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DETERMINATION OF THE EFFECTS OF BUILDING CONSTRUCTIONS ON THE HEALTH OF SITE WORKERS IN MINNA, NIGERIA

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ABSTRACT: *Building construction activities and accidents on construction sites are significantly rated high in Nigeria. To reduce this problem, various building construction sites in Minna metropolis were studied and the aim was to determine the extent in which the health of workers are being affected by the construction activities by taking into considerations, the sources of responsible hazards, in order to generate guidelines to reduce hazards in construction sites in Nigeria. 10 different areas in Minna metropolis were used for this research. In each of these areas, data were collected from two building construction sites. The types of buildings that were studied are residential, commercial and institutional buildings. Primary data were obtained through interviews and structured checklist. In each of the building construction site, five workers were interviewed. Secondary data were obtained from the reviews of relevant academic materials to this research. Tables and content analysis technique were used to present the data. Among the findings are: the majority of workers have no protective clothing and the frequency of this loop hole is significantly rated very high in all the building construction sites; some workers do not have boots to protect their feet in all the building construction sites that were studied; Among the recommended guidelines are: it must be ensured by the building engineers or the project managers that all the workers should have protective clothing, in order to minimise injuries during the construction activities on the building construction sites; it must also be ensured by the building engineers or the project managers that all the workers should have boots to protect their feet, in order to minimise injuries during the construction activities on the building construction sites.*

KEYWORDS: building construction, hazards, health, injuries, workers.

INTRODUCTION

Building construction is the techniques involved in assembly and erection of structures which is primarily to provide shelter (Alfred and Pao-Chi, 2019). It is an ancient human activity which began with the functional need for a controlled environment to moderate the effects of climate. However, construction remains the most dangerous land-based work sector in the world (Alcumus Group, 2014). Studies in the United States, Australia, Zimbabwe, Finland and European Union showed that a constant ratio exists between fatal and nonfatal accidents leading to absence from the construction work (Jukka, 1999). The problem is not that the hazards and risks are unknown, it is that they are very difficult to control in a constantly changing work environment (Alcumus Group, 2014).

For construction to take effect, it must have workers (skilled and unskilled) that are ready to carry out different tasks for the purpose of achieving one goal, which is to complete the project at hand (Net Industries, 2019). In a building site, different professionals are employed for a specific period of time they are engaged and the client is responsible for their welfare. The health and wellbeing of every worker on the building construction site should be considered

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with utmost seriousness by their employers (Benjamin, 2008; Ellie, 2017). Precautions on site must be adhered to and safety measures should be followed strictly. Nevertheless, there are still some activities that the workers are engaged in and they are ignorant about such activities being harmful and acting adversely to their health (United States Department of Labour, 2001). This is also true with regards to the building construction sites in Nigeria (Daniel, 2015).

Building construction activities and accidents on construction sites are significantly rated high in Nigeria (Peter, John and Fidelis, 2016). In view of the rapid rate of construction in Nigeria, it became obvious that more workers are needed and for this to be achieved, people must be in good health and must also engage in construction activities and jobs which do earn them as much as to be comfortable with and also leave them with little or no health hazards. Excessive exposures to certain substances/agents during building construction may result in acute injury, chronic illness, permanent disability or even death (Abrar, Cheema, Saif and Mahmood, 2017; Occupational Safety and Health Council, 2004). In addition to this problem, loss of concentration at construction work and fatigue arising from poor health conditions may increase the risk of accidents as well (Health and Safety Executive, 2003; Nadhim, Hon, Xia, Stewart and Fang, 2016).

Thus, to reduce this problem, this study is therefore aimed at determining the extent in which the health of workers on building construction sites in Minna metropolis are being affected by the construction activities by taking into considerations, the sources of responsible hazards, in order to generate guidelines to reduce hazards in construction sites in Nigeria. The objectives of the study are: to identify the possible health hazards that may be encountered on the site; to determine the extent in which construction affects the health and wellbeing of workers; to find out ways to reduce work related illnesses and injuries. The scope of this study is the building construction sites in Minna metropolis in Niger State of Nigeria. The capital city of Niger State is Minna. It is made up of three major ethnic groups; they are Hausa, Gwari and Nupe. As at 2006 Census, the population of Niger State was 3,954,772 (National Population Commission of Nigeria, 2006).

METHODS AND PROCEDURES

This research utilised descriptive survey method and generated quantitative and qualitative data. 10 different areas (locations) in Minna metropolis were used for this research; they are: Bosso, Bosso Estate, Limawa, Tunga, Government Reserved Area (G.R.A), Chanchaga, Nasarawa, Sauka Kahuta, Kpakungu and Gidan kwanu. In each of these areas, data were collected from two building construction sites. This implies that a total of 20 building construction sites were studied. The types of buildings that were studied are residential, commercial and institutional buildings. An interview is a conversation through which an interviewer gathers richer information from a research participant or from a small number of research participants (Hamza, 2014; University Libraries, 2018), while a checklist is the general guidelines for conducting educational research; it is used to verify that a number of specific lines of inquiry, steps, or actions are being taken, or have been taken by a researcher (Lisa, 2008; RRI Tools, 2017). Thus, the primary data were obtained by the use of interviews and structured checklist. In each of the building construction site, five workers were interviewed. Checklist was designed to assist in the investigation during the visits to the construction sites. The number of workers at sites were identified to determine the significance of each parameter to the types of hazards being identified. Secondary data were obtained from

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the reviews of relevant academic materials to this research. Tables and content analysis technique were used to present the data.

RESULTS AND DISCUSSION

In this section, the number of workers and hazards in various building construction sites, and the hazards from building construction sites based on the types of works involved are discussed.

Number of Workers and Hazards in various Building Construction Sites

Out of 214 workers on the building construction sites, 5 workers have experienced major injuries due to construction activities, while 15 workers have experienced major injuries due to construction activities. These mathematically imply that 20 workers have experienced injuries due to construction activities and this is rather considered high. Table 1 shows the distribution of the number of workers and injuries in various building construction sites. It serves as a proof to show that there are actually some loop holes that are responsible for these injuries.

Table 1: Distribution of the Number of Workers and Injuries in Various Building Construction Sites.

S/N	Area	Number of Construction Sites	Number of Workers	Number of Minor Injuries	Number of Major Injuries
1	Bosso	2	24	1	1
2	Bosso Estate	2	12	0	0
3	Limawa	2	26	3	0
4	Tunga	2	20	0	1
5	Government Reserved Area (GRA)	2	12	1	0
6	Chanchaga	2	22	1	1
7	Nasarawa	2	24	2	0
8	Sauka kahuta	2	26	2	0
9	Kpakungu	2	18	1	0
10	Gidan kwanu	2	30	4	2
	Total	**20**	**214**	**15**	**5**

Source: Researchers' Field Work, 2017/2018.

Among the peculiar cases of major injuries recorded are the worker that fell from the scaffold of the height of about 10 metres from the ground level and sustained a severe head injury, and the load that fell on the worker when a trailer was offloading building construction materials. It was observed that the majority of workers have no protective clothing and the frequency of this loop hole is significantly rated very high in all the building construction sites. Similarly, observation showed that some workers do not have boots to protect their feet in all the building construction sites that were studied. It was noticed that the noise from the construction activities is significantly rated high in all the building construction sites which could affect workers in one way or the other.

Hazards from the Building Construction Sites Based on the Types of Works Involved

The research showed that there is a relationship between the types of works involved at the building construction sites and the types of hazards exposed to the workers. The interview result revealed that the hazards at construction sites involved in infrastructural works are significantly rated high; such infrastructural works are: excavations and other sub-structural works, roof works, manual handling of block walls and the assembling of other parts of super

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structures, and the use of plants and machineries. Whereas, the hazards from the use of ladder and scaffold are significantly rated low.

CONCLUSION AND RECOMMENDATIONS

Building construction was overviewed as an ancient human activity which began with the functional need for a controlled environment to moderate the effects of climate. However, it remains the most dangerous land-based work sector in the world. To this end, various building construction sites in Minna metropolis were studied and the aim was to determine the extent in which the health of workers are being affected by the construction activities by taking into considerations, the sources of responsible hazards, in order to generate guidelines to reduce hazards in construction sites in Nigeria.

Research findings showed that: the number of workers that have experienced injuries due to construction activities were significantly rated high; among the peculiar cases of major injuries recorded are the worker that fell from the scaffold of the height of about 10 metres from the ground level and sustained a severe head injury, and the load that fell on the worker when a trailer was offloading building construction materials; the majority of workers have no protective clothing and the frequency of this loop hole is significantly rated very high in all the building construction sites; some workers do not have boots to protect their feet in all the building construction sites that were studied; the noise from the construction activities is significantly rated high in all the building construction sites which could affect workers in one way or the other; hazards from excavations and other sub-structural works, roof works, manual handling of block walls and the assembling of other parts of super structures, and the use of plants and machineries were significantly rated high; hazards from the use of ladder and scaffold were significantly rated low.

Having considered the findings of this research, the following guidelines are therefore generated to reduce hazards in construction sites in Nigeria:

1. There should be enactment of laws by the government of Nigeria that can reduce the injuries due to construction activities at building construction sites.
2. The building engineers or the project managers should subject all the workers to a minimum of one day training to remind them or make them know the possible causes of injuries on the building construction sites, and the use of ladder and scaffold should be taken into consideration during the training, since they were identified to be among the causes of injuries on the building construction sites.
3. During the training of the site workers by the building engineers or the project managers with regards to the knowledge of the causes of injuries on the building construction sites, emphasis should be given to the hazards from excavations and other sub-structural works, roof works, manual handling of block walls and the assembling of other parts of super structures, and the use of plants and machineries since hazards from them were significantly rated high.
4. It must be ensured by the building engineers or the project managers that all the workers should have protective clothing, in order to minimise injuries during the construction activities on the building construction sites.
5. It must also be ensured by the building engineers or the project managers that all the workers should have boots to protect their feet, in order to minimise injuries during the construction activities on the building construction sites.
6. Major parts of buildings should be manufactured in the factories which will be brought to the construction sites for assemblies instead of cast in-situ construction to reduce noise from the construction sites that could affect workers in one way or the other.

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The effects of building constructions on the health of site workers was determined based on different classes of buildings. The research did not give a very detailed account of each particular class of building; this is a gap in knowledge. Therefore, in subsequent research of this nature, this gap should be filled.

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