

# The Occurrence of Workplace Hazards among Selected Workers in the Informal Sector Kampala Uganda

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## Abstract

**Introduction:** In Uganda work-related disease is a major problem. It is estimated that 2% of workers die every year from occupational hazards. In humans, disease transmission has been established through personal contact with infected animals, transmission from an infected person to a healthy person and this is often peculiar to slaughterhouse workers handling food while on the job, a risky condition that should be taken into consideration because they serve as contributors to zoonotic infections and other infections by microorganisms. **Objective:** The purpose of this study was to determine the workplace hazards that occur in the informal sector; Kampala Uganda. **Methodology:** A descriptive cross-sectional study design was utilized; the sample size considered for this study was 384. A simple random sampling technique was used to sample the respondents; this research study purposively focused on certain categories of workers in Kampala which were welders, restaurant workers, Boda boda riders, workers in the abattoirs and others which included vulcanizing and hawkers. Data were analyzed using SPSS and descriptive analysis was done. **Results:** Out of 300 responses retrieved, 279 (93%) experienced workplace hazards and 21 (7%) did not. Of the 279 (93%) workplace hazards, chemical hazards recorded the majority (35%) among the respondents; ergonomic hazards were observed to have occurred the second majority (33%); while physical hazards recorded the least occurrence (32%). **Conclusion:** The study concluded that 9 out of every 10 workers in the selected informal sectors in Kampala for this research study experienced workplace hazard, hence the occurrence of workplace hazards was found to be very high among workers in the informal sectors in Kampala. **Recommendation:** Mandatory training and health promotion of workers should be carried out in the informal sectors on proper: chemicals use, machine operation, equipment handling, safety regulations and work hours per worker per

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day for maximum efficiency, accurate and regular use of (PPE) and this training should be done by Government and Non-Government agencies/bodies.

## Keywords

Occurrence, Hazard, Informal Sector, Workers

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## 1. Introduction

Uganda health sector described the implementation of good safety, health and environmental practices as an essential act needed in improving productive and decent work while at the same time reducing expenditure (Guidelines for Occupational Safety and Health MOH, 2008) [1]. The progressive integration of health and safety principle into the workplace or organization is a fundamental prerequisite for the reduction of occupational injuries and diseases. The health sector puts in place the essential pillars of an effective strategy on occupational safety and health which includes: building and maintaining a preventive safety and health culture where the principle of preventive is accorded the highest priority; introduction of a system approach to safety and health management; ensuring that the right to a safe and healthy work environment is respected at all levels and an active participation by the management and the staff in securing a safe and healthy work environment (Guidelines for Occupational health MOH, 2008) [1].

Occupational safety and health (OSH), or workplace health and safety (WHS), is a multidisciplinary field concerned with the safety, health, and welfare of people at work. Workplace hazard is the probability of harm to occur in the workplace. Occupational hazards can encompass many types of hazards, including chemical hazards, biological hazards (biohazards), psychosocial hazards and physical hazards. Most countries often focus on the provision of clinical care and treatment while placing less emphasis on the appropriate preventive measures (Kolvic, 2006) [2]. According to a study in Columbia by Hernandez *et al.* (2009) [3], in humans, disease transmission has been established by personal contact with infected animals, transmission from person to person, within an infected family and this is often peculiar to slaughterhouses' workers handling food while on the job, a risky condition that should be taken into consideration because they serve as contributors to zoonotic infections and other infections by microorganisms.

The International Labor Organization (ILO) estimates that 5% of the workers from the world's workforce suffer from work-related diseases such as musculoskeletal diseases and mental health problems, while 1 casualty is recorded in every 10 fatal and non-fatal work-related accidents which in turn results to over two million work-related deaths each year, which are all attributable to occupational hazards (ILO, 2016) [4]. Majority of the workers across the globe are ex-

posed to hazardous risks at their workplaces (WHO, 2010) [5].

Safety of the workers is one of the most important parts of the workplace. It is imperative to protect the workers from various hazards at the workplace, sometimes hazards are inevitable due to the use of machines and various workplace settings, but the only way to overcome that is to provide adequate protective means within the workplace settings to safeguard the life of the workers. Ensuring safety of the worker will increase productivity, consistence in staff composition and longitivity at workplaces. Furthermore, Starkman *et al.*, (2003) [6] and Makuwa *et al.*, (2006) [7] conducted studies in South Africa that established that most microbial infections are well known to be sustained by certain reservoirs, especially viruses such as hepatitis B (HBV) that have been found in cows which abattoir workers are vulnerable to. They emphasized four main sources of infection in most abattoir workplaces to include blood and other body fluids (obtainable in human bodies, animal carcasses and raw meat); human and animal waste products such as feces, urine and vomit; respiratory discharges such as cough and sneeze and skin direct contact.

Work and workplace hazards are known to compromise the health of workers and represent a significant national financial, social, medical, and emotional burden, but health is also affected by an array of individual risk factors such as genetics, age, gender, obesity, smoking, alcoholism, and the use of prescription drugs (Schulte, P.A., *et al.* 2012) [8].

According to Pelt, W. V, *et al.* (2001) [9], the hygienic status of dressed carcasses is largely dependent upon the general skills of abattoir workers, in Netherlands. It was revealed that 89% of workers at one abattoir where the study was conducted have no adequate training in proper food handling, and as a result, personal hygiene standards were also found to be low as compared to other trained abattoir workers. From daily observation, a personal hygienic standard of workers in Lufuula city abattoir was very poor, this is because few places had no running water and the whole environment was in bad state.

In Uganda, a survey which was conducted on Brucella infection and Malaria among Abattoir workers in Kampala and Mbarara districts, put forward that, non-use of protective gear Odds ratio OR 3.3, 95% CI (1.25 - 50) and working in the abattoir beyond 5 years OR 2.4 95% CI (1.4 - 5.6) were associated with increased risk of Brucella infection (Smits, H. L. *et al.* 2004) [10], abattoir workers have some Personal Protective Equipment, which are actually highly recommended on their occupation because of dealing with different animals of which they can easily contract infection if they do not have protection. From observation, most workers were putting on rain boots, very old dirty long shirts and trousers followed by an apron exposing the unprotected body parts like the hands to the risk of injuries and thus acquiring infection.

It is with the above background that this research study sought to establish the occurrence of workplace hazards among few selected workers in the informal sector; Kampala Uganda.

## 2. Methodology

### 2.1. Study Design

The study used a descriptive and analytical cross sectional design; cross-sectional study design enabled the researcher to collect the data once. It was carried out among workers of informal workplaces in Kampala. The quantitative method of enquiry enabled the researcher to collect statistical data and information.

### 2.2. Study Population

The study was carried out among workers in various informal sector workplaces in Kampala in the year 2017.

### 2.3. Sample Size

The sample size of the study was determined by using Corcoran's 1977 formula that states that;

$$n = \frac{t^2 p(q)}{d^2}$$

$$\frac{(1.96)^2 \times 0.50 \times 0.50}{(0.05)^2}$$

where  $t$  = value for selected alpha level of 0.025 in each tail = 1.96. (The alpha level of 0.05 indicates the level of risk the researcher is willing to take that true margin of error may exceed the acceptable margin of error.)

Where  $(p) = 50\%$  extracted from a study on occurrence of occupation hazards in Kampala.

$$(q) = (1 - p)$$

$N$  = desired calculated sample size,

$d^2$  = Minimum allowed error 0.05%,

$N = 384$  as calculated sample size.

A total of 384 samples among the different group of informal workers in Kampala Uganda.

### 2.4. Sampling Strategy

The study purposively focused on the certain categories of workers in Kampala such as restaurant workers, Boda boda riders, workers in the abattoirs, welding and others which included hawking and vulcanizing. The sample size was divided among them. A consecutive sampling technique was used to sample the entire population. Consecutive sampling is the system of sampling which enable researchers to sample the respondent as they are available.

### 2.5. Inclusion Criteria

All workers in the selected informal sectors in Kampala present as at the time of the interview.

## **2.6. Exclusion Criteria**

All workers in the selected informal sector in Kampala are not currently working within the selected workstations for this research.

## **2.7. Measurement of Variables**

### **2.7.1. Independent Variable**

Attributes such as different cadres of workers in the informal sector in Uganda were controlled by using essential questions related to each attribute.

### **2.7.2. Dependent Variable**

Attributes such as physical, chemical and ergonomics hazards were collected using a structured questionnaire and observation checklist.

## **2.8. Data Collection Instrument**

### **Questionnaire and Observation Checklist**

This was used to collect quantitative data in which the questions were structured/tailored towards the research variables. This consisted of quantitative questions as close ended questions and researcher observation. The questionnaires and observation checklist was filled by the researcher.

## **2.9. Analysis and Presentation of Results**

Data was analysed using SPSS as the statistical analysis tool. The assessment of the hazards was expressed in percentage been a descriptive analysis.

## **2.10. Validity and Reliability**

The validity of the research instrument in this study was ensured through conducting a pre-test that ensured accuracy of both the questions and the required response. Whereas internal consistency was calculated by using Cronbach's alpha, also referred to as the coefficient alpha, a technique which calculates the mean of all possible combinations of split-half coefficients resulting from different splitting of the measurement instrument.

## **2.11. Ethical Considerations**

To protect the research respondents from any negative impact, this research study follows the regulations and guidelines stipulated by the Research Ethics Committee of Stafford University Uganda, which also provided ethical clearance for this research. Following this, permission to conduct the study was obtained from the KCCA Health Officer being the Kampala city Authority.

## **3. Results**

78% response rate was achieved; out of the 384 sample population 300 responses were retrieved.

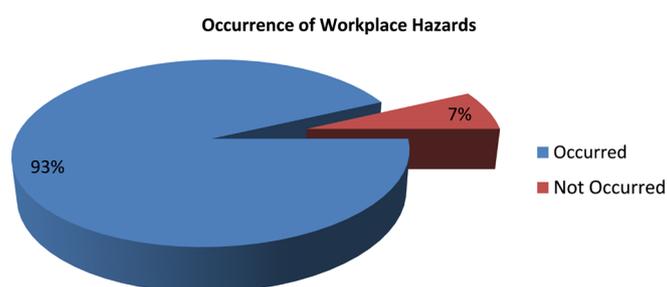
Respondents who rode Boda Boda recorded the majority with a percentage of 27%, while those who hawked (ranging from material to food items) and prac-

ticed vulcanizing recorded the minority with a percentage of 13% (Table 1).

Out of 300 respondents 279 (93%) experienced workplace hazards and 21 (7%) did not, which implies that 9 out of every 10 informal workers from this research study experienced workplace hazard in their various workstations (Table 2).

The Pie chart shows the distribution in percentages of the occurrence of workplace hazards in the selected informal sectors; most of the workplace reported the occurrence of hazards (93%) while few stated no occurrence (7%) (Figure 1).

Of the 279 (93%) workplace hazards, chemical hazards had the highest occurrence among the respondents (35%), this was followed by ergonomic hazards having 33% and physical hazards having 32% among the selected respondents of this research study (Table 3).



**Figure 1.** A Pie chart displaying the occurrence of the workplace hazards in the selected informal sector.

**Table 1.** Type of Jobs among the respondents.

Variable	Categories	Frequency (n = 300)	Percentage (%)
Type of Job	Boda Boda	80	27
	Abattoir Workers	70	23
	Restaurant Worker	60	20
	Welding	50	17
	Others (Hawkers and Vulcanizing)	40	13

**Table 2.** Occurrence of workplace hazards.

Variable	Categories	Frequency	Percentage
Workplace hazards	Occurred	279	93
	Not occurred	21	7

**Table 3.** Distribution of workplace hazards.

Workplace hazards	Frequency	Percentage
Chemical hazards	100	35
Physical Hazards	89	32
Ergonomic hazards	90	33

The Bar chart displays the frequencies of occurrence of Chemical, Physical and Ergonomic Workplace Hazards among workers in the informal sectors in Kampala; majority reported the occurrence of chemical hazards (100), which was followed by ergonomic hazard (90) and the least occurred was physical hazards (89) (Figure 2).

It was found that Boda boda riders were more exposed to physical hazards (40), which was mainly due to the nature of their work such as, carrying heavy loads, over speeding and reckless overtaking which mainly results various fatal accidents. Furthermore, welders/others which included vulcanizers and hawkers were more exposed to chemical hazards (38); this is mainly due to the use of chemicals and gaseous substances leading to the spread of fumes and aerosols from various substance and equipment emissions which is inhaled constantly by these workers due to no proper PPE such as nose mask. Abattoirs were more exposed to ergonomic hazards (39), mainly due to the shortage and improper use of personal protective equipment (PPE), improper handling of machines and equipment which are used in the workstation (Table 4).

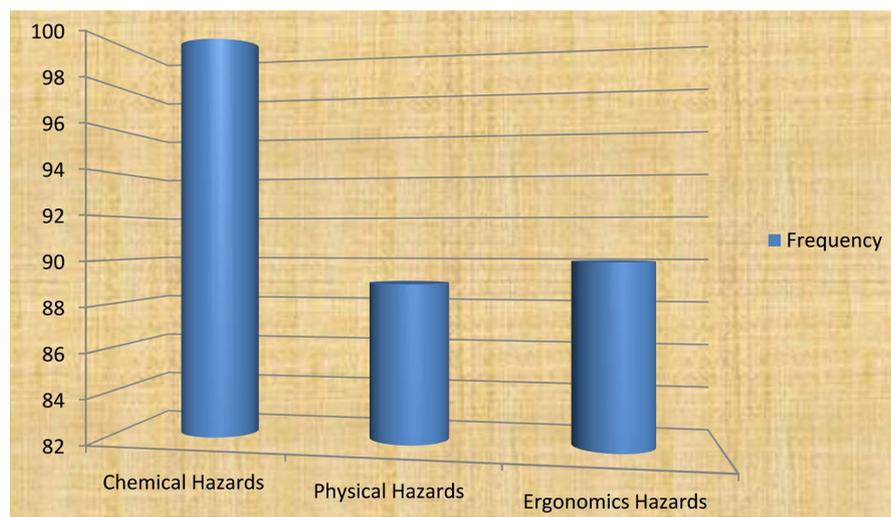


Figure 2. Bar chart displaying the frequency of occurrence of chemical, physical and ergonomic workplace hazards among workers in the informal sectors in Kampala.

Table 4. Distribution of selected informal sectors in relation to the occurrence of hazards.

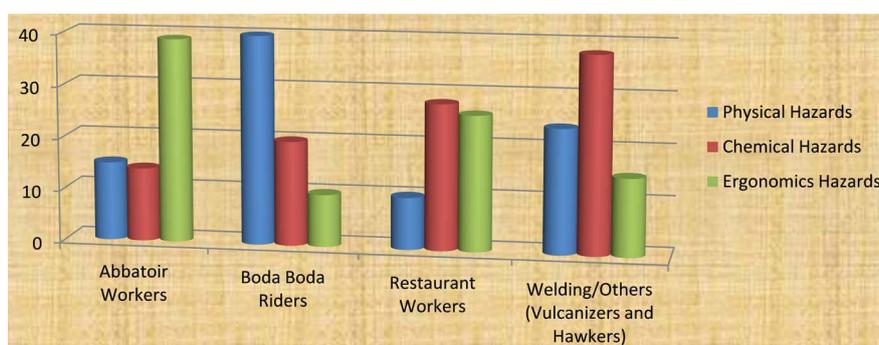
Types of Work	Physical hazards	Chemical hazards	Ergonomic hazards
Abattoir Workers	15	14	39
Boda boda	40	20	10
Restaurant Workers	10	28	26
Welding/Others (Vulcanizers and Hawkers)	24	38	15
<b>Grand Total</b>	<b>89</b>	<b>100</b>	<b>90</b>

This second Bar chart displays the distribution of the frequency of hazards among the selected informal workers; for abattoir workers the highest occurring was ergonomic hazards (39) and the least occurring was chemical hazards (14); for boda boda riders the highest occurring was physical hazards (40) and the least was ergonomic hazards (10); for restaurant workers the highest occurring was chemical hazards (28) and the least was physical hazards (10); as regards to welding/others (vulcanizers and hawkers) the most occurring hazards was chemical (38) and the least was ergonomic (15) (**Figure 3**).

#### 4. Discussion

##### The occurrence of workplace hazards (chemical, physical and ergonomic hazards) among workers in selected informal sectors in Kampala.

This research study revealed that out of 300 respondents 279 (93%) experienced workplace hazards and 21 (7%) did not, which implies that 9 out of every 10 workers among the workers in the informal sector selected for this research study experienced various hazards at their workstations in Kampala. In addition, out of the 93% workplace hazards that occurred in various workstations; the occurrence of chemical hazards recorded the majority having a percentage of 35%, this was followed by ergonomic hazards which had a percentage of 33% and the least was physical hazards occurring with a percentage of 32%. These findings were in conformity to the interview with the D.V.O. City Abattoir Traders Development Association; it was established that the tendency of abattoir workers injuring themselves was reported to be generally very high due to the utilization of very sharp tools like pangs and knives to cut thick muscle tissues and bones more especially for bigger animals like cows, in which they accidentally hurt themselves in some instances. The district still has few meat slaughtering places and those available do not have all the standard requirements. However, the district is planning to establish more in the nearby future. These research findings were also in line with the study by Folashade *et al.*, (2010) [11] in Ibadan Nigeria, which found that working at the abattoir was highly associated with ergonomic workplace hazards. It was evident that workers used very sharp tools like knives and pangs and in case of a slight mistake, they could



**Figure 3.** Bar chart displaying the distribution of various hazards among different types of workers in the informal sectors.

injure themselves and most animals were seen to seriously fight before being slaughtered as most abattoirs did not have protective poles or metals to safely direct animals to the slaughtering floor. So also, another study by Dosman *et al.*, (2001) [12]; revealed that Thailand abattoir industry is one of the industries that contributes to the problem of potential workplace hazards associated with food especially meat by improper handling of condemned material.

In addition, this research studied three (3) major categories of workplace hazards namely; ergonomic, physical and chemical. For the ergonomic hazards, the researcher studied the following variables; presence of PPE, good state of PPE, presence of heavy work, presence of repetitive work, poor ergonomic design of tools and equipment, presence of incorrect/awkward postures, availability of resting phases/breaks, presence of team work, presence of contact stress, presence of security/guards and availability of storage facilities. Furthermore, for physical hazards assessment, the researcher studied the following variables; presence of noise at the workplace, carrying heavy object at workplace, handling object with high temperature, presence of vibration at the workplace, presence of sharp objects, presence of sharp objects, presence of slips or falls, presence of cuts or injuries, presence of thermal stress from opening burning objects and presence of lagging electric wires. Finally, for the assessment of chemical hazards the researcher studied the following variables; presence of chemicals, presence of dust, particles, metals and metalloids, presence of flammable, poisonous gases, presence of hazardous chemicals and presence of chemicals around the eating place.

### **Study Limitations**

The limitation of this study arose from the unwillingness of the respondents to provide adequate and accurate information; this was addressed by persuading them to provide the correct information.

### **5. Conclusion**

The study concluded that 9 out of every 10 workers in the informal sectors in Kampala which was selected for this research study experienced workplace hazards; thus occurrence of these workplace hazards was very high among the selected informal workers for this research study. In addition, chemical hazards (35%) ranked the highest which was followed by ergonomics hazards (33%) and physical hazards ranked the least (32%).

### **6. Recommendation**

The Government of Uganda and other Non-Governmental Bodies and Agencies should develop and implement policies that will ensure a mandatory training and health promotion and education of workers in the informal sectors on proper: chemicals use, machine operation, equipment handling, safety regulations, work hours per worker per day for maximum efficiency, accurate and reg-

ular use of (PPE) and prompt case accident and injury reporting to the appropriate authorities in order to minimize the occurrence of various hazards in industries.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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## Appendix 1: Questionnaire and Observation Check List

### Type of work

- Boda boda
- 1) Abattoir worker
- 2) Restaurant worker
- 3) Welding
- 4) Others (Hawking and Vulcanizing)

## Appendix 2: Observation Checklists

### Observation Checklists

ERGONOMIC HAZARDS ASSESSMENT		
VARIABLE	RESPONSE	
	YES	NO
Presence of Personal Protective equipment		
Good state of Personal Protective equipment		
Presence of heavy work		
Presence of repetitive work		
Poor ergonomic design of tools and equipment		
Presence of incorrect/awkward postures		
Presence of resting phases/breaks		
Presence of team work		
Presence of contact stress		
Presence of security/guards		
Presence of storage facilities.		
PHYSICAL HAZARDS ASSESSMENT		
VARIABLE	RESPONSE	
	YES	NO
Presence of noise at your workplace		
Carrying heavy object at workplace		
Handling object with high temperature		
Handling object with high heat		
Presence of Vibration at your workplace		
Presence of sharp objects		
Presence of slips or falls		
Presence of cuts or injuries		
Presence of thermal stress from open burning		
Presence of lagging electric wires		

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**CHEMICAL HAZARDS ASSESSMENT**

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VARIABLE	RESPONSE	
	YES	NO
Presence of chemicals		
Presence of dust, particles, metals and metalloids		
Presence of flammable, poisonous gases		
Presence of hazardous chemicals		
Presence of chemicals around the eating place		

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