ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF PROJECT MANAGEMENT

ASSESSMENT OF THE EFFECTIVE IMPLEMENTATION OF HEALTH AND SAFETY MANAGEMENT TOOLS AND TECHNIQUES TO PREVENT WORK PLACE ACCIDENTS BY CONTRACTORS OF FEDERAL HOUSING CORPORATION.

By

Miftah Seid Ahmed

JANUARY 2025

ADDIS ABABA ETHIOPIA

ASSESSMENT OF THE EFFECTIVE IMPLEMENTATION OF HEALTH AND SAFETY MANAGEMENT TOOLS AND TECHNIQUES TO PREVENT WORK PLACE ACCIDENTS BY CONTRACTORS OF FEDERAL HOUSING CORPORATION.

By

MIFTAH SEID AHMED

ID NO SGS/0057/2015B

ADVISOR

HAILEMELEKOT. TAYE (ASST. PROFESSOR)

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF

ST. MARY'S UNIVERSITY IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTERS DEGREE IN PROJECT MANAGEMENT

ASSESSMENT OF THE EFFECTIVE IMPLEMENTATION OF HEALTH AND SAFETY MANAGEMENT TOOLS AND TECHNIQUES TO PREVENT WORK PLACE ACCIDENTS BY CONTRACTORS OF FEDERAL HOUSING CORPORATION.

By

MIFTAH SEID AHMED

ID NO SGS/0057/2015B

APPROVED BY BOARD OF EXAMINERS

School Of Graduate Studies	**Signature**	**Date**
Hailemelekot. Taye (Asst. Prof)		
Advisor	**Signature**	**Date**
Temesgen Belayneh (PhD)		
Internal Examiner	**Signature**	**Date**
Yilikal Wassie (Asst. Prof)		
External Examiner	**Signature**	**Date**

DECLARATION

I Miftah Seid, declare that the thesis entitled ‘’ Assessment of the effective implementation of health and safety management tools and techniques to prevent work place accidents by contractors of federal housing corporation’’ is my original work. I have carried out the present study independently with the guidance and support of my research advisor, Hailemelekot Taye (Asst. Prof.) any other contributors or sources used for the study have been duly acknowledged. Moreover, this study has not been submitted for the award of any degree or diploma program in this or any other institution, and all sources of materials used for the thesis have been duly acknowledged.

Miftah Seid	_____	January /2025
Name of Student	Signature	Date

LETTER OF CERTEFICATION

This is to certify that Miftah Seid has conducted this project research entitled "Assessment of the effective implementation of health and safety management tools and techniques to prevent work place accidents by contractors of federal housing corporation'' under my supervision. This project work is original and suitable for submission in partial fulfillment of the requirement for the award of a Master of Arts Degree in Project Management.

This thesis has been submitted to St. Mary's university school of graduate studies for examination with my approval as a university advisor.

Hailemelekot Taye (Asst. Prof)

Signature 

St Mary's University, Addis Ababa January 2025

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to all those who have contributed to the completion of this research and first all I would like to express my deepest thanks to my Advisor Hailemelekot. Taye (Asst. Professor) for the invaluable guidance, constant support and deep and appreciative feedback throughout the research process, his comments, advices and encouragement were helpful in shaping this study. I am also grateful to the project managers, engineers and all staffs of the Federal Housing Corporation contractors Ovid Construction Plc. Mescon construction & CCC Company for their cooperation, providing the necessary information and allowing me to carry out my research within the organization. Without their support and willingness to participate and fill my questionnaires this study would not have been possible.

My great appreciation goes to all the Client FHC, the employees who took the time to share their experiences and observation regarding the health and safety practices in their workplaces because their contributions were essential for supporting the findings of this research. In Addition, I would like to thank my family, work mates and friends for their great support, understanding and patience who supported me on distributing the questionnaire because their encouragement helps me to be motivated through the challenges and Finally, I extend my thanks to all who have contributed to the success of my research. Your assistance has been greatly appreciated.

This work is customized to everyone committed to improving safety standards in the workplace particularly in building construction.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS V

TABLE OF CONTENTS VI

TABLES, CHARTS AND GRAPHS IX

ABREVATIONS X

ABSTRACT XI

CHAPTER ONE 1

INTRODUCTION TO THE STUDY 1

1.1 BACKGROUND OF THE STUDY 1

1.2 STATEMENT OF THE PROBLEM 2

1.3 OBJECTIVES OF THE STUDY 3

1.3.1 GENERAL OBJECTIVE 3

1.3.2 SPECIFIC OBJECTIVES 3

1.4 RESEARCH QUESTIONS OR RESEARCH HYPOTHESIS 4

1.5 SIGNIFICANCE OF THE STUDY 4

1.6 SCOPE AND LIMITATIONS OF THE STUDY 5

1.7 OPERATIONAL DEFINITION OF TERMS HAZARD AND RISK 6

1.8 ORGANIZATION OF THE STUDY 7

CHAPTER TWO 9

LITERATURE REVIEW 9

1.1 INTRODUCTION 9

1.2 THEORETICAL LITERATURE 9

1.3 EMPIRICAL LITERATURE 13

Studies on Health and Safety Management in the Construction Sector 13

CHAPTER THREE 15

RESEARCH METHODOLOGY 15

3.1 DESCRIPTION OF THE STUDY AREA 15

3.2 RESEARCH DESIGN AND APPROACH 15

Research Approach 15

Research design 16

3.3 POPULATION (UNIVERSE) 16

3.4 SAMPLING AND DATA COLLECTION 17

3.4.1 DATA COLLECTION TOOLS / INSTRUMENTS 17

3.5 DATA ANALYSIS 18

3.6 VALIDITY & RELIABILITY VALIDITY 19

3.7 ETHICAL CONSIDERATIONS 20

CHAPTER FOUR 21

RESULT AND DISCUSSION 21

4.1 OVERVIEW 21

CHAPTER FIVE 29

CONCLUSIONS AND RECOMMENDATIONS 29

5.1 SUMMARY 29

5.2 CONCLUSION 29

5.3 RECOMMENDATION 30

REFERENCES 31

TABLES, CHARTS AND GRAPHS

Table 1 Familiarity with Health & Safety Regulations 24

Table 2 Importance of Health & Safety in Preventing Accidents 24

Table 3 Respondents acquiring of formal training in Health & Safety Management 25

Table 4 Usage of Health & Safety Management Tools 25

Table 5 Mean Effectiveness Rating Tools/Techniques 26

Table 6 Challenges in Implementing Health & Safety Practices 27

Graph 1 Demographic Information of Respondents 21

Graph 2 Years of Experience in the Construction Industry of respondents 22

Graph 3 Educational Background of Respondents 22

Graph 4 - Construction Projects Involved by respondents 23

ABREVATIONS

FHC	Federal Housing Corporation.
CCCC	China Communication and Construction Company
OSHA	Occupational Safety and Health Administration
EBCS	Ethiopian Building code standard
PPE	Personal protective Equipment
HSE	Health and safety Executive
ILO	International Labor organization

Abstract

This study aims to evaluate the practices of federal housing corporation contractors in implementing health and safety management tools and techniques in its construction work places. The research focuses on three specific objectives which includes assessing current health and safety management practices, identifying challenges in effective implementation and examining the awareness levels of contractors and workers regarding these tools. A descriptive research design was employed, utilizing survey questionnaires, observational research, and document analysis to collect data from contractors, engineers, workers, and managers. Survey questionnaires provided insights into experiences, attitudes, and behaviors, while observational research captured real-time practices on construction sites. Document analysis of safety manuals and policy documents revealed organizational trends and regulatory compliance.

The findings indicate that while tools such as risk assessments, safety training programs and personal protective equipment and safety audits are in place, significant challenges hinder their effective implementation. Financial constraints, organizational barriers, and varying levels of awareness among workers and contractors were identified as key obstacles. The study underscores the importance of continuous training, regular safety audits, and stricter enforcement of safety protocols to reduce workplace accidents. Addressing these challenges is crucial for improving long-term safety outcomes in the construction industry. This research highlights the critical role of robust health and safety management systems in safeguarding worker well-being and calls for targeted interventions to enhance compliance and awareness

CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Background of the Study

In Ethiopia the construction industry is one of the vital industry used to improve the living standard of the citizens , to fulfill the need and requirements of the society , a sector which is used as one means to minimize the rate of unemployment and become means of income for citizens & it is a sector which is used to achieve the strategic objectives of the government as well as the society and therefore the Implementation of health & safety management tools and techniques in the construction industry is a critical for any construction project.

Construction industry is known for its high probability of occurrence of workplace accidents, in order to prevent these accidents and protect the well-being of workers, it is essential for the contractors to effectively implement health and safety management tools & techniques in their work place and though this study/research generally aims to investigate the practices of contractors effective implementation of health & safety management tools & techniques to prevent workplace accidents & protect the wellbeing of construction workers of building contractors working in federal housing corporation. In addition this study/investigation or research aims to evaluate the current practices of FHC building contractors in their health & safety management implementation , to Identify the challenges and barriers faced by building contractors of FHC in effectively implementing health and safety measures in the work place , to examine the levels of awareness and training provided for construction workers on health & safety practice , to assess the impact of health and safety management tools and techniques on reducing workplace accidents and injuries , to identify best practices and recommend strategies for improving the implementation of health and safety management in building contractors of federal housing corporation in specific and the findings of this investigation will help FHC building contractors & other related building contractors to understand the importance of implementing effective health and safety management tools & techniques and provide them with practical insights on how to improve their current practices and beside this the goal is to reduce the number of workplace accidents in the construction industry and to ensure the well-being of

all workers involved in building projects , to create a safer working environment for their employees and reduce the number of workplace accidents and by identifying the best practices and areas to be improved , these study helps FHC building contractors to strengthen their health and safety management systems and in broad aspect to give additional information for the building construction industry of Ethiopia. To identify what health and safety management tools & techniques are currently being used by building contractors to prevent workplace accidents, to examine how effective are these tools & techniques in preventing accidents on construction sites, to identify the specific challenges or barriers that building contractors face in implementing health & safety measures in the workplace , to evaluate the measures taken to train workers on properly implementing safety tools and equipment's and also to follow safety procedures. To evaluate the experience on occurrence of accident or near misses reported on in their building sites if any report of accident is occurred & to identify how accidents are reported & investigated in order to prevent future incidents to find the role of all levels of management specially supervisors & project managements in preventing accidents, promoting a culture of safety in the workplace. To know the existence of any specified regulations or guidelines that building contractors follow to ensure the safety of their workers. To evaluate and examine how FHC building contractors monitor & evaluate the effectiveness of their health & safety management implementation , to assess the existence of best practices of implementing safety measures, to give or put recommendations for building contractors who are interested to improve their health & safety management implementation practices.

1.2 Statement of the Problem

Workplace accidents in the construction industry remain a significant concern throughout the world, with construction workers facing higher risks of injury and fatality compared to other sectors. The Federal Housing Corporation, as a major entity responsible for the development commercial and residential housing projects in Addis Ababa city & dire dawa towns, works with contractors who are expected to follow and implement health and safety regulations to minimize accidents on their building construction site. Regardless of the implementation of various health and safety management tools and techniques, workplace accidents among contractors engaged in FHC housing construction projects work place accidents occurs in their building sites & the occurrence of these accidents raises critical questions about the implementation and effectiveness

of the health & safety management systems employed by contractors working on federal housing corporation projects. Although contractors are expected to implement safety measures such as risk assessments, safety audits, training programs and behavior based safety initiatives there is limited understanding of how effectively these tools and techniques are being implemented in practice. Several factors, including inadequate training, lack of budget for safety and resources, poor enforcement of safety rules and protocols, luck of safety culture of the contractors could be hindering the successful implementation (application) of health and safety management tools & techniques or safety measures which highly contribute to the continued incidence of accidents. There is a need for an in-depth assessment of the implementation of these safety management tools and techniques by contractors of the Federal Housing Corporation, to identify gaps, challenges, and areas for improvement. The current literature does not provide comprehensive insights into the specific challenges faced by contractors working on federal housing projects in effectively applying safety measures. This gap in knowledge alarms for a focused assessment (investigation) into the practical challenges that contractors of federal housing corporation faces in utilizing health & safety management tools & techniques and also whether the existing tools are adequate or need to be revised for improved safety outcomes.

This study aims to address this gap by assessing the effectiveness of the implementation of health and safety management tools and techniques by contractors of the Federal Housing Corporation, with the goal of proposing recommendations for enhancing safety performance and reducing the incidence of workplace accidents.

1.3 Objectives of the Study

1.3.1 General Objective

This research aims to assess the practices of FHC contractors for effectively implementing health & safety management tools & techniques by their construction workers.

1.3.2 Specific Objectives

This study specifically tries to:-

1. Evaluate the current practices of FHC building contractors in their health and safety

management implementation.

2. To identify the challenges of building contractors of FHC in effectively implementing health & safety management tools and techniques in the work place.

3. To examine the levels of awareness of contractors and their workers about health and safety management tools and techniques.

1.4 Research questions or research hypothesis

- What are the attitudes of workers to implement health & safety equipment's in work places.

- What health and safety management tools & techniques are currently used the contractors and how effective are these tools and techniques in preventing accidents on construction sites?

- What best practices are there on successful implementation of health and safety management tools and techniques in the construction industry?

- Is there better implementation of health and safety management practices that improved the workplace safety?

- Is there any formal training which creates awareness about health and safety and contributes to safe working environments?

1.5 Significance of the Study

This study has significant importance for multiple stakeholders including contractors, the Federal Housing Corporation, regulatory bodies and policy makers, for the overall economy of the construction sector in the country, for workers of contractors and all workers participated in the construction industry therefore assessing the effective implementation of health and safety management tools & techniques by building contractors is significant for the construction industry, the well-being of workers and most specifically this study is significant for the workers of contractors and building contractors themselves.

The significance of this research for the different parties include:-

For Worker

This research is critical for ensuring the well-being of construction workers, who repeatedly face hazardous working conditions. Effective implementation of health & safety management tools & techniques are not only protecting workers from accidents but also to improve morale, to increase productivity and job satisfaction and therefore these study will promote a safer and more secure work environment by preventing accidents.

For Contractors

Contractors will take the findings of this research as a reference frame for their health and safety management tools and techniques practices, helps contractors by reducing the cost of injuries and by protecting their experienced workers.

Policy and Regulatory Impact

The study may investigate gaps in safety policies and may suggest recommendations for new regulations or better enforcement of existing policies and regulations.

For Researchers

This study may help researchers by providing additional finding and information about the potential areas of work place accidents and injuries as well as the critical factors that challenge implementation of health and safety management tools and technique.

1.6 Scope and Limitations of the Study

These study focuses on three building contractors involved in federal housing corporation (FHC) building projects in Addis Ababa Ethiopia which are Ovid Construction Plc. (Gold Plaza Building and Mozvold Plaza Building), Mescon Construction at Kokebe Tsibah site & CCC Company at sumale tera site. This study examines the effective implementation of health & safety management tools & techniques to prevent work place accidents specifically by these three contractors.

Scope

Investigates the health and safety management practices used by building contractors particularly building contractors in FHC building projects to:-

- Analyzes the effectiveness of these health & safety tools in preventing workplace accidents and promoting safe working environments.
- Assesses the level of awareness and training provided to employees on health and safety practices of three contractors at FHC building sites.
- Identifies challenges faced by FHC contractors in implementing health and safety practices.
- Provides recommendations to improve the formulation of effective health and safety practices in the Ethiopian construction industry.

Limitations

- The study is limited to only three specific contractors working on FHC building construction projects which may not fully represent the all construction industry in Ethiopia.
- The study focus on FHC building construction sites, limiting generalization to other construction projects outside this scope.

1.7 Operational Definition of Terms Hazard and risk

Risk assessment: - As defined by OSHA (2004), is the process of evaluating the conditions of workers are exposed to in order to identify potential hazards & determine if these hazards are likely to cause harm to the workers.

Safety audits: - Safety audits are systematic evaluations of an organization's safety practices, procedures, and conditions to assess compliance with safety regulations and identify potential hazards. (Health and Safety Executive, HSE, 2003).

Safety training sessions: - Safety training sessions are organized educational programs aimed at teaching employees how to recognize workplace hazards, (Occupational Safety & Health Administration (OSHA), (2020).

Personal Protective Equipment (PPE):- Refers to any equipment or clothing worn by workers to protect themselves from workplace hazards that could cause injury or illness. Common examples of PPE include gloves, helmets, goggles, face shields, earplugs, and protective clothing (Occupational Safety and Health Administration (OSHA, 2020).

Emergency drills: - are planned, trial exercises designed to prepare employees for responding to emergency situations, (Occupational Safety & Health Administration (OSHA, 2020).

Toolbox talks: - are brief, informal safety meetings or discussions held at the workplace to educate employees about specific safety topics, potential hazards and safe work practices related to their tasks, (Occupational Safety & Health Administration [OSHA], 2020).

Incident reporting system: - Is a formal mechanism used by organizations to document, track and analyze incidents, accidents or near-misses in the workplace, (Health and Safety Executive (HSE)

Workplace accidents: - are uncontrolled incidents resulting in injury, illness to workers including falls, electrical shocks, caught between equipment, struck by falling and rotating equipment

Occupational Health and Safety: - The practice of ensuring employee safety and health by preventing injuries, illnesses and promoting a safe and healthy workplace environment (OSHA).

1.8 Organization of the Study

This research paper aims to investigate the effective implementation of health & safety management tools & techniques to prevent workplace accidents in FHC building contractors. It consists of five chapters. The contents of each chapter & organization are, chapter one is the introduction section of the research. It provides an overview of the study and includes the following components , the background of the study, the statement of the problem, objectives of

the study (general and specific objectives), the research questions , the significance of the study, the operational definition of terms, and the organization of the study, which outlines the main contents of the research , chapter two describes the literature review section presents relevant information from previous research studies conducted by other scholars. It provides a summary of the key findings and theories related to the topic. In chapter three the research methodology includes a description of the study area, research design, population, sampling methods, data collection tools or instruments, data analysis & ethical considerations, chapter four presents the results, findings, data analysis & collection instruments and discussion of the research. The research primarily uses a quantitative data collection method, with a questionnaire as the key instrument" for better clarity & flow. The results are systematically analyzed to address the research questions to meet the general and specific objectives of the study. Chapter five is the final chapter which covers the conclusion & recommendations; it summarizes the key findings of the research, draws appropriate conclusions & provides recommendations based on the study's results.

CHAPTER TWO

LITERATURE REVIEW

1.1 Introduction

The importance of health and safety in the construction industry cannot be overstated, especially when considering the potential risks that contractors face in workplaces such as construction of building sites. Workplace accidents not only result in human suffering but also lead to significant economic losses in both the workers and the contractor or organizations involved in the project. Like many organizations in the construction sectors the Federal Housing Corporation (FHC), must ensure the effective implementation of health and safety management tools and techniques to reduce these risks. This literature review tries to evaluate the existing studies on health and safety management systems, focusing on the role of contractors in the building construction industry, the tools and techniques used for accident prevention, and challenges to effective implementation.

Health and safety management in the workplace is a crucial concern, particularly within high-risk sectors such as construction. Contractors working on federal housing corporation projects are tasked with ensuring the safety of their workers. Workplace accidents in the construction sector, including those in government housing projects Thus, effective implementation of health and safety management tools and techniques are critical to accident prevention.

The objective of this review is to explore existing theories and empirical studies to assess how contractor of Federal Housing Corporation (FHC) implement health and safety management tools and techniques and the effectiveness of these measures in preventing workplace accidents.

1.2 Theoretical Literature

Health and safety management theories have developed for the past many years addressing various features of workplace safety, risk management, and accident prevention. Key theoretical frameworks regards to safety and work place safety include:

Risk Management Theory

Risk management theory is a foundation principle in health and safety management. It focuses on the identification, assessment and mitigation of risks to prevent accidents in construction, risk management involves a systematic approach to identifying hazards at every phase of a project, from planning to execution phases. For contractors using risk management theories can guide them in assessing workplace hazards, implementing appropriate safety measures and helps them to ensure their safety management conditions with the regulations (Smith & Johnson, 2023; OSHA, 2020).

Behavioral Safety Theory

Behavioral safety theories focus on the role of individual and group behavior in influencing safety outcomes. One of the most widely recognized theories is the Behavior-Based Safety approach, which suggests that accidents are often the result of unsafe behaviors rather than physical hazards alone. By modifying worker behavior through training, positive reinforcement, and establishing safety norms, contractors can improve safety outcomes. In the context of the Federal Housing Corporation, this theory would be particularly useful in shaping the safety culture within the corporation as well as the contractor's workforce (Geller, E.S. (2001). A guide for managers and supervisors, Professional Safety, 46(3), 20-27) & (Cooper, M.D. (2009). Behavioral safety, A framework for success. Professional Safety, 54(8), 35-40)

Safety Culture and Safety Climate Theories

Safety culture theory suggests that an organization's safety performance is deeply influenced by the culture of the organization itself, its values, attitudes and practices regarding safety among its workers. An organization or contractor with a strong safety culture of its workforce would involve commitment from both management and workers to ensure safety is prioritized. Safety climate refers to employees' perceptions of the organization's safety policies, procedures, and practices. A positive safety climate results with fewer accidents and better overall safety outcomes. (Zohar, 2000; Neal & Griffin, 2006).

Human Factor Theory

Human factor theory emphasizes the role of human behavior and decision-making in workplace safety. This theory suggests that human errors, whether cognitive or physical are significant contributors to accidents. Safety management systems that integrate human factors analysis such as training, awareness creation, relation between workers and their environments and risk management can help to reduce workplace accidents and improve the safety of construction workers. (Reason, J. (1990). Human error. Cambridge University Press)

Accident Proneness Theory

It's a concept in safety management and psychology that suggests that certain individuals are more likely to be involved in accidents than others due to inherent personality traits, behavioral patterns, or physiological characteristics. According to this theory, some people have a predisposition or higher susceptibility to accidents, which may be influenced by factors such as their attention span, risk-taking behavior, decision-making processes, or even specific psychological traits. (Wilde, G.J.S. (2001) & Svenson. O. & Wilde, G.J.S. (1993).

Goal Freedom Alertness Theory

It's a concept from psychology and safety management that emphasizes the relationship between an individual's awareness of their goals & the probability of accidents in the work place. The theory suggests that individuals are more likely to make errors or be involved in accidents when their attention is divided or their goals are not clearly aligned with safety objectives. Goal Freedom refers to the degree to which an individual is free to choose or pursue their own goals without strict constraints or guidance. In the context of workplace safety, it suggests that when employees are given too much autonomy or freedom without clear safety guidelines or objectives, they may neglect safety protocols, leading to accidents. Alertness The theory posits that an individual's level of alertness, or their ability to stay aware and focused on their environment, is crucial in preventing accidents. When individuals are not mentally or physically alert due to distractions, fatigue or lack of motivation, they are more likely to overlook hazards or make unsafe decisions. (Wickens, 2008; Reason, 1990; Geller, 2001).

Chain of Events Theory

The Chain of Events Theory explains that accidents occur as a series of connected events, where one event leads to the next, ultimately resulting in an accident. It proposes that accidents are not random but follow a progression, often starting with a minor issue that, if left unresolved, can develop into a more significant problem. By identifying and breaking the chain at crucial points, accidents can be prevented. (Heinrich, 1931; Bird & Germain, 1985)

Systems Theory in Safety Management

Kheni, E (2008) discusses the application of Systems Theory to safety management in the construction industry, emphasizing that construction safety management is a complex system of interrelated elements. These elements include policies, procedures, equipment, personnel, and environmental factors, and the effectiveness of health and safety tools relies on how well they work together within a holistic safety system. According to Kheni (2008), an integrated approach, where these elements are aligned and constantly monitored, leads to better safety outcomes. The theory supports the idea that health and safety tools cannot be effectively implemented in isolation, and their success depends on the overall structure and organization of the safety management system.

Continuous Improvement Theory

Kheni .E (2008) discusses the continuous improvement theory, which suggests that safety management is not a static process but should evolve over time and Kheni advocates for regular monitoring and review of safety practices to refine and improve them based on feedback and incident reports by making continuous improvement into safety practices, organizations can adapt to new challenges, refine their health & safety management tools & enhance their effectiveness in preventing accidents.

Leadership and Safety Culture Theory

Kheni (2008) explores the Leadership and Safety Culture Theory, which emphasizes the role of leadership in shaping the safety culture of an organization. Effective health and safety management tools and techniques are heavily influenced by leadership commitment to safety.

Leaders must be actively involved in promoting a safety culture, providing resources, and ensuring that safety is prioritized across all levels of the organization. Kheni (2008) suggests that strong safety leadership is critical for the success of health and safety programs, as it influences the adoption of safety tools and encourages employees to prioritize safety in their day to day activities.

1.3 Empirical Literature

Studies on Health and Safety Management in the Construction Sector

Studies have examined the effectiveness of health and safety management systems in reducing accidents in the construction industry. A key finding in this body of research is that the implementation of formalized safety management tools such as risk assessment protocols, safety training programs and safety audits, significantly reduces the occurrence of accidents. Studies found that contractors using tools like job safety analysis and permit to work systems highly reduce the frequency of accidents. Smith, J., & Johnson, M. (2023). Studies on health and safety management in the construction sector Journal of Construction Safety, 15(3), 45-56. https://www.hrpub.org.

Safety Management Tools and Techniques

Empirical research often examines the effectiveness of specific safety management tools and techniques like Safety Audits, Safety Inspections, Behavior-Based Safety Programs, and Risk Assessment Protocols have been shown to be effective in identifying risks and implementing preventive measures. Studies conducted on construction companies found that contractors who actively integrated safety management systems such as hazard identification tools and safety performance tracking results lower accident rates compared to those who used less formal systems.

Case Studies of Safety Practices in Federal Housing Corporation Projects

Empirical evidence specific to the Federal Housing Corporation or similar public housing projects is not available, but several case studies on similar sectors with FHC have demonstrated on the relationship between strong safety practices and reduced workplace

accidents. In these case studies, contractors who follow government safety guidelines and employed customized risk management techniques were found to have better safety performance. Key factors influencing the effectiveness of safety measures included the level of worker training, contractor commitment to safety and the availability of safety tools (resources) and budget allocated for safety issues, communication between management and workers, and the support of the management for safety issues, the availability of safety personnel. OSHA, (2000), Housing and Urban Development).

Factors Affecting the Effectiveness of Health and Safety Management Tools

The factors affecting effectiveness of health and safety management tools implementation include training, management commitment and involvement, resource availability, worker participation, and budget. Contractors who invest in regular health and safety training for their workers experience fewer accidents. Strong leadership and management commitment to safety practices are directly correlated with fewer workplace injuries. Adequate resources such as safety equipment and dedicated safety officers are essential for ensuring the success of safety management systems. Worker involvement in safety planning and decision-making leads to more effective implementation of safety measures. The allocation of a budget for health and safety management tools and techniques is vital for the proper and efficient implementation of required safety measures. (Kines, P., Andersen, L.P., Spangenberg, S., & Torner, M. Journal of Safety Science, 2010, Volume 48, Issue 5, Pages 644-652)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Description of the Study Area

This study focuses on three building contractors involved in the construction of multi-story buildings for the Federal Housing Corporation in Addis Ababa, Ethiopia. Two of these contractors are in the final stages of Construction, specifically engaged in finishing work, while one contractor, Ovid Construction Plc. is in the initial phase (sub-structure work) of the building project. The study aims to assess the effective implementation of health and safety tools & techniques across these contractors on their building construction sites

3.2 Research Design and Approach

Research Approach

The following are the most appropriate approaches used in this research

Survey questionnaire is one of the one approach used in descriptive research design since it involves collecting data from a group of people using structured questionnaire & this approach is specifically applied for a population consists of contractors, engineers, workers or managers of construction companies when information about experiences, attitudes, behaviors of implementation is required.

Observational Research is one of the one approach used in descriptive research design since it is useful to observe and recording behavior, situations or incidents without any ones intervention or interference and this provides actual behavior and practice on the sites and so it is useful in understanding how health and safety management tools are being applied on construction sites in real working time.

Document Analysis: - involves analyzing safety manuals, policy documents and other textual data to identify patterns or trends. It is useful to how safety tools are discussed or documented within the organization and helps to provide an understanding of the policies & regulations about safety tools.

Research design

Descriptive research designs is used in this research because it helps to collecting data from a group of people using structured questionnaires , observation , document analysis & helps to deeply examine the experiences, attitudes, behaviors or characteristics of a population consists of contractors, engineers, workers or managers of construction companies. In a descriptive research design survey research helps to describe the opinions, experiences, behaviors & characteristics of group who are related to the implementation of health & safety management tools & techniques, observation helps to observe document behavior, situations as they naturally occur & document analysis involves examining existing documents to describe the current condition of health & safety policies or the use of safety tools.

3.3 Population (Universe)

This research focuses on three building construction contractors of the Federal Housing Corporation (FHC), Ovid Construction Plc. CCC Company and Mescon construction which are working on three different building sites. This study includes participants from various job positions, such as contractors, Project Managers, site supervisors, safety officers, engineers, foremen, masons, carpenters, painters, daily laborers, storekeepers and other workers, all of whom responded to the questionnaire. The responses are expected to address the research questions and totally 116 employees from the three contractors are currently working.

The three contractors involved in the study are Ovid Construction Plc. having 75 currently available workers, CCC Company having 20 currently employed workers and Mescon construction having 21 currently employed workers come from various professional backgrounds and therefore the total population to be surveyed through the questionnaire is 116 available active employees. Since a census survey is used, all active workers from the three contractors will be included in the study.

3.4 Sampling and Data Collection

3.4.1 Data Collection Tools / Instruments

Primary data collection instruments

In this research, a survey questionnaire & observation are used as primary data collection instruments and questionnaire is chosen because it helps to collect large volume of data in a relatively short period relative to other instruments and using a questionnaire ensures uniform set of questions to all respondents and this helps to maintain consistency in the data collected and in addition respondents can answer questionnaire based on their true feeling with a higher degree of freedom since the confidentiality of their responses is guaranteed through the information provided on the questionnaire and as a second primary data collection instrument observation is chosen because it is useful to observe and recording behavior or situations or incidents without any ones intervention and this provides actual behavior and practice on the sites and it is useful in understanding how health and safety management tools are being applied on construction sites in real working time. In this research questionnaire having 20 questions are employed. The questions use a Likert scale to measure the effectiveness of health & safety management tools. The scale ranges from 1 to 5, where 1=Not- Effective, 2=Slightly-Effective 3=Moderately- Effective 4=Effective & 5=Very-Effective

The data collection process using questionnaire

The data for this research was collected through a structured questionnaire, which was distributed among FHC contractors and their workers involved in construction projects. The questionnaire was designed to capture information regarding the implementation of health and safety management tools & techniques, the challenges faced by contractors & the levels of awareness of safety practices among workers. It consisted of closed ended questions.

Closed-Ended Questions were used to measure specific factors related to safety practices, such as the frequency of safety training, availability of safety equipment & management support for safety measures. These questions allowed for easy quantification and statistical analysis.

Data Cleaning and Preparation the collected data was first checked for completeness &

consistency & then incomplete or invalid responses were removed before proceeding to the analysis. This step ensures that only reliable & accurate data was used for analysis.

Charts and Graphs Excel's built-in charting tools were used to visually represent the data. Bar charts, pie charts & line chart were created to illustrate the frequency distribution of various responses and to visually compare awareness levels and practices between contractors and workers. Analysis using Excel allowed for a thorough assessment of the health & safety practices among FHC contractors. The data was systematically analyzed to identify trends, challenges and gaps in the implementation of safety management tools & techniques. Excel data analysis features were instrumental in organizing and interpreting the data, providing valuable insights for the research

Secondary data

Secondary data are taken from accident records of government & regulatory agencies such as international labor organization (ILO), occupational safety & health association(OSHA) , Ethiopian building code standard (EBCS) , Health and safety executive (HSE), academic researches , websites , Journals & different literatures.

3.5 Data Analysis

Handling of Missing and incomplete Data

From the currently existing total population of 116 respondents 4 respondents are not willing to respond at the required time for the questionnaire and the responses of other 2 respondents are incomplete and its almost null because most of the questions are not properly filled and have significant incompleteness and become difficult to input data using statistical methods and due to this I removed this 6(Six) questionnaires and the missed data do not involve significant which is around 5% and so has insignificant impact on the result.

Coding responses based on common themes, here respondents are coded based on the contractors name and therefore in Ovid construction respondents are coded as Ovid Res-No 1 to 71, CCCC coded as CCC-Res 1 to 19 and in Mescon Construction coded as Mes Res-No 1 to 20.

Data analysis using Excel is conducted & as the questionnaires were completed & collected, the data was input into Microsoft Excel for analysis the following methods were employed for data analysis

Descriptive Statistics were used to summarize the data and provide a general overview of the responses. This included

Frequencies and Percentages to determine how frequently certain safety practices were implemented or how aware workers and contractors were about safety management techniques.

Mean to calculate the average scores for various safety practices, training, and resource availability, helping to identify trends or gaps in the implementation of safety measures.

3.6 Validity & Reliability Validity

Content Validity: - to ensure content validity survey questionnaire was evaluated & reviewed by advisor that the questionnaire consists of the issues which can support the basic issues related to safety like employees engagement in the construction industry, training & awareness of their health & safety tools , their job position are addressed in the questionnaire the protocols. To ensure validity construct validity questionnaire addresses the effective implementation of health & safety management tools and techniques to measuring related issues like evaluating the effectiveness of each tool/technique in preventing workplace accidents, identification of the most effective tool in reducing workplace accidents & tried to assess the observed a measurable reduction in accidents due to the implementation of these tools & techniques, Additionally benchmarks such as existing valid instruments of previous studies in occupational health & safety were used to ensure that the survey questions align with established measures of safety management effectiveness.

3.7 Ethical Considerations

In conducting this research, ethical considerations are critical to ensure the research process is carried out with confidentiality & respect for the rights of participants. Key ethical considerations include voluntary agreement to participate here Participants are informed about the purpose of the research, its scope & how their data will be used and they understand that participation is voluntary, confidentiality of data all participants data is kept confidential, personal information such as names , company details is not disclosed to protect the identity of participants. Fair treatment is employed and bias is avoided by selecting participants from three different contractors & eleven different job roles to ensure inclusiveness. Additionally, no influence is exerted on respondent's response to prevent bias,

CHAPTER FOUR

RESULT AND DISCUSSION

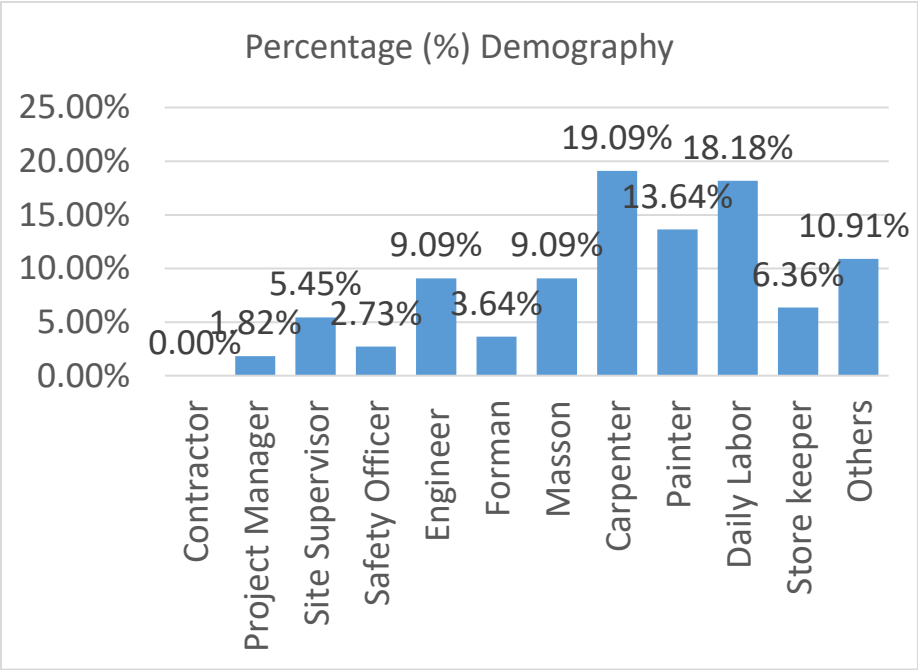
4.1 Overview

This chapter presents the results and findings of the study, based on the data collected through questionnaires, observations and document analysis. It systematically addresses the research problem, objectives and research questions. The research objectives are clear and mainly focused on assessment of health and safety management tools and techniques, to obtain key research findings, challenges & suggested improvements and the results are organized well.

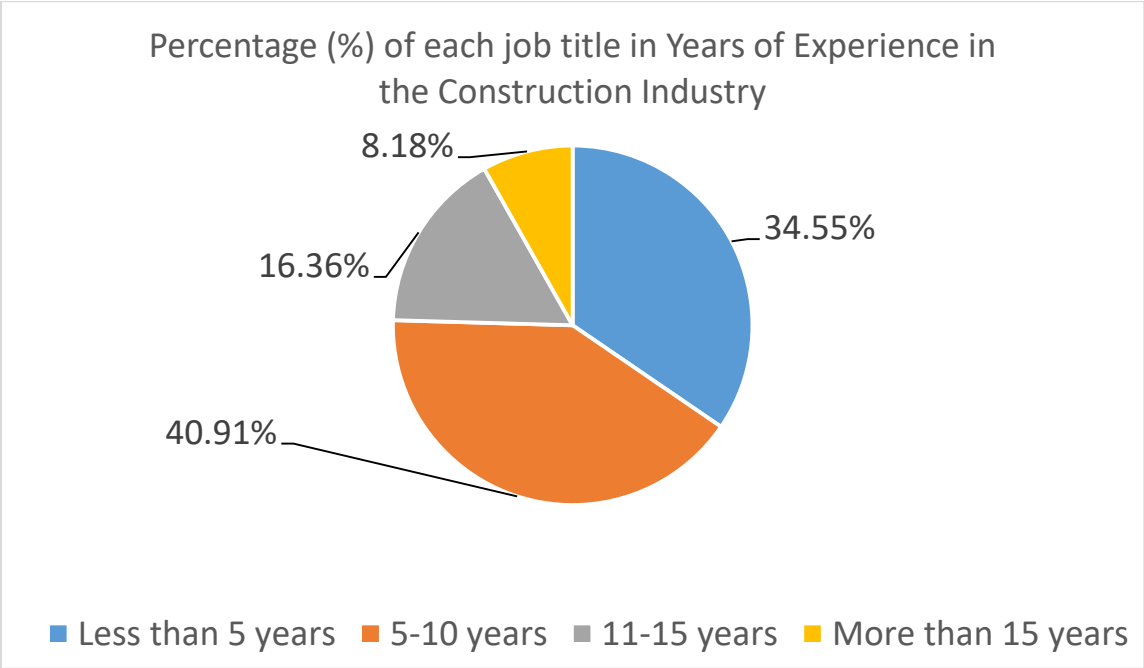
Assessment of Health and Safety Tools and Techniques

The study assesses several health and safety management tools and techniques used by three different contractors of Federal Housing Corporation (FHC), this tools and techniques include risk assessments, safety training programs, safety audits, PPE use, emergency drills, toolbox talks, and incident reporting systems. The results show varied levels of adoption and effectiveness across contractors.

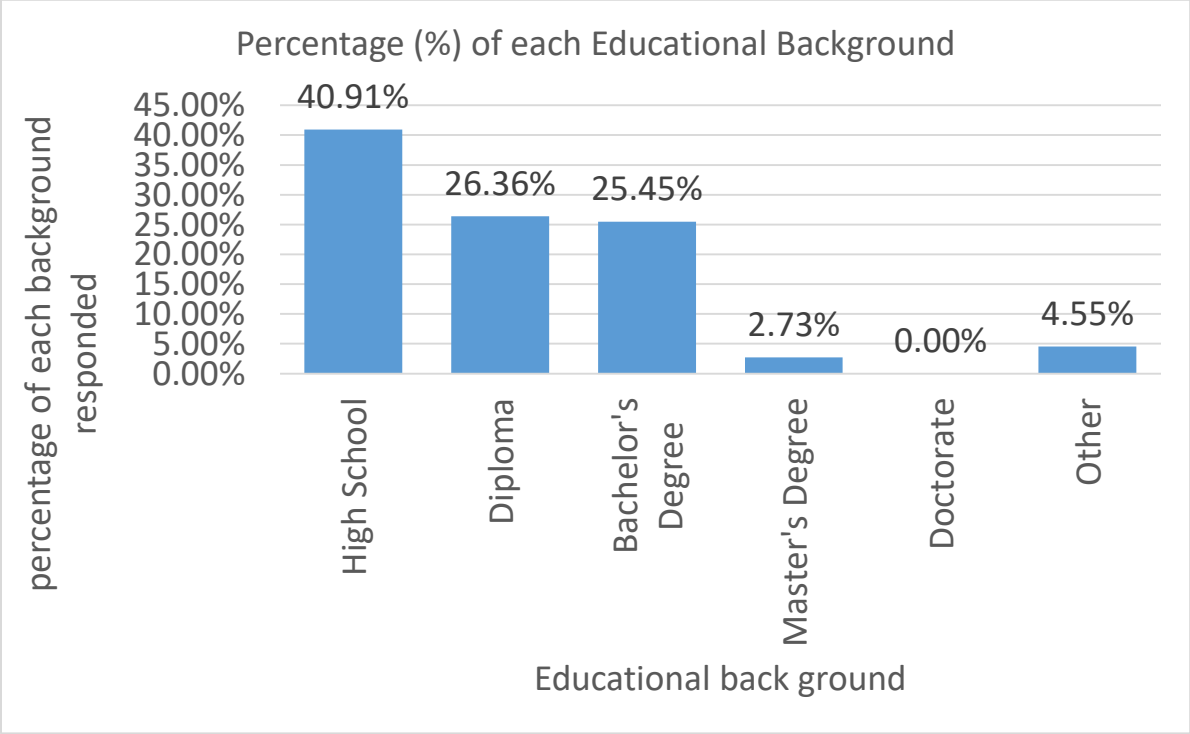
Graph 1 Demographic Information of Respondents



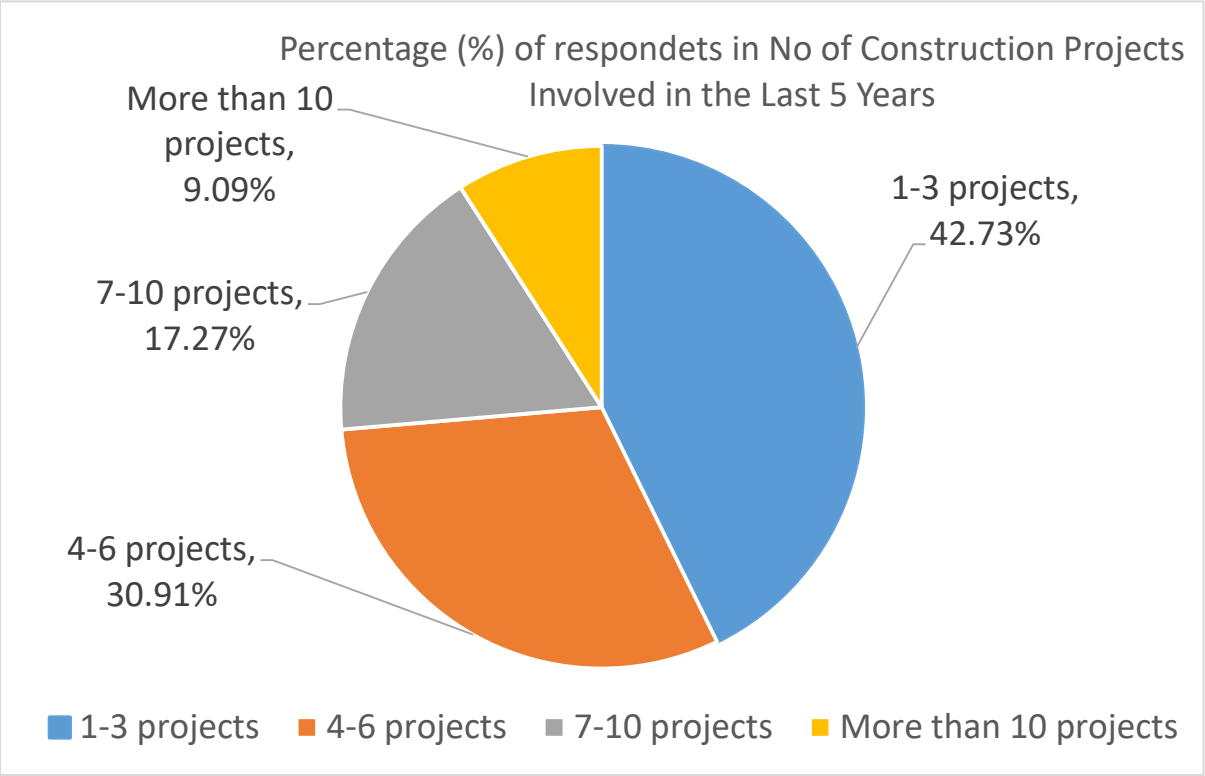
Graph 2 Years of Experience in the Construction Industry of respondents



Graph 3 Educational Background of Respondents



Graph 4 - Construction Projects Involved by respondents



KNOWLEDGE AND FAMILIARITY WITH HEALTH & SAFETY REGULATIONS

Familiarity with Health & Safety Regulations

The results show only 46.36% of respondents is very familiar with health and safety regulations and 16.36% are not very familiar with them. This highlights a significant knowledge gap, suggesting a need for continuous training & awareness creation on building health & safety regulations.

The data clearly shows that 18 out of 110 workers (16.36%) are not very familiar with regulations, which could potentially increase the risk of accidents due to lack of awareness.

Table 1 Familiarity with Health & Safety Regulations

	Frequency	Percentage
Very familiar	51	46.36%
Somewhat familiar	41	37.27%
Not very familiar	18	16.36%
Not familiar at all	0	0.00%

IMPORTANCE OF HEALTH & SAFETY MANAGEMENT

57.27% of respondents recognize the importance of health & safety management in preventing accidents with 32.73% considering it extremely important & very small percentage (1.82%) of workers believe that health & safety management is not very important this indicating that overall workers recognize the significance of safety. However, the small percentage of respondents who do not consider health & safety as a priority should not be ignored but efforts should be made to ensure that all workers understand its importance

Table 2 Importance of Health & Safety in Preventing Accidents

	Frequency	Percentage
Extremely important	3	32.73%
Very important	63	57.27%
Somewhat important	9	8.18%
Not very important	1	0.91%
Not important at all	1	0.91%
	110	100.00%

TRAINING AND KNOWLEDGE

67.27% of respondents reported received formal health and safety training yet 32.73% still need such training. This suggests that while training programs are in place they are not compatible with the requirement and need of workers

Table 3 Respondents acquiring of formal training in Health & Safety Management

	Frequency	Percentage
Yes	74	67.27%
No	36	32.73%
	110	100.00%

HEALTH & SAFETY MANAGEMENT TOOLS AND TECHNIQUES

Health & Safety Management Tools Used

PPE is the most commonly used health & safety tool (37.24%), while emergency drills are the least frequently used (4.59%).The frequent use of PPE is positive but the low frequency of emergency drills shows the need for regular practice of emergency procedures. It is clear & obvious that further attention should be given to safety audits & emergency drills to improve workplace safety.

Table 4 Usage of Health & Safety Management Tools

	Frequency	Percentage (%)
Risk assessments	31	15.82%
Safety audits	15	7.65%
Safety training sessions	25	12.76%
PPE policies	73	37.24%
Emergency drills	9	4.59%
Toolbox talks	27	13.78%
Incident reporting system	10	5.10%
Others	6	3.06%
Total	196	100.00%

RESPONSIBILITY FOR IMPLEMENTING HEALTH & SAFETY

The provided data outlines the distribution of responsibility for implementing health & safety measures among different roles in a project. Thus the group which belongs to all group members constitutes the largest proportion which is approximately 51.09% of responsibility for health & safety implementation. This suggests a strong emphasis on collective responsibility & involvement in health & safety practices among all personnel involved in the project this shows an understanding that safety is a shared obligation rather than on assigned & designated roles. Safety officer holds a significant role in health & safety implementation, responsible for ensuring compliance with safety regulations & protocols. Their substantial percentage which is around 25.55% indicates the importance of this position in fostering a safe working environment.

EFFECTIVENESS OF TOOLS & PERCEIVED IMPACT ON ACCIDENT REDUCTION

Most Effective Tool/Least Effective Tool

Risk assessments & PPE with a mean effectiveness rating 4.44 and 4.61 respectively are the most significantly & the most effective tools in enhancing safety measures. Emergency drills require attention as they are regarded as the least effective method, suggesting a need for reevaluation of their structure.

Table 5 Mean Effectiveness Rating Tools/Techniques

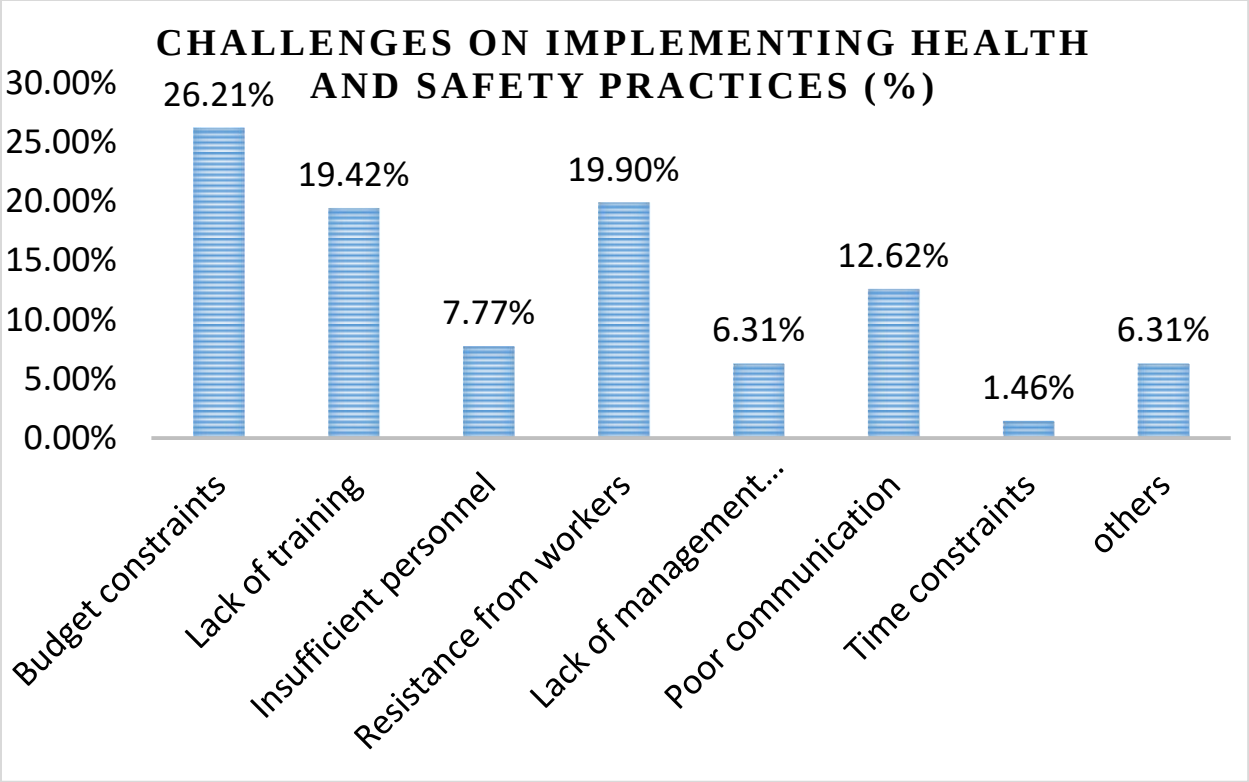
	Mean of each tools & techniques	Mean of all tools & Techniques	Mode	Least Effective
Risk assessments	4.44	4.21	4.61	3.96
Safety audits	4.20			
Safety training sessions	4.21			
PPE policies	4.61			
Emergency drills	3.96			
Toolbox talks	4.00			
Incident reporting system	4.07			

CHALLENGES IN IMPLEMENTING HEALTH & SAFETY PRACTICES

Budget Constraints is the most significant challenge analyzed in the research with around 26.21% of respondents this result indicates that budget limitations hinder their ability to implement effective health & safety practices and it's a primary barrier to creating a safer working environment. Lack of training which results to be 19.42% is the third barrier observed that the respondents respond lack of training as a one key issue and this shows that employees may not be adequately prepared to follow health and safety protocols, which can lead to increased risk of accidents, resistance from workers which is around 19.90 is nearly as prevalent as the lack of training that employee positive perception for safety and awareness is critical for effective health & safety.

Table 6 Challenges in Implementing Health & Safety Practices

	Frequency	Percentage
Budget constraints	54	26.21%
Lack of training	40	19.42%
Insufficient personnel	16	7.77%
Resistance from workers	41	19.90%
Lack of management support	13	6.31%
Poor communication	26	12.62%
Time constraints	3	1.46%
others	13	6.31%
Total	206	100.00%


CHALLENGES ON IMPLEMENTING HEALTH AND SAFETY PRACTICES (%)
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
26.21%
19.42%
7.77%
19.90%
6.31%
12.62%
1.46%
6.31%
Budget constraints
Lack of training
Insufficient personnel
Resistance from workers
Lack of management...
Poor communication
Time constraints
others

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

This research on the assessment of the effective implementation of health and safety management tools and techniques focuses on assessing and evaluating the current practices , the effective implementation of safety management tools & techniques by FHC building contractors and their workers, identification of the challenges to effectively implement safety management tools & techniques in the work place, to examine the levels of awareness of contractors and their workers about health and safety management tools and techniques.

5.2 CONCLUSION

The findings of this study highlight the critical role of effectively implementing health and safety management tools in preventing workplace accidents. Addressing these issues could significantly lower accident rates on construction sites.

Continuous training, regular and thorough safety audits, and stronger enforcement of safety protocols are vital to ensuring the protection and well-being of workers. Additionally, overcoming the financial and organizational challenges faced by contractors in implementing safety management systems is essential for achieving long-term safety improvements in the construction industry. This research assessed the effectiveness of various health and safety management tools and techniques used by contractors at the Federal Housing Corporation (FHC), showing that tools such as risk assessments, safety training programs, PPE, and safety audits are in place.

5.3 RECOMMENDATION

Based on the study's findings, the following recommendations are proposed to improve the effective implementation of health and safety management tools and techniques at the Federal Housing Corporation contractors:-

Regular Risk Assessments and Follow-up Actions: - Contractors should conduct a continuous risk assessments & ensure follow-up actions are consistently implemented. This requires establishing systems for scheduled & periodic reviews of risk, provision of an up to date strategies whenever required & ensuring all hazards are assessed before work starts.

Safety Training Programs: - Contractors should establish mandatory, periodic safety training for all workers not only during the hiring process but also on a structured training calendar should be created for refreshing awareness and courses should be held to ensure workers remain knowledgeable about current safety protocols and best practices.

Strict Enforcement of PPE Usage: - Although PPE is provided, ensuring its proper use is crucial and regular checkups should be done to ensure that all workers are consistently implementing the required health and safety equipment.

Increased budget for safety: - Contractors and the Federal Housing Corporation must prioritize funding for health and safety programs like Investments in training, safety audits.

In conclusion, the effective implementation of health and safety management tools is essential for preventing workplace accidents and safeguarding the well-being of workers at the Federal Housing Corporation. By addressing the identified challenges and implementing the recommended improvements, contractors can improve their safety programs, reduce accidents and stimulate a safer working environment. Cooperation between contractors and the Federal Housing Corporation will be crucial for achieving these objectives which requires a continuous efforts to build and sustain a proactive safety culture.

REFERENCES

Ethiopian Building Code Standard (EBCS-14, 1995). Health and Safety.

Health & Safety Executive (HSE). (2003). Guidance on safety audits.

Occupational Safety and Health Administration (OSHA). (2020). Personal protective equipment.

Occupational Safety and Health Administration (OSHA). (2020). Safety and health program management guidelines. Retrieved from https://www.osha.gov/safety-management

Occupational Safety and Health Administration (OSHA). (2020). Safety and health training requirements. Retrieved from https://www.osha.gov/safety-management

Creswell, J. W. (2003).Research design: Qualitative, quantitative, & mixed methods approaches. SAGE Publications.

Svenson, O., & Wilde, G. J. S. (1993). Personality and risk-taking behavior. In G. J. S. Wilde &

M. G. G. Hodgson (Eds.), Risk-taking and safety in everyday life (pp. 37-54). Routledge.

Geller, E. S. (2001). Behavioral science perspectives on workplace safety: A guide for managers and supervisors. Professional Safety, 46(9), 24-29.

Kheni, E. (2008). Construction safety management systems.

Hinze, J. W., & Wilson, G. (2000). The safe construction site: A guide to occupational health and safety for the construction industry. Prentice-Hall.

Cheng, E. W. L., & Li, H. (2002). Construction health & safety management. Butterworth-Heinemann.

Ladyshewsky, R. K., & Duncan, K. (2012). Health and safety management in construction. Routledge.

Sawacha, E., & Naoum, S. (2010). Health, safety, and risk management in the construction industry. Management in Construction, 19(2), 63-75.

Vernon, G., & Gilleard, P. (2009). Construction safety management systems. Routledge.

Williams, A. (2004). Managing health and safety in the construction industry. Blackwell.

Parker, D., & Lawrie, M. (2012). Construction site safety: A guide for managing and mitigating construction site risk. Routledge.

Fleming, M. (2013). Managing health and safety in the construction industry: The effective implementation of HSE management systems. Routledge.

Sivakumar, S., & Subramanian, S. (2010). Safety management in the construction industry: Tools and techniques for successful implementation. Routledge.

Murray, M. (2011). Implementing occupational health and safety management systems in construction projects. Wiley-Blackwell.

Whittingham, K., & MacDonald, J. (2014). Safety management in the workplace:Tools and techniques. CRC Press.

Gould, F. E., & Joyce, M. (2013). Managing safety in the construction industry: Practical tools and techniques for compliance and risk management. CRC Press.

Baldwin, A. N., & Pearce, J. A. (2010). Safety and risk management in construction: A guide for the professional. Wiley.

O'Toole, M.(2003). The role of safety culture in accident prevention. Professional Safety,48(5),27-33

Hallowell, M. R., & Coble, R. J. (2006). Safety management in construction projects: A practical approach to risk control. Wiley.

St. Mary's University School of Graduate studies
Master of Art Program in Project Management Research questionnaire
Name of researcher: - Miftah Seid Ahmed

Contact detail: - Cell phone: 09-83-39-31-76 or 09-10-33-71-81
E-mail: Dear Sir/ Madam,

I am a postgraduate student in the above mentioned program of St. Mary's University. Currently, I'm undertaking a research on the topic ''An assessment of the effective implementation of health and safety management tools and techniques to prevent work place accidents by contractors of federal housing corporation'' in partial fulfillment of the requirements of the degree of Master of Art in Project Management. The general objective of my research is to assess the practices of contractors for effectively implementing health & safety management tools & techniques to prevent workplace accidents & protect the wellbeing of construction workers of building contractors working in Federal Housing Corporation. It is believed that the study result could possibly benefit the contractors, the consultants, the clients and all workers participated in building construction work.

The expected respondents of this questionnaire are management and non-management staffs currently working in contractors of federal housing corporation buildings. As staff member working at the chosen research site, you are one of the respondents selected to participate in this study. Please assist me in giving correct and complete information so that it is possible to come up with valid findings on matters chosen for investigation. Your participation is entirely voluntary and the questionnaire is completely anonymous. The data will be kept confidentially and it will be used for study purpose only. Your honest and thoughtful response is priceless. So, I am kindly requesting you to complete and send me the completed questionnaire before 04/12/2024

Thank you in advance for your cooperation.

If you have any question, please do not hesitate to contact me

Miftah Seid Ahmed

Section 1: Demographic Information

1. **Job Title/Role**

- Contractor
- Project Manager
- Site Supervisor
- Safety Officer
- Engineer
- Forman
- Masson
- Carpenter
- Painter
- Daily Labor
- Store keeper
- Other (please specify) ……

2. Years of Experience in the Construction Industry

- Less than 5 years
- 5-10 years
- 11-15 years
- More than 15 years

3. Educational Background

- High School
- Diploma
- Bachelor's Degree
- Master's Degree
- Doctorate
- Other (please specify) ……..

4. Number of Construction Projects Managed/Involved in the Last 5 Years

- 1-3
- 4-6
- 7-10
- More than 10

Section 2: Knowledge and Awareness of Health and Safety Regulations

5. How familiar are you with health & safety regulations in the construction industry?

- Very familiar
- Somewhat familiar
- Not very familiar
- Not familiar at all

6. How important do you consider health and safety management in preventing workplace accidents?

- Extremely important
- Very important
- Somewhat important
- Not very important
- Not important at all

7. Have you received any formal training in health and safety management?

- Yes
- No
- If yes, please specify the type of training :- ……..……

Section 3: Health and Safety Management Practices

8. Which health and safety management tools and techniques are used in your projects? ……..(Select all that apply)

- o Risk assessments
- o Safety audits
- o Safety training sessions
- o Personal protective equipment (PPE)
- o Emergency drills
- o Toolbox talks
- o Incident reporting system
- o Other (please specify): - …….……

9. How frequently are these tools and techniques implemented on-site?

- o Daily
- o Weekly
- o Monthly
- o Only at the start of the project
- o Other (please specify):- ……..…… ……… ……..

10. Who is primarily responsible for implementing health and safety practices on-site?

- o Project Manager
- o Safety Officer
- o Site Supervisor
- o All team members
- o Other (please specify): …… ……..
  …

Section 4: Effectiveness of Health and Safety Tools and Techniques

11. Please rate the effectiveness of each tool/technique in preventing workplace accidents on a scale of 1 to 5 (1 = Not effective 2=Slightly Effective 3= Moderately Effective 4= Effective 5 = Very effective)

- o Risk assessments…… [1] [2] [3] [4] [5]
- o Safety audits. …… [1] [2] [3] [4] [5]
- o Safety training sessions..…. [1] [2] [3] [4] [5]
- o PPE policies…… [1] [2] [3] [4] [5]
- o Emergency drills…… [1] [2] [3] [4] [5]
- o Toolbox talks ….…… [1] [2] [3] [4] [5]
- o Incident reporting system ……[1] [2] [3] [4] [5]

12. In your opinion, which tool or technique has been the most effective in reducing workplace accidents?

- o Risk assessments
- o Safety audits
- o Safety training sessions
- o PPE policies
- o Emergency drills
- o Toolbox talks
- o Incident reporting system
- o Other (please specify): …….

13. Have you observed a measurable reduction in accidents due to the implementation of these tools and techniques?

- o Yes
- o No
- o If yes, please provide an example: ……

Section 5: Challenges in Implementation

14. What are the main challenges you face in implementing health and safety practices? (Select all that apply)

- o Budget constraints
- o Lack of training
- o Insufficient personnel
- o Resistance from workers
- o Lack of management support
- o Poor communication
- o Time constraints
- o Other (please specify): ……

15. How often do you encounter challenges in implementing health and safety practices?

- o Frequently
- o Occasionally
- o Rarely
- o Never

16. To what extent do these challenges impact the effectiveness of health and safety management on-site?

- o Significant impact
- o Moderate impact
- o Minor impact
- o No impact at all

Section 6: Perceived Impact of health & Safety tools on accident Prevention

17. On a scale of 1 to 5, how effective do you believe health and safety management tools are in preventing workplace accidents?

- o [1] Not effective
- o [2] Slightly effective
- o [3] Moderately effective
- o [4] Effective
- o [5] Very effective

18. Have these tools led to any specific improvements in workplace safety?

- o Yes
- o No

If yes, please describe the improvements: ……

Section 7: Recommendations for Improvement

19. What changes or improvements would you suggest to enhance the implementation of health and safety management tools?

- Increased budget for health & safety
- Regular training and workshops
- Improved communication between management and workers
- Stricter enforcement of policies
- Better access to PPE & safety equipment
- Other (please specify): ……..……

20. Are there any additional tools or techniques that you believe could benefit health and safety management on construction sites?

- Yes (please specify): ……
- No