

## Factors affecting management of safety and health in the building construction industry in Nakuru County, Kenya

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**ABSTRACT:** The building construction industry in Nakuru County is one of the fastest growing industries employing a large workforce. The industry is however plagued by many health and safety problems and is sometimes rated as the most dangerous land based industry. The purpose of the research was to identify the safety and health risks in the building construction industry and determine the preventive measures used against safety and health risks. A survey was conducted and data collected using a non systematic approach using observations, questionnaires and interviews. The data was then analyzed using SPSS. It was found that there was no emphasis on health and safety issues hence many accidents and health problems occurred. This was evidenced by low use of personal protective equipment, poor or no use of scaffolds, no harnesses, lack of first aid facilities among others. There is need for the government to come up with sector specific policies for the building construction industry and strengthen enforcement. It is recommended that safety and health issues be given priority in development issues and building construction be treated like any other trade.

**KEYWORDS:** safety, health, building construction, risks, hazards, accident, injury.

### INTRODUCTION

The Building construction is one of the fastest growing industries in the world and employs a large workforce accounting for 10% of the Gross Domestic Product (GDP), and providing 7% of global employment. (Nubi, 2008). The increased demand for housing facilities has led to tremendous growth in the building construction industry in developing countries with high demand for labour (Murie, 2007). Unfortunately as Murie found, the industry contributes a great deal towards occupational accidents and work-related ill health where a wide range of risks and hazards are experienced and offers low-status, low paid, unregistered informal and hazardous jobs in a highly fragmented industry. Most employers ignore health and safety issues as reflected in the absence of basic requirements like helmets and workers are exposed to serious hazards which sometimes lead to serious accidents like loss of limbs, eye sight, hearing impairment and even death (Wachira, 2000). The industry accounts for 30-40% of the world's fatal injuries with approximately 100,000 workers killed every year and 4% of GDP in estimated cost of occupational accidents and ill health in all sectors (ILO, 2001). In the UK the accident rate is about 13 workers per 100,000, while in the US the incidence rate is 13.3 per 100,000 employed workers and that in the year 2001, 1225 fatal occupational injuries and 481,000 non-fatal injuries and illnesses were experienced (Sean, 2011). Fatalities and deaths have become common place in Kenya and Kenyans seem to resign to this fate (Omukubi, 2012). Newspaper reports are common such as "Ten men trapped as building collapses" (Amadala and Lumwamu, 2011). A research done by Mitulla and Wachira in 2003 in Nairobi "to examine employment relationships in the informal sector and assess the mobility of construction workers between formally and informally constructed construction sites" found that 70% of the construction workers rated their working conditions from average (33%) to very poor (37%) while 27% rated working conditions as good.

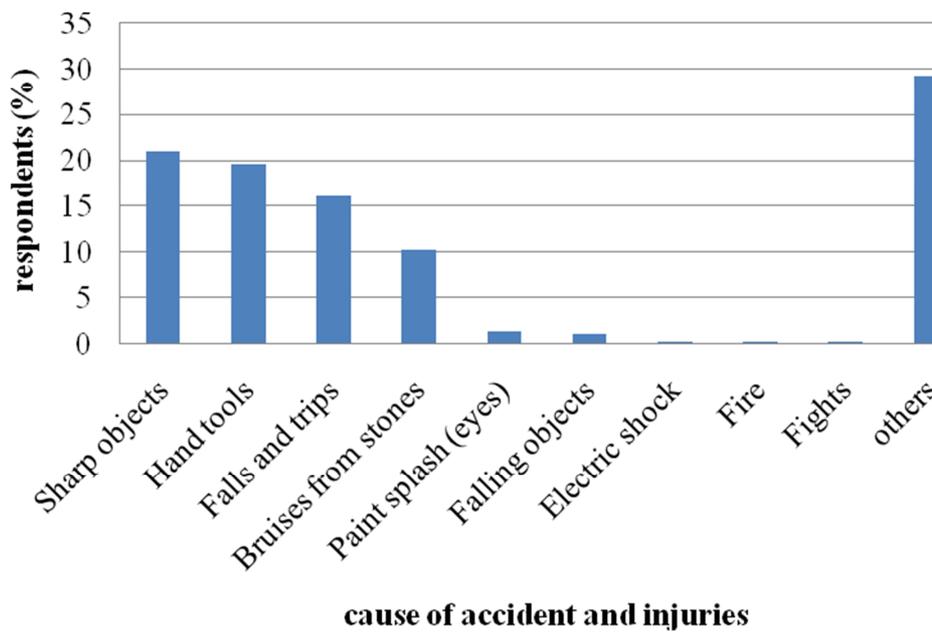


**RESULTS AND DISCUSSIONS**

30.5% of foremen; 68.4% casuals, 0.6% on contract and 0.5% permanent employees were interviewed with 0.9% being women. 44.4 % of buildings were at the walling stage followed by plastering with 26.5%. Metal work recorded the lowest with only 0.6%. Majority of the workers were between the ages 18-55 comprising 99.1% of the total workforce. 0.6% were below 18 years and 0.3% above 55 years. 0.6% of the respondents had no education while 1.4% had university education.

**ACCIDENTS AND INJURIES IN BUILDING CONSTRUCTION INDUSTRY**

Results indicated that 70.7 % of workers had experienced accidents at work. 29.8 % of all accidents and injuries reported arose from sharp objects, 27.9 % from hand tools and 23.0 % from falls and trips agreeing with what Murie (2007) who found that careless manner in which tools and building materials were stored on sites exposed workers to injuries such as cuts, stripping and falls, pricks and related injuries. Observations showed that there was a lot of repetitive work and manual lifting of heavy weights which Phoya, (2012) found could easily lead to musculoskeletal disorders. The accident rate based on the study area was 10632 per 100,000 persons.



*Figure 2: Common causes of accidents and injuries*

Workers were found to be ignorant of the health implications of the injuries yet they could lead to health problems like tetanus and other life threatening conditions which was in line with what Phoya, (2012) found that workers perception of the risks involved was low and echoed findings of Murie, (2007) who also noted that sharp objects were common occurrences on construction sites with no organised storage exposing the workers to injuries as observed during the research that hand tools especially hammers, saws and stone chipping chisels frequently caused injuries. Falls resulted from tripping over haphazardly stored building materials, slipping over wet surfaces, tipping over of items used to step on to reach heights, ladders, careless parching on walls and roofs without safety harnesses, observations also made by Phoya, (2012).

At about one and half metres, the workers worked at height using improvised platforms exposing them to falls a fact that was also observed by Lam and Kam, (1998). Scaffolds were poorly constructed and bound with nails and ropes with platforms that were not fully planked further exposing the workers to hazards. However despite all the risks, there was no data on accidents and injuries at the construction sites and data was purely gathered from the building construction workers an issue which was also noted by ILO, (2001).

Respondents reported lack of various basic facilities such as safe drinking water, toilet facilities, delayed payments (Table 1). The low and irregular wages with no payment of extra work done forced the workers to live in situations of very low standards which situation ensured that workers were always at the mercy of the employer as also noted by ILO, (2001) and

the non- assurance of daily work saw to it that there was no continuity or regularity of livelihood of the workers as stated by SEWA, (2011). Poor or no meals meant that the health of the worker was poorly maintained and this had a direct impact on work output and even concentration at work making the worker vulnerable to accidents and injuries. Harassment by fellow workers using bad language or picking fights, double work allocation and harsh language used by supervisors and harassment by council officers reduced workers morale making them less careful in their work. A research by Roto *et al.*, (1996) found that alcoholism was common among construction workers due to stress from lack of control over employment prospects, heavy workload and social isolation. Provision or replacement of PPEs was not given much thought as a result of ignorance, a fact also noted by Farooqui *et al.*, (2009). Only 39.3% saw provision of first aid facilities as an issue since workers did not realise that contractors should provide the facilities.

Health issues were viewed as part and parcel of construction work and the workers did their best to cope and carry on with work. Although communication was not a problem to majority of the workers, issues of health and safety was not part of the agenda and not a priority issue for the employer.

**Table 1: Workers who reported having no access to health, safety and welfare facilities in the County**

Facility	Percentage of workers lacking the facility
Safe drinking water	95.7
Toilet facilities	94.6
timely payment	92.3
Assured of work daily/assurance of daily work	43.0
Payment for extra time worked	39.6
First aid facilities	39.3
Meals	31.6
Personal Protective Equipments	15.7
Clear channel for communicating grievances	10.8
Information and training	9.4
PPEs readily and timely replaced	9.1

Analysis by town of reports by workers of some of the problems they undergo during the course of their work is reflected in table 2 below. Workers in Nakuru town had higher access to information and training as well as PPEs mainly due to the nature and magnitude of the buildings as compared to the other two towns.

**Table 2: Workers who reported having no access to health, safety and welfare facilities by town**

Facility	Percentage of workers lacking facility		
	Nakuru	Gilgil	Naivasha
clean and safe drinking water on site	100.0	100.0	85.0
toilet facilities on site	97.5	97.5	87.5
information and training	16.3	5.0	7.5
first aid facilities	56.3	15.0	25.0
meals	36.3	32.5	25.0
PPEs	27.2	2.5	2.5
Timely replacement of PPEs	17.8	2.5	2.5

**PROTECTIVE AND PREVENTIVE MEASURES FOR BUILDING CONSTRUCTION WORKERS**

Many workers did not have PPEs and were using ordinary and old clothing, a situation which increased the exposure of the workers to the risks. Out of the 351 respondents interviewed 54.1% had some form of PPE. It was observed that 52.1% had overall suits that included old clothing, 34.5% had gloves while those with footwear accounted for 33.6% and 19.1% had helmets. None of the workers were observed to have complete set of PPEs. PPE types were mostly improvised and mostly found on commercial construction sites managed by contractors. Some workers argued that PPEs were not necessary or were cumbersome and that they were more comfortable with ordinary clothes, which was echoed in the findings of Farooqui *et al.*, (2009), others said they were not provided and expressed the desire to have them. Where PPEs were available

supervisors were not keen to ensure that workers used them which explained why none of the workers was fully dressed in PPEs. This finding agrees with that of Phoya, (2012) and Farooqui *et al*, (2009).

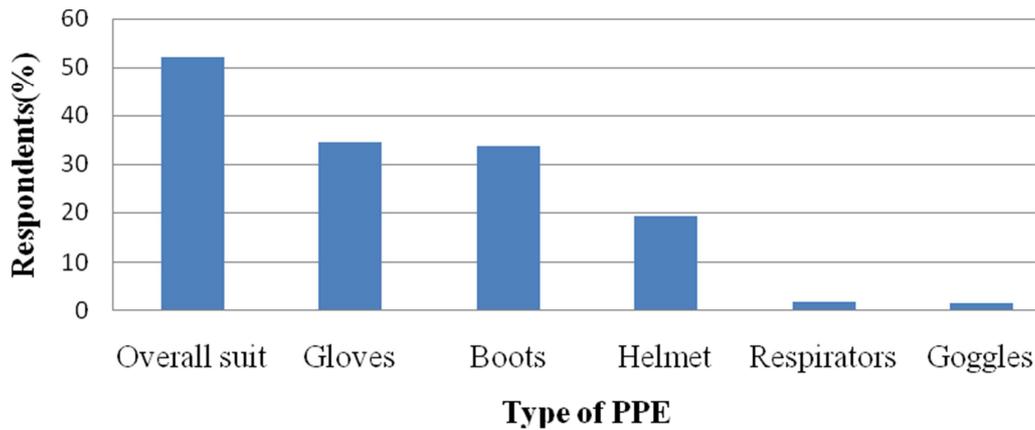


Figure 3: PPEs distribution by type among construction workers

There was more use of PPEs in Nakuru town compared to the other two towns (Table 2).

Table 3: Percent use of PPEs by construction workers by town

PPE	Location			X <sup>2</sup>	P-value
	Nakuru	Gilgil	Naivasha		
Helmet	27.8	8.8	11.3	18.23	0.00*
Gloves	42.2	25.3	27.5	9.916	0.007*
Goggles	2.2	1.1	-	2.040	0.361
Respirators	2.8	1.1	-	2.816	0.245
Overalls	55.6	49.5	47.5	1.795	0.407
Boots	37.8	20.9	38.8	8.957	0.011*

There was no significant difference in the use of goggles, respirators and overalls in the three towns.

It was generally observed that most sites had no preventive measures for accidents exposing the workers further to hazards. The preventive measures applied included measures against falling from height which were recorded in 33.3% sites (walling, roofing on storey buildings) where ladders and/or scaffolds were used. Measures against falling objects at 85.8% sites was either scaffold, slanted iron sheets or occasionally helmet and rarely a combination of these while no measures were noted against noise, electric shock, welding fumes or cuts. Only 0.2% sites being plastered or painted had provided respirators while no measures were taken against welding fumes. There was negligible preventive measure for workers involved in manual handling whereby only workers at 2.5% sites had been provided with gloves. 1.2% sites had put up a fence as preventive measure against being hit or crushed by vehicles. Workers were left to sort themselves out when injured and assistance mostly came from fellow workers. There were no written contracts between the workers and their employers and no insurance covers and therefore the employers felt no obligation to respond to workers health needs. No medical records were found on site and therefore illnesses arising from the construction activities were not taken into account and this also explained why the workers overlooked some of the health problems they were coping with. This was similar to what Phoya, (2012) found. Most of the workers reported that they avoided the risks by just being cautious. Ladders and scaffolds were most commonly used in all the three towns. It was also observed that the measures applied were not necessarily effective in preventing accidents.

*Table 4: Summary of observed preventive measures applied on various stages of construction*

<b>Risk</b>	<b>Preventive measure</b>	<b>% application</b>	<b>Remarks</b>
<b>Falling from height</b>	Ladders, scaffolds	33.3	Walling, roofing, storey
<b>Building collapse</b>	Good planning before beginning to build	0.6	Walling, roofing, storey
<b>Falling objects</b>	Helmet, Slanted iron sheets, scaffolds	85.8	All stages except foundation
<b>Electric shock</b>	Switch off electricity during work	0.6	Metal work, renovations, finishing
<b>Hazardous substances</b>	Respirators	0.2	All stages except roofing
<b>Welding fumes</b>	-	-	Metal work
<b>Noise</b>	-	-	All sites
<b>Hit or crushed by vehicle</b>	Fence	1.2	All sites
<b>Manual handling</b>	Gloves	2.5	All sites
<b>Cuts</b>	-	-	All sites

#### **ACTION AFTER ACCIDENT**

5% respondents reported that first aid was administered to workers, 10% reported that workers were taken to health facility and 85% reported that nothing was done to the injured workers who were simply relieved of their duties to go home and nurse their injuries. The interventions were mainly by the injured workers themselves, their fellow workers or the foreman. Only on 1.2% of sites did workers report that a first aider or the management took responsibility and those were large construction sites and when significant accidents and injuries occurred.

#### **CONCLUSIONS AND RECOMMENDATIONS**

It was concluded from the research that the building construction industry in Nakuru County was actually plagued by many health and safety issues with little concern from employers. Workers have low perception and poor attitude towards risks and just like the employers also ignore safety and health issues. This was reflected in the poor ways of material storage, poor improvised stepping items and working platforms and lack of harnesses while working on the roofs. A variety of accidents and injuries occurred at the walling stage while sharp objects caused highest number of injuries. There was no documentation on relevant activities and issues like accidents or injuries, medical records, inspections among others available on construction sites. Use of injury and accident protection measures like PPEs and preventive structures were largely missing standing at 45.9%. First aid facilities, drinking water and sanitary facilities were lacking and workers who got injured were left to sort themselves out or get assisted by their fellow workers. The temporary nature of work meant that the building construction workers had no empowerment to speak out against violations on their safety and health entitlements and their aim was just to earn a living. It is recommended that safety and health issues be given priority and the building construction industry be treated like any other trade. It is also recommended that communication on risk and risk management should be established between the workers and the employers. It should be mandatory to carry out risk assessment and then design risk management procedures which should be implemented throughout the project cycle. Law enforcers should be more keen on the implementation of provisions of Occupational Safety and Health Act, 2007 and accompanying regulations and workers should be taught basic safety and health aspects to gain basic skills and to appreciate the importance of application of knowledge in real practice to safeguard them at work.

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