UNIVERSITY OF NAIROBI

EVALUATION OF THE TRENDS AND PATTERNS OF REPORTING INJURIES IN CONSTRUCTION SITES

A CASE STUDY OF KASARANI CONSTITUENCY

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DECLARATION

I, Erick Omulo, hereby declare that this research project is my original work and has not been presented for an award of degree in any other university.

…… ……

Signature Date

I, Prof. Robert Rukwaro, hereby declare that this project has been submitted for examination with my approval as the University supervisor.

……. ……

Signature Date

DEDICATION

I wish to dedicate this work to my wife, Eunice and my daughter, Favor for their support, encouragement, love and understanding throughout the course of doing this work.

ACKNOWLEDGEMENT

Jehovah- Jireh, the providing Lord, you literally provided for the funds for this work and to you I am very grateful.

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List of abbreviations and acronyms

GDP- Gross Domestic Product

GDCF- Gross Domestic Capital Formation

UNCHS-United Nations Centre for Human Settlement

CDC- Centers for Disease Control

NIOSH-National Institute for Occupational Safety and Health

PTSD-Post traumatic Stress disorder

TBI- Traumatic Brain Injury

OSHA-Occupational Safety and Health Administration/Act

RIDDOR- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

HSE- Health Safety Environment

HSC- Health Safety Committee

LFS-Labour Force Survey

US- United states

WRMSD- Work-related musculoskeletal disorder

LTAs-Lost Time Accidents

SMEs-Small and Medium Enterprises

Cap-Chapter

ABSTRACT

The purpose of this study was to determine the trend and pattern of reporting injuries among the construction site workers and to find out the factors leading to underreporting of injuries in construction sites. The major objective of this study was to investigate on the injury reporting trend in construction sites within Kasarani Constituency. A cross sectional survey study was carried out among site workers on the construction sites in Kasarani Constituency. Data collection was done using a structured questionnaire, and an observational schedule. The study found that, generally there is lack of awareness on the occupational safety and health issues amongst the workers and weakness in enforcing safety and health regulations. Adequate consideration is not given to safety in the construction industry. Therefore, there is need to add awareness of safety among construction workers; need for more legislations and proper implementation of the law to control the construction industry.

CHAPTER ONE

INTRODUCTION

1.1 Background

Construction industry is considered very important part of many countries' economy particularly in under developed countries and is also seen as economic growth driver. According to Pheng & Giang (2010), in developing countries, it contributes about 11% of the country's gross domestic products (GDP). Nonetheless, many construction activities are considered health and safety threats to lives. These activities include working in spaces which are confined and closer to falling objects, working underground, fire, ergonomics, handling hazardous substances, handling load manually, dusts, using plant and equipment, noises, exposure to live cables and poor housekeeping.

Health and safety accidents, in urban context, is relative higher due to the high urbanization that is predominated with high-rise buildings and the complexities of the projects in line to pace up with modernization of cities arena and increased need for offices, housing, infrastructure and other services. Construction industry therefore, is considered risky to workers, end users and practitioners as it is marred with high accident rates and common ill-health problems which most of them are not reported, despite its importance.

Due to the unreasonably high accidents and incidents and fatalities occurring in different sites around the globe (Haupt & Smallwood, 2008), the construction industry has been painted as being a dangerous or highly hazardous industry. Sohail (1999), similarly considered construction industry as a very hazardous industry. Construction workers, internationally, are considered more susceptible to injury than any other worker in other industries.

1.2 Problem Statement

In the construction industry, owners, contractors and designers have the obligation to provide a safe working environment, and their negligence on safety may cause severe accidents and injuries as well as economic loss (Laufer, 1987). A large number of construction accidents are not reported and many of workers are injured or killed on construction sites each year. As a result, project owners lose large amounts of money and many families suffer from permanent pain. In the recent years, there were many construction accidents that occurred in the country (Kenya) construction project, which serves as the basis of the study to learn about construction accidents and injuries reporting trend.

The construction industry by far and wide, considered major world's industries. Reconstruction of both man-made and natural disasters and providing means of transport, communication and power among other amenities are one of the major achievement of the industry in order to meet the expectations and rising needs of the people worldwide. Construction industry is still considered a major manual labour in Kenya despite advances in mechanization. According to the Kenya Economic Update, (2008), the industry employs a big number of the working population, and occasionally as much as 20 percent, as compared to other industries.

Despite the foregoing, occupational accident and diseases still lacks a reliable reporting and recording mechanism. According to African Newsletter on occupational and safety (2013), the mechanisms existing are used for the purposes of compensating workers or upgrading the construction firm. Therefore, accidents reported are often not analyzed, but most of the time accidents are not reported. And for this reason, annual occupational accidents and diseases statistics are not produced

In almost all the nation, job creation and economic growth in both developed and developing countries are mostly attributed to be the outcome of construction industry driving force. Generation of employment, income per capita improvement and source of livelihood to a large of population are some of the key contribution of the construction industry. This is therefore, acknowledged in the global economy of this century. Health and safety of labourers on construction sites have been perceived to define the success of a project in the construction industry. A recent study conducted by the Federation of Kenya Employers (FKE) showed that rather than putting more concern on the environmental hazards that constantly affects the health and safety of workers, more focus is geared towards the physical accidents in the construction sites.

Quality safety and welfare of employees is paramount and special gear to enhance worker safety. Responsible management makes every effort of ensuring that the highest levels of safety for everyone is sustained on construction site. Any causality, affecting workers' productivity, health, safety and social welfare like injuries deserves objective reporting and remedy. Failure to adhere to these regulations usually result in injuries in the construction site which most of times go unreported for one reason or the other. It is therefore this trend of non-reported occurrences that is causing fear, anxiety and loss of productivity in the construction industry since the corrective actions are not being taken.

The purpose of this study therefore, was to determine the trend and pattern of reporting injuries among the construction site workers and to find out the factors leading to injuries underreporting in construction sites.

1.3 Research Questions

The study sought solutions the questions outlined:

i. Do the construction site workers aware of the channels of injury reporting while at work in construction sites?
ii. Does the level of reporting injuries determined by injury type, severity of the injury and size of the firm?
iii. Does the regulations on injury reporting adequate and enforceable in construction sites?
iv. What are the underlying factors influencing inaccurate reporting by site workers?

1.4 Objectives of the Study

The aim of this study was to investigate on the injury reporting trend in construction sites within Kasarani Constituency. The study specifically sought to:

i. Establish the awareness of the reporting channels for accidents and injuries in construction sites by the construction site workers.
ii. Establish accident and injury reporting levels by severity of the injury, accident type, and size of the firm.
iii. Evaluate the enforcement mechanisms of injury reporting on construction sites' regulations
iv. Establish the underlying factors influencing inaccurate reporting in construction sites.

1.5 Study hypothesis

The tested hypothesis was the influence of internal site setting parameters i.e. the awareness on reporting injury occurrences at the construction site. Thus the hypothesis was phrased as follows:

H1: Construction site workers are aware of their rights concerning injury reporting in construction sites.

H0: Construction site workers are not aware of their rights concerning injury reporting in construction sites.

1.6 Study Justification

The research study is important in the following ways:

(i) The study focuses on the reporting trends of injuries on the construction site by focusing on the current organization safety and health guidelines and employment Act cap 226 of the laws of Kenya. This Act should enable the construction stakeholders to improve on the staff working environment and to ensure that corrective measures are taken appropriately to correct the construction site-related injuries.

(ii) The research underscores the importance of providing efficient services in the management of construction sites and therefore feedback from project to project will be undertaken and appropriate measures put forward to improve the successive projects.

(iii) The stakeholders in the construction industry stand to benefit from the research, thereby, the study will be of great use to them in ensuring that quality improvement of safety standards and minimal injuries within the construction environment.

(iv) The organizations and government agencies expend significant effort on finding accurate accident data as a means of averting occupational accidents.

1.7 Scope and limitation of study

The study was carried out in Kasarani Constituency in Nairobi County. Nairobi County has diverse construction sites with the largest share of big building, amounting to over 70% of the National

total output (Oketch, 2004). Nairobi has several construction sites within close proximity. The construction sites or site organizations do not differ greatly with those in other towns. Nairobi is favorable area of research owing to resource limitations especially on finance and time. The study covers the injury reporting pattern among the construction site workers during the construction stage.

The targeted population included the construction key informants on the active site i.e. the site supervisors at the construction site. The study also involved site workers both skilled and non-skilled who have been in site for a period of not less than one month. The study focused only on the sites with registered contractors and was limited only to site operations and setting.

1.8 Definitions of Terms

The words used herein shall be deemed to mean as stated below:

Construction site: Building and construction site refers to space that the contractor has taken possession of for the purpose of executing the building contract.

Construction Injuries: These refer to injuries that occur to people or individuals who are working in construction sites.

Construction workers: these refer to individuals who are working on a construction site.

1.9 Structure of the study

The study was divided into six chapters work as indicated below.

Chapter one covers the introduction of the study and the problem statement. It describes the specific problem in terms of injuries reporting in construction sites are addressed in the study as well as design components. It also covers the questions the study sought to answer and the

objective which the study is based upon. Chapter two covers the review of related literature and relevant studies that has been done before, which are associated with the reporting of accident and injuries in construction sites. It also covers information found in books, journals and other sources of information that the study delves in to answer the research questions. Chapter three covers the methodology and procedures used for the research. This comprises the study design, sampling design which involves the identification of the target population, the sample frame and the sample size for the study. Chapter four presents the analysis of the data collected and presentation of the results and findings of the study. It involves the analysis of collected data using SPSS software. This section contains the mode at which data are displayed in a presentable manner. Chapter five covers the discussion of the findings of the study. Chapter six covers the conclusion, summary and recommendations. It also presents the areas that require further study.

CHAPTER TW0

LITERATURE REVIEW

2.1 Introduction

With the high frequency of high accidents rate and problems of ill-health to workers, end users and even practitioners, Construction industry is considered as being risky and dangerous, despite its importance (Davis, et al., 2005) Actually, almost every day in almost every construction site there is either accident, injuries, incidents or near misses occurring to the workers. These occurrences affect the workers both physically, emotionally, socially and most importantly financially. The occurrences ranges from near misses, minor injuries to fatal accidents which are not all reported for remedial actions to be taken. It is in this note that the study seek to address the trend of injuries reporting in construction sites within the Kasarani Constituency.

The literature review will therefore be used to answer the following questions as pertains construction injury reporting:

i. What is the trend of accident and injuries reporting in construction sites?
ii. Does the regulations on injury reporting adequate and enforceable in construction sites?
iii. What are the underlying factors influencing inaccurate reporting by site workers?

2.2 Common construction injury types and reporting trends

According to Currington (1986), construction industry is one of the greatest dangerous industries to work in. he stated that, in 2009, as compared to other private sector industries in the country, there were more injuries that occurred in construction sector. By being aware of the common injuries suffered on construction sites, workers can help in preventing these incidences from taking place as well as well as through emphasis put concerning site safety. The causes of these injuries

are numerous and diverse. Avoiding injuries and identifying any potential injury is only possible through familiarizing with the injury types (Peckar et al., 2045). Peckar et al provided explanations and categorizes some of the most common injury types as follows:

Falls: Falls are considered as one of the most construction injuries. These includes falls from cranes, scaffolding, ladders, roofs and other heights at work which poses greater risk to the construction workers.

Falling Objects: Construction workers are at risk of being struck by objects from above, Falling objects like construction materials that aren't properly secured or tools used above the worker expose the construction workers to great risks. Sometimes, when such injuries occur, spinal and brain injuries can occur even if a labourer is putting on suitable safety equipment such as hardhats.

Equipment Related Accidents: Heavy machine equipment such as a dumpster could fall over unexpectedly, a forklift could fail to work properly, or a nail gun could misfire while on use on construction sites can be very dangerous. If equipment is unsafe or dangerous and that can cause injuries to the worker.

Crushed –Between and Back overs and: Workers are sometimes crushed between large vehicles and walls or concrete. They are also at risk of being run over by large trucks backing out of construction sites. These types of accidents can be associated to supervisor negligence in controlling a work site.

Explosions and Fires: Construction workplaces sometimes contain hazardous conditions such as leaking pipes, flammable chemicals that could lead to fires and explosions and exposed wiring.

Though not common as other types of accidents, these can, however, be fatal or result in serious injuries.

Building or Trench Collapses: Building or trench being build may give in with the workers inside and it is another common type of construction injury. A building that's being demolished or that's under construction can unexpectedly or without warning collapse, killing or seriously injuring workers inside it.

Repetitive Motion Injuries, Heat Stroke, and other overexertion: Workers in construction industry most often suffer from injuries due to the hard physical labour to carry out construction work, that results from overexertion that includes muscle and joint damage, repetitive motion injuries, heat stress in hot conditions that may lead to heart, kidney or brain damage or death, hypothermia or frostbite leading to workers losing their fingers, toes and parts of the face in cold climates.

High Lead Levels: Construction workers are exposed to lead which is harmful to their life due to unsafe work practices and poor site settings.

Respiratory Diseases: A good number of people working in construction die from pneumoconiosis. This is a disease that usually affects workers from coalmines and is legally defined as a chronic dust disease of the lungs. Silicosis, Asbestos and Coal Workers' Black Lung are the most common pneumoconiosis conditions that have to death of most construction workers.

According to Peckar et al. (2014), the above described construction injuries can lead to various medical conditions including: broken bones or fractures; amputation of a finger, toe, or limb; burns for fires, electrocutions or explosions; cuts or lacerations from exposed machinery, tools, nails etc.

and even death. The construction worker's family therefore should have to claim for a compensation for a wrongful death in such a situation.

Most of under developed countries (Mbuya & Lema, 2002), health and safety in construction project delivery is not given proper considerations or prioritized, and during construction, employment of safety measures is considered a burden. There has a steady decline in injury rates particularly in construction and all industries (Welch et al., 2007). They argued that lack of consistencies in the information may lead to some of the obvious decrease that may be due to changes in the ways injuries are treated, employees underreporting or misclassification.

2.3 Underreporting of injuries in construction sites and accuracy of reporting

Daniels et al. (2005) found that accidents, injuries and illness underreporting seems to be a global phenomenon, as confirmed with studies conducted in other various countries. They suggested that, trends and patterns in rates of accident and accurate reporting vary from nation to another, due to differences in cultural practices, difference in legislation as well as variation in systems of reporting. The underreporting and not reporting at all by small firms may be attributed to lack of awareness of legal reporting, penalties infrequently levied on poor record keeping and there is a greater burden for smaller firms to complete the relevant paper works as opposed to larger firms (Daniels et al., 2005).

Daniels et al. (2005) suggests that work related musculoskeletal disorders incident rates are majorly underreported and researchers are advocating for regulatory policy-making improvement and resource allocation of programmes to ensure that preventive efforts are achieved. Under reporting of eye injuries was also unearthed by their research compared to other injury types on

site. In assessing the workplace fatalities reporting accuracy, the HSE was found to be concerned with the non-fatal workplace injuries reporting accuracy, more so those injuries that take over 3-days from work (Anonymous, 1995).

Accordingly, Employment Gazette, (1992), a comparison of injuries reported under RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences Regulations) and those of the Labour Force Survey (LFS) figures that employer majorly underreport non-fatal injuries as confirmed by HSE. According to National Statistics (2001 and 2003) and HSC (2001a), the revelation of the LFS showed a decline in mandatory injury reporting in recent years. To counteract the widespread underreporting trend, employers, Local Authorities and Health Safety and Environment (HSE), have worked hand in hand creating awareness through initiatives attempting to improve the level of reporting (HSC, 2000; HSC, 2001).

Daniels et al. (2005) pointed that in countries that do not have a tradition of collecting accident descriptions especially underdeveloped nations there is intensified problem of underreporting workplace injuries. They pointed out that underreporting in Europe and United States has a great difference compared to such underdeveloped nations because they operate indifference socio-economic climates.

Mustard, (2002), Karr (2000), in their research in the US jointly agreed that the substantial decline underreporting of occupational injury and illness rates from 1992 to 1997 is attributed by researchers to the attempts to escape inspections and gaining good safety incentive. They then pointed out the observed decrease may be as a result of the following explanations:

i. Alterations in the work performance nature reduced the workplace hazards in most construction industries.

ii. The hazard recognition in construction industry changed. The U.S employers realized that to lower worker compensation cost, there is need to increase safety at the workplace.

iii. To prevent accidents, there must be a success in occupational safety and health programmes.

iv. In order to reduce violations and to increase compliance of safety standards, stern measures must be implemented by OSHA.

A study by Conway & Svenson (1998) pointed out that the size of the problem had no apparent increase, even though there was a persistent in underreporting of the injuries as a further support of the believe that injury rates decrease was a multifactorial. Moreover, the occupational injury and illness rates recent decline cannot be merely explained by just underreporting of construction injuries.

According to McKnight et al. (2001), workforce composition might be attributed to the observed increase in construction injury rates rather than changes in reporting levels. Korman et al. (1997), argued that national estimates may be exceeded construction injury rates as evidenced from construction in contrary to the perceived decrease in injury and illness rates in the construction industry.

2.4 Factors influencing accurate reporting of injuries in construction sites

2.4.1 Size of the company

According to Leigh et al. (2004), small firms are thought not to report injuries and accidents at all because these small firms suffer from lack of legal reporting requirement awareness, a greater burden of completing paper works and penalties rarely levied for poor record keeping by small firms as opposed to big firms.

Nevertheless, according to study by McKnight et al. (2001), there is a reduced reportable workplace injury experienced risks in smaller firms as compared to larger firms. Their study showed employees experience lower injury rates while in small workplaces than in bigger workplaces.

2.4.2 Age of the worker

Karr (2000); Conway & Svenson (1998) in their study they found that the prevalence of fatal occupational injuries and injury severity rise with age but the occurrence of injury decreases with age. However, according to study by Parker et al. (1994), there exist belief of inaccurate reporting among age groups as is evidenced in their scientific literature. Their study further found that adolescent work injuries suffer so much from underreporting, most of the adolescent work injuries are not reported to the relevant authorities for action.

2.4.3 Type of injury

2.4.3.1 Injury of the eye

According to Low et al. (1996), there is greater propensity to under report eye injuries. Their study found that according to HSE, eye injuries suffer from substantial underreporting. HSE (1991)

found that most of the injuries studied amount to over3-day out of work. HSE further found that there is a reduced reporting levels of eye injuries within the manufacturing and construction industries where eye injuries are most dominated.

2.4.3.2 Musculoskeletal disorders

Daniels et al. (2005) pointed out that most studies done in the U.S points out that there is high level of inaccurate reporting of work-related musculoskeletal disorders (WRMSD). Morse et al. (2001) in his study compared cases of injuries reported through insurance scheme on WRMSD to the ones of physician of the state based on injury and disease reporting system, occurring as a result of one's occupational practice. Morse et al. by epidemiologic capture-recapture methodology, discovered under reporting of WRMSD substantially to either existing regulatory surveillance programs for occupational disease and injuries or to worker's compensation insurance schemes. Silverstein et al. (1998) argued that the underreporting of work-related disorders are extensively too large; lost time cases estimated to represent about 36-42% of cases reported to insurance scheme for compensation concerning WRMSD.

2.5 Reasons for under reporting

Daniels et al. (2005) argued that for both employees and employer, there exist strong and powerful disincentives for them to participate in a reporting scheme. They further presented a number of reasons to why workers under report injuries in workplaces as outlined.

2.5.1 Programmes for safety incentive

2.5.1.1 Programmes prevalence

Daniels et al. (2005) argued that in order to achieve desired safety targets and as a way of inducing workforce safe work, a substantial proportion of the incentives are focused on the utility. They

went ahead to state that safety motivating programmes aimed at decreasing the number of incidents and accidents in workplace with the aim of cutting safety related costs and improving safety records have been widely introduced in the construction industry settings. Even though majority of incentives appears to be tagged on prizes and not to financial remuneration, schemes on safety incentives in operation have various safety range.

Hislop (1993) & Petersen (1989) argue that, while there are those who oppose worker safety and promoting safe behaviour, there are those who continue to champion schemes to push in their interest as a means of making sure that they are achieved. They therefore (Hansen, 1994) argue that it is marred with bribery and safe behaviour buying. Daniels et al. (2005) argued that reward most likely monetary, is the real incentive for many workers in the construction industry and underlying causes of workplace hazards are often not addressed as a result injuries also go underreported.

Eich (1996) and Groover et al. (1992) argued that the introduction of schemes for safety incentives, there is an impressive decrease in lost-time accidents (LTAs) as seen in many articles that provide statistical evidence of the same. This possess a great suspicion that the underlying results inclines towards rewards for non-reporting of injuries.

Hale (1987) & Geller (1996) argued that the perverse motivation to underreport is purely promoted by the utility of safety performance incentive schemes. Smith (1997) comments that friction between groups of employees and between employees and management which is actually the potential divisive influence in an organization is inevitably created by the incentive schemes. They further state that the decrease in the number of LTAs in a given period of time as a safety measure received much criticism in regard to safety incentive schemes. Grover et al. (1992) and McAfee et

al. (1997) claimed that incentive schemes that are LTAs-based, are neither right measure of performance indicator but are acting as contrary methods in safety performance improvement.

2.5.1.2 Perverse motivation to under report injuries

Levit et al. (1993) argued that there is an attempt by many organizations to achieve a suppression of accident report through motivation, they potentially influence negatively the peer pressure. This is thus achieved through a financial rewards or high exchange value. The draw to the organization opting to high value incentives in particular is that minor injuries will be hidden or continuing to work even when workers are injured will be encouraged in order to increase the likelihoods of receiving the incentive (Grunberg et al., 1996).

Flanders et al. (1999) argued that, when efficient policies on safety are substituted with traditional policies by some employers, the interest and participation of the workers in incentive programmes seems to diminish with time. Nash (2000) pointed out that the concern of OSHA was to ensure that safety inspectors scrutinize programmes aimed at incenting employees about underreporting are imposed and fines are levied where necessary.

Katzenbach et al. (1993) suggested that organizations are like to use team-based incentives since normal unit of performance are often provided by tem structures. Nonetheless, Makinson (2000) claimed that basing incentives on team performance may lead to distinct negative outcomes. The argument is that free riding and rewarding passengers and penalizing performers may encouraged with such schemes (Gaynor et al., 1990). Tompkins (1994) observed that when group incentives are given, then unworthy employees are always in the rewarding group. According to Groover et al. (1992), there is need for salient conformity influence otherwise, employees may be subjected

to suppressed stimulus for incidents reporting more so where motivations are attributed to colleagues or groups of individuals.

Atkinson (1999) in his study summarized that, productivity in construction work delivery may be thwarted safety incentive and reward programmes which are poorly planned. Underreporting of accidents may encouraged by not practicing fundamentally safe behaviour instead, most organization offer rewards which are based on an unsafe safety practices. He went further to point out that there is likelihood of accident reports declining, may be as a result of reduced reporting, but still remains in the system the underlying safety problems. He also cautioned that reporting an injury should not be more detrimental than the results of not reporting as the obvious solution to curb injury underreporting.

2.5.2 Safety culture

Njuguna (2007) asserts that providing a safe environment and minimizing potential risk are both the moral and legal responsibility of the organization and that a safety culture should be maintained at workplaces. He continues to describe a good safety cultures as one on which workers are rewarded when they are attentive to safety issues. According to Joy (2005), positive safety culture at work can be developed through the allocation of praise, promotions and cash to employees who behave safely. This implies that when workers are well motivated they behave safely at the work place and minimizes the human error that may cause or create unsafe working environment.

In identifying the injury non-reporting root-causes, Sims (2000) suggested that many researchers acknowledged that workplace safety depended entirely on the organization factors besides incentive programmes that are poorly designed. Amongst the factors that will influence the individual's willingness to report accidents and near misses are values, attitudes, beliefs and

practices, an organization's safety principles, and or the predominant standards (Reason, 1997). The behaviour relating to health and safety of people in the workplace is majorly influenced by the organization's health and safety culture Wagennar (1998). In order to achieve and maintain health and safety standards, HSE emphasize the significance of developing a positive safety culture (HSE, 1991).

Clark (1998) ascertains that poor commitment to a safe workplace by management is the most likely symptom that encourages underreporting of injuries in workplaces since a reputable organizations with a resilient managerial commitment to safety make it clear that under reporting of accidents is unacceptable to all supervisors and all employees. Clark argued commitment to safety by management as would be perceived by employees, would be objectively measured by the level of incident reporting. He went further to state that, maintaining inadequate injury reporting requirements and allowing poor administration of records by organizations' managers is in fact a recipe of hiding injuries. Mearns et al. (2003) argued that for precise reporting to be achieved, there must be a clear message communicated to the employees and their supervisors permeated downwards from the top management.

Reason (1997), outlined serious subcomponents of a workplace safety culture in operation which interact together to create a safety culture or informed culture as: a learning culture; a just culture and a flexible culture.

2.5.2.1 Reporting system

Reason (1997) pointed out that persuading workers is not an easy task particularly in filing serious incident and occurrence reports mostly when the report may involve exposing their own errors. The workers nevertheless, seldom the value in filling reports even if people do not mind revealing

their errors. The workers become so skeptical about the management likelihood of acting upon the information obtained in the report. According to Reason (1997), quantity and quality of incident reports are determined by the following five essential factors

i. The disciplinary proceedings should be indemnified as far as it is practicable
ii. The report should be confidential and no identity attached.
iii. The report collecting and analyzing department or agency should be separated from the bodies or authorities that execute disciplinary proceedings and those that enact sanctions.
iv. There should be accessible, useful, rapid and intelligible feedback to the reporting individuals.
v. The report should be easy to make.

Reason (1997) went ahead to clarify that, in creating a climate of trust the first three factors are essential and the others are needed to persuade workers to make reports. The perceived absence of any useful outcome, apart from lack of trust, will also suppress incident reporting. If companies, see no return from their reports, especially small companies, they may be restrained to involve themselves in this practice. Therefore, reporting is not a strong enough impetus to assist the government in exposing the true magnitude of reportable injuries despite being a legal requirement.

Glendon (1991) in his study identified prerequisite as major several criteria for a conducive system to reporting and recording accidents. They are outlined below:

i. System objectives clearly defined.
ii. Needs of system users clearly defined

iii. The designed system must have an important component of a program for controlling accident injuries.

iv. The system must be provided with the capability for supplying data output that will meet legal requirements.

v. The system must be able to collect sufficient data for accident analyses, and providing computer links with databases containing sick leave and employment data.

Snyder et al. (1991) argued that, record-keeping definitions is not fully understood by most employers and workers. They point out that the actual information received by the employees do not most often reflect the actual goals communicated about reporting all injuries and in many cases, workers are not being educated by the employers about the correct rules for reporting injuries and accidents, hence making a claim by employees sometimes difficult (Leigh et al., 2004).

2.5.2.2 Employee employer attitudes towards accident reporting

Both employer and employee approaches in regards to injury reporting are also likely to be highly significant in determining whether an injury is reported formally. According to Prosser (2003) near miss events are often not recorded or reported as explained by research studies conducted in both commercial and industrial organizations. His study showed that the apparent occurrence of minor incidents occurring regularly and with little consequence has become accepted as an insignificant occurrence; time and effort consuming safety investigation processes; and staff mortification at illuminating their own errors. Prosser (2003) warns that any attempt to conduct meaningful analyses and develop strong preventive actions requires one to collect near miss data of sufficient quality and quantity.

Pransky et al. (1999) outlined that management failure to respond appropriately after prior reports, belief that pain was an everyday occurrence of work activity or getting old, fear of reprisal, and a desire not to lose their usual job are the major reasons for workers not reporting their injuries. In addition they stated that other reasons for not reporting injuries by workers are a fear of being assigned to lighter duty that the worker does not liked, separation from co-workers and loss of overtime pay. In the contrary, many elderly workers got worried that reporting would be taken by their supervisors that they are unable to perform the duty while others assumed that symptoms of suffering are brought about by high demand and would go away once periodic production demand decreased. Their study also showed that most workers never wanted to be tainted as complainers which might jeopardize their promotion chances.

Consequently, (Pransky et al., 1999), employees may seek treatment via group health and thus consider condition a non-occupational or report not at all or opt for lighter work and take sick leaves or decide to change the job in order to avoid reporting. They therefore attributed underreporting of injuries that are work-related in nature to causal attribution or improper diagnosis, lack of injury recognition, inadequate knowledge of reporting requirements, barriers posed by administration and lack of mechanisms of reporting.

Shaw et al. (1998) showed that better worker morale, improved training are related to interventions of injury and early reporting. They pointed further that high injury costs in projects might be as a result of failure to identify injury cases at an early stages and mostly reversible stage and by suppressing accurate reporting systems by organizations managers.

2.5.2.3 Workplace violence and bullying

Warshaw et al. (1996) found that the use of violence or threat against workers by either the public or staff member is a potential influence upon the worker's motivation to report injuries and accidents. They pointed out that lack of an appropriate reporting system; cultural acceptance of violence; lack of consensus on a taxonomy of violence; and fear of blame or reprisal and employer's disinterest in the report are factors that might influence the work to underreport injuries.

Wilner (1998) identified underreporting of injuries and accidents to be contributed by employees' intimidation and harassment by their superiors. Similarly, Barlow et al. (1997) stated that accurate statistics concerning the rate of violence against general personnel are difficult to establish as it is heavily under reported.

2.5.2.4 Problems of using accident data as performance indicator

According to Daniels et al. (2005), underreporting is labelled as one the several factors that limit the utility and reliability of accident and fatality measures for organizational research and practice. They therefore, stated that the organizations and government agencies as means of preventing occupational accidents expend considerable effort on obtaining accurate accident data.

Young (2000) argue that safety performance based on the rate of recording injuries may seem not to be appropriate since the occurrence of the reportable injuries and the appearance of the hazard has a long time lag and there is limitation of injury statistics as is evidenced by either OSHA or HSE. Young argued that for firms particularly, for medium and small sized enterprises, simple accident statistics are mostly invalid and rare occurrences and should not be assumed as a measure

of success in risk control. Pardy (1999), therefore argued that for a short time spans they can represent misleading and poor indicators.

Parker et al. (1994) advocated that workers should have symptoms of self-reporting and direct surveys of hazards in workplace. They went further to suggest that by focusing so proactively on areas that require serious improvement the employers will therefore, develop systems of information gathering much responsive to situations at an early stages. Glendon (1991) agreed that focusing on the experiences of a group of workers is likely to lead to stigmatization of single individual by this type of information.

Glendon (1991) pointed out that the validity of accident data and adequate safety performance measure is a suspicious indicator in measuring safety behaviour changes in organizations, but instead, he suggested that supporting of accident data with other measures like safety audit and results of inspection, inessential factors influencing outcomes and degree of control like presence of other underlying factors should be used rather than the things being tested. Otherwise, he said that using accident data, at best, as a measure of behavioural changes is so much problematic (Macaskill et al., 1998).

Non-reporting of minor injuries and accidents is a great problem according to Glendon (1991).

Minor accidents and injuries are particularly susceptible to the problems of non-reporting (Glendon, 1991). He also commented that data for analysis often become biased as the systems of reporting always do not catch the random sample of accidents but instead catch the major and severe accidents.

2.6 Legislations and Enforcement of Health and Safety Regulations in construction

Occupational Safety and Health Administration (OSHA) within the Department of Labor is a department created by The Occupational Safety and Health (OSH) Act of 1970 to reduce workplace hazards and implement safety and health programs. OSHA outlines the obligations of both the worker's rights under OSHA as an employee at a construction site as well as safety standards and regulations apply to work at construction projects.

According to Occupational Health and Safety Act, 2007, Cap. 21 sections 1, notifying the area occupational safety and health officer of any accident, dangerous occurrence, or occupational poisoning which has occurred at the workplace is a sole prerogative and obligation of the employer.

Section 2 states that the employer shall do the following in case an accident in a workplace causes the death of a person:

i. Within twenty-four hours of the occurrence of the accident inform the area occupational safety and health officer; and
ii. Within seven days of the occurrence of the accident send a written notice of the accident in the prescribed form to the area occupational safety and health officer.

Section 3 of the Act states that, the employer shall send to the area occupational safety and health officer, a written notice of the accident in the prescribed form within seven days of the occurrence of the accident where an accident in a workplace causes non-fatal injuries to a person therein.

Section 4 of the Act points out that the occupier of the workplace shall submit a notification area occupational safety and health officer in the case of death due to a workplace accident, non- fatal injuries arising from a workplace accident, an occupational disease or a dangerous occurrence at the workplace, involving a self-employed person incapable of submitting notification. An

employer shall ensure as specified in section 122 that all workplace injuries to be entered in the general register.

Section 6 states that the employer shall send a notice of the death in writing to the area occupational safety and health officer as soon as he is informed of the death where a person injured in an accident dies after the accident is notified. The employer shall immediately report the accident to the occupier or, the Director and the area occupational safety and health officer if an accident to which this section applies occurs to an employee and the occupier of the workplace is not the employer of the person injured or killed. As specified in the First Schedule the provisions of this section shall extend and apply to the dangerous occurrences. And on the advice of the Council, the Minister may, on by notice in the Gazette amend the First Schedule.

The Act states that a person commits an offence and shall on conviction be liable to a fine not exceeding two hundred thousand shillings or to imprisonment for a term not exceeding six months or to both if he fails to notify an accident or a dangerous occurrence as required under this section.

2.6.1 Employee Rights under OSHA

OSHA gives employees in a construction site the following rights among others and include right to have access to medical records and relevant employee exposure; rules, to request the OSHA area director to inspect their workplace if they believe there are hazardous conditions or violations of standards and have an authorized employee representative accompany the OSHA compliance officer during the inspection tour; to review copies of appropriate standards; to receive a copy of tests done to find hazards in the workplace; to have their names withheld from their employer upon request to OSHA, if they sign and file a written complaint; to be free of any discriminatory or

retaliatory action taken by their employer as a result of any OSHA complaint and to review records of work-related injuries and illnesses.

2.6.2 Obligations Employer under OSHA

The employer of the workplace has an obligation under OSHA to ensure that workplaces are free from hazards recognized; safe tools and equipment are accessible to employees; to notify employees about safety and health standards applying to their workplace; to display the official OSHA poster that describes rights and responsibilities of employees in a prominent place; to establish a written, comprehensive hazard communication program including provisions for such things as labeling container, safety data sheets for material, and training program for an employee; to provide employees, in language they can understand, safety training; to inform employees of location, the existence and availability of their exposure records and medical, and providing these records when requested.

2.6.3 Specific Legislations

According to Employment Act Cap 226 section 15, the employer is expected to display a statement in a conspicuous place a prescribed form of the employee's rights under this Act, which is accessible to all the employees. This specific legislation gives the employees right to be aware of their obligations in place of work. Section 5 part 2 of the same act states that, an employer shall strive to eliminate discrimination promote equal opportunity in employment and in any practice and policy of employment.

According to Work Injury Benefit Act Cap 236, requires that employee should notify the employer of the occurred accident. Section 21 of this Act states that, within twenty-four hours, a copy of the

written notice or a notice of the verbal notice shall be sent to the Director concerning occurrence in the case of a fatal accident by the employee or on behalf of the employee concerned to the employer. Sub-section 1 of this section states that, within seven days after having received notice of an accident or having learned that an employee has been injured in an accident, an employer shall report an accident to the Director in the prescribed manner subject to the provisions of this section. Section 23, sub-section 1 states that, the Director shall make such inquiries as are necessary to decide upon any claim or liability in accordance with this Act after having received notice of an accident or having learned that an employee has been injured in an accident.

Occupational Safety and Health Act, 2007, protects employees against discrimination by the employers in events they complains of unfavorable situations and environments riskier to their health. Specifically, Section 8(1) states that employees should not be dismissed, injured or discriminated against or disadvantaged in in employment, alter his/her position to the detriment of him or her by reason that s/he complains about a matter considered not safe or is a riskier to their health.

Developing countries, according to Cotton et al. (2005) have little impact concerning the institutional and legal governance frameworks on occupational safety and health. The enforcement of health and safety standards and Labour standards is very lax since majority of contractors are small and medium enterprises operating within their domestic markets. According to Muiruri et al. (2014), lack of adequate resources available to government institutions responsible for occupational health and safety administration makes enforcement of health and safety regulations more problematic. Likewise, to support the enforcement of Labour laws in developing countries requires the serious interventions of contract provisions.

2.7 Summary of the Review

Construction industry is considered as being risky and dangerous, despite its importance in contribution gross domestic product (GDP), gross domestic capital formation (GDCF), production of capital facilities and assets required for production in other sectors and creation of employment. Most of under developed countries, health and safety in construction project delivery is not given proper considerations or prioritized, and during construction, employment of safety measures is considered a burden by most organizations. Actually, almost every day in almost every construction site there is either accident, injuries, incidents or near misses occurring to the workers. The occurrences ranges from near misses, minor injuries to fatal accidents which are not all reported for remedial actions to be taken.

The common construction injury types are falls related, equipment related accidents, run over by trucks, explosion, fires, collapses, repetitive motion injuries, heat, stroke, over exertion, exposure to lead, respiratory diseases and medical conditions from construction accidents. By being aware of the common injuries suffered on construction sites, workers can help in preventing these incidences from taking place as well as well as through emphasis put concerning site safety.

Accidents, injuries and illness underreporting is considered a global phenomenon, as confirmed with studies conducted in various countries. The trends and patterns in accident rates and accurate reporting vary from one country to another, due cultural differences, difference in legislation as well as variation in reporting systems. The underreporting and not reporting by small firms may be attributed to lack of awareness of legal reporting, penalties infrequently levied on poor record keeping and the greater burden for smaller firms to complete the relevant paper works as opposed to larger firms.

Underreporting in developed nations like Europe and United States has a great difference compared to such underdeveloped nations because differing socio-economic climates.

The prevalence of fatal occupational injuries and injury severity rise with age but the occurrence of injury decreases with age and there exist belief that there is inaccurate reporting among age groups.

One of the major moral and legal responsibility of organizations is to provide a safe environment and minimize potential risk by ensuring that a safety culture is maintained at workplaces and this implies that when workers are well motivated they behave safely at the work place and minimizes the human error that may cause or create unsafe working environment.

Both employer and employee approaches in regards to injury reporting are significant in determining whether an injury is reported formally and in any attempt to conduct meaningful analyses and develop strong preventive actions requires one to collect near miss data of sufficient quality and quantity.

Safety performance based on the rate of recording injuries seems not to be an appropriate means since the occurrence of the reportable injuries and the appearance of the hazard has a long time lag and the limitation of injury statistics. And for medium and small sized enterprises, simple accident statistics are mostly invalid and rare occurrences and should not be assumed as a measure of success in risk control.

The Employment Act Cap 226 instruct the employer as is expected to display a statement in a conspicuous place a prescribed form of the employee's rights under this Act, which is accessible to all the employees as a form of enhancing awareness.

2.8 Conceptual Framework

The injury reporting status in any construction site shows the level of the adherence to the safety standard guidelines. An effective injury reporting system is influenced by the internal site setting parameters within a construction site. There are a number of indicators of injury reporting in construction sites. These include the enforcement of statutory requirements, level of workers awareness of the rights to report and reporting channel, nature of the firm, types of injury and the socio-economic status of the workers.

2.8.1 Conceptual model

The model therefore, outline the reporting trends of injuries in a construction site as the course of the study and the site parameters as the inputs (independent variables) for an effective reporting system. These site parameters include: enforcement of statutory requirement, level of workers awareness in regard to injury reporting and channels of reporting, nature of the firm and its operational culture, type of injury and the socio-economic status of the worker.

These parameters influence the reporting of workplace injuries in one way or the other. They therefore, need to be considered at depth in site in order to realize an effective reporting system in site.

The framework is as outlined in Figure 2.1.

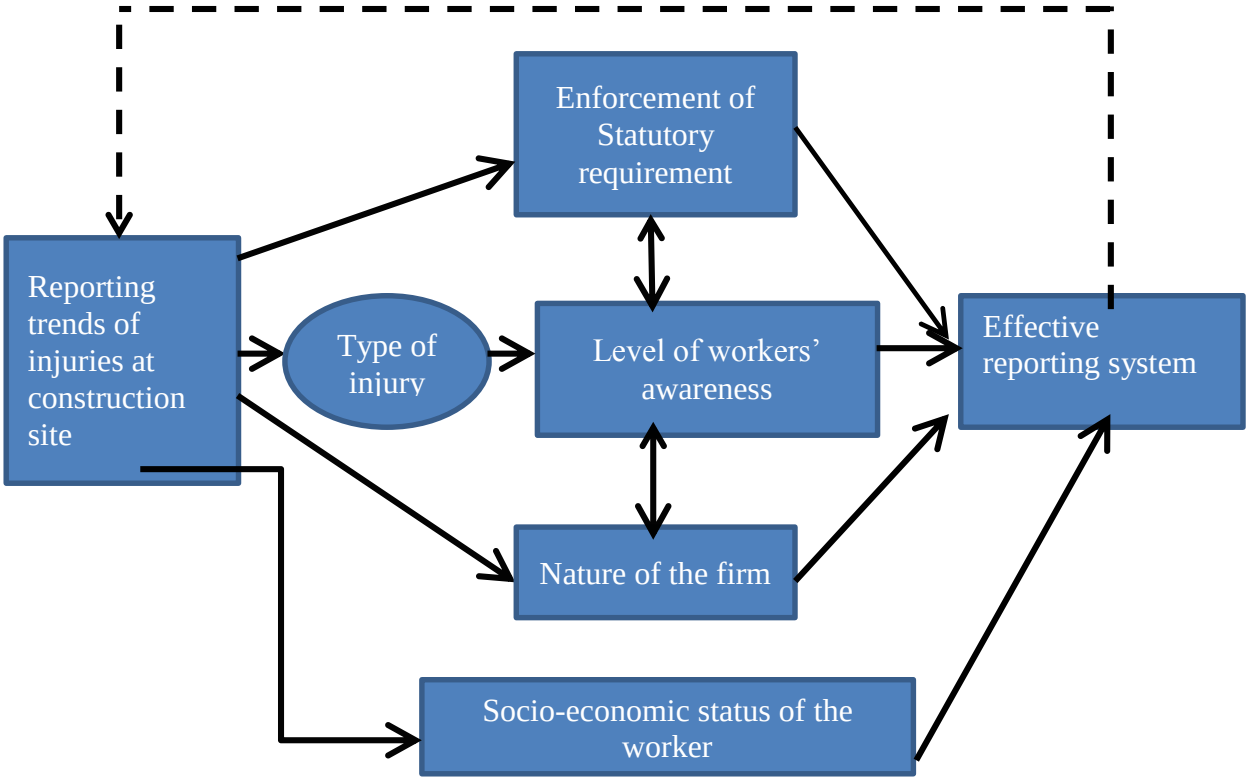

Figure 2. 1: Conceptual Framework

Source: Author, 2015

2.8.2 Enforcement of statutory requirements

The state regulates the construction operations through institutions and legal frameworks on occupational and health and safety measures in the workplace. It is the government obligation to ensure that all construction firms ensure work safe methods in all the construction sites to cushion workers from unnecessary injuries while at work. The government is obliged to carry out site audits to ascertain that the worksites are safe for working. To achieve its entire objective, the government therefore, formulates safety policies and to have health and safety institutions to

regulate the practices of the construction site stakeholders. The policies and regulations are aimed to create awareness for both the employees and the employers about safe working.

The government policy varies from country to country and from developed to developing countries. As would be expected to have a standardized measure, Cotton et al. (2005) argues that the institutional and legal governance frameworks on occupational health and safety in developing countries have little impact on safety measures on workplaces. They said that the majority of contractors are small and medium enterprises operating within their domestic markets where enforcement of health and safety standards and Labour standards are very lax. It's therefore, that the measures apply to certain sizes of the firm and reporting of injuries is also hindered.

Health and Safety institutions are also set to administer on health and safety issues. The aim is to educate the workers about their rights as to safe working while on site as well as to create awareness of the dangers they are exposed to while working on site. The regulations have to be supported with the contract provisions to ensure its efficiency. According to Muiruri et al. (2014), the enforcement of health and safety regulations remains a problem due to lack of adequate resources available to government institutions responsible for occupational health and safety administration. Also, the enforcement of Labour laws lacks the support of contract provisions in developing countries.

2.8.3 Level of workers awareness of the rights to report and reporting channel

Most of the site workers are ignorance about their rights concerning health and safety in construction sites and therefore do not bother to report any injury that occurs to them while working. On the other hand, construction sites have different kinds of people ranging from skilled to non-skilled. Some of the non-skilled do not have even basic education and this poses them with

a great challenge in expressing themselves and hence opt not to report less or not to report at all any site occurrence. There is lack of awareness of the safety and health regulations stipulated in various legislations such as The Public Health Act Cap. 269 (1965). The Workers' Compensation Act (2000) and enforcement of these Acts is still a big problem in the construction industry.

The awareness of site dangers by the workers may at a certain percentage enhance personal protective and finally may report any form of injury they encountered while working. Ignorance and lack of experience are major factors that hinder effective injury reporting by workers on construction sites.

2.8.4 Nature and size of the firm

The nature of the firm in many ways affects the level and pattern of injuries reporting in construction site. Workers in every construction site adapts to the norm and practices of the firm which employs them. There are a number of surrogates that support how the operational culture influences the reporting pattern of injuries by the site workers. The nature of the firm in essence is expressed in terms of its size, the average age of workers, and its safety culture and safety incentives.

Far and large, it is the nature of the firm that enhances the awareness of the workers about the risks they are exposed to and to ensure that all the statutory requirements are adhered to during construction. The size of the company has been found to have influence in injury reporting. According to Leigh et al. (2004), it is thought that small firms are more likely to under report accidents and injuries, or even not report them at all and the explanations offered include a lack of awareness of legal reporting requirements among smaller enterprises, penalties for poor record

keeping being rarely levied on small firms, and completing relevant paperwork could be a greater relative burden on smaller rather than larger firms.

The age of the workers in terms of injury data is also considered to have influenced the injury reporting and the susceptibility to injury. Karr (2000) in his study established that the incidence of injury decreases with age but the injury severity and the incidence of fatal occupational injuries increase with age. However, according to Parker et al. (1994), there is a general paucity of scientific literature providing evidence of inaccurate accident reporting by age group. Their study suggested that there is substantial under reporting of adolescent work injuries.

Njuguna (2007) affirms that organization's safety culture affects the way workers make injury reporting while working in sites. He asserts that providing a safe environment and minimizing potential risk are both the moral and legal responsibility of the organization and that a safety culture should be maintained at workplaces. He continues to describe a good safety cultures as one on which workers are rewarded when they are attentive to safety issues. According to Joy (2005), positive safety culture at work can be developed through the allocation of praise, promotions and cash to employees who behave safely. This implies that when workers are well motivated they behave safely at the work place and minimizes the human error that may cause or create unsafe working environment.

Safety incentives according to Daniels et al. (2005) are focused on the utility as a method of influencing workforce safety performance to achieve desired safety targets.

2.8.5 Type of injury

The literature reviewed showed that there is greater propensity to under report certain types and category of injuries as opposed to others. Daniels et al. (2005) pointed out that a number of studies

suggest that work-related musculoskeletal disorders (WRMSD) suffer from high levels of reporting accuracy. Morse et al. (2001) uncovered substantial under reporting of WRMSD either to 'worker's compensation' insurance or to existing regulatory surveillance programs for occupational injuries and diseases.

2.8.6 Socio-economic status of the worker

The social and economic status of the workers is also another variable for study in relation to injury reporting in construction sites. Negligence, poor communication, carelessness/lack of commitment and language barrier and worker to worker interaction among the problem areas are the major determinant for injury reporting.

Most of construction site workers in Kenya are poor and live below a dollar a day. Working in site is their only source of income and this forces them to ensure that they get to work every day irrespective of their health status and work environment. Fear of being told not to come to work when they are injured will prompt them not to report any injury.

The dependency ratio among the people working on construction site is very high and therefore one would not want to miss even a day without work, even if they are injured. They would rather not report certain injuries for fear of being told not to work as result of injury.

2.9 Study area

Kasarani is one of the 17constituencies in Kasarani Constituency. The constituency has a total area of 86 sq. Km and a population of 200,984 (2009 census). It covers a vast area and includes Moi International Sports Centre among others. The constituency is divided into various wards namely:

Clay city, Mwiki, Kasarani, Njiru and Ruai. The numbers of active sites per ward, in Kasarani constituency (Figure 2.2).

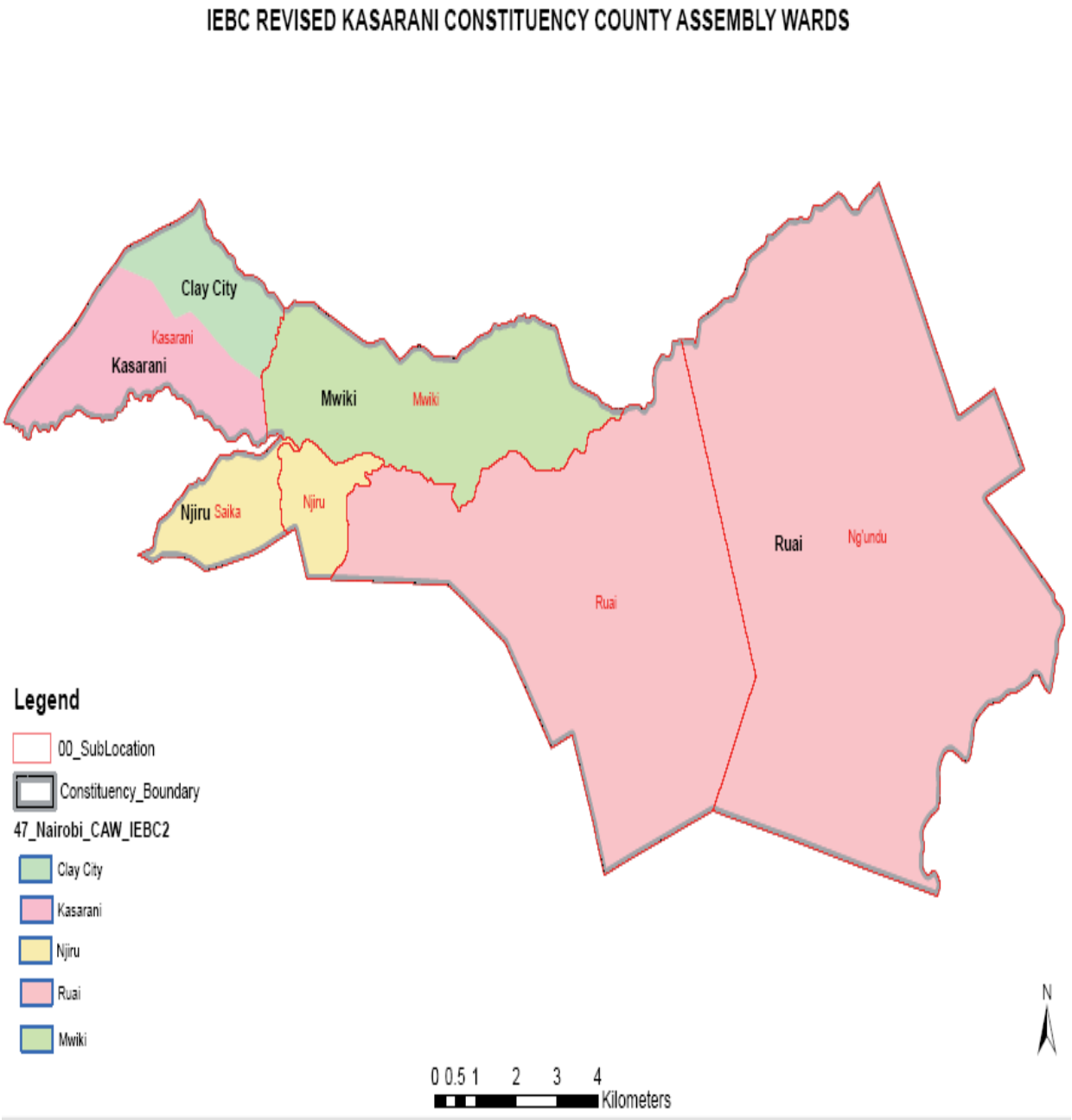

Figure 2. 2: Study area

Source: IEBC Kasarani Constituency Assembly wards, revised Edition

CHAPTER THREE

METHODOLOGY

In order to meet the study objectives, this chapter addresses the methods that were used in this study to investigate the injury reporting trend in construction sites within Kasarani Constituency.

3.1 Research Design

This was a survey study according to Mugenda & Mugenda (2003). A survey investigates what is actually happening in the field of interest without introducing treatments or controls over any of the interacting variables. A survey research was used for this study since it helped to identify the nature of the reporting of accident and injuries patterns used in construction sites and evaluate their enforcement mechanisms on construction sites as practiced in Kenya. A representative sample was selected based on the ease of access. Mugenda & Mugenda (1999) postulates that a survey is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. The survey research design was preferred as no treatment or control was to be introduced on the construction site.

In the survey, data was collected on the trend of reporting injuries among the construction site workers. Site work supervisors with varied experience and site workers were interviewed.

3.2 Sampling Design

The study was carried out among construction sites within Kasarani constituency in Nairobi County. Nairobi is the capital and largest city of Kenya with an elevation of 1795m above sea-level. Nairobi is the most populous city in East Africa, with a current estimated population of about

3 million who live within 696 km2 (269 sq mi). Nairobi is currently the 12th largest city in Africa, including the population of its suburbs.

Nairobi is the capital and the most active economic center of the country. It is divided into seventeen constituencies namely: Westlands, Dagoretti North, Dagoretti South, Langata, Kibra, Roysambu, Kasarani, Ruaraka, Embakasi North, Embakasi South, Embakasi Central, Embakasi West, Embakasi East, Makadara, Kamkunji, Starehe and Mathare.

The names of these seventeen constituencies were written on a piece of paper and folded and put in a hat and one piece of paper was drawn from the hat at random. Kasarani constituency was drawn and therefore, became the sample area.

The target population was defined as all construction sites within Kasarani Constituency. All constructions in Kasarani constituency are under the control of Nairobi County Council. The council approves building plans for construction and monitors progress through periodic inspections. The construction sites considered were actively ongoing and only those projects executed by registered contractors were eligible for studied. Sites involving both public and private; building and civil works projects were considered with the assumptions that the independent variables for the study were common to all sites irrespective of whether the site is for private or public project or whether the project is building or civil works or road construction.

The study targeted about 45 construction sites to be studied. The target was limited in size by the budget constraints. The researcher ensured that all the construction sites within the constituency are distributed proportionately, according to each ward (Fig 3.1), for the study. The assembly wards as shown in Appendix 1.

The researcher, with the help of five research assistants, assigned per ward, took physical counting of the active construction sites and where the work was carried out by a registered contractor, within the constituency because the records which would have enabled the researcher to ascertain the exact number of active construction sites were not easily available from the relevant authorities. The researcher assigned two work supervisors, four skilled labourers and four non skilled labourers for each of the site selected for study.

All the names of the active construction firms in each constituency were written on a piece of paper, folded and put on the hat. According to the number (N), construction firms for the study were drawn from the hat representing each ward at random. The names were then matched to their respective construction sites for the study.

Table 3. 1: Active sites in Kasarani constituency

No.	Name of the Ward	No. of active Construction sites (with registered contractors)	Distribution ratio(x)	N=(x). 3
1	Clay City	11	1	3
2	Mwiki	31	3	9
3	Kasarani	39	4	12
4	Njiru	29	3	9
5	Ruai	46	4	12
	Total	156		45

Source: Field work.2015.

A sample of at least 45 construction sites was targeted. The construction firms operating in each site were categorized according to their sizes, i.e. NCA 1-NCA 8. Ordinarily, the size of the firm decreases from NCA 1 to NCA 8 (details of different contractors categories are as shown in Appendix 3). The assumption considered for the study was that the bigger the firm, the bigger and complex the project was. The target was limited in size by budget constraints. "Ordinarily, a sample of less than 30 cases provides too little certainty to be practical" (Alrek & Settle, 1985) and therefore, a target of 45 cases was above the practical minimum. The construction site was the sampling unit and the site work supervisors and the site workers of the selected sites were the units of analysis.

After prospective sites for the study were identified, the researcher approached and invited the contractors of those firms to participate in the study through emails, posted letters and personal visits. The researcher obtained a letter from The University of Nairobi, Department of Real Estate and Construction Management introducing the researcher and asking permission on the researcher's behalf to carry out a study in the selected area. From the contractors, whose sites were selected for the study, the researcher sought permission to access their construction sites to carry out the study.

The work supervisors were presented with the information sheet and were further informed about their right to refuse participation and that participation was voluntary. When they agreed to participate, they were also made aware of their right to withdraw from partaking in the interview or filling the questionnaires. They were further informed that the information that they provided in the interviews and questionnaires would also be treated with confidentiality; they were not required to disclose their identifying details. Finally, to the skilled and non-skilled, they were

verbally requested to consent for their participation and the purpose of the study was explained to them. They were also assured that the information they would give would be kept confidential.

The researcher used all workers who had been on the construction site for more than one month and consented to participate in the study. Those workers at the construction sites for less than one month and all those who did not consent to participate in the study were not used during the study.

3.3 Data Collection Procedure and instruments

The instruments of data collection were questionnaires and observation schedules. (Sample questionnaire is shown in the Appendix 2). Questionnaires were given to work supervisors, skilled artisans and non-skilled artisans to give their responses on certain questions, while the observation schedules were used to collect data by the researcher during the site visits. Employees' behaviors and character, relationships of the work supervisors and the site workers were studied through observation during site visits. The frequencies of injuries and injury management in sites were also observed. The questionnaire was the main tool used for collecting data relating to workers awareness, types and categories of injuries, enforcement of statutory requirement, nature of the firm and the workers' socio-economic status in relation to injury reporting.

For ease of administering questionnaires and analyzing of data, which in effect saves on time, the researcher used structured (closed-end) questionnaires. The questions were developed from the objectives of the research and they sought to give information on the independent variables that touch on the workers awareness of their rights to report every injury they encounter on sites, enforcement of statutory requirement for injury reporting, nature of the firm in relation to injury reporting and the socio-economic status of the workers in relation to injury reporting. This approach was adopted because the secondary data in the literature review showed that the trend of

injury reporting among the construction workers is not only affected by the awareness of the reporting procedures, but is also affected by other factors. It was therefore necessary to assess the contributing factors to underreporting of injuries in the construction sites.

Each of the sites visited had a questionnaire and observation schedule as instruments of data collection. Sample questionnaire and observation schedule are contained in the appendices section of this study.

3.2.1 Pilot Testing

Pilot testing (Mason, et al., 1995) is the pre-testing of the survey instrument under actual survey conditions by administering the questionnaire to a small group of the working population. It is akin to trial run for the survey instrument intended to refine the quality of the instrument to ensure more efficiency in the actual field survey. The purpose of pilot testing was to assess the convenience of the questionnaires; to identify the ambiguities; to record the time taken to complete the questionnaire and decide whether it was reasonable and to establish whether all replies could be interpreted in terms of information that were required.

Pilot testing was conducted among workers in two of the selected construction site within the selected constituency. Two work supervisors and four site workers were studied. Pilot testing identified English and Kiswahili as the language that was to be used during the study.

3.3 Data analysis techniques and presentation

Since this is a qualitative study, data presentation and analysis is mainly in the non-empirical forms. Thus the study has adopted descriptive analysis with simple percentages to represent the proportions of various outcomes from the concepts of the study. However, the statistical analysis was executed with the assistance of Scientific Packages for Social Science (SPSS) software.

Inferential statistics was applied in testing the strength of the hypothesis-"awareness of workers right to reporting injuries in construction sites." A significance test of level 0.05 was applied in testing the strength of workers awareness using correlation procedure.

The resulting statistical outputs were displayed visually as was appropriate. The types and categories of injuries and pattern of reporting were presented in bar charts to show the comparison of the injuries reported and the ones that are rarely reported. The results of the workers awareness concerning injuries reporting procedure; and the nature of the firm were both presented on pie-charts. Enforcement of statutory requirements data were presented on pie-charts. Consequently, the data on socio-economic status of the workers were presented on bar graphs for visual appealing.

3.3 Reliability and validity

The research reliability comes from the accuracy, credibility and ability in answering the research questions at hand that can be depended upon. The percentage research response was 70 % and that was found to wide enough to be reliable and accurate for the research purpose which was to see workers attitudes on construction sites. The only tolerable variance that could be allowed was to be the changing dynamics of the target groups. The correlation coefficients of observations made during the site visits and the responses from the questionnaires indicated the stability of the scores. Respondents' anonymity was ensured by not writing their names on the questionnaire forms to avoid employer's vilification and victimization.

The answers were counterchecked and thoroughly processed to guarantee reliability and questionnaire was cancelled if any discrepancy was noticed thereby ensuring that the required standards and reliability of the study. Slight untruthfulness of the respondents was minimized to a level that it would not affect the outcome of study, otherwise it would be unwise to say that there

was no anomalies. A big amount of questionnaires were distributed in order to make the study valid and lots of responses were received. The researcher carried conversation with workers on construction sites and monitoring their behaviors on different sites were done.

The pilot testing was also done to ensure that the instruments of survey like observation checklists, interview guides and questionnaire form that were to be used was valid enough to give the required results. Also, in attesting the sampling validity to test the site workers awareness of their right in construction site, the researcher found that it would not be sufficient to only cover issues of injury awareness but other areas like types and categories of injuries reported, legislations regulating the awareness of injury and accident and the socio-economic status of the site workers.

CHAPTER FOUR

FINDINGS OF THE STUDY

This chapter outlines the findings obtained from the questionnaires administered in the research and the observations made on sites. It helped in understanding the reporting trend of construction injuries among the construction site workers in the different construction sites in Kasarani Constituency. It guided in identifying the areas that need to be improved in regards, to injury reporting in Kenyan construction industry.

The questionnaires were administered to construction site workers in two categories, that is, site supervisors and the site workers. The total number of questionnaires issued to work supervisors was 180 and those that were successfully filled and returned were 134, amounting to 74.4% and the number issued to site workers was 360 and the number that was successfully filled and returned were 266, equivalent to 73.9%. This section sought to find the background information of the respondents so as to give the descriptive information of the sample to enable researcher decide if the sample is representative and reliable. It was found that all the respondents' response in the entire sample categories are above 70%, which is far much above the threshold making the study worth carrying out.

4.1 Research study findings

In this section the researcher highlighted the results obtained from the questionnaires administered to the work supervisors and the site workers who participated in the research. It helped in understanding the trend of injuries reporting in the various Kenyan construction sites. The results also guided in the areas that need to be identifying and improved in regards to injury reporting in the construction industry in Kenyan.

The questionnaires as earlier discussed were administered to work supervisors and site workers in construction sites selected randomly. The structure of the questionnaires was divided under major themes for easier drawing of conclusions.

4.2 General information

4.2.1 Participation by Age

In terms of participation by age the respondents were required to fill in their age and from that the researcher was able to establish the age of workers on site. 36-45years forms the modal age range for the work supervisors who participated in the study and the least age range is 18-25 years as shown in Table 4.1

Table 4. 1: Statistics on the age of the respondents participated on the study

Age	18-25yrs	26-35yrs	36-45yrs	above 45	Total
Work supervisor	7	32	76	29	**134**
Site worker	61	157	40	8	**266**

Source: Field work, 2015

Consequently, the modal age category of the site workers who took part in the study was 26-35 years and the least category as was those of above as shown in Figure 4.1. this statistic indicates that in construction sites, the dominant age-group is composed of the youth.

4.2.2 Participation by level of education

In terms of participation by level of education the respondents were required to fill in their age and from that the researcher was able to establish the literacy level of construction workers on site. 53.7% of the work supervisors who participated were found to be diploma holders, and 42.6% of site workers who participated are secondary school leavers showing that many of them does not have the basic safety awareness taught in tertiary or certificate levels, as shown in Figure 4.1. The finding suggest that site supervisors employed on construction sites have at least taken the courses of site safety and health that are taught in tertiary levels.

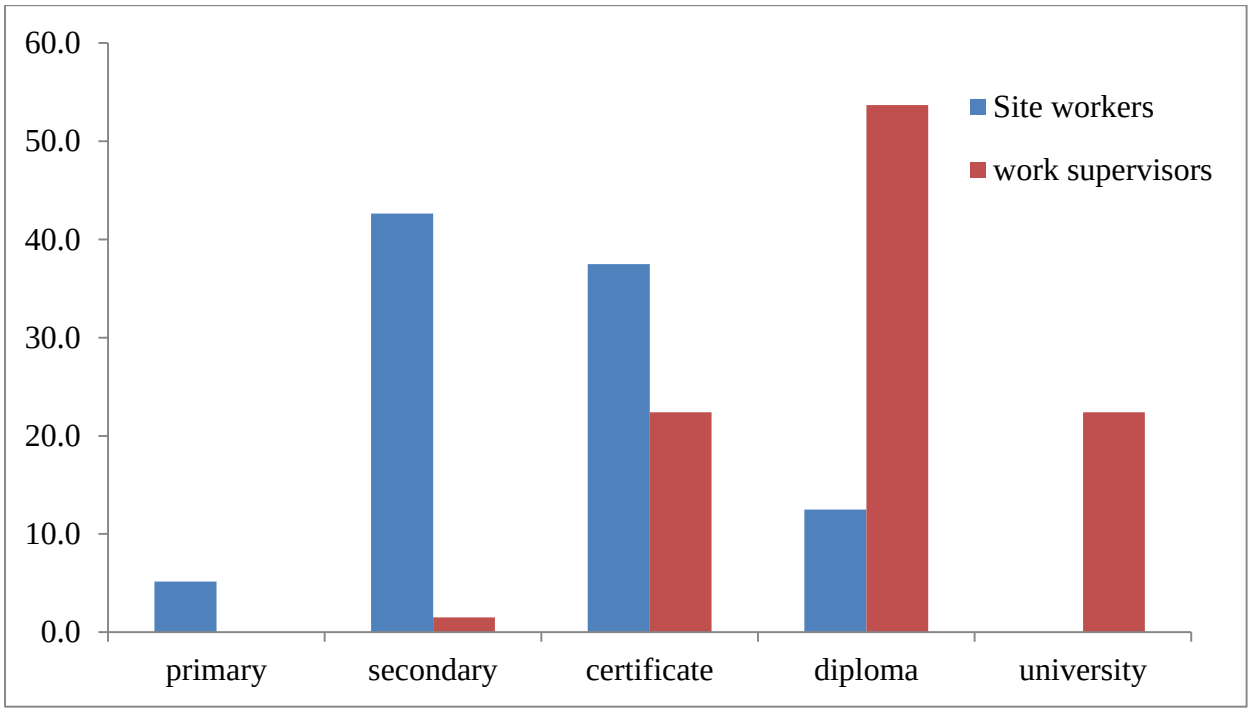

Figure 4. 1: Statistics on the education level of the respondents who participated in the study

Source: Field survey, 2015

4.2.3 Nature of employment

The workers were then asked about the type of employment contract they have in the construction site. 44.8% of the work supervisors indicated that they are employed on permanent basis as compared to other forms of employment while 60% of site workers indicated that they are employed mostly on casual basis as shown in Figure 4.2. The result therefore suggest that site workers does not have any formal employment agreement with their employers. The only binding contract between them and the employer is the work.

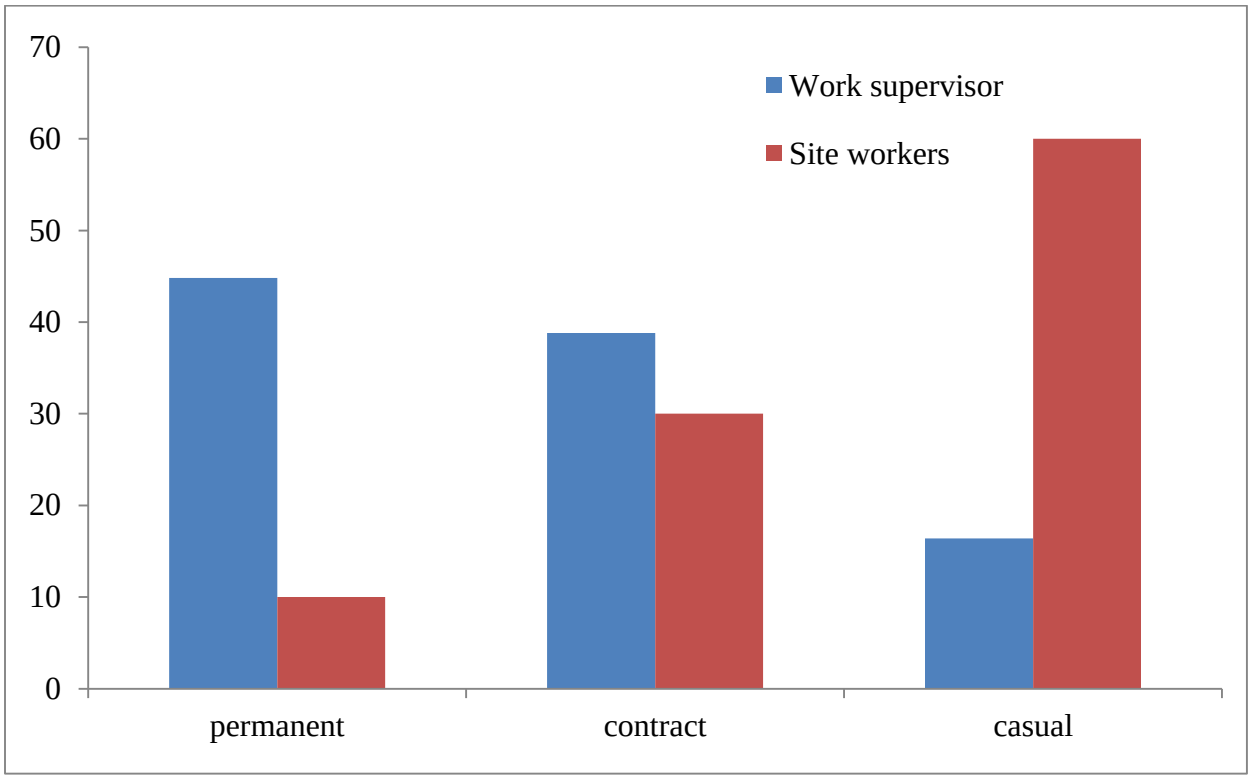

Figure 4. 2: Statistics on the nature of employment of the respondents who participated on the study

Source: Field survey, 2015

4.3 Awareness of reporting procedures

The site workers and the work supervisors were asked about the occurrence of injuries on site. 95% of the site workers said that they have been involved in accidents on site and on the contrary, only (11%) of their supervisor agreed that they have been at involved in accident while working on site as shown in Figure 4.3. It is therefore an indication that site workers are more prone to injuries as compared to their supervisors.

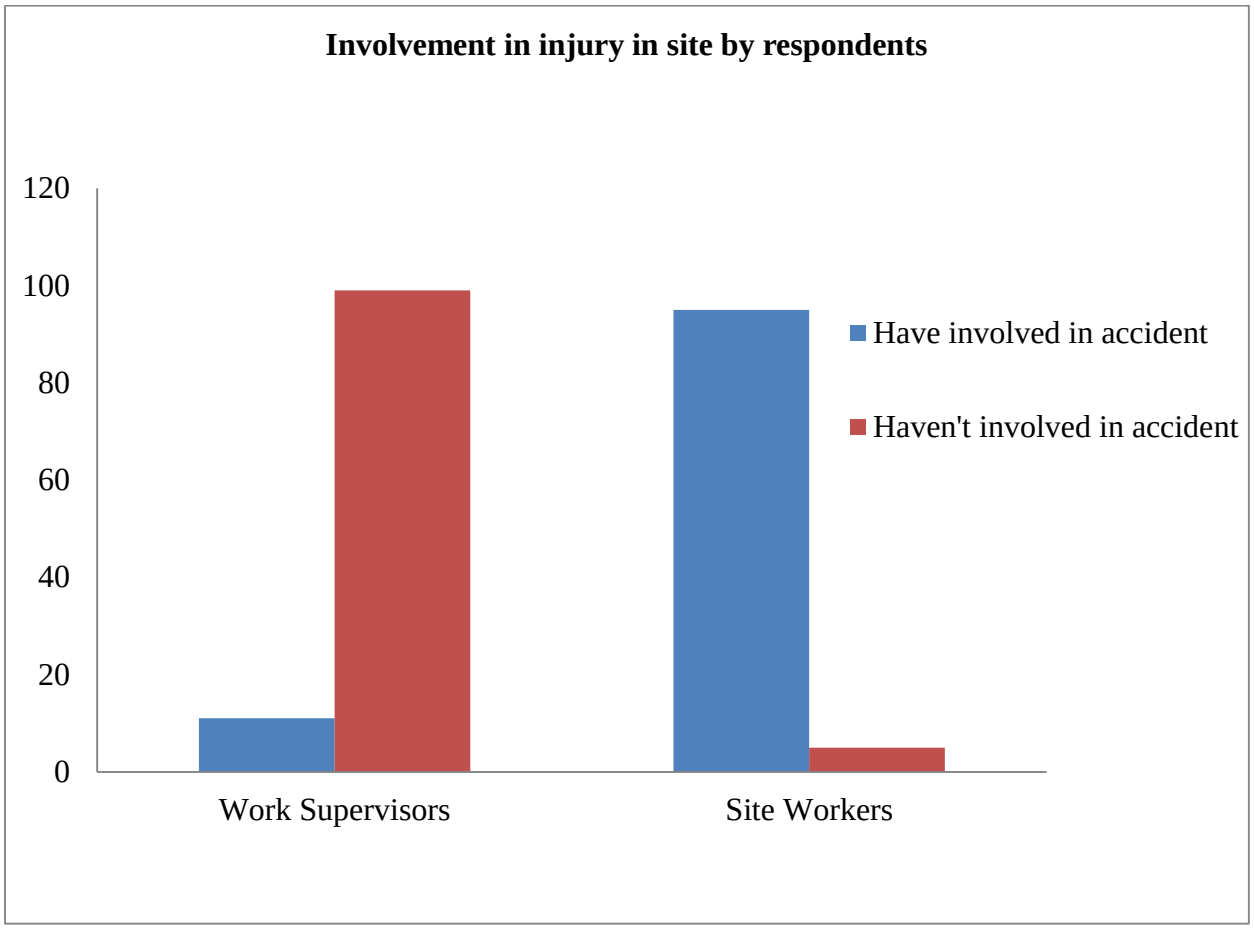

Figure 4. 3: People involved in injuries on construction sites

Source: Field survey, 2015

In terms of reporting injuries, the respondents were required to fill whether they report the injuries as they occurred or not, and from that the study would be able to establish the trend of injury reporting by both work supervisors and site workers on site.

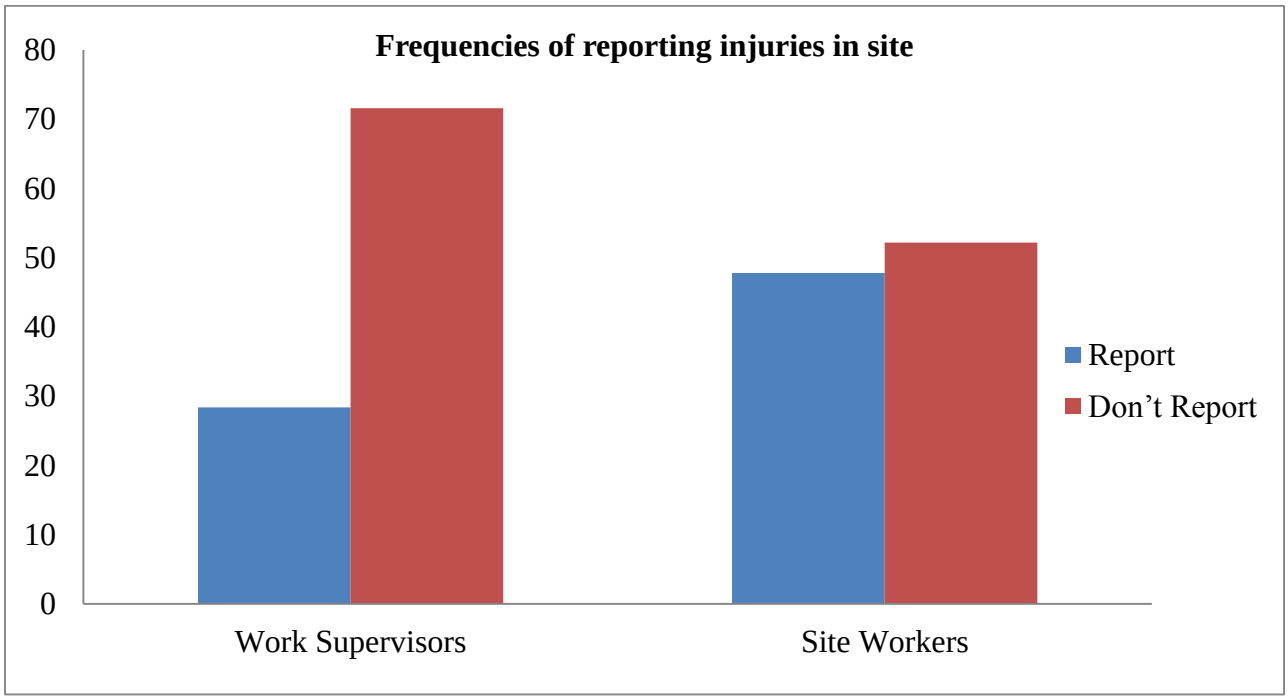

Figure 4. 4: Frequency of reporting injuries on construction sites

Source: Field survey, 2015

The results shows that 47.8% of the site workers agree that they report while the others indicated that they don't report injuries as they occurred on site as shown in Figure 4.4. The study on the other hand, shows that the work supervisors do not bother to report injuries as shown in Figure 4.5, only 28.4% of work supervisors who participated in the study agree that they report injuries to the employer and the safety authority.

The respondents were then asked their awareness of OSHA rights such as reviewing of the copies of appropriate standards, rules, regulations and requirements that the employer should avail at workplace; rights to be free from discrimination or retaliatory actions taken by the employer as a

result of any OSHA complaints; and right to call the OSHA area director to inspect their work place if they believe there are hazardous conditions or violation of the standards as required by law.

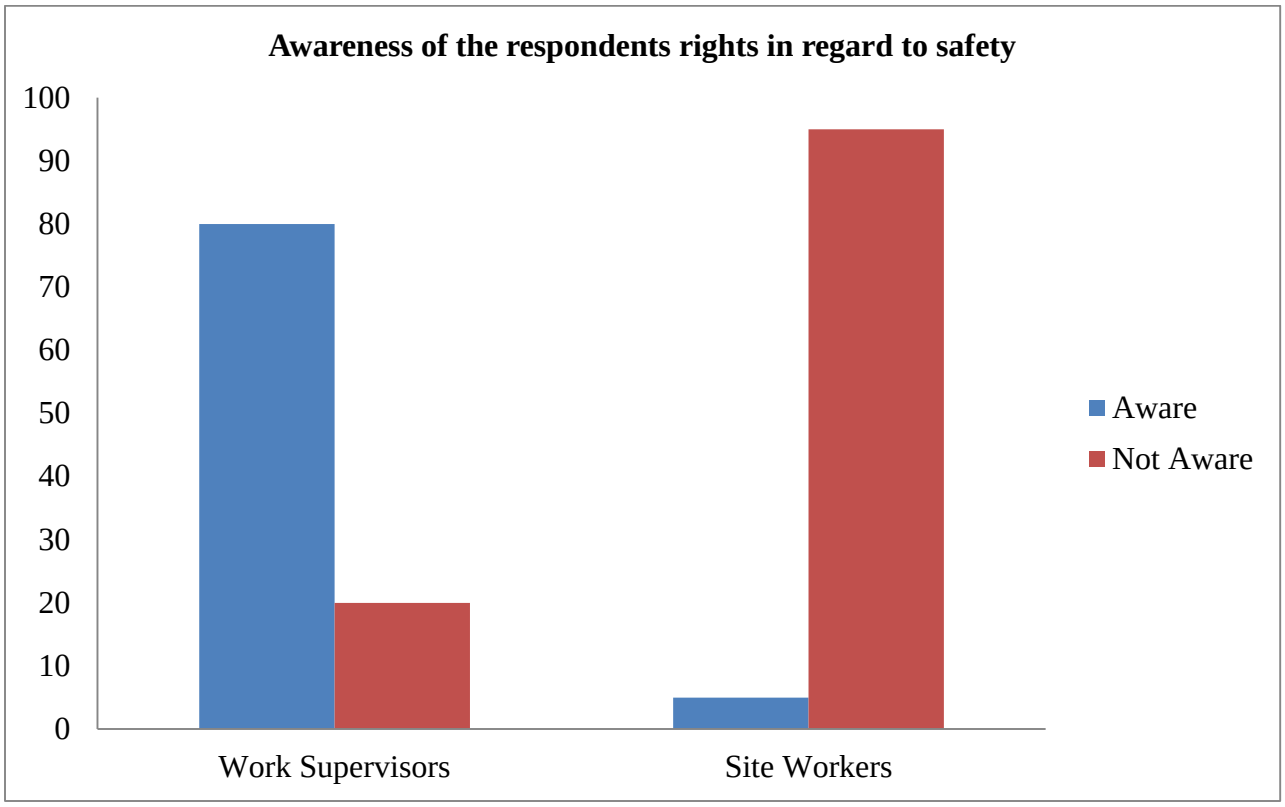

Figure 4. 5: Frequency of awareness of the respondents' rights in regard to OSHA rights

Source: Field survey, 2015

The study shows that 80% of site supervisors were aware of these rights while only 5% of the site workers agreed that they are aware of the OSHA rights as shown in Figure 4.5. This finding may be tied to the level of education of the site workers which was found to be merely form four leavers. The level of education therefore, determines the awareness of safety rights.

The site workers were also asked to append their knowledge of the existence of certain legislations regulating employees' health and safety while working on construction sites.

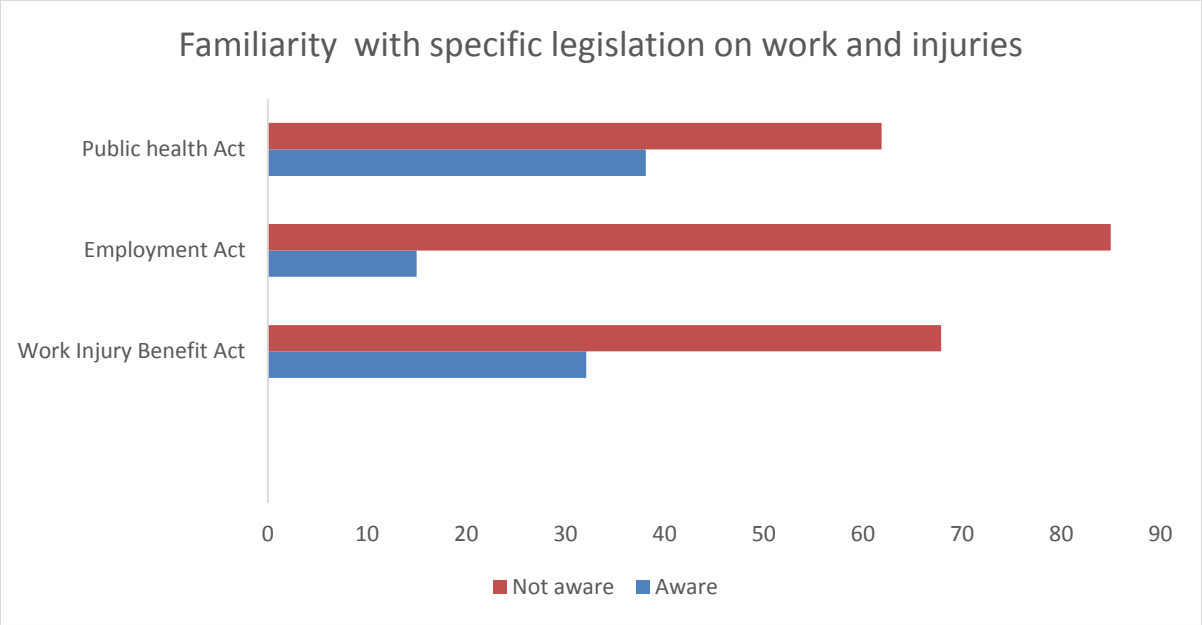

Figure 4. 6: Awareness of specific legislations regulating the safety of construction site workers

Source: Field work, 2015

Figure 4.6 shows the awareness of legislation regulating the respondents' health and safety on construction sites. The figure shows that less than 40% of the site are aware of the legislations regulating health and safety of construction site as shown in Figure 4.6. ignorance of these specific legislations may lead to many site workers' rights being abused by the employer.

Most of the respondents talked of consequences at work when one reports an injury to the supervisor or any other seniors. According to them, the workers were asked if there are penalties for reporting the injuries and accidents in site. 70.1% of the respondents agreed that there would be sanctions if they refuse to work even when there is injury involved in the work as shown in Figure 4.7. Above 70% of both supervisors and site workers agreed that there is indeed discrimination by the employer when they report the occurrence of site injuries.Those who agreed

that there is discrimination indicated that the penalty is usually being fired from work and the job is given to someone else who will work without asking too many safety issue questions.

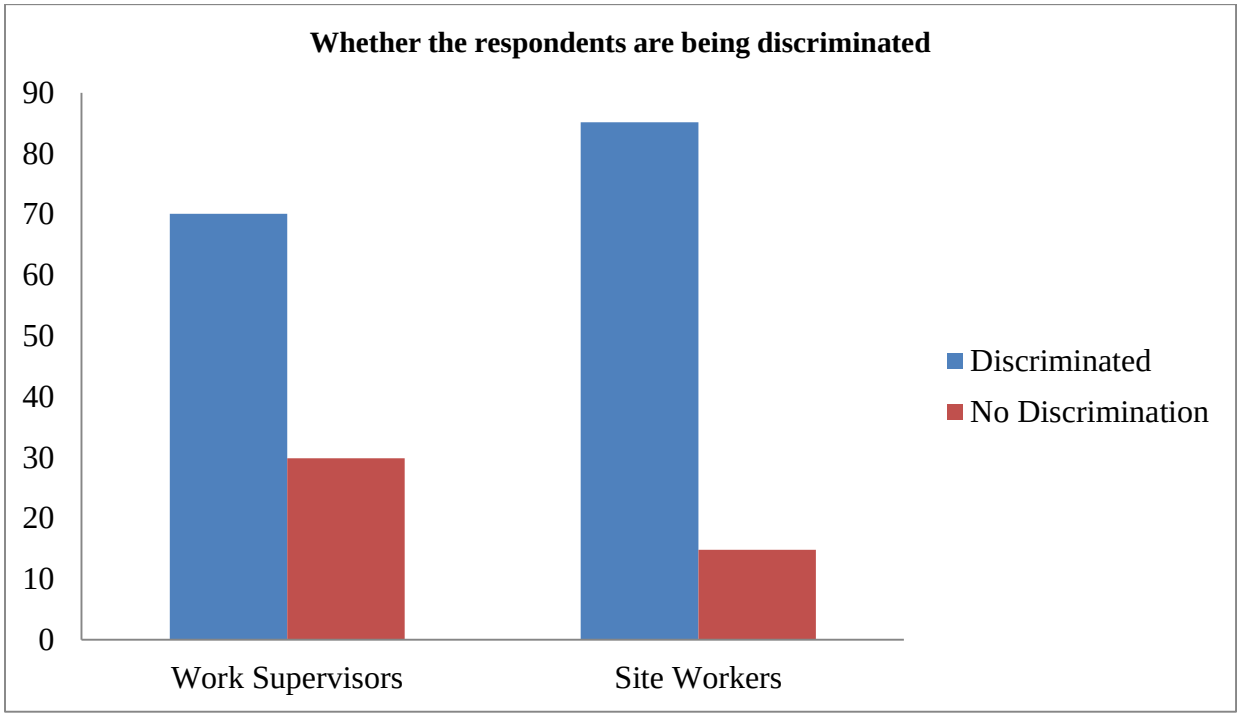

Figure 4. 7: Discrimination of site workers as a result of injury reporting

Source: Field survey, 2015

4.4 Types and categories of injuries

The respondents were asked about some common types of injuries occurring in the construction sites. Various types of accidents and accidents were itemized but some were found to be more common than others, as shown in Figure 4.8. To identify areas that need dire attention, such information could help health and safety participants. They were asked to append their opinion on the frequency at which particular types of injury are reported. They were given the option of '**Always', 'Rarely', 'Not at all' and 'Not applicable'.** Figure 4.8 shows the response of the respondents concerning the reporting of some common types of injuries in construction sites.

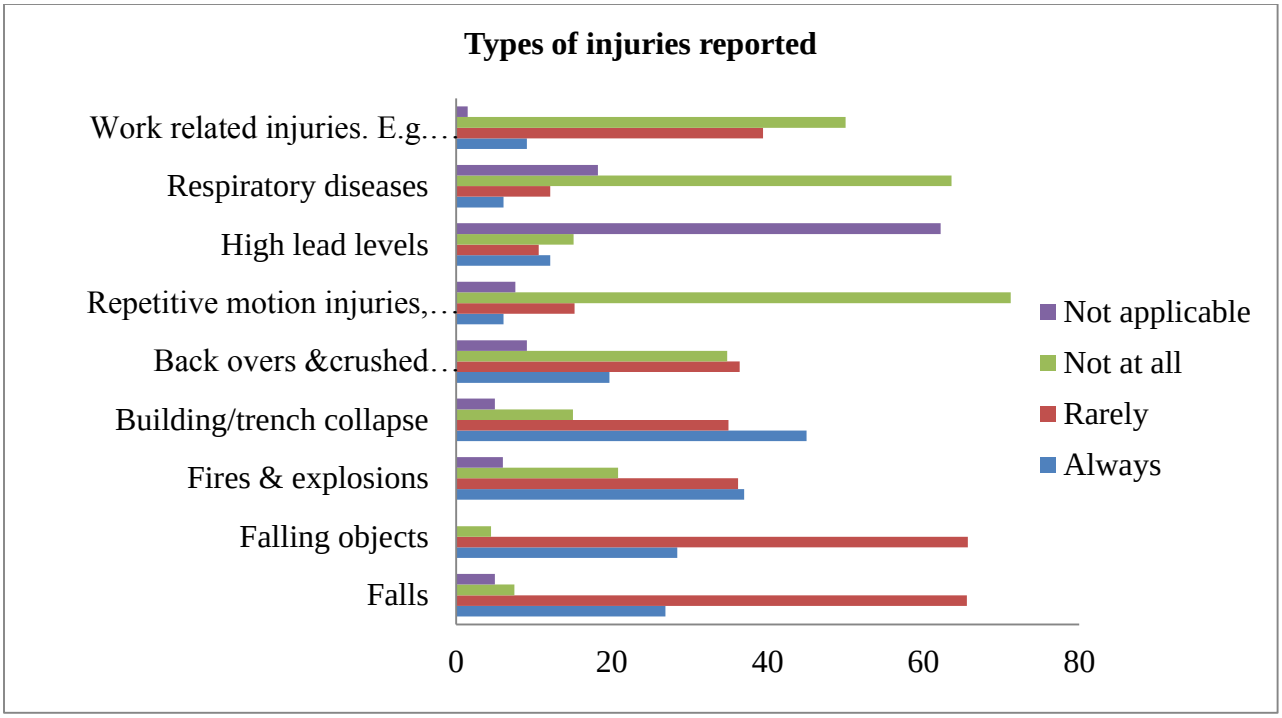

Figure 4. 8: Frequency of types of injuries reported

Source: Field survey, 2015

The respondents affirmed that 50% of work related injuries, 63% of respiratory diseases, and 71.2% of injuries arising as a result of repetitive motions, heat stroke and overexertion are not reported at all by the respondents who participated in the study.

62.2% of the site workers agree that injuries arising as a result high lead levels are not known to them as most of them answered that it's 'not applicable' to them. Back overs and crushed between moving machines and equipment are reported depending with the severity of the injury as 36.4% indicated that they rarely report them and 34.8% indicated that they don't reported them at all as shown in Figure 4.8. Injuries arising from building and trench collapse and fires and explosions are always or rarely reported depending on the magnitude of the injury. 45% of the respondents agreed that they always report injuries from trench and building collapse while 35% of them agree that they only rarely report such injuries. 37% of the respondents said that they report all injuries

arising from fires and explosions in site while 36.2% of them agree that reporting depends with the magnitude of the injury as illustrated in Figure 4.8.

Injuries arising from falling objects and general falls are rarely reported as shown in Figure 4.8. 65.7% and 65.6% of the respondents who took part in the study said that reporting injuries from falling objects and general falls respectively, depend on the magnitude of the injury the worker incurs. The respondents were then asked to append their opinion on how certain categories of injuries are reported on site.

The injuries were categorized as work related disorders; non-fatal injuries; fatal injuries; minor injuries and near misses. The work supervisors were asked to append their opinion as to the category of injury that is commonly reported to them by the workers. The site workers were also asked to append their opinion to what category of injury they frequently report to their supervisors.

Figure 4.9 shows that 60% of the respondents affirmed that work related disorders are not reported at all, 31.8% of the respondents rarely report and 9.2% always report work related disorders to the seniors.

Non-fatal injuries are rarely reported as shown in Figure 4.9. 65.2% of the respondents agree that they rarely report non-fatal injuries. 49.3%of the respondents said that fatal injuries are always reported while 34.8% confirm that they rarely report fatal injuries. Minor injuries are not reported at all (40.3%), 32.8% said that they rarely report minor injuries. Majority of the respondents (66.7%) agree that near misses are not reported at all while 30.3% are rarely reported in site.

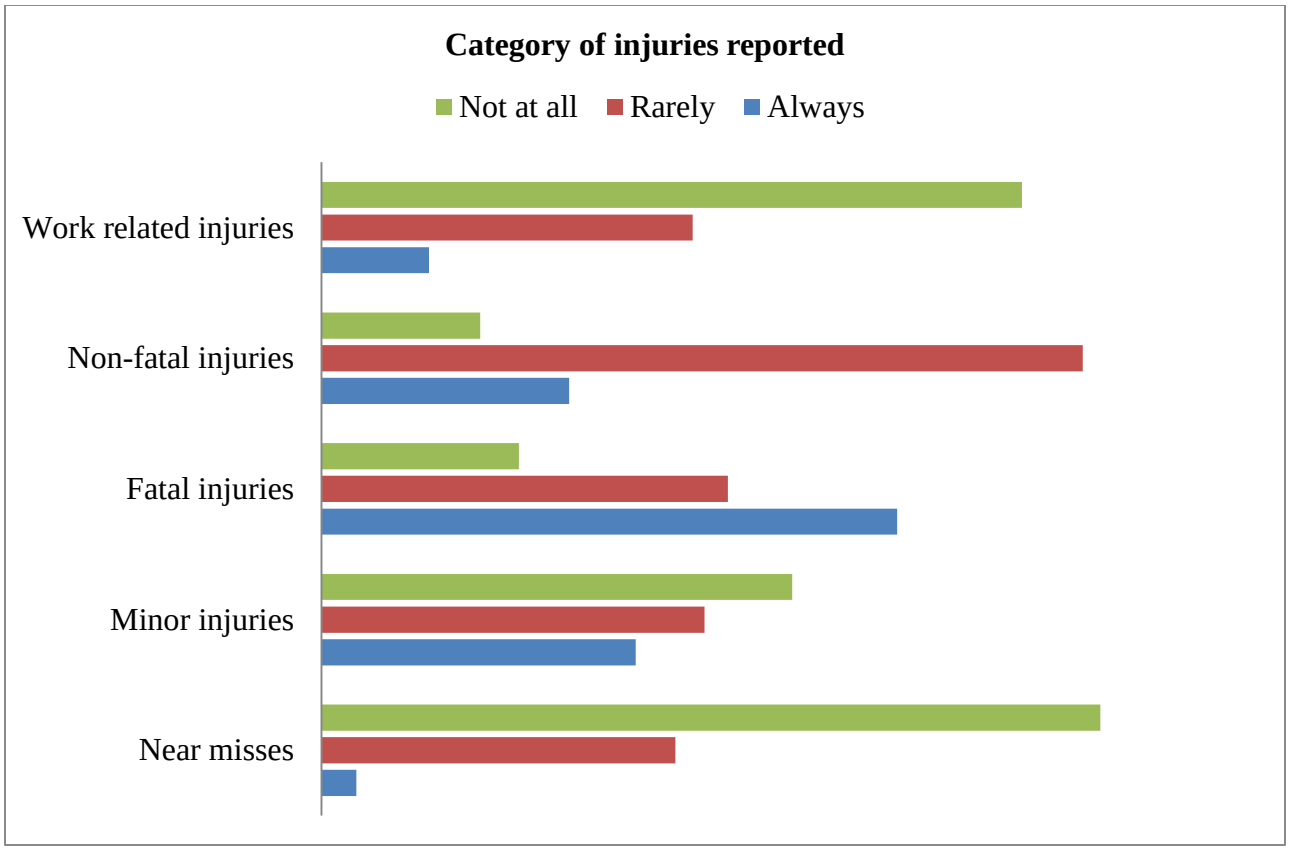

Figure 4. 9: Frequency of categories of injuries reported

Source: Field survey, 2015

4.5 Nature of the firm and its operational culture

The respondents were then asked to peg their own opinion concerning injury and accident reporting in relation to the size of the firm. Figure 4.10 shows the respondents responses as what size of the firm they would easily report construction injury without being victimized.

In assessing how the size of the firm would influence injury reporting in construction sites, Figure 4.10 shows that 89% of the respondents would like to report the construction site injury while working in bigger firms than working in medium and smaller firms. They believe that bigger firms have stronger and elaborate injury reporting structures which are well established than smaller firms.

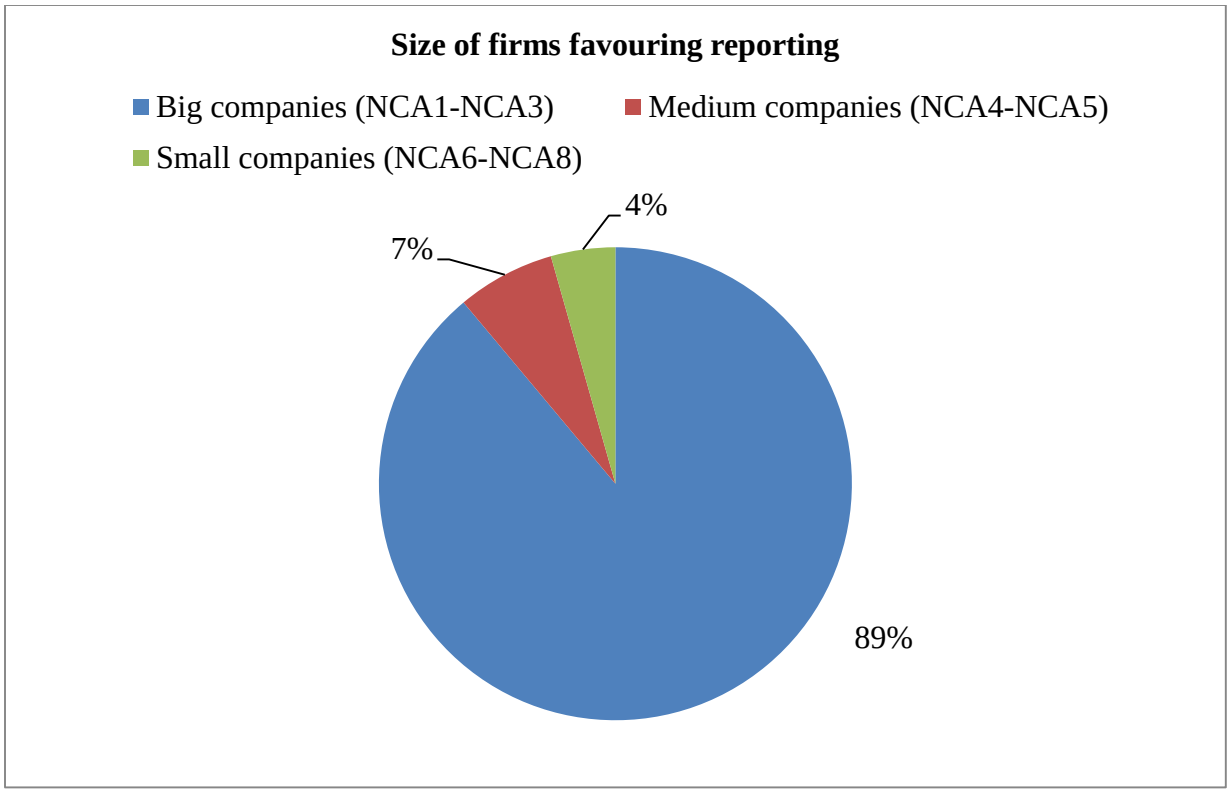

Figure 4. 10: Statistics of sizes of the firm favoring injury reporting

Source: Field survey, 2015

The work supervisors were then asked about the age group that usually report construction injuries. This was to ascertain the category of people who actually report when injured on site. Figure 4.11 shows that youth of age ranging between 18 years and 35 years frequently report construction injuries. The argument was that the youth does not have more dependants to care for as compared to older people who consider working as the source of livelihood. Some of the youths are still cared for by their parents and the money they get on site is simply for his/her leisure.

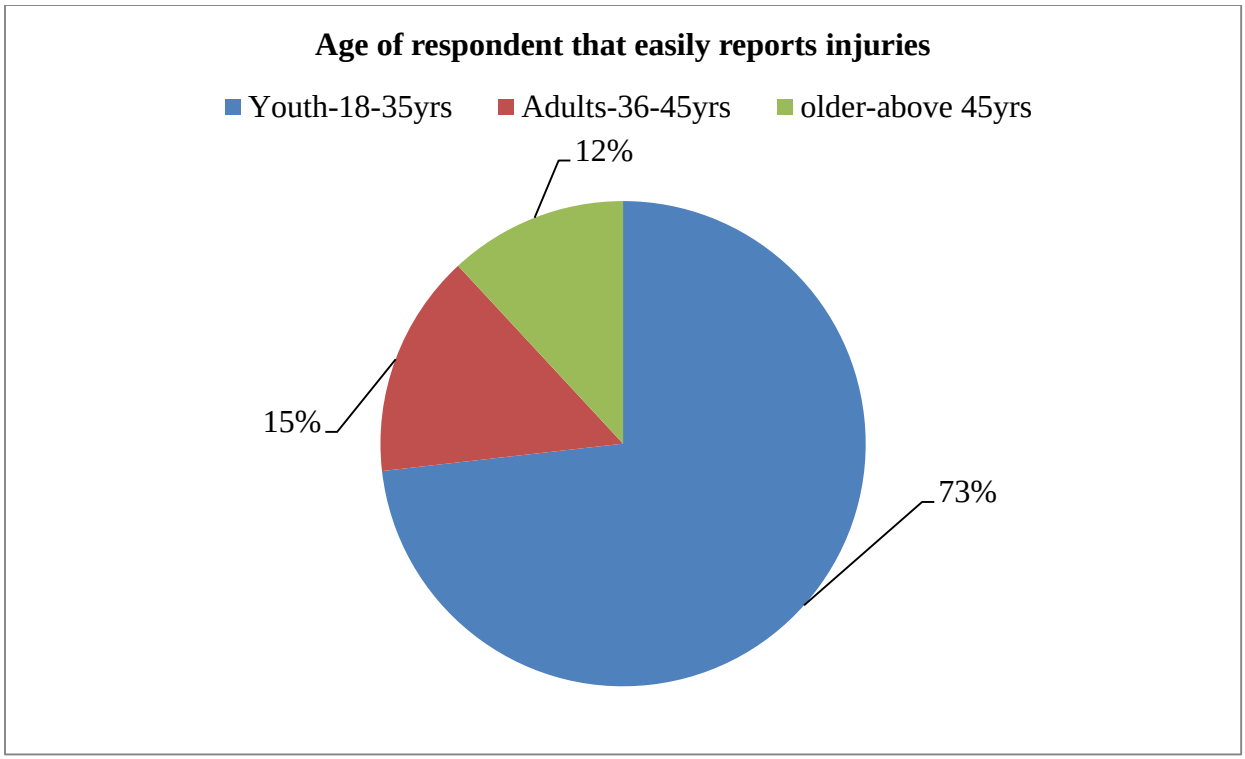

Figure 4. 11: Reporting of construction injuries by age

Source: Field survey, 2015

The respondents were also asked if they get motivation to ensure work safe procedure is adhered to on site. It came out that 85% of the site workers are not being motivated to report any injurious procedures on site while 53.2 of their supervisors agreed that they get motivated to ensure work safe procedures is followed on site as shown in Figure 4.12. It can therefore, be deduced that construction site employers pay little or no attention to employ safe working procedure. The respondents allude the lack of motivation is by all means, to ensure maximum profit by the employer. They would consider putting structures for safe reporting on site as a waste of time, and recording of injuries as a way of showing how their sites are dangerous and hazardous to work in.

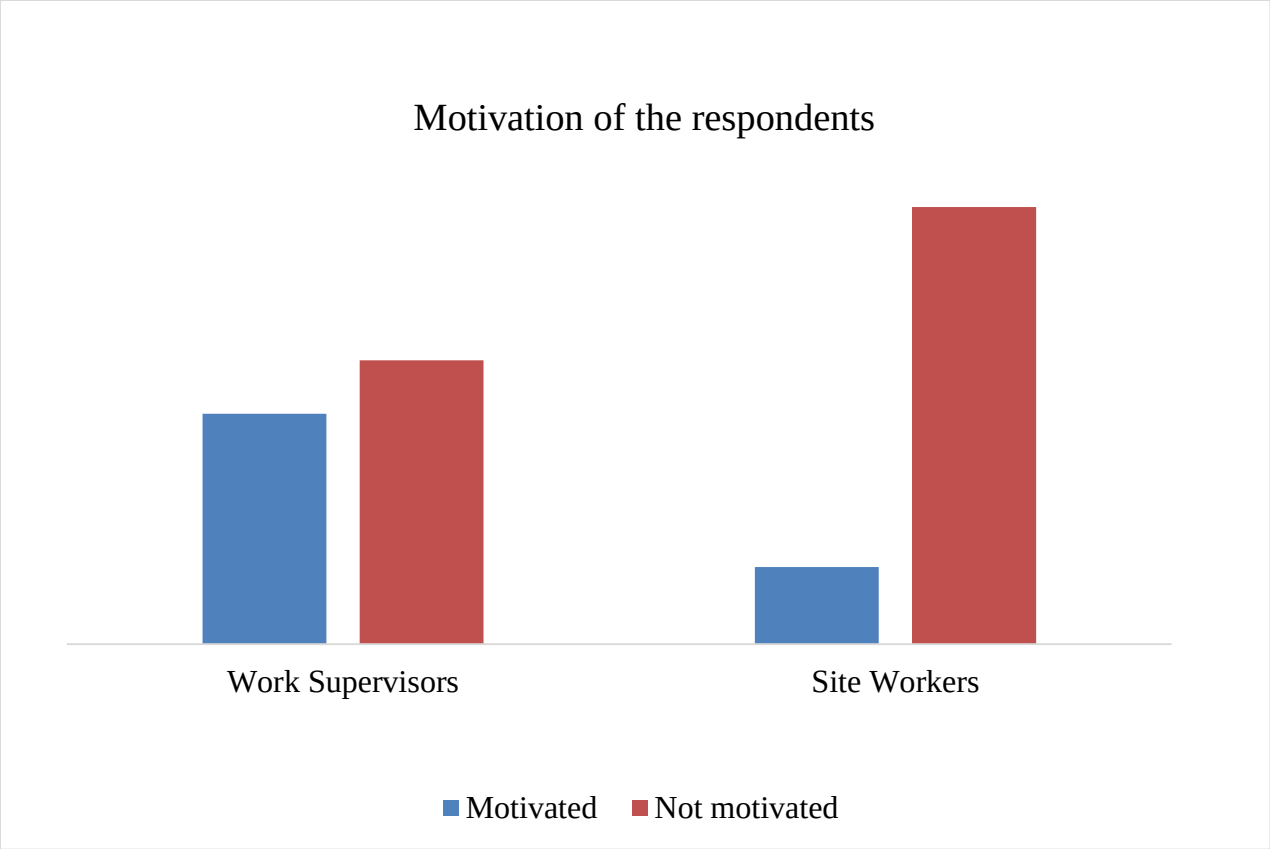

Figure 4. 12: Motivation trend of the respondents

Source: Field survey, 2015

It is a requirement by law that every work place, specifically construction sites, there must be an accident occurrence book to record the site injuries and accidents as they occur in site. The respondents were asked if they have any book on site to record the daily accidents and incidences that occur on the workers during the working hours. Figure 4.13 shows that 78% of the respondents said that there was no site occurrence book in site. This showed that most of site injuries are not reported and injury statistics cannot be produced. By the health and safety department.

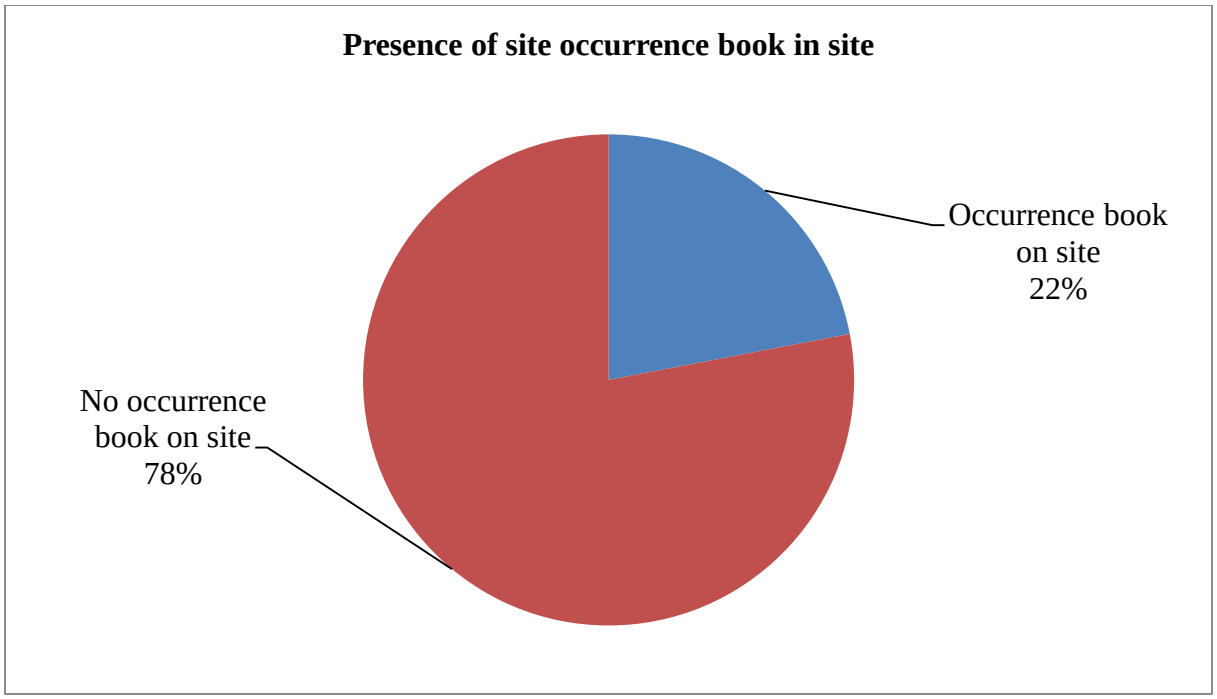

Figure 4. 13: Site occurrence book on site

Source: Field survey, 2015

The respondents were then asked if there is anybody employed by the contractor overseeing health and safety of the workers while working on the site. Figure 4.14 shows that 97% of the respondents said that the contractor does not employ a health and safety person to take into account the employees' welfare in terms of accidents and injuries that occur on site. The argument the respondents cited was that employing another person for employees' safety is a waste of resources since that work could be easily handled by the supervisors. They argue that because they lack neutral person to handle site injuries, it therefore, become needless to report injuries to the supervisors.

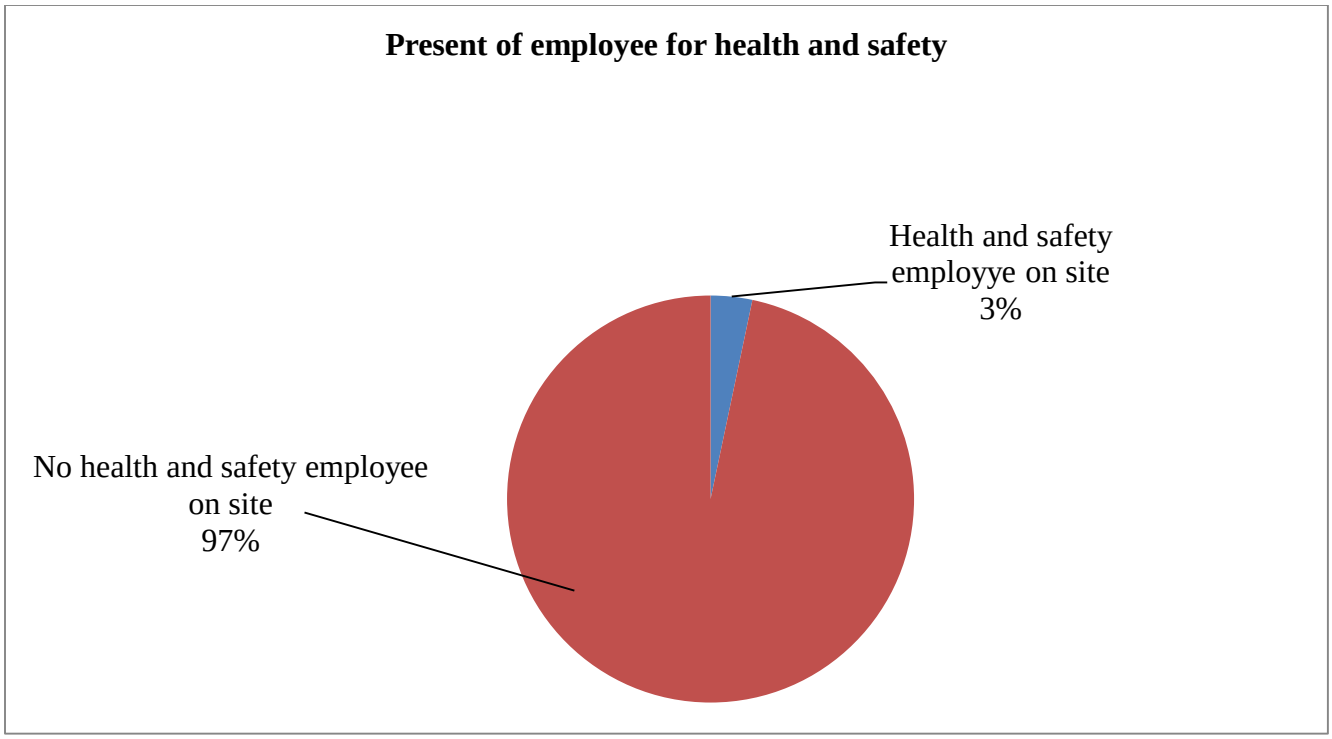

Figure 4. 14: Health and safety employee on site

Source: Field survey, 2015

4.6 Enforcement of statutory requirement

In Kenyan construction sites, the issue of PPE is usually avoided by many contractors. To see all workers fully clothed in safety equipment in site would be a rare sight. Researchers own observation revealed that most employers put preference only to those who need them most, otherwise, they provide just the basic equipment.

The workers were asked the accessibility to safety gear to them during work in construction site and 23% of the respondents agreed to the accessibility of personal protective equipment on site as shown in Figure 4.15. The respondents said that the PPE are considered by contractors as saving from the project since they tender for them but they do not spend money to procure them. This

they said, is pegged to the reluctant of safety officers by not pressurizing the contractor to ensure they are used by workers.

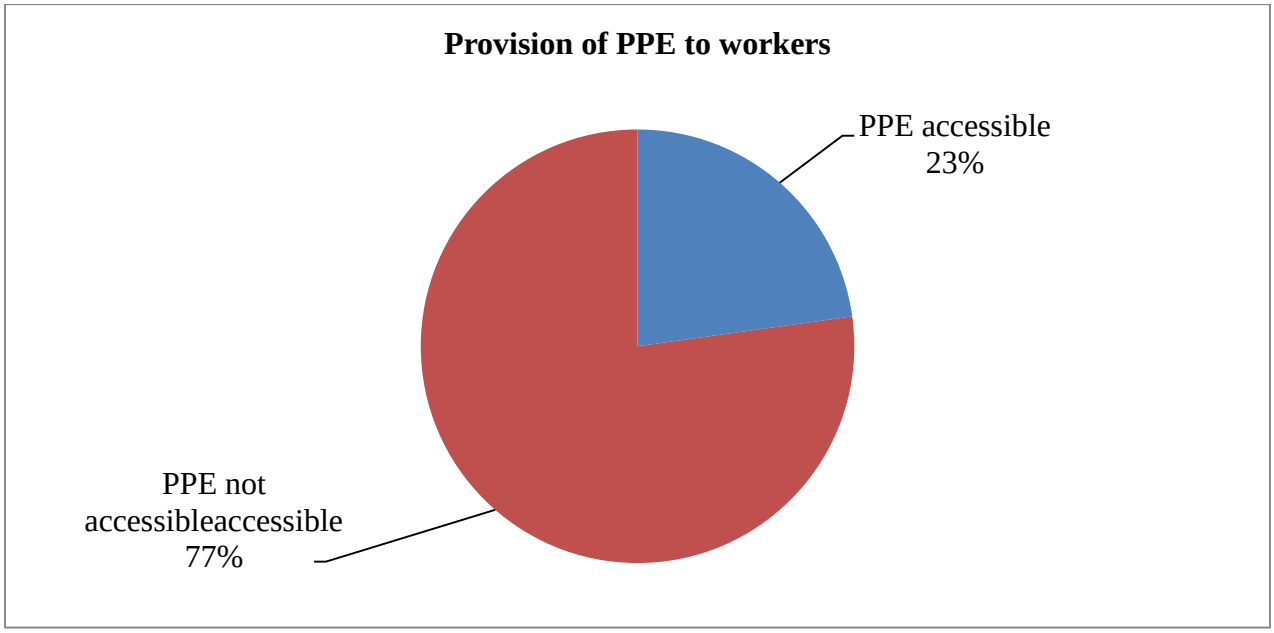

Figure 4. 15: Provision of Personal Protective Equipment to workers

Source: Field survey, 2015

Training of employees is a requirement by law especially on the introduction of new tools, equipment, technologies and work procedures so as to avoid employees being injured due to ignorance in handling materials and equipment. The workers were asked if they get training services from their employer concerning injury awareness and how to handle injuries and accidents on construction sites. Figure 4.16 shows that 61% of the respondents who took part in the study disagree that the employer provides training services to the employees on awareness and how to handle injuries and accidents on construction sites. They argued that most of the site workers are casual based and therefore, the employer does not want to spend any resource on training those who are often in the move. Most employees in construction sites are not attached to the administration of the organization.

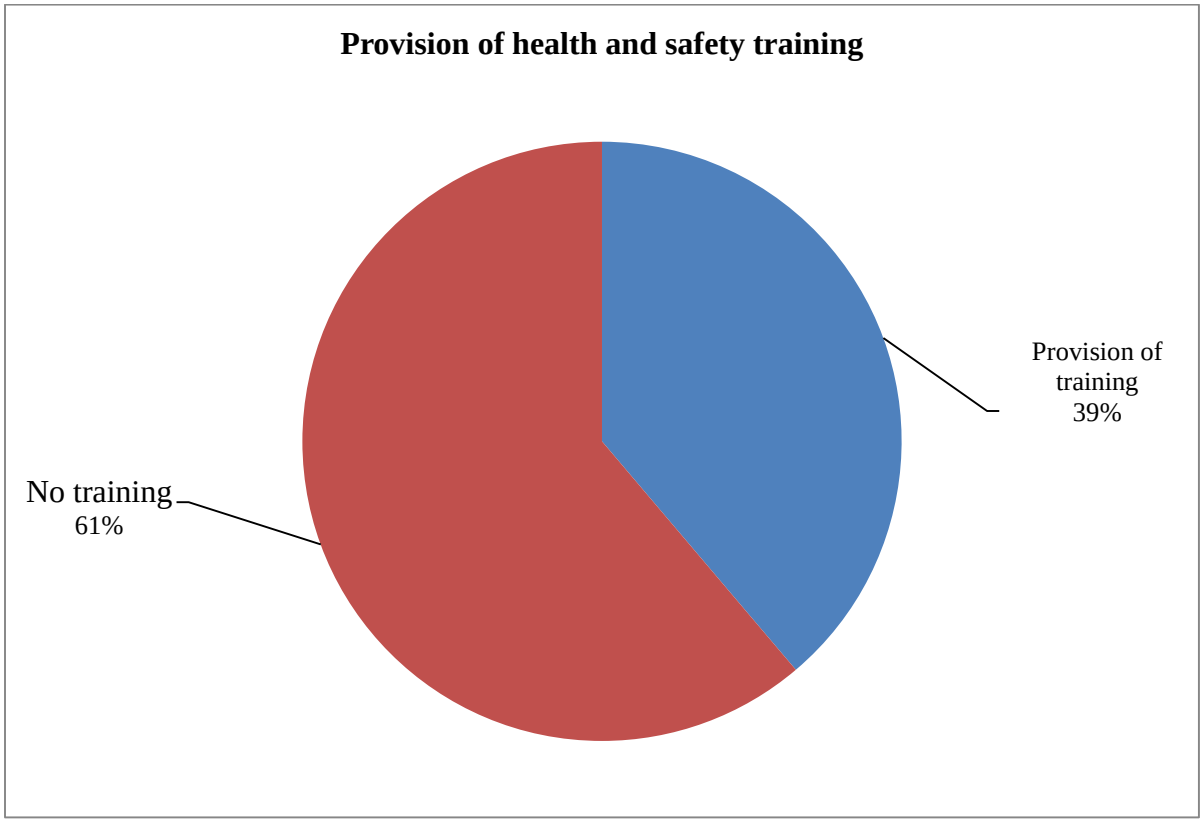

Figure 4. 16: Provision of training services to workers

Source: Field survey, 2015

The respondents were then asked whether they have ever seen the health and safety officer inspects their work site regularly for safety lapses. The study showed that only 82% of the respondents who took part in the study disagree to have seen the health and safety officers inspecting construction sites for safety lapses as shown in Figure 4.17. This is an indication as to why many contractors would be abusing the health and safety rights of the employees without consideration.

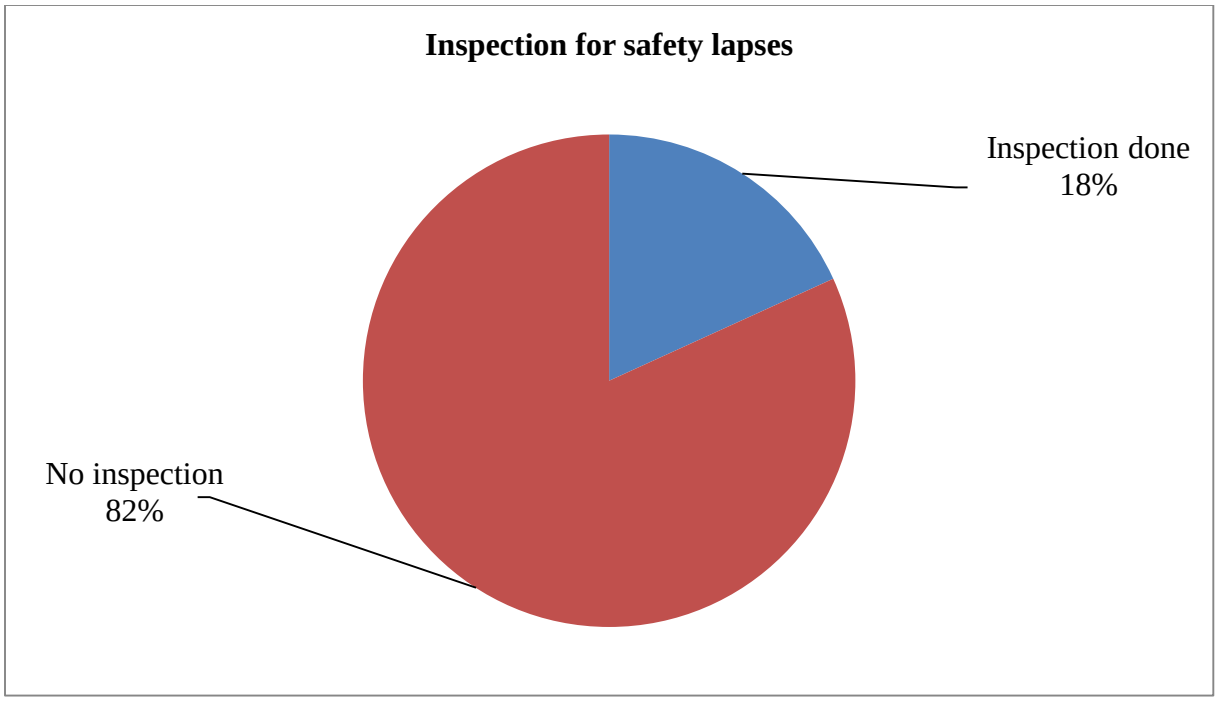

Figure 4. 17: Inspection for safety lapses in site by safety officer

Source: Field survey, 2015

Protecting the rights of workers by the government should be given a major consideration. By ensuring that bodies and institutions responsible for health and safety of the workers are empowered. The government is not doing enough, according to the workers, in protecting them on the issue of safety on construction sites as seen in Figure 4.18, 88% of the respondents disagree with the opinion that the government is doing enough to protect them from injuries and to ensure that all injuries are reported and action appropriately taken. The workers said that in spite of numerous injuries and accidents they have witnessed happened on sites, they have never seen any intervention of the government or the body responsible for health and safety take any action against the contractor. The contractor as the site employer, would otherwise take maximum actions as to protect his interest in the events of injuries and accidents in site.

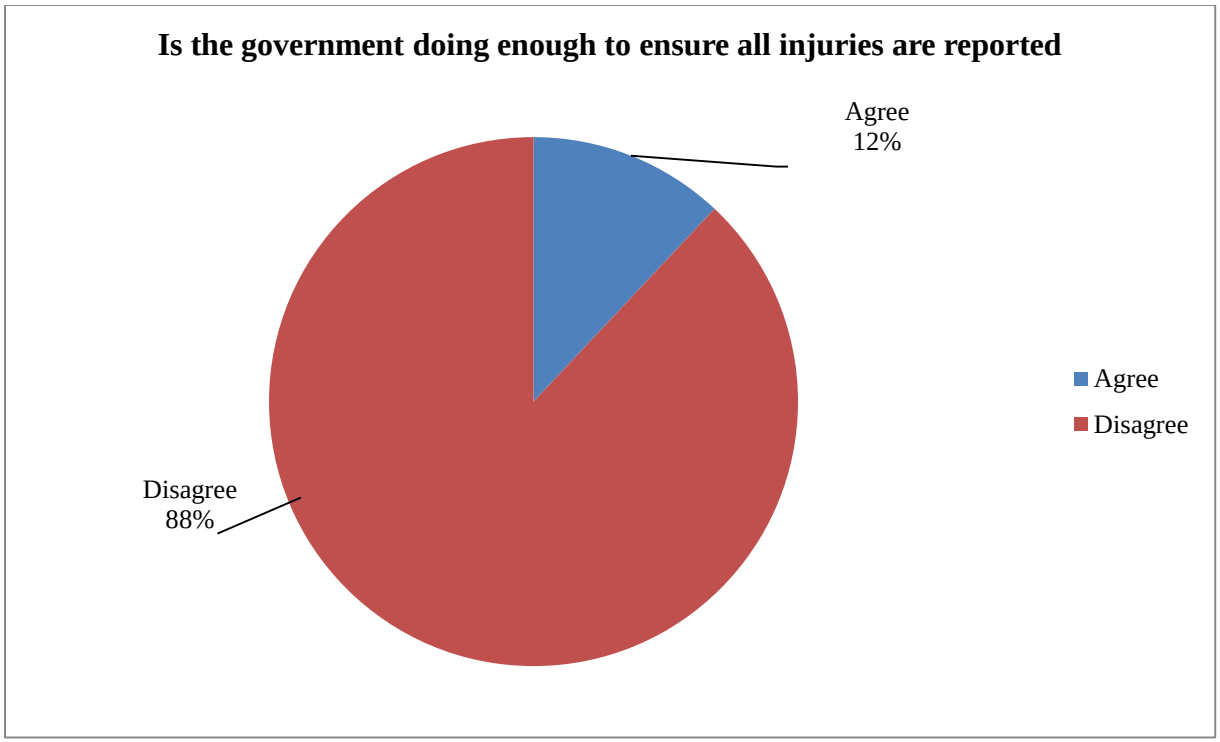

Figure 4. 18: Government involvement in injury reporting

Source: Field survey, 2015

4.7 Other factors influencing underreporting of construction injuries

To establish the factors that influence underreporting of construction injuries in site, the workers were asked, in an open question, to list the factors that would make them not to report when injured in the workplace. The majority of the respondents said that family dependency ratio, employers disinterest with information, lack of appropriate information, fear of reprisal and discrimination and general poverty level across the country are the highest factors that would make them not to report when injured as shown in Figure 4.19.

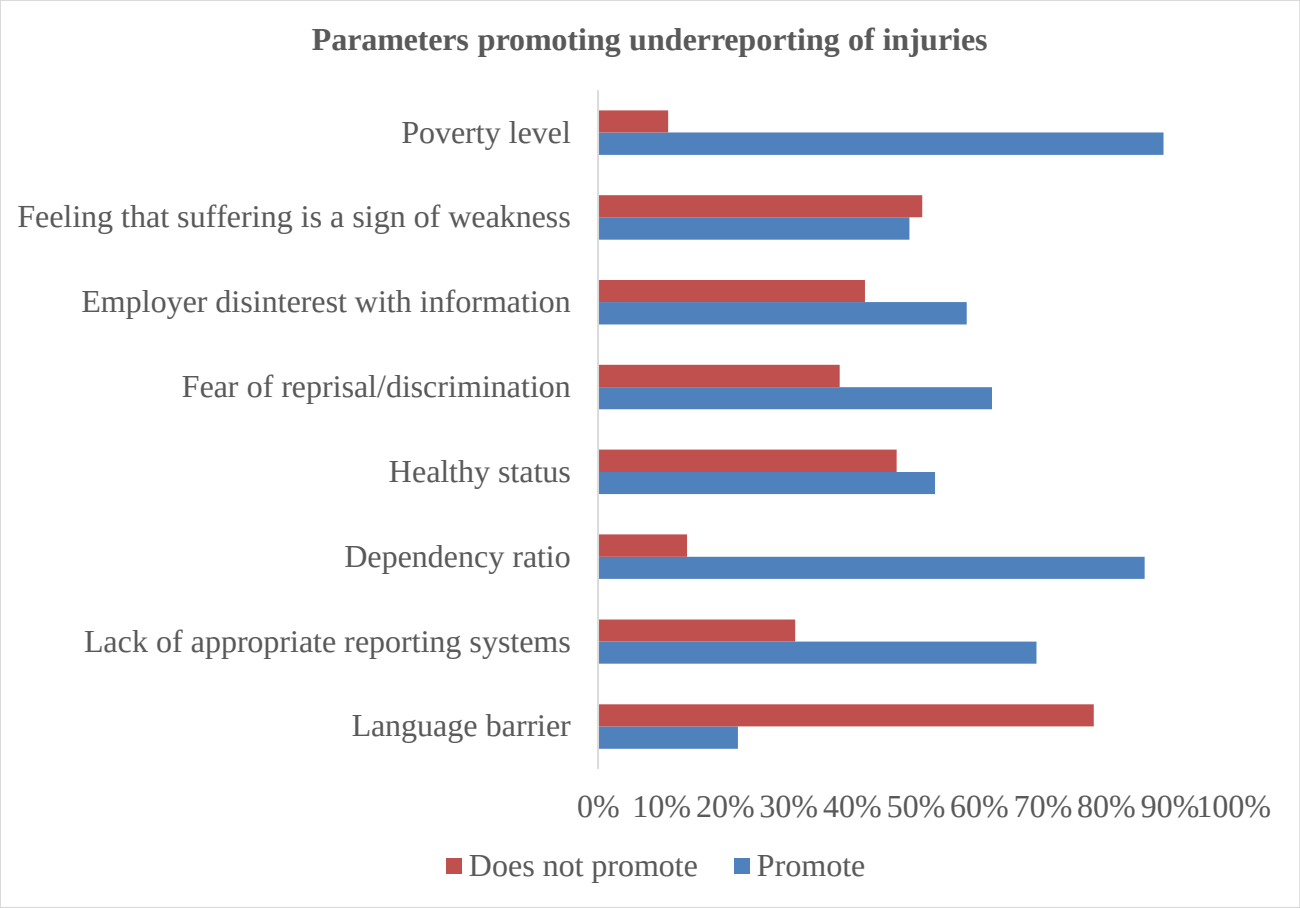

Figure 4. 19: Factors influencing underreporting in construction sites

Source: Field survey, 2015

4.8 Testing of hypothesis

The thrust of this study was to investigate the level of awareness of the site workers concerning injury reporting. The hypothesis tested the awareness on reporting injury occurrences at the construction site.

The hypotheses were phrased as follows:

H_0: Construction site workers are not aware of their rights concerning injury reporting in construction sites.

H_1: Construction site workers are aware of their rights concerning injury reporting in construction sites.

A survey of 360 site workers was performed the level of awareness of the legislations regulating their safety, health and environment as the variables. Their awareness was tested on Work Injury Benefit Act, Employment Act and public health Act. The observed response was as tabulated in Table 4.2.

Table 4. 2: Observed data - Chi Square test

	WIBA	Employment Act (%)	Public Health Act (%)	TOTAL (%)
Aware	32	15	38	27
Not aware	68	85	62	73
TOTAL	100	100	100	100

Source: Field work, 2015.

From the observed data in Table 4.2 above, the expected values were also computed and recorded as in Table 4.3.

Table 4. 3: Expected data - Chi Square test

	WIBA (%)	Employment Act (%)	Public Health Act (%)	TOTAL (%)
Aware	27	27	27	27
Not aware	73	73	73	73
TOTAL	100	100	100	100

Source: Field work, 2015.

The Chi-Square was then computed using equation 1 as follows:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$ ……..equation 1

Where x2 is the Chi-square statistics,

O is values on observed data, and

E is the expected values.

The calculation of the Chi-square was tabulated as in Table 4.4.

Table 4. 4: Calculated - Chi Square test

O-observed	***E-expected***	***O-E***	$(O-E)^2$	$\frac{(O-E)^2}{E}$
32	27	5	25	0.926
15	27	-12	144	5.333
38	27	11	121	4.481
68	73	-5	25	0.342
85	73	12	144	1.973
62	73	-11	121	1.658
				14.713

Source: Field work, 2015.

The Chi-square therefore, χ^2 =14.713

The predetermined alpha (α) significance level of 0.05 or 5% was adopted. The degree of freedom (df) which is (k-1) in this case was (4-1) (2-1) = 3.

The study then had a chi square statistic (χ^2 = 15.981), the predetermined alpha level of significance (0.05), and the degrees of freedom (df = 3). Entering the Chi square distribution table with 3 degree of freedom and reading along the row we find our value of χ^2 (14.713) lies between 11.345 and 16.268. The corresponding probability is between the 0.01 and 0.001 probability levels. That means that the p-value is lower than 0.05. Since the p-value is lower than the conventionally accepted significance level of 0.05 (i.e. $p < 0.05$) the study therefore, rejected the null hypothesis. In other words, there was statistically significant relationship between site workers and their rights.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Introduction

In theoretical terms, existing empirical attempts to study safety preconditions and their relationship to organizational outcomes have remained fragmented and underspecified. The present study has generated a detailed qualitative picture of the nature and range of factors that influence underreporting of injuries and accidents on construction sites. The purpose of the study therefore, was to determine the trend and pattern of reporting injuries among the construction site workers and to find out the factors leading to underreporting of construction injuries in site. In order to answer the research questions the researcher used different forms sub-themes in line with the research objectives.

5.2 Awareness of injury reporting channels

In an attempt to establish the awareness of reporting injuries by the construction site workers, the study found that, the high rate of unemployment in Kenya has led to a majority of the construction sites workers taking the issues of safety rather lightly. Their main aim is to ensure that employment is secured without considering the employment conditions. The study shows that more site workers are prone to site injuries as compared to their supervisors.

Poor education and lack of awareness has led to the variances in reporting trend among the site workers and the work supervisors as shown in this research. In other countries, for example, Finland (Valio, 2013), there is proper formal education and adequate awareness regarding the safety on construction sites. It would be difficult for the employers to compromise the safety of

the workers since they know their rights. However, in Kenya, it is hard to implement the safety issues as the workers are not properly educated as study showed that most of the construction site workers are form four drop-outs. They neither report injuries they obtain on site nor do they fail to work when they are injured as required by the law, Work Injury benefit Act Cap 236, which requires the employee to notify the employer of the occurred accident or injury either in written form or verbal.

The study also found the majority of workers have attained the basic secondary school level and have not been trained on safety laws and legislations. As a result most of them are unskilled and are ignorance about necessary safe working environments legislations like Employment Act, Work Injury and Benefit Act, Public Health Act and Occupational Safety Health Act that exist. There is still traditional form of carrying out of work in most construction sites which making it difficult in changing their attitude on the safety culture. In accordance to this, providing workers with safe working environment and systems of injury reporting is perceived by some workers to be a privilege from the employer and not a right. Therefore, starting working without safety condition assessment is the norm.

Employment Act Cap 226 section 15, states that displaying a statement in the prescribed form of the employee's rights under this Act in a conspicuous place, which is accessible to all the employees is the responsibility of the employer. This specific legislation gives the employees right to be aware of their obligations and rights in place of work. However the findings show that most employees are ignorant about this Act. The employers often abuse this privilege due to the ignorance of this specific legislation by most site workers and thereby working without safety gear is usually a norm in many sites in Kenya.

5.3 Types and categories of injuries reported

In an attempt to establish accident and injury reporting levels by severity of the injury, accident type, and size of the firm, the study revealed that site workers employed in most construction industry have higher injury incidences than the work supervisors working in the same site, irrespective of whether or not the accident is reportable.

The study found that work-related injuries, respiratory diseases and injuries resulting from repetitive motions, heat and stroke suffer from high levels of underreporting. This might be simply because most of the site workers in Kenyan construction are almost all casual based and work in different sites and cannot peg and prove the actual site where the injury occurred. These kinds of injuries are those that develop over a period of time and this might find that an individual have worked in several construction sites.

The study further established that most Kenyan site workers are unaware of toxicity of high lead levels. They would never refuse to work in such hazardous places where there are high lead levels nor know whether their lives are at a risk. The employers (contractor) who would want to maximize on profit and with poor implementation of legislation of safety laws in the country, would hesitate not, to utilize this situation to have their works done despite how risky it is to the workers.

It also became apparent from the study that unless injuries arising from collapse of building and trenches, fire and explosions are of great magnitude, there will never be reported anywhere. The report always gets to the public when the magnitude of the collapse and explosions are out of proportion. It is always at this stage when most of the site workers would for the first time hear of the government involvement in construction site safety.

Injuries from falls and falling objects are either reported or not. The study shows that workers would only report sever injuries to their supervisors who on the other hand report to the employer who authorizes the victim to be taken for treatment. This shows little concern about the employees' welfare by the employer as established by the study even though, the law requires otherwise, (OSHA, 2007). The study also shows that mere falls or being hit by the falling object or crushed between moving equipment and machines can only be reported if the injury is serious. This is a clear indication that no cautionary or correction measures would be taken to ensure that such incidence or accident does not occur again.

The construction industry in Kenya is so fragmented in such a way that the organization of the contractor is so detached from the direct labour. The only contract binding them is just the work itself. This is the reason why most certain categories of injuries go unreported. The study established that work-related disorders which occur after a period of time would not be reported at all. The site workers does not own any share of the organization for the employer to take into account their welfare.

Near miss and other minor injuries are treated as daily occurrence that need not to be recorded anywhere leave alone being reported. They are always so many that reporting or recording them would sound some sort of ambiguous and hence they suffer from underreporting.

The study found that there is a role played by the size of the firm in injury reporting.

5.4 Nature of the firm and its operational culture

Workers would be more likely to report their injuries while working on larger firms than on smaller firms. According to Leigh et al. (2004), it is assumed that small firms are always

susceptible to underreport injuries and accidents, or even report them not at all because they are lacking required legal reporting awareness, a burden in completing required paperwork and poor record keeping as compared to larger firms. On the other hand, the study also found that underreporting in small firms is attributed to weak and non-elaborate or established reporting systems in small firms as compared to bigger firms.

The study has found that injury incidences reduces with age but the severity of injuries and the incidence of fatal occupational injuries increase with age. Centered on the findings of this study, it is found that almost two thirds of youth aged between 18-25 years make injury report to the authority. But, on the other hand, many of the non-fatal injuries of the elderlies are not reported to the appropriate authorities.

The study further deduced that young people working in construction site, fear no reprisal from their supervisors because they are still young and does not have people who depend on them for survival. The elderly people would rather stay quiet with injury if there is evidence of reprisal that would lead to loss of work. They have heavy dependence so if it means that reporting may make them loss the income, they would rather not report. The study shows that over 40% of the work supervisors are motivated in safety issues while almost all the site workers said that they are not motivated to ensure work safe procedures. It's therefore clear that the site supervisors always protect the interest of their employer to hide the information of site injuries.

The study further found that most of the construction sites under the study did not have site accident occurrence book. The absence of site occurrence book in site as established by the study is a clear indication that most of the accidents in site are not reported despite the study showing that almost all of the site workers have been involved in construction injury.

The research also found that almost none of the construction site has an employee in charge of health and safety of the workers in site. The absence of employee in charge of health and safety of the workers is an indication of poorly implemented legislations and it also shows that most of Kenyan contractors are always contravening the law to suit their interests. By having no employee in charge of employees' health and safety on site, it therefore implied that most construction firms in Kenya do not pay much attention to the site injuries.

5.5 Enforcement of statutory legislations

To evaluate the enforcement mechanisms of injury reporting regulations on construction sites, the study found that most of the site workers believe that the government is not doing enough to protect the workers from injuries they are exposed to on site. In terms of construction injury reporting, it is a prerogative of the government to ensure that all site injuries are reported so as to help in formulating laws and policies which are aimed at ensuring that workers are safe in all the construction sites. The study discovered that the government is not doing enough to ensure that site injuries are accounted for and all the safety lapses rectified.

The study further found that personal protective equipment (PPE) are not accessible to the workers. Most workers were observed working in dangerous places unprotected. OSHA 2007, Section 101(1) states that it is the responsibility of every employer to provide and maintain for the use of employees in any workplace adequate, effective and suitable protective clothing and appliances, including, where necessary, suitable gloves, footwear, goggles and head coverings where employees are employed in any process involving exposure to wet or to any injurious or offensive substance Sub-section 2 also, accordingly states that the Director is supposed to register safety consultants to assess the suitability and effectiveness of protective clothes and appliances in every

workplace to ensure that safety lapses are entertained by employers of the site. The study found that, there were no regular site inspection by the safety consultants to check whether the safety requirements were contravened by the contractor.

As required by law that the contractor should provide training services regularly to the employees working on construction specifically when introducing new technology, new machines or when a new employee is recruited. The study found that few construction firms offer training services to their workers. This shows a violation of the OSHA 2007 which states that no person shall be employed at any machine or in any process, being a machine or process liable to cause ill health or bodily injury, unless he has been fully instructed as to the dangers likely to arise in connection therewith and the precautions to be observed, and— (a) has received sufficient training in work at the machine or in the process; or (b) is under adequate supervision by a person who has a thorough knowledge and experience of the machine or process.

Cotton et al. (2005) affirms that in developing, countries little impact the institutional and legal governance frameworks on occupational health and safety have little impact and the enforcement of health and safety standards and Labour standards is very lax since the majority of contractors are small and medium enterprises operating within their domestic markets. Muiruri et al. (2014) puts it that government institutions responsible for occupational health and safety administration lack of adequate resources and therefore, enforcement of health and safety regulations is problematic.

5.6 Other factors influencing underreporting of construction injuries

To establish the underlying factors influencing inaccurate reporting of construction site injuries, the study found that there are a number of factors which would promote underreporting of injuries.

Kenyan construction industry employs more of unskilled workers in comparison to other sector industry. This shows how competitive the Kenyan labour industry is. The construction industry in Kenya is therefore considered a hotspot for manual labourers as many Kenyan population live on less than a dollar a day. It is not certain that people will get, when they go in search of manual jobs. The last thing on people's minds are trying to spell out the safety work conditions to the employer who in this case is the contractor once a person has successfully landed on a casual job. This in some cases, makes the unskilled employees work with what they are provided with sometimes under very risky conditions. Therefore, with certainty we can say that, poverty is a major deterrent to safety. So as to be capable of taking something home for the family, a labourer with ease can opt to work under risky conditions.

The study also unearthed a variety of factors that potentially influencing employees' willingness to report accidents and injuries other than poverty level. These factors are: fear being labelled as a complainer; fear of reprisal; loss of pay/ overtime pay; considering symptoms of illness as sign of weakness; concerns about privacy discrimination; and the perception that nothing can be done about the situation. Other factors meant to stir underreporting are: lack of interest in the information by the employer, presence of reporting systems which are not appropriate and fear of reprisal or blame.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to determine the trend and pattern of reporting injuries among the construction site workers and to find out the factors leading to injuries underreporting in construction sites.

6.1 Summary of Findings

6.1.1 Awareness

In an attempt to establish the awareness of reporting injuries by the construction site workers, the study found that, the high rate of unemployment in Kenya has led to a majority of the construction sites workers are taking the issues of safety rather lightly Their main aim is to ensure that employment is secured without considering the employment conditions.

Poor education and lack of awareness has led to the variances in reporting trend among the site workers and the work supervisors as shown in this research. In Kenya, it is hard to implement the safety issues as the workers are not properly educated as study showed that most of the construction site workers are form four drop-outs.

6.1.2 Types and categories of injuries reported

In an attempt to establish accident and injury reporting levels by severity of the injury, accident type, and size of the firm, the study revealed that site workers employed in most construction industry have higher injury incidences than the work supervisors working in the same site, irrespective of whether or not the accident is reportable. The study also found that work-related

injuries, respiratory diseases and injuries resulting from repetitive motions, heat and stroke suffer from high levels of underreporting.

It also became apparent from the study that unless injuries arising from collapse of building and trenches, fire and explosions are of great magnitude, there will never be reported anywhere and site workers are unaware of toxicity of high lead levels. Near misses and minor injuries are treated as daily occurrence that need not to be recorded anywhere leave alone being reported.

6.1.3 Nature of the firm and its operational culture

Workers would be more likely to report their injuries while working on larger firms than on smaller firms and it is assumed that small firms are always susceptible to underreport injuries and accidents, or even report them not at all because they are lacking required legal reporting awareness, a burden in completing required paperwork and poor record keeping as compared to larger firms.

The study further deduced that young people working in construction site, fear no reprisal from their supervisors because they are still young and does not have people who depend on them for survival. The elderly people would rather stay quiet with injury if there is evidence of reprisal that would lead to loss of work.

The absence of site occurrence book in site as established by the study is a clear indication that most of the accidents in site are not reported despite the study showing that almost all of the site workers have been involved in construction injury and by having no employee in charge of employees' health and safety on site, it therefore implied that most construction firms in Kenya do not pay much attention to the site injuries.

6.1.4 Enforcement of statutory requirement

To evaluate the enforcement mechanisms of injury reporting regulations on construction sites, the study found that most of the site workers believe that the government is not doing enough to protect the workers from injuries they are exposed to on site and personal protective equipment (PPE) are not accessible to the workers. Further, the study found that, few construction firms offer training services to their workers.

6.1.5 Other factors influencing underreporting of construction injuries

To establish the underlying factors influencing inaccurate reporting of construction site injuries, the study found that poverty is a major deterrent to safety. Other factors influencing accurate reporting includes: fear being labelled as a complainer; fear of reprisal; loss of pay/ overtime pay; considering symptoms of illness as sign of weakness; concerns about privacy discrimination; and the perception that nothing can be done about the situation; lack of interest in the information by the employer, presence of reporting systems which are not appropriate and fear of reprisal or blame.

6.2 Conclusion

The purpose of this study was to determine the trend and pattern of reporting injuries among the construction site workers and to find out the factors leading to injuries underreporting in construction sites.

The study found that most site workers are not aware of the channels of injury reporting while at work in construction sites and the level of reporting injuries in construction site by the site workers is highly determined by injury type, severity of the injury and the size of the firm. The study also found that regulations on injury reporting are not adequate and there is still poor implementation

and enforcement of the health and safety laws. Underreporting of injuries, as established by the study, is not only influenced by lack of awareness but by many other factors like poverty levels, individual fear, lack of appropriate reporting systems and employer disinterest with the information.

The study testing the awareness of the site workers found that there was statistically significant relationship between site workers and their rights. It can therefore, be concluded that not only the awareness of workers right influence underreporting of site injuries but, also other factors like injury types, nature of the firm and socio-economic status of the worker.

6.2.1 Limitation of the findings

Some of the respondents of the study in this case, the work supervisors and the labourers, were very skeptical to give privy information while others refused to take part in the study thinking that it would expose them to the Health and Safety Authority. This forced the researcher, in most cases, to avoid the sampled sites and just pick on the neighboring sites.

Due to the nature of the information collected, the analysis was cumbersome and time wasting. As a result, certain aspects of the study were analyzed at the percentage level, even though; the researcher would have preferred to go further with the analysis.

6.3 Recommendations

Given the apparently widespread nature of accident under reporting, there appears to be a lack of clarity to the depth and breadth of this problem. More attention has been spent on understanding the causes of this phenomenon, although it may be concluded that these are wide ranging and, to

some degree, situation / company specific, making them difficult to effectively target on a national basis. The following were then recommended by the study:

(i) Construction supervisors should carry out a widespread awareness to enlighten worker on possible safety hazards and places perceived to be dangerous and hazardous within sites and workers are educated on safe working procedures.

(ii) Campaigns for safety and worker education on their rights to health and safety should be ensured by the government and other social welfare groups, through electronic and mass media should be considered in learning institutions, companies and organizations to disseminate health and safety messages in Kenya.

(iii) There is need to draft and pass more laws concerning health and safety since the concept of health and safety seems to be new and its concern have not been fully addressed in the construction industry.

(iv) The implementation of health and safety available laws should be properly ensured by the government in all construction sites.

(v) In order to protect site workers against accidents and injuries, the government supervisors should make sure that necessary safety gears are provided by the contractors to the workers.

(vi) Following up of construction sites from commencement through project completions and ensuring random checks and inspections on ongoing sites making sure that regulations and safety rules are adhered to and non-compliant should be accordingly penalized by the government

6.4 Further areas of research

The followings are therefore recommended for further study:

i. Evaluation of the perception of the employer concerning regulations, law and rules on duty reporting would of great concern. Moreover, in-depth consideration of the attitudes of the employees concerning illness, injuries and incidents reporting would be important in order to achieve detailed reporting.

ii. Evaluation of the challenges facing the government supervisors in ensuring that by-laws are adhered to and that reporting systems are made efficient to ensure that accidents and injuries and even poor works are reported in construction sites.

REFERENCES

Alrek, L.P., & Settle, B.R. (1985). The survey Research Handbook. Homewood, Illinois: Irwin Inc.

Barlow, C. B., & Rizo, A. G. (1997). Violence against surgical residents. *Western Journals of Medicine, 167(2),* 74-78.

Clark, S. (1998). Organizational factors affecting the incident reporting of train drivers. *Work and Stress, 12,* 6-16.

Conway, H., & Svenson, J. (1998). Occupational injury and illness rates, 1992-96: why they fell. *Monthly Labor Review, 121(11),* 36-58.

Cooper, A. G. & Schindler, B. M. (2000). Sampling Techniques. London: Wiley.

Cotton, A. P., Sohail, M., & Scott, R. E. (2005). Towards improved labour standards for construction of minor works in low income countries. *Engineering, Construction and Architectural Management, 12(6),* 617-632.

Currington W. (1986). Southern economic journal: *Safety Regulation and Workplace Injuries, 53(1),* 51-72

Daniels, C. & Marlow, P. (2005). Literature review on the reporting of workplace injury trends. Derbyshire: Crown.

Davis, R. & Jones, P. (2005).trends and context to rates of workplace injuries. Warwick: Crown.

Eich, W. (1996). Safety practices in large construction firms. New York: University of Washington.

Flanders, M.E., & Lawrence, T.W. (1999). Warning: safety incentive programs are under OSHA scrutiny: take steps to prevent under-reporting. *Professional Safety, 44(12),* 29-31.

Gaynor, M., & Pauly, M. (1990). Compensation and productive efficiency in partnerships: Evidence from medical group practice. *Journal of Political Economy, 100,* 801-817.

Geller, S. (1996). The truth about safety incentives. *American Society of Safety Engineers,* 34-39.

Glendon, A.I. (1991). Accident Data Analysis. *Journal of Health & Safety, 7,* 5-24.

Groover, D.R., Krause, T.R., & Hindley, J.H. (1992). Using the behaviour based safety process to increase injury reporting. *Professional Safety, 37(1),* 24-27.

Grunberg, L., Moore, S., & Greenburg, E. (1996). The relationship of employee ownership and participation to workplace safety. *Economic and Industrial Democracy, 17,* 221-241.

Hale, A.R., & Glendon, A.I. (1987). Individual Behaviour in the Control of Danger. *Industrial Safety Series 2.* New York: Elsevier Science Publishers.

Hansen, L. (1994, June). Rate your B.O.S.S.: Benchmarking organizational safety strategy. *Professional Safety*, 37-43.

Health and Safety Commission (2000). Revitalizing Health and Safety: Strategy Statement, June 2000. Department of the Environment, Transport and the Regions (UK).

Health and Safety Commission (2001a). Accident trend fatally flawed. *Occupational health review, 93,* 2-3, 636-642.

Health and Safety Commission (2001b). Levels and trends in workplace injury: reported injuries and the Labour force survey.

Health and Safety Executive (1991). Eye injury toll nearly 2,500 every year. *Safety Management, 7(8),* 50, 53-54.

Hislop, R.D. (1993, April). Developing a safety incentive programme. *American Society of Safety Engineers,* 20-25.

Joy, P. K. (2005). Handbook of construction management. Joyston-Bechal: McMillan Ltd.

Karr, H. A. (2000). They're falling. *Safety and Health, 161(1),* 30-35.

Katzenbach, J.R., & Smith, D.K. (1993). The wisdom of teams; creating the high performance organization. Boston: Harvard Business School Press.

Kenya Employment Act cap226.

Kenya Occupational Safety and Health (OSH) Act of 1970

Kenya Occupational Safety and Health Act, 2007

Kenya Work Injury Benefit Act Cap 236.

Kenya's Economic Update, (2008)

Laufer, A. (1987). Construction accident cost and management safety motivation. *Journal of Occupational Accidents, 8(4),* 295-315.

Leigh, J.P., Marcin, J.P., & Miller, T.R. (2004). An estimate of the U.S. government's undercount of nonfatal occupational injuries. *Journal of Occupational and Environmental Medicine, 46(1),* 10-18.

Levit, R.E., & Samelson, N.M. (1993). Construction Safety Management. 2nd Ed. New York: John Wiley & Sons, Inc.

Low, J.M., Griffith, G.R., & Alston, C.L. (1996). Australian farm work injuries: Incidence, diversity and personal risk factors. *Australian Journal of Rural Health, 4,* 179-189.

Macaskill, P. & Driscoll, T.R. (1998). National occupational injury statistics: what can the data tell us? In Feyer, A. & Williamson, A. (Eds.), *Occupational Injury: Risk, Prevention and Intervention, 5-14.* London, Taylor & Francis.

Makinson, J. (2000). Incentives for change: Rewarding performance in national government networks. Public Services Productivity Panel. London: HM Treasury.

Mason, D.J., & Zuercher, S.L. (1995). Pilot studies in clinical nursing research. *Journal of the New York State Nursing Association 26,* 11.

Mbuya, E. & Lema, N. (2002). Toward development of framework for integration of safety and quality management techniques in construction project delivery process. *Proceedings Of The First International Conference of CIBW107-Creating a Sustainable Construction in Developing Countries.*11-13.

McAfee, R.B., & Winn, A.R. (1989). The use of incentives/feedback to enhance work place safety: A critique of the literature. *Journal of Safety Research, Spring, 20,* 7-19

McKnight, A., Elias, P., & Wilson, L. (2001). Workplace Injuries and Workplace Trends. Prepared by the Institute for Employment Research for the Health & Safety Executive. HSE Contact Research Report 281/2001. Retrieved March 29, 2004, from http://www.hse.gov.uk/research/crr_pdf/2001/Crr01281.pdf

Mearns, K., Whitake, S. M., & Flin, R. (2003). Safety climate, safety management practice and safety performance in offshore environments. *Safety Science, 41(8),* 641-680.

Morse, T., Dillon, C., Warren, N., Hall, C., & Hovey, D. (2001). Capture-recapture estimation of unreported work related musculoskeletal disorders in Connecticut. *American Journal Industrial Medicine, 39(6),* 636-642.

Mugenda, O. M., & Mugenda A.G. (2003). Research methods: Quantitative and qualitative approaches. Nairobi: Acts press.

Muiruri, G. & Mulinge, C. (2014). Health and Safety Management on Construction Project Sites in Kenya. Nairobi, Ministry of Land, Housing & Urban Development.

Mustard, C. (2002). A decade of decline in injuries and claim rates - what's happening? *Canadian Occupational Safety, 40(1),* 12.

Nash, J.L. (2000). Rewarding the safety process. *Occupational Hazards, 62(3),* 29-30, 32, 34.

National Institute for Occupational Safety and Health (NIOSH) 2012: Ables Interactive Query-2012.

National statistic (2001). HSE publishes Health and Safety statistics for 2000/1. Norwich: Crown

National statistic (2003). HSE publishes Health and Safety statistics for 2002/3. Norwich: Crown

Njuguna, G. N. (2007). Environmental planning and management. Towards better Environmental law. *Management, Evaluation and Impact Assessment. ISBN 9966 -7175- 2 -8.*

Oketch, T.O. (2004). Response in handling building materials in construction sites in Kenya. Nairobi: University of Nairobi press.

Pardy, W. (1999). Caution! Injury statistics don't tell the whole story. *Canadian Occupational Safety, 37(4),* 9

Parker, D.L., Carl, W.R., French, L.R., & Martin, F.B. (1994). Characteristics of adolescent work injuries reported to the Minnesota Department of Labor and Industry. *American Journal of Public Health, 84(4),* 606-611.

Peckar, S.R., & Kenny, F. C. (2014). Construction Law Volume 41. *New Jersey Practice Series*. New Jersey: Thompson Reuters.

Petersen, D. (1989). Safe Behaviour Reinforcement. New York: Aloray Inc.

Pheng S.L., & Giang D.T. (2010). Role of construction in economic development; Review of key concepts in the past 40 years. Habitat International.

Pransky, G., Snyder, T., Dembe, A., & Himmelstein, J. (1999). Under-reporting of work-related disorders in the workplace: a case study and review of the literature. *Ergonomics, 42(1),* 171.

Prosser, T. (2003). Accidents will happen. *Fire journal, 96,* 23-24.

Reason, J. (1997). Managing the Risk of Organizational Accidents. Aldershot, England: Ashgate Publishing Limited.

RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995. In RIDDOR Explained (2003). Health and Safety Executive HSE31 (rev1). Retrieved March 22, 2004, from www.hse.gov.uk/pubns/hse31.pdf.

Shaw, A. & Blewett, V. (1998). In Feyer, A. & Williamson, A. (Eds.), *Occupational Injury: Risk, Prevention and Intervention (pp. 195-203).* London: Taylor & Francis.

Silverstein, B.A., Welp, E., Nelson, N., & Kalat, J. (1998). Claims incidence of work-related disorders of the upper extremities: Washington state, 1987-1995. *American Journal of Public Health, 88,* 1827-1833.

Sims, B. Jr. (2000). Effective motivation. *Occupational Health and Safety,* 69(10), 91-93.

Smallwood J., Haupt T. & Shakantu. (2008). Construction health and safety in South Africa: Status and recommendations. CIDB report.

Smith, T.A. 1997. What's wrong with Safety Incentives*? Professional Safety*, May, 44 (Sitasi 15 Januari 2015).

Sohail, M. (1997). An investigation into the procurement of Urban Infrastructure in Developing Countries. Leicestershire: Loughborough University.

Tompkins, N. (1994). Looking forward to safety's rewards. *Occupational Health & Safety, 63(10),* 54-57.

Valio, L. (2013). Comparisons between Occupational Health and Safety Cultures in Kenya and Finland.PHD thesis, Kajaani: Kajaani University press.

Wagennar, W.A. (1998). People make accidents but organizations cause them. In Feyer, A. & Williamson, A. (Eds.), *Occupational Injury: Risk, Prevention and Intervention (pp. 121-128).* London: Taylor & Francis.

Warshaw, L.J. & Messite, J. (1996). Workplace Violence: Preventive and Interventive Strategies. *Journal of Occupational and Environmental Medicine, 38(10),* 993-1006.

Welch, S.L.,Dong, X., Carre, F., & Ringen, K. (2007). *Is the Apparent Decrease in Injury and Illness Rates in Construction the Result of Changes in Reporting? 13(1),* 39-45.

Wilner, F.N. (1998). Is cooperation enough? *Traffic World, 254(8),* 15.

Young, L. (2000). The carrot and the stick. *Occupational Health and Safety Canada, 16(6),* 32-34, 36-38, 40.

APPENDICES

Appendix 1: County Assembly Wards

No.		Name	Population (2009 National Census)	Area (Sq. Km)	Description
1	1396	Clay City	30,658	15.30	Parts of Kasarani Sub–Location of Kasarani Constituency
2	1397	Mwiki	39,156	18.80	Mwiki Sub–Location of Kasarani Constituency
3	1398	Kasarani	30,658	15.30	Part of Kasarani Sub–Location of Kasarani Constituency
4	1399	Njiru	64,551	15.20	Saika and Part of Njiru Sub–Locations of Kasarani Constituency
5	1400	Ruai	35,961	98.00	Ngundu and Ruai Sub–Locations of Kasarani Constituency

Source: Independent Electoral and Boundaries Commission (IEBC)

Appendix 2: Study Questionnaire

QUESTIONNAIRE TO WORK SUPERVISORS AND SITE WORKERS

The purpose of this study is to investigate on the injury reporting trends in construction sites. This study is being conducted through the University of Nairobi, Department of real Estate and Construction Management for the award of degree in Master of Art in Construction management. This questionnaire asks about your PERSONAL awareness of the injuries reporting procedures in the construction sites. DO NOT write your name on this questionnaire. Your response will be anonymous and will never be linked to you personally. Your participation is entirely voluntary. If there are items you do not feel comfortable answering please skip them. Thank you for your participation.

Researcher ……Questionnaire No…….....Date……

A: GENERAL INFORMATION

1. How old are you? **(tick in the circle)**

◯ Less than 18 years ◯ 18-25 years ◯2 6-35 years ◯36-45 years ◯ Above 45 years

2. What level of education have you attained? **(tick in the circle)**

◯ Primary ◯ Secondary ◯ Certificate ◯Diploma ◯ University

3. What is the nature of your employment? **(tick in the circle)**

◯ Permanent basis ◯ Contract basis ◯ Casual basis ◯ other, specify……..

B: AWARENESS OF REPORTING PROCEDURES

4. Have you ever involve in an accident, dangerous occurrence or any form of occupational poisoning while working on site? **(tick in the circle)**

◯ Yes ◯ No

5. If yes in (4) above, did you report to the Health and safety officer? **(tick in the circle)**

◯ Yes ◯ No

6. Occupational Safety and Health Act gives the employees the right to review copies of appropriate standards, rules and regulations and requirements that employer should avail at work place. Are you aware of these rights? **(tick in the circle)**

◯ Yes ◯ No

7. Occupational Safety and Health Act gives the employees the right to call the OSHA area director/officer to inspect their workplace if they believe there are hazardous conditions or violations of the standards. Are you aware? **(tick in the circle)**

◯ Yes ◯ No

8. Are you aware that the Occupational Safety and Health Act gives you right to be free from any discriminatory or retaliatory action taken by your employer as a result of any OSHA complaint in site? **(tick in the circle)**

◯ Yes ◯ No

9. If yes in (10) above, have you ever been discriminated by your employer for any health and safety complaint you make? **(tick in the circle)**

◯ Yes ◯ No

10. Could you append your knowledge if you're familiar with the following legislation as regards work and injuries in construction sites?(**tick as appropriate)**

	Legislation	***Yes***	***No***
2	Work Injury Benefit Act		
3	Employment Act		
4	Public health Act		

C: TYPES AND CATEGORIES OF INJURIES

11. In the site where you work, could you indicate how often the following construction common injuries are reported by your workers? **(tick as appropriate)**

Injuries	**Always**	**Rarely**	**Not at all**	**Not applicable**
Falls				
Falling objects				
Fires & explosions				
Building/trench collapse				
Back overs &crushed between moving trucks				

Repetitive motion injuries, heat, stroke & overexertion				
High lead levels				
Respiratory diseases				
Work related injuries. E.g. back-ache due to bending for long etc.				

12. Could you append your opinion to how the following categories of injuries are reported in your site? **(tick as appropriate)**

	Always	Rarely	Not at all
Near misses			
Minor injuries			
Fatal injuries			
Non-fatal injuries			
Work related injuries			

D: NATURE OF THE FIRM AND ITS OPERATIONAL CULTURE

13. In your own opinion, which size of company would you be free to report the injuries without fear of being victimized? **(tick against the table)**

Size of firm	**Tick in this column**
Big companies (NCA1-NCA3)	
Medium companies (NCA4-NCA5)	
Small companies (NCA6-NCA8)	

14. In your site, which category of your workers easily report to you when injured? **(tick in the circle)**

◯ Youth (18-35years old) ◯ Adults (36-45 years old) ◯ Older people (Above 45 years old)

15. Does your employer motivate you to ensure work safe procedures in site? **(tick in the circle)**

◯ Yes ◯ No

16. Do you have site occurrence book for recording the site incidences and accidents? **(tick in the circle)**

◯ Yes ◯ No

17. Do you have in site an employee concerned with health and safety of the workers while on site?

◯ Yes ◯ No

E: ENFORCEMENT OF STATUTORY REQUIREMENTS

18. Does your employer provide to the workers all the Personal Protective Equipment for the work as is required by law? **(tick in the circle)**

◯ Yes ◯ No

19. Does your employer provide training services on health and safety measures and injury reporting to the workers on site? **(tick in the circle)**

◯ Yes ◯ No

20. Does the health and safety officer inspect your site regularly for health and safety lapses in site? **(tick in the circle)**

◯ Yes ◯ No

21. According to you, does the government do enough to ensure that all injuries are reported, recorded and managed appropriately?

◯ Yes ◯ No

F: SOCIO-ECONOMIC STATUS OF THE WORKERS

22. According to your own opinion, how do the following parameters encourage underreporting of injury in construction sites? **(tick as appropriate)**

Parameters	**Low**	**Medium**	**High**
Language barrier			
Poverty level			
Dependency ratio			

Healthy status			
Other, specify…….			

23. According to you, what other factors do you think encourages underreporting of construction injuries?.....
.....
.....
.....

Appendix 3: Contractors categorization in Kenya by National Construction Authority (NCA)

Category	**maximum value of contract**	
	Roads & Civil works	***Buildings works***
NCA 1	unlimited value	unlimited value
NCA 2	750,000,000.00	500,000,000.00
NCA 3	500,000,000.00	300,000,000.00
NCA 4	300,000,000.00	200,000,000.00
NCA 5	200,000,000.00	100,000,000.00
NCA 6	100,000,000.00	50,000,000.00
NCA 7	50,000,000.00	20,000,000.00
NCA 8	less than20,000,000	less than10,000,000