at the lowest level to enable them have comply with safety parameters.

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