ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE

ANALYSIS OF HEALTH AND SAFETY PRACTICES IN CONSTRUCTION PROJECTS: THE CASE OF BUILDING PROJECTS IN ADDIS ABABA

BY: MERID GIRMA

A project work submitted to the School of Graduate Studies of AAU School of Commerce in Partial Fulfillment of the Requirement for the Degree of Master of Arts in Project Management

ADVISOR: Dr. MENGISTU B.

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This is to certify that this final project work prepared by Merid Girma entitled "Analysis of Health and Safety Practices in Construction Projects: The Case of Building Projects in Addis Ababa" Submitted in partial fulfilment of the requirement for the Degree of Master of Arts in Project Management complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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Addis Ababa, Ethiopia

STATEMENT OF DECLARATION

I the undersigned declare that this final project work entitled "Analysis of Health and Safety Practices in Construction Projects: The Case of Building Projects in Addis Ababa" represents my own work with the guidance of my advisor except where due acknowledgment is made, and it has not been previously included in any thesis, dissertation or report submitted to any university for degree, diploma or other qualification. It is conducted for the partial fulfilment of the requirement for the Degree of Master of Arts in Project Management and submitted to School of Graduate Studies of AAU, School of Commerce.

Merid Girma _____ _____
(Candidate) Signature Date

The above candidate has carried out research for the Masters Dissertation under my Supervision

Dr. Mengistu B. _____ _____
(Thesis Advisor) Signature Date

ABSTRACT

This study aimed to provide insights into health and safety practices in the construction industry in Addis Ababa. To achieve this a descriptive research design was adopted and a mixed-methods approach, including surveys, interviews, and observations, was used to identify challenges, evaluate worker perceptions, and propose effective strategies for improving health and safety practices in construction projects. The study focused on 25 building projects in a specific area and involved data collection from 16 different companies, including clients, contractors, and consultants. The study included various types of buildings such as public park reception buildings, apartments, shopping malls, residential villas, and school buildings. A total of 100 professionals were identified as potential respondents for the study, representing the target population. A sample size of 80 professionals was determined using the Taro Yamane Method. The data analysis was conducted using SPSS software and qualitative techniques. The study found that lack of worker awareness and cost considerations are major challenges faced by construction companies in implementing health and safety practices. The study also revealed that appropriate PPE is mostly available on site, and first aid kits and emergency response plans are relatively available on the projects under study. When it comes to effective strategies for improving health and safety practices in building construction projects, participants exhibited a positive attitude towards the implementation of strict safety protocols and procedures as the most effective measure. Providing appropriate PPE was seen as the second most effective measure, followed by enforcing strict regulations and guidelines as the third most effective measure. Finally, providing regular training and education to workers was perceived as the fourth most effective measure. Based on the findings of the study, the researcher recommended that construction companies prioritize the health and safety of their workers which can be achieved through investment in proper training, equipment, and consistent enforcement of safety regulations. Further research is required with a focus on the impact of training programs, proper equipment provision, and consistent enforcement of safety regulations.

Key words: Health, Safety, Building Projects, Health and Safety Practices.

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Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

CDC- Centers for Disease control and Prevention

ESHS- Environmental, Social, Health and Safety

HAPA- The Health Action Process Approach

HBM- The Health Belief Model

HSE- Health and Safety Executive

JD-R- Job Demands-Resources

NEBOSH- National Examination Board in Occupational Safety and Health

NIOSH- National Institute for Occupational Safety and Health

OHS- Occupational health and safety

OSHA- Occupational safety and health Administration

PPE- Personal protective equipment

SLT- The Social Learning Theory

WHO- World Health Organization

CHAPTER ONE

INTRODUCTION

This chapter defines what the research will investigate, what prompted the researcher to investigate the topic, the research questions, the research objectives, the significance of the study, the scope of the study, the potential limitations of the study, the organization of the entire research paper, and the definition of key terms.

1.1. Background of the study

The construction industry plays a critical role in the economic development of countries, including Ethiopia. However, it is also known for its high-risk nature, making the implementation of effective health and safety practices paramount. By thoroughly examining project health and safety management principles, processes, and results, this study aimed to contribute to a safer working environment within construction projects in Addis Ababa.

Project Health and Safety Management Principles:

Project health and safety management principles consist of essential guidelines and principles that form the basis of effective safety planning, implementation, monitoring, and control. Key principles include risk assessment and management, hazard identification, safety training and education, effective communication, regular inspections, and the establishment of safety policies and procedures. These principles aim to ensure the well-being of workers, prevent accidents, and minimize health hazards within construction projects (Ofori, 2014)

Project Health and Safety Management Processes:

Project health and safety management processes involve a range of activities designed to proactively manage risks and create safe working environments. These processes encompass hazard identification, risk assessment and mitigation, incident reporting and investigation, safety inspections, training programs, safety culture development, emergency response planning, and ongoing monitoring and evaluation. By adhering to these processes, project stakeholders can systematically address safety concerns and promote a culture of safety (Rowlinson, Azhar, Gibb, & Tucker, 2013)

Project Health and Safety Management Results:

The ultimate goal of project health and safety management is to achieve positive safety outcomes by reducing accidents, injuries, illnesses, and fatalities within construction projects. By implementing robust health and safety practices, projects can enhance productivity, reduce costs associated with accidents and disruptions, improve worker morale and retention rates, enhance reputation, meet legal requirements, and contribute to sustainable development in terms of social responsibility (Hinze, Wehle, & Zwerling, 2013)

"Workplace safety policies and programs are concerned with protecting employees and other people affected by what the company produces and does against the hazards arising from their employment or their links with the company. Safety programs deal with the prevention of accidents and with minimizing the resulting loss and damage to persons and property. They relate more to systems of work than the working environment, but both workplace safety programs are concerned with protection against hazards, and their aims and methods are clearly inter-linked" (Armstrong, 2006)

"Construction is a sector with very specific risks, including working at heights, using power tools, working outdoors in inclement weather, using multiple trades and employers/contractors without proper coordination, contract work rather than permanent employment, and a lack of standards or regulations governing worker expertise in their trade and training standards. There is also less regulation and enforcement in the construction sector than in other sectors" (Sears, 1979)

"The construction industry has a significant impact on the national scene. It not only touches the lives of almost everyone on a daily basis, but it also plays an important role in the national economy. It is one of the industries that provides critical components for an economy's development. There can be no mass investment in the industry, agricultural, or service sectors until infrastructural facilities are built. Consequently, large levels of construction activity are typically connected with periods of national success. One is a natural byproduct of the other" (Sears, 1979)

In Ethiopia, the construction industry has experienced significant growth in recent years, contributing to economic development and employment opportunities. However, this growth has also brought attention to the need for improved health and safety practices to protect workers' lives and well-being. The Ethiopian government has recognized the importance of safety in the construction industry and has enacted legislation and regulations aimed at promoting health and

safety standards. However, challenges remain in terms of awareness, training, enforcement, and adherence to these regulations (Teshome, 2020)

“Developing countries like Ethiopia are striving hard to improve their basic amenities by building schools, hospitals, housing complexes, shops, offices, highways, power plants, industries, bridges and other infrastructures. However, all these construction activities are carried out by unskilled labor forces at cheap rate. Due to a combination of factors such as illiteracy, poverty, lack of workplace safety training, as well as inadequate information on health hazards and risks at the workplace, elevated rates of occupational accidents and injuries are experienced among construction workers. This issue is more pronounced in developing countries compared to industrialized nations, with a 10 to 20 times greater impact being observed in these regions, considering that they accommodate the highest concentration of the global workforce” (Molla, Alemu, Kebede, Rai, & Worku, 2013)

Several institutions play a critical role in the oversight and regulation of health and safety practices in the Ethiopian construction industry. The Ministry of Urban Development and Construction, as well as the Ethiopian Construction Works Corporation, are responsible for enforcing safety regulations and standards. They provide guidance, conduct inspections, and promote best practices in project health and safety management. Additionally, industry associations like the Construction Contractors Association of Ethiopia (CCAE) and other professional bodies are involved in raising awareness and providing support to construction companies (Feyissa, Tulu, & Dejene, 2021)

“At the moment, the entire city of Addis Ababa resembles a building zone. Several towers and mobile cranes have been built. Earth movement equipment including excavators, loaders, and dump trucks excavating, hauling, and loading materials are frequently seen along with building structures with eucalyptus scaffoldings” (Vaughan, 2014)

Construction projects in Addis Ababa pose a number of workplace safety risks to workers. The main focus of this study was to have closer look and evaluate the situation of construction site practices in terms of attention given for overall safety with limited experience of this industry. It also explored the prevalence of workplace safety risks in Addis Ababa’s construction projects, and proposed potential solutions to mitigate these risks. The selected area of this study was in Addis Ababa considering the fact that there are a lot of construction and consulting companies and building projects within the city. This research addressed the present state of safety protocols and strategies for ensuring an accident-free and injury-free work environment in construction projects.

It devised to scrutinize the consequence of work-related safety and health practice on project performance with particular reference to building projects currently undergoing in different locations of the city.

The overall goal of this research was to evaluate the workplace safety activities involving employees in construction projects, with a focus on Addis Ababa's building projects.

1.2. Statement of the Problem

One of the biggest industries in many nations is construction. Because of the unique combination of workplace safety dangers combining automobiles, machinery, and human labor that few other sectors have, it is well-known for being risky. For the most work-related deaths, it now comes in second place behind the agricultural, fishery, and forestry industries. The industry's global fatal injury statistics are disturbing.

The Occupational Safety and Health Administration (OSHA) estimates that during 2018, 1001 workers died of work-related injuries in the US. Across Europe, EU-OSHA reported 1,000 fatalities. While the number of occupational deaths dropped slightly in the UK compared to previous years, the construction industry still accounts for 20% of all fatal injuries.

"The fatality rate for accidents in the building construction industry is currently more than twice the average of other sectors. Moreover, the frequency of minor accidents at construction sites is difficult to estimate. It is no secret that these work environments are fraught with potential dangers, as almost any conceivable hazard can be present given the constantly evolving nature of the sites. Nevertheless, responsible employers in the building construction industry recognize the importance of safeguarding the workplace safety of their workers, visitors, and others who may be impacted by their operations, and will take the necessary steps to manage the site effectively by implementing appropriate accident prevention measures. One such step involves conducting risk assessments to identify hazards and associated risks as part of the management process" (ALCUMUS, 2022)

The construction industry plays a vital role in the economic development of Addis Ababa, Ethiopia. However, despite the existing health and safety regulations, there is an increasing

concern about the inadequate implementation of these measures, leading to a rise in illness, injury, and even fatalities at construction sites. The lack of effective health and safety practices poses significant risks to the well-being of construction workers and undermines the overall productivity and sustainability of construction projects.

Construction projects in Addis Ababa are often conducted without proper workplace safety practices, which can lead to serious injuries and fatalities. This problem is especially acute in the construction of new buildings, where workers are often forced to work in unsafe conditions without proper safety equipment or personal protective equipment (PPE). In order to address this matter, the government should enforce stricter workplace safety standards in construction projects, and provide training and safety equipment to workers.

Although both domestic and international laws in Ethiopia require that employers maintain safety standards in the workplace, this right afforded to workers is often ignored. It is possible that this disregard stems from a desire to protect a thriving industry.

Accidents in the construction industry are often caused by the use of unreliable wooden scaffolding and the absence of proper safety equipment such as helmets and safety ropes. Even for tall buildings, steel structure scaffolding is not commonly used. Unfortunately, injured workers are sometimes dismissed by their employers and left to cover their own medical expenses, despite getting injured on the job. This has led to situations where injuries that could have been treated become permanent disabilities as workers are unable to afford medical care.

Several empirical studies have previously highlighted the gaps in health and safety practices within the construction industry. For instance, a study conducted by Abebe (2018) investigated health and safety practices at construction sites in Addis Ababa and found significant shortcomings in hazard identification, risk assessment, and enforcement of safety protocols. This study shed light on the need for improved awareness and stringent enforcement of health and safety regulations.

Similarly, another study by Teshome (2020) examined occupational hazards and safety practices within the Ethiopian construction sector. The research revealed that despite the availability of specific legislation, compliance with health and safety standards was often overlooked or negligently implemented. The study emphasized the critical role of enforcing regulations to minimize risks associated with construction activities.

Research Gaps

Limited Coverage of Building Projects: Previous studies have primarily focused on general health and safety practices in the construction industry. However, there was a lack of in-depth analysis specifically targeting building projects, which constitute a significant portion of construction activities in Addis Ababa.

Insufficient Investigation of Causative Factors: While existing research has identified the existence of loopholes in health and safety practices, little attention has been given to understanding the underlying causes of these shortcomings. A comprehensive exploration and analysis of the factors contributing to the ineffective implementation of regulations are crucial for proposing effective solutions.

Neglect of Worker Perspectives: Previous studies have primarily emphasized regulatory compliance and organizational perspectives. However, it is equally important to consider the experiences and perceptions of construction workers themselves to gain insights into their challenges, needs, and attitudes towards health and safety practices.

In order to address these empirical and research gaps, this study intended to investigate deeper into the specific context of building projects in Addis Ababa. By conducting interviews, surveys, and observations on construction sites, as well as analyzing relevant data and interviewing key stakeholders, this research endeavor aimed to generate valuable insights that can inform policy recommendations and practical strategies to enhance health and safety practices in the construction industry.

1.3. Research Questions

1.3.1. General Research Question

What health and safety management practices are applied in building projects in Addis Ababa, Ethiopia?

1.3.2. Specific Research Questions

The following are the specific research questions:

1. What are the existing health and safety practices implemented in building projects in Addis Ababa?

2. What are the major challenges faced by construction companies in implementing health and safety practices?
3. How do construction workers see health and safety practices in their work?
4. What are the most effective strategies for improving health and safety practices in construction projects?

1.4. Study Objectives

1.4.1. General Objective

The general objective of this research is to assess the current health and safety management practices in building projects in Addis Ababa, Ethiopia.

1.4.2. Specific Objectives

1. To detect and evaluate the current health and safety practices implemented in building projects within Addis Ababa.
2. To identify the major challenges faced by construction companies in implementing health and safety practices
3. To assess the observation of construction workers towards health and safety practices
4. To recommend effective strategies for improving health and safety practices in construction projects

1.5. Significance of the study

The significance of the study can be seen from different perspectives;

Firstly, it can provide insight into the current state of workplace safety practices in the construction industry in Addis Ababa, which has previously been understudied. This data can inform policy decisions aimed at improving working conditions and protecting the rights of construction workers.

Secondly, the study's findings can enable construction companies to identify gaps or deficits in their workplace safety management practices and make necessary improvements. This can lead to a reduction in construction-related injuries and fatalities, which is crucial for worker safety.

Thirdly, the study can provide a basis for future research regarding workplace safety management in construction industries in Ethiopia. The methodology used in this study can be replicated to

investigate workplace safety in other regions and types of construction projects, allowing for a comprehensive overview of the country's construction industry.

Overall, the results of this research can contribute to knowledge regarding workplace safety management in the Ethiopian construction industry and hopefully lead to greater efforts to protect the rights of workers in this field.

1.6. Scope of the study

The scope of this study was to evaluate workplace safety practices in the building construction industry in Addis Ababa, specifically focusing on building projects. The study explored the current state of workplace safety management practices, identified any gaps or challenges in ensuring safe and healthy working conditions, and provided recommendations for improvement.

To achieve this aim, the study used a mixed-methods approach, combining qualitative and quantitative data collection methods. Qualitative data was collected through interviews with project managers and technical managers. Quantitative data was collected through a survey to assess the prevalence of workplace safety practices in construction projects.

The target population for this study was construction workers, project managers, contractors, regulatory bodies, and other stakeholders involved in building projects in Addis Ababa. The study sample was selected using a purposive sampling technique.

The study's findings were expected to provide insight into the current state of workplace safety practices in the construction industry in Addis Ababa and present recommendations for improving these practices. Ultimately, this research project aimed to make a significant contribution towards improving the quality of working conditions for workforces in the Ethiopian construction industry.

1.7. Limitations of the study

One of the major restrictions of this study was the relatively short time period available to conduct the research. Due to time constraints, the sample size taken for the study was limited, which may have obstructed the accuracy of the findings. A bigger sample size would have provided a more accurate representation concerning workplace safety measures in the building construction sector located in Addis Ababa.

In addition, the study's scope was limited to building projects in Addis Ababa, which may not be representative of the entire construction industry in Ethiopia. Further studies may be required to assess workplace safety practices in other types of construction projects and locations.

Another limitation was the potential for self-report bias, as a significant proportion of data was collected through surveys and interviews. Respondents may not have reported fully or accurately due to fear of retribution or bias.

Additionally, the study did not evaluate the financial influence of implementing recommended changes, and as such, it is uncertain if these changes are economically viable for all construction projects.

Despite these limitations, this study still provided valuable insights into workplace safety practices in the construction industry in Addis Ababa and can contribute to ongoing efforts to improve working conditions in this field.

1.8. Organization of the study

The research report contains five chapters.

Chapter1: Introduction – this part includes the background of the study, the Problem Statement, the general and specific research questions, the general and specific objectives of the research, Significance, Scope of the study, Limitation of the study, organization of the paper, and definition of key terms.

Chapter 2: Review of Related Literature – contains the empirical review with previous discoveries, about workplace safety, of different researchers; theoretical review including the definitions and brief descriptions of the topic areas, and the conceptual frame work of the study. This part helps to briefly understand the terms in the study.

Chapter 3: Research Methodology – in this chapter the design of the research, the targeted population and the sample size, the data collection types and tools and data analysis techniques are contained.

Chapter 4: Data presentation, Analysis and Interpretation – will show the data collected, the analysis and interpreted results in detail.

Chapter 5: Conclusion and Recommendation – will Present the conclusion of the findings, the researcher's furthered suggestions towards workplace safety practices in building projects and insight for future works.

1.9. Definition of Key Terms

Health: According to the World Health Organization (WHO), is "a state of complete physical mental and social well-being and not merely the absence of disease and infirmity". (Wikipedia, 2013)

Safety: According to the Occupational Safety and Health Administration (OSHA), safety is defined as "the condition of being protected from anything that may cause harm, damage, or injury" (OSHA).

Building projects: means any physical task related to the construction site, such as erecting a structure, installing cladding and external finishes, constructing formwork, fitting service installations, unloading machinery, materials or other items, and more. (Insider)

Health and safety practices: refer to the set of procedures, protocols, and measures implemented in order to promote and maintain the well-being and welfare of individuals in a particular environment, while minimizing the risk of injury, illness, or harm" (Health and Safety Authority, 2022).

Health and safety Hazards: refer to any potential source, situation, or substance that poses a risk of injury, illness, harm, or damage to the well-being and welfare of individuals in a particular environment" (Occupational Safety and Health Administration, 2021).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The conceptual and empirical reviews are included in this Chapter. The conceptual review aids in the broad understanding of the many definitions, breadth, components, and relevance of the topic's primary topics. This chapter includes a brief summary of each point in the topic. Variables are specified, and the research's conceptual framework is also given. The empirical section evaluates prior results about construction workplace safety dealings in Addis Ababa building projects from various published and unpublished sources and provides the researcher's perspective on it, as current studies build on those of the past.

2.1. Theoretical Review

2.1.1. Health, Safety and Health and Safety Management Definition

What is Health?

"Health is a condition of whole physical, mental, social well-being in absence of any disease or illness. It is determined to deal with physical, biologic, psychological, and social stress. The environment is considered as an important factor influencing the health status of individuals. Genetics or other diseases from parents may affect the health status of individuals. The main objective of health is social and economic setting, the physical environment, and the person's individual characteristics and behaviors" (Sowjanya, 2016)

According to WHO health is the ability to maintain homeostasis in terms of mental, physical, social and personal as well as physical capacities. Health can be viewed as the presence or absence of disease or medically measured risk factors in an individual. However, more broadly, health is 'a condition of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO 1946). Health reflects the complex interactions of a person's genetics, lifestyle, and environment (AIHW, 2022)

The researcher's opinion about health is that it is a fundamental aspect of well-being and an essential factor for overall human development. Health encompasses physical, mental, and social well-being, and plays a crucial role in individuals' quality of life and their ability to contribute to society.

In the context of construction projects, health is especially important due to the potential risks and hazards involved in the industry. Ensuring the health and safety of workers not only protects their well-being but also enhances productivity and reduces the likelihood of accidents and injuries.

To promote and maintain good health in construction projects, it is essential to implement effective health and safety management systems, provide adequate training and education to workers, and enforce proper compliance with safety regulations. Additionally, regular health monitoring, early identification of occupational health risks, and access to medical support are vital for maintaining the well-being of construction workers.

Ultimately, prioritizing health in construction projects is not only a moral responsibility but also a strategic approach to ensure project success, minimize costs, and improve the overall reputation of the industry. By integrating health considerations into every stage of a construction project, we can create safer and healthier work environments for all involved.

What is Safety?

The definition of “safety” can vary greatly based on context. The Concise Oxford Dictionary defines it as the state of being free from danger or risk, while the Merriam-Webster Dictionary describes it as the condition of being safe from harm or loss, whether self-inflicted or external. According to Douglas Harper, an etymologist, the term "safe" was first used in English around 1280, derived from the Old French word sauf and Latin word salvus which means "unharmed, healthy, safe". This Latin term is linked with the words salus ("good health"), saluber ("healthful"), and solidus ("solid"), all of which stem from the Proto-Indo-European root word solwos which means "integral". Consequently, the concept of safety is centered on comprehensiveness and wellness (P. Nilsen, 2004)

Ensuring safety involves managing hazards and minimizing circumstances that could result in physical, psychological, or material harm, with the objective of safeguarding the welfare and health of both individuals and society. Safety is a fundamental requisite for daily existence, serving as a crucial factor in realizing personal and community goals.

The researcher believes that safety should be the utmost priority in any work environment, especially in industries such as construction. Safety practices and regulations play a crucial role in protecting the well-being of workers and preventing accidents, injuries, and even fatalities.

It is essential to raise awareness about safety standards and enforce strict adherence to these regulations. This can be achieved through promoting a strong safety culture that emphasizes the importance of following safety protocols, providing proper training to workers, implementing effective safety management systems, and conducting regular monitoring and evaluation of safety practices on construction sites.

Furthermore, it is vital to continuously improve safety practices by embracing technology and innovation. Technologies such as wearables, drones, and IoT devices can enhance safety monitoring, risk assessment, and communication among workers.

The responsibility for ensuring safety does not lie solely with the workers but also with project managers, contractors, and relevant authorities. Collaboration between all stakeholders is crucial to create a safe working environment where everyone feels empowered to report hazards and take necessary precautions.

In conclusion, the researcher strongly advocates for improved awareness, implementation, and enforcement of safety practices in the construction industry to protect the well-being of workers and create safer work environments.

Health and Safety Management

Health and safety management refers to the systematic approach taken by organizations to establish policies, procedures, and practices that ensure the protection of workers' health and safety within the workplace. It involves identifying potential hazards, assessing risks, implementing preventive measures, and continuously monitoring and evaluating safety performance. (Khan, Sahu, Gupta, & Gautam, 2019)

It is the researcher’s belief that effective health and safety management is critical for ensuring the well-being of workers and minimizing the risks associated with occupational hazards. It is essential for organizations to prioritize the establishment and implementation of robust health and safety management systems.

Health and safety management goes beyond merely complying with regulatory requirements; it involves creating a proactive culture of safety that permeates every level of an organization. This

includes clear policies and procedures, regular risk assessments, comprehensive training programs, and active involvement from all employees.

By investing in health and safety management, organizations can enhance productivity, reduce absenteeism, and boost employee morale. Furthermore, it helps prevent accidents, injuries, and illnesses, leading to a safer work environment for all.

It is also crucial for organizations to stay updated with the latest industry standards, regulations, and best practices in health and safety management. This requires continuous research, learning, and adaptation to emerging risks and technologies.

Overall, the researcher strongly suggests for organizations to prioritize health and safety management as an integral part of their operations. By doing so, they not only fulfill their legal obligations but also demonstrate a commitment to the well-being of their workforce. Ultimately, effective health and safety management contributes to a sustainable and responsible approach to conducting business.

Work-related Health and Safety Practices

Work-related health and safety are relevant to all branches of industry, business and commerce including traditional industries, information technology companies, the National Health Service, care homes, schools, universities, leisure facilities and offices.

“Work-related health and safety affect all aspects of work. In a low hazard organization, workplace safety may be supervised by a single competent manager. As for maintaining satisfactory workplace safety standards within a high hazard manufacturing plant, various professionals, including electrical, mechanical, and civil engineers, lawyers, medical doctors and nurses, trainers, work planners, and supervisors, may need to collaborate with the professional workplace safety practitioner” (Phil & Ed, 2016)

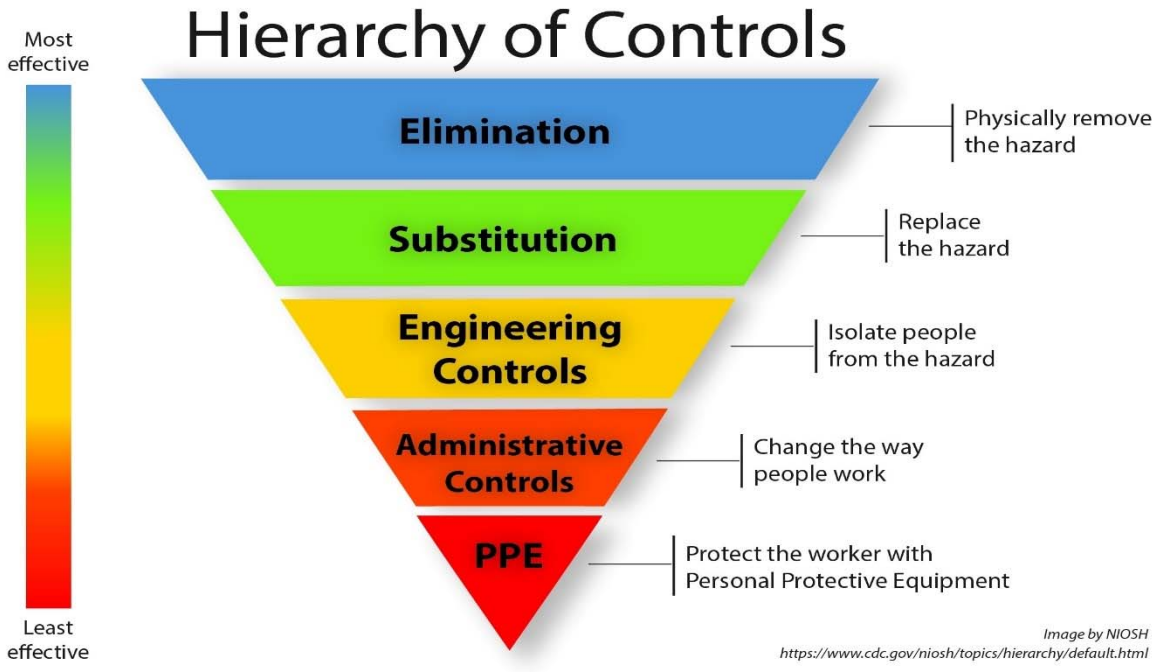

Figure 1 Hierarchy of Safety Controls *(CDC, 2023)*

Role of employees in ensuring their own safety

In his 1972 report, Robens challenges the traditional 'careless worker' model of workplace safety by comparing it to another safety model. The 'careless worker' model assumes that most accidents are caused by employees' failure to take safety seriously or protect themselves. However, Robens notes that this model fails to account for occupational hazards like toxic substances, noise, and unsafe work systems. Instead, he proposes a 'shared responsibility' model that emphasizes cooperation between employers and employees as the best way to reduce occupational accidents and diseases. (Bratton & Gold, 1999).as cited in (Jonathan & Mbogo, 2016)

“To ensure a safe and healthy working place, it's essential to instill a workplace safety mindset in workers and supervisors. Simply acquiring skills or knowledge on equipment operation isn't enough to maintain this mindset. For instance, driving a car can be learned quite easily, but a mature attitude is essential for safe driving” (Siegel, 1962).

While it's the responsibility of employers to create and uphold safe and healthy work systems, employees also have a duty to behave in a way that protects their own health and that of their colleagues. (Bratton & Gold, 1999).as cited in (Jonathan & Mbogo, 2016)

2.1.2. Key elements of a Health and Safety Management system

The key elements necessary for effective workplace safety management are often very similar to those required for good quality, financial, and overall business management. Successful organizations tend to have solid workplace safety management systems in place. The principles of effective management are also the foundation for improving workplace safety performance.
The HSE describes a four-step approach to occupational workplace safety management system;

Figure 2: The Plan, Do, Check, Act management cycle *(Phil & Ed, 2016)*

PLAN – establish standards for workplace safety management based on risk assessment and legal requirements.

DO – implement plans to achieve objectives and standards.

CHECK – measure progress with plans and compliance with standards.

ACT – review against objectives and standards and take appropriate action. (Phil & Ed, 2016)

2.1.3. Health and Safety in Construction Projects

Construction projects have been identified as having significant environmental, social, health, and safety (ESHS) risks (Kibert, 2016). These risks include air and water pollution, noise pollution, habitat destruction, worker injuries and fatalities, and community displacement (Ramanathan, Subramanian, & Abdul-Rahman, 2019). Therefore, it is essential for construction companies to implement effective ESHS plans to mitigate these risks and ensure sustainable development.

Studies have shown that effective ESHS management can result in improved project performance, reduced costs, and enhanced reputation (Wu, 2019). For example, a study by Wu (2019) found that companies with effective ESHS management had higher financial performance than those without. This highlights the importance of integrating ESHS considerations into project planning and management.

It is the researcher's opinion that health and safety in construction projects should be a top priority. Construction sites are inherently hazardous environments, and the well-being of workers should never be compromised for the sake of expedited project completion or cost-cutting measures. Strict adherence to safety regulations is paramount to ensure the physical and mental health of workers, as well as their overall job satisfaction.

Effective implementation of health and safety practices is crucial to mitigate potential risks and accidents. This includes providing comprehensive training programs to raise awareness among workers about the potential hazards they may encounter, as well as equipping them with the necessary knowledge and skills to handle emergency situations. Furthermore, it is essential to enforce safety regulations consistently and hold responsible parties accountable for non-compliance.

In conclusion, prioritizing health and safety in construction projects is not only a moral obligation but also crucial for the success and sustainability of the construction industry. By promoting awareness, enforcing regulations, leveraging technology, and fostering collaboration, we can create a culture of safety that protects the well-being of workers while contributing to the overall productivity and reputation of the industry.

2.1.4. Influence of Health and Safety Management on construction project success

The influence of health and safety management on construction project success is a topic of critical importance. Numerous studies have highlighted the positive impact of robust health and safety practices on project outcomes, including improved worker well-being, reduced accidents, enhanced productivity, and reduced costs

Worker well-being and morale: A safe and healthy work environment significantly contributes to worker satisfaction, motivation, and overall well-being (Jørgensen, 2016). Positive worker morale leads to increased productivity, reduced turnover rates, and improved project outcomes (Foroutan, 2015)

Accident prevention: Effective health and safety management prevents accidents and injuries, thereby reducing project delays, disruptions, and associated costs (Lingard & Rowlinson, 2005). A comprehensive safety program can potentially save construction companies significant amounts in workers' compensation claims (Ofori, 2014)

Productivity and efficiency: Research have shown that safer work environments have a positive correlation with increased productivity levels (Hinze, Wehle, & Zwerling, 2013)When workers feel secure and confident in their surroundings, they can focus on their tasks more efficiently, leading to better project performance.

Cost savings: The implementation of health and safety measures in construction projects can result in cost savings through accident prevention, reduced insurance premiums, and lower absenteeism rates (El-Saqsaa, 2019). Additionally, it helps avoid potential legal liabilities and fines for non-compliance with safety regulations (Bubshait & Al-Tamimi, 2019).

Reputation and client satisfaction: Clients are increasingly demanding proof of effective health and safety management before awarding construction contracts (Park, 2016)By demonstrating a commitment to worker safety, construction companies can enhance their reputation and attract new clients who prioritize responsible practices.

The researcher believes that health and safety management play a crucial role in the success of any project. Construction projects, in particular, are prone to various hazards and risks that can not only jeopardize the well-being of workers but also impact the overall progress and outcomes of the project.

Implementing effective health and safety management practices ensures a safe working environment, which leads to several positive outcomes. First and foremost, it protects workers from accidents, injuries, and long-term health issues. When workers feel safe and valued, their morale and productivity increase, directly contributing to the success of the project.

Furthermore, a robust health and safety management system helps prevent delays caused by accidents and incidents. By identifying potential risks and implementing necessary preventive measures, projects can avoid costly disruptions, saving both time and resources.

From a financial perspective, investing in health and safety management is a wise decision. It reduces the likelihood of litigation expenses resulting from accidents or worker compensation claims. Moreover, insurance costs can be significantly reduced when a project demonstrates strong safety practices.

In addition to safeguarding workers' well-being and financial aspects, successful implementation of health and safety management positively impacts a project's reputation. Contractors and organizations that prioritize safety gain a favorable reputation within the industry. This enhances their credibility, attracts skilled workers, and increases client trust, potentially leading to more project opportunities in the future.

To summarize, health and safety management is indispensable for project success. It ensures the well-being of workers, mitigates risks, prevents delays, saves costs, and enhances reputation. By prioritizing safety and implementing effective health and safety practices, construction projects can thrive and achieve their desired objectives.

2.2. Empirical Review

2.2.1. Health and safety management in Ethiopian building construction

In Ethiopia, health and safety management in the building construction industry is of paramount importance to ensure the well-being of workers and the successful completion of projects. The pertinent regulations and guidelines for health and safety management are primarily established and enforced by the Ethiopian Ministry of Labor and Social Affairs.

The key legislation governing health and safety in the workplace is the Ethiopian Occupational Health and Safety Proclamation No. 377/2003. This proclamation outlines the general principles and responsibilities for employers, employees, and regulatory authorities in maintaining a safe working environment.

Additionally, there are specific regulations related to construction activities, such as the Ethiopian Building Proclamation No. 624/2009, which provides guidelines on proper design, construction, and operation of buildings to ensure safety for occupants and workers.

Ethiopia has recognized the need for enhanced health and safety measures in the building construction industry. Efforts have been made to raise awareness among stakeholders about the importance of health and safety practices through training programs and workshops conducted by various organizations such as the Construction Design Share Company (CDSC) and the Ethiopian Construction Project Management Institute (ECPMI).

Furthermore, collaboration between industry stakeholders, including contractors, subcontractors, and regulatory bodies, is essential for effective implementation of health and safety regulations. Regular inspections by government agencies, such as the Ethiopian Ministry of Urban Development and Construction (MoUDC), help monitor compliance with safety standards on construction sites.

However, it is important to note that despite these efforts, there are still challenges in fully ensuring health and safety in Ethiopian building construction. Some issues include a lack of awareness among workers and limited resources for implementing proper safety measures. Additionally, enforcement of safety regulations can sometimes be inadequate, leading to non-compliance on some construction sites.

To gain a more comprehensive understanding and include specific references and citations, I recommend conducting a literature review on health and safety management in Ethiopian building construction. You can refer to academic journals, research papers, and reports from organizations such as the International Labor Organization (ILO) and the World Health Organization (WHO) for relevant information and data.

2.2.2. Health and Safety practices in Building projects: Addis Ababa

There are limited studies on the workplace safety practices of building projects in Addis Ababa. However, (Zewdu & Tadesse, 2019) conducted a study on occupational hazards and safety practices in the construction industry in Addis Ababa, Ethiopia. The study found that workers were exposed to various hazards such as falls from heights, electrical hazards, and musculoskeletal disorders. The authors recommended the adoption of safety measures such as the use of personal protective equipment, training, and regular safety inspections.

(Alemu, Alemu, & Yimer, 2020) also investigated work-related workplace safety practices among construction workers in Addis Ababa. The study revealed that workers had inadequate knowledge of safety measures and were exposed to hazards such as noise pollution, dust, and ergonomic hazards. The authors recommended the provision of safety training, regular safety inspections, and the use of personal protective equipment.

Another study by (Yohannes, Hailu, & Mekonnen, 2018) examined the safety management practices in building construction projects in Addis Ababa. The study found that safety management practices were inadequate, and workers were exposed to various hazards such as falls, electrocution, and fire outbreaks. The authors recommended the adoption of safety measures such as hazard identification, risk assessment, and the use of personal protective equipment.

In a study by (Gebremariam, Gebremedhin, & Tadesse, 2019), occupational hazards and safety practices among construction workers in Addis Ababa were investigated. The study found that workers were exposed to hazards such as noise pollution, dust, and ergonomic hazards. The authors recommended the provision of safety training, regular safety inspections, and the use of personal protective equipment.

Overall, these studies suggest that there is a need for improved occupational workplace safety practices in the construction industry in Addis Ababa. The adoption of safety measures such as hazard identification, risk assessment, safety training, regular safety inspections, and the use of personal protective equipment is crucial to ensure the safety and well-being of workers in the industry.

2.2.3. Challenges and barriers to implementing effective health and safety practices in construction projects

There have been several studies conducted on the challenges and barriers to implementing effective workplace safety performances in construction projects. Some of the key findings are:

Lack of management commitment: According to a study by (Lingard & Rowlinson, Occupational health and safety in construction project management., 2005), lack of management commitment is one of the major barriers to implementing effective workplace safety practices in construction projects. The study found that senior management often prioritizes productivity over safety, which can lead to unsafe working conditions.

Lack of training and education: Another study by (Lingard & Holmes, 2000) identified a lack of training and education as a major barrier to implementing effective workplace safety performances in construction projects. The study found that workers often lack the necessary knowledge and skills to identify and mitigate safety hazards.

Resistance to change: A study by (Zhang, Li, & Skibniewski, 2016) found that resistance to change is a significant barrier to implementing effective workplace safety practices in construction projects. The study found that workers and supervisors may resist new safety policies or procedures if they perceive them as burdensome or time-consuming.

Communication breakdowns: A study by (Al-Mutairi, Al-Sultan, & Al-Ghafly, 2017) identified communication breakdowns as a major challenge to implementing effective workplace safety performances in construction projects. The study found that poor communication between workers, supervisors, and management can lead to misunderstandings and unsafe working conditions.

Cultural differences: A study by (Hinze, Thurman, & Wehle, 2013) found that cultural differences can be a significant barrier to implementing effective workplace safety practices in construction projects. The study found that workers from different cultural backgrounds may have different attitudes towards safety, which can lead to misunderstandings and unsafe working conditions.

In general, these studies highlight the importance of addressing management commitment, training and education, resistance to change, communication breakdowns, and cultural differences in order to effectively implement workplace safety practices in construction projects.

2.2.4. Best practices for integrating health and safety into construction project management

Construction projects are inherently risky and hazardous, with workers exposed to a range of physical and chemical hazards. The integration of workplace safety into construction project management is essential to ensure that workers are protected from harm and that the project is completed on time and within budget.

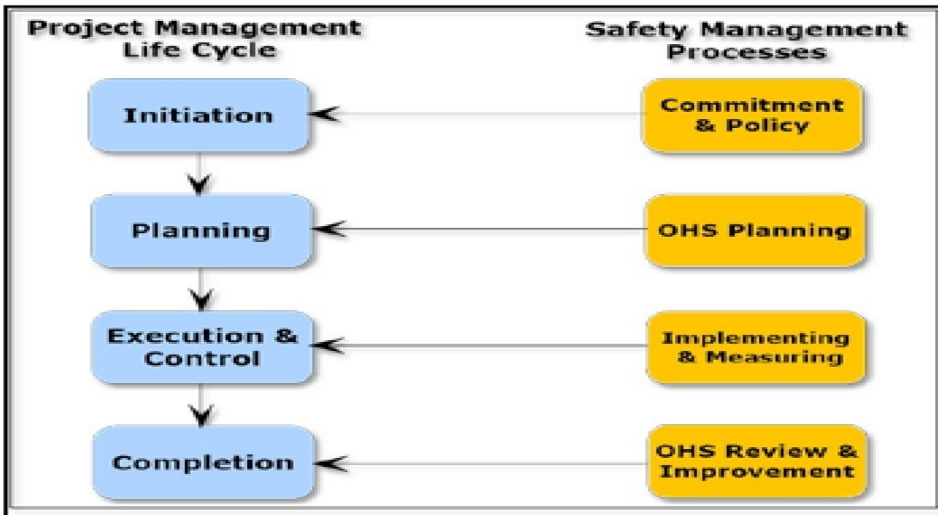

Figure 3: A proposal model to integrate Safety Management into Project Management *(Althaqafi & Elssy, 2015)*

A study by (Lingard & Wakefield, 2019) presents the following best practices for integrating workplace safety into construction project management:

Developing a comprehensive health and safety plan: This plan should be developed before the start of the project and should outline the potential hazards, risk assessments, and mitigation measures.

Providing adequate training: Workers should receive training on the hazards they may encounter on the job and how to protect themselves.

Conducting regular safety inspections: Regular inspections should be conducted to identify potential hazards and ensure that all safety measures are in place.

Encouraging worker involvement: Workers should be encouraged to report any safety concerns or hazards they encounter on the job.

Implementing a safety culture: A safety culture should be established on the job site, where safety is prioritized and everyone is responsible for ensuring a safe work environment.

In conclusion, integrating workplace safety into construction project management is crucial for protecting workers and ensuring the success of the project. By implementing best practices such as developing a comprehensive workplace safety plan, providing adequate training, conducting

regular safety inspections, encouraging worker involvement, and implementing a safety culture, construction companies can minimize risks and create a safer work environment.

2.3.Conceptual Framework of the Study

The framework will include the following components:

Contextual factors: This component includes the social, economic, and political context in which the construction projects are taking place. It also includes the regulatory framework and policies related to workplace safety in the construction industry.

Organizational factors: This component includes the organizational structure of construction companies, their management systems, and their approach to workplace safety management.

Individual factors: This component includes the knowledge, attitudes, and behaviors of workers towards workplace safety performances. It also includes their level of training and experience in dealing with potential hazards.

Physical factors: This component includes the physical environment of the construction site, such as the layout, equipment, materials, and tools used.

Health and safety outcomes: This component include the impact of workplace safety performances on workers' health and well-being, as well as the overall success of the construction project.

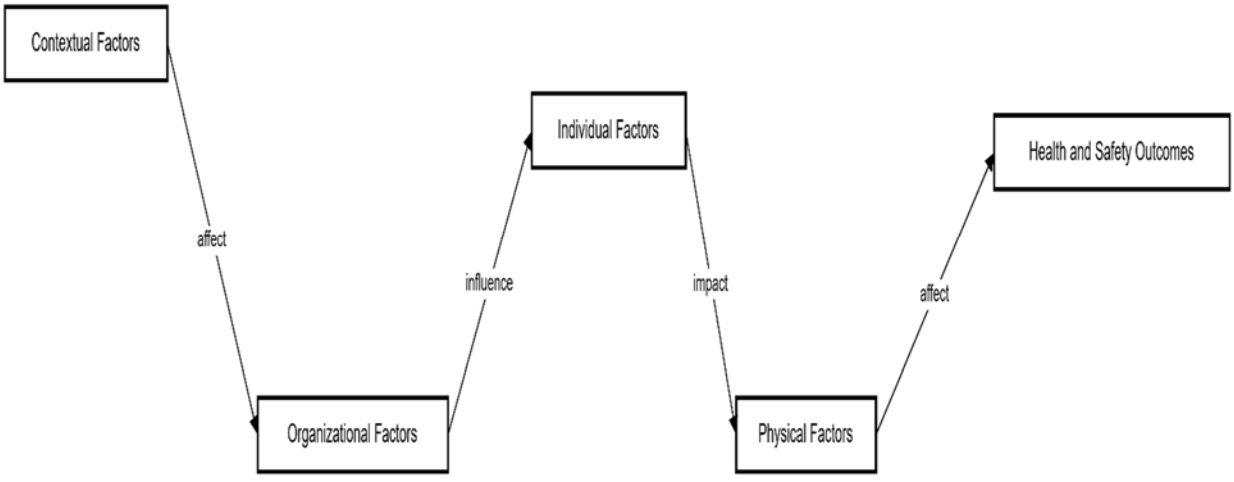

Figure 4: Conceptual Framework

By analyzing these components, the study tried to identify the strengths and weaknesses of workplace safety practices in construction projects in Addis Ababa. This analysis can inform the development of interventions to improve workplace safety practices and minimize risks for workers in the building construction industry.

CHAPTER THREE

RESEARCH METHODOLOGIES

The design of the study, a description of the study variables, the study region and target population, the data collecting source, type, instrument, data analysis approach, and software are all clearly displayed in this chapter. It will be done to analyze validity and dependability.

3.1.Research Design

After careful consideration, the research design for this study was modified to incorporate descriptive elements. To achieve this, a mixed-method approach was used, involving a cross-sectional survey design and in-depth interviews with workers, project managers, and safety officers in building projects across Addis Ababa.

The primary objective of the study was to investigate the factors that impact the implementation of workplace safety performances in construction projects in Addis Ababa. A descriptive research design helped provide an accurate representation of the current state of workplace safety performances in the industry. The cross-sectional survey identified challenges faced by construction companies and stakeholders, collect data on worker awareness and compliance with safety regulations, and provide a baseline for future comparisons.

Additionally, descriptive research design was again incorporated into the study to investigate the relationships between identified factors and their impact on the implementation of workplace safety practices. This was achieved through interviews that allow for more detailed exploration of individual experiences and perspectives.

By using a descriptive design, this study planned to generate a comprehensive understanding of workplace safety performances in Addis Ababa's construction projects, identify key challenges, and propose effective measures for improving the implementation of workplace safety practices.

3.2.Research Approach

The methodology used was a mixed-methods approach, which combined quantitative and qualitative data. Quantitative data was collected through a survey questionnaire, while qualitative data was collected through on-site observations and interviews with stakeholders.

Statistical analysis techniques were used to analyze the quantitative data collected, which helped identify patterns and trends in workplace safety performances in construction projects. The qualitative data, on the other side, was analyzed using content analysis techniques to identify themes and patterns in the information gathered.

Overall, the proposed research design, method, and methodology provided a comprehensive understanding of workplace safety practices in building construction projects in Addis Ababa. The outcomes of the study could have implications for policy and practice in the construction industry, aiming towards improving the workplace safety outcomes for workers.

3.3.Study area and Target Population

The study area for this research project was the vibrant city of Addis Ababa, which is also the capital city of Ethiopia. With a population of over five million people, Addis Ababa is the country's economic and cultural hub. The city has a growing construction industry due to its rapid urbanization, which brands it as an ideal location for conducting research regarding the subject of managing workplace safety practices in building construction projects.

The target population for this study included various stakeholders involved in building construction projects within a 5km radius of the city's center, commonly known as "Piassa."

Restricting the scope to building projects within a 5km radius of the center of the city serves several justifiable reasons:

1. **Geographic relevance:** By focusing on building projects within a specific radius of the city center, the study was able to capture the unique characteristics and challenges associated with construction practices in that particular area. This allowed for a more accurate representation of the local context and facilitates better understanding of the issues specific to Addis Ababa.

2. **Concentrated data collection:** Limiting the study to a defined geographic area enabled the researcher to concentrate their efforts and resources on collecting comprehensive data within that region. This ensured that data collection was manageable and feasible within the scope of the study, enabling more detailed analysis and reliable findings.

3. **Comparative analysis:** By narrowing the focus to building projects within a specified radius, the study was able to facilitate meaningful comparisons between different projects in close proximity. This allowed for a more in-depth understanding of variations in health and safety practices, regulatory compliance, and overall project performance within a localized context.

4. **Resource optimization:** Concentrating on building projects within a 5km radius of the city center helped optimize research resources such as time, personnel, and budget. Conducting field visits, interviews, and surveys within a limited geographic area reduced logistical challenges and enabled the researcher to dedicate more focused attention to each individual project, yielding more robust data for analysis.

Overall, by justifying the restriction of scope to building projects within a 5km radius of the center of Addis Ababa, the study aimed to provide a comprehensive analysis of health and safety practices in construction projects while accounting for local context, comparability, and resource optimization.

The target population for the study consisted of 25 building projects within a specific area. The study involved data collection from 16 different companies, including 4 clients, 19 contractors, and 5 consultants. The population also included various types of buildings such as public park reception buildings, apartments, shopping malls, residential villas, and school buildings. Based on the assessment, a total of 100 professionals were identified as potential respondents for the study, constituting the target population.

3.4.Sampling Technique and Sample size

3.4.1. Sampling Technique

The sample selection for this study was done using purposive sampling methods to ensure diversity among the participants and projects included in the research. This approach was chosen to capture a range of experiences and perspectives from stakeholders in different roles within various

construction projects. By considering contractors that have worked on different types of projects, varying in size and complexity, the study made more meaningful generalizations about workplace safety performances in the industry. Overall, the selected sample allowed for a comprehensive understanding of the state of workplace safety management in the building construction industry within the study area.

3.4.2. Sampling Size

The sample size determination was based on Taro Yamane Method; The Taro Yamane method was formulated by Taro Yamane in 1967 to determine the sample size from a given population.

n= N/ (1+N (e) 2)

Where:

n - Signifies the sample size

N - Signifies the population under study

e - Signifies the desired margin error = (0.05)

In this case, N = 100 (Expected stakeholders on the 25 various projects)

n = 100 / (1 + 100(0.05) ^2)

n = 100 / (1 + 0.25)

n = 80 (confidence level of 95%)

Given that the sample size was derived using an established and widely-used method such as the Taro Yamane method, it is reasonable to assume that the sample selected for this research project fulfilled the requirements of representativeness, efficiency, reliability, and flexibility.

Because the sample was designed to represent a specified fraction of the total population, it should be representative of the population's key characteristics. Additionally, because it was calculated based on an acceptable margin of error, the selected sample is expected to provide accurate results.

Furthermore, the size of the sample should provide a good balance between efficiency and statistical power. Lastly, since the sample size was calculated using a widely-accepted method, it provides flexibility in adapting to various research situations and contexts.

3.5.Data Collection sources and survey instruments

3.5.1. Data collection sources

Both primary and secondary sources were used. Primary sources were collected from the self-observations, interviews and questionnaires. Secondary sources were gathered from different published and unpublished related works.

3.5.2. Survey Instruments

QUESTIONNAIRE

The distributed questionnaire was one of the primary data collection gears used in the research project which aimed to evaluate the workplace safety management practices of the building construction industry in Addis Ababa. The questionnaire was designed by the researcher to include various questions that they believed would assist in fulfilling the study objectives.

A total of 80 different professionals in the building construction industry were identified through purposive sampling and were willing to assist with the study. A survey questionnaire was then distributed to these identified professionals, with only 60 of them being returned to the researcher. While this represented a slightly lower-than-anticipated response rate, it was still a sufficient number of responses to provide meaningful insights into the research problem.

The questionnaires were distributed as print out hard copies, which allowed for greater convenience and flexibility during data collection. Respondents were able to complete and return the forms at their own pace rather than having to set aside specific time slots for interviews or surveys.

The questionnaire itself was composed of three different sections, each with a specific focus. The first part provided questions about respondent's demographic information and information about their respective companies. This helped to provide a more detailed description of the sample and allowed for analysis of demographics that might have an influence regarding the subject of managing workplace safety performances.

The second part of the questionnaire focused on general workplace safety performances within building construction. These questions sought to identify common safety practices and hazards within the industry while providing an overview of current worksite safety measures.

Finally, the third part of the questionnaire explored the respondent's opinion towards current aspects of workplace safety performances, barriers to effective implementation of workplace safety practices, and recommended strategies and measures in improving workplace safety performances. This section allowed respondents to provide personal insights and recommendations on how workplace safety practices can be best improved through recommended changes in policy or measures adopted by their respective industries.

In conclusion, the distributed questionnaire was an essential data collection tool in this research project. Through purposive sampling and print out hard copies of the surveys, the researcher was able to collect useful data on specific aspects of workplace safety performances of the construction industry in Addis Ababa. Despite a slightly lower-than-anticipated response rate, the questionnaire provided valuable insights into the responses of professionals in the industry towards workplace safety performances. The data collected from this questionnaire will be used alongside evidence gathered from other research instruments to propose strategies for improved workplace safety administration in the building construction industry in Addis Ababa.

INTERVIEW

As a way of data collection, interviews were conducted with one technical manager and one project manager from two selected companies operating within the construction industry in Addis Ababa. These interviews provided valuable insights into the challenges facing the industry in terms of workplace safety administration, as well as potential strategies for improvement.

OBSERVATION CHECKLIST

For this study, an observation checklist was developed to record the workplace safety performances in the selected construction sites. The checklist comprised of several items, such as the use of personal protective equipment, presence of signage and warning signals, training of workers on hazard identification and control measures, as well as the availability of first aid and emergency response procedures. The background of the researcher in the construction field proved to be beneficial during the observation process, as it helped in identifying non-compliances and correcting them in a timely manner. The researcher was able to immediately spot potential hazards and identify gaps in knowledge or practical application of workplace safety measures by the workers at the site. This also allowed for a more efficient observation process, as the researcher was able to comprehend the technical aspects of the industry and to assess the risks involved in

the different work tasks. As such, the researcher was able to ensure consistency in the observations recorded, which helped to reinforce the validity and reliability of the data collected throughout the study.

3.6.Description of study variables

When it comes to health and safety practices in construction building projects, several factors are considered relevant. These factors play a critical role in ensuring the well-being and protection of workers, as well as the overall success of the project. Some of these factors include:

Regulatory Compliance: Adhering to local and national safety regulations is crucial in construction projects. Compliance with laws and codes ensures that construction sites follow minimum safety standards and guidelines.

Organizational Culture: The culture within a construction company greatly influences how health and safety practices are implemented. Companies with a strong safety culture prioritize worker well-being, foster open communication, encourage reporting of hazards or incidents, and provide adequate resources for safety training and equipment.

Hazard Mitigation Measures: Identifying potential hazards on construction sites is essential for minimizing risks. Implementing proper hazard mitigation measures involves conducting thorough risk assessments, establishing safety protocols, providing personal protective equipment (PPE), and implementing engineering controls to reduce exposure to hazards.

Training and Education: Adequate training and education programs are vital for enhancing workers' knowledge of safety practices. This includes training on the proper use of equipment, awareness of common construction hazards, emergency preparedness, and specific protocols for different tasks.

Communication and Collaboration: Effective communication channels between workers, supervisors, and management are crucial for incident prevention and response. Regular safety meetings, toolbox talks, clear instructions, and open lines of communication enable the exchange of safety-related information and promote collaboration in identifying and addressing potential hazards.

Workplace Environment: A safe and conducive workplace environment plays a significant role in preventing accidents and injuries. Factors such as proper lighting, ventilation, housekeeping,

ergonomic workstations, access to clean drinking water, sanitary facilities, and well-maintained equipment contribute to a safer work environment in construction projects.

These factors work together to shape the overall health and safety practices on construction sites. It's important to consider each of these factors comprehensively to ensure a safe and secure working environment for all involved.

3.7.Data analysis technique

The questionnaire data in this research was interpreted and analyzed using SPSS version 26 software. SPSS, or Statistical Package for the Social Sciences, is a widely used software package for statistical analysis. The questionnaire data from the different construction professionals in various companies were analyzed using descriptive tools to identify the major challenges faced by construction companies in implementing workplace safety practices, to assess the perception of construction workers towards workplace safety practices, and to recommend effective strategies for improving workplace safety performances in construction projects. Descriptive statistics such as means, standard deviations, and frequency distributions were used to summarize the responses to the questionnaires.

The data gathered from the interview responses and observations were analyzed separately using qualitative data analysis techniques, such as content analysis and thematic analysis. These qualitative techniques were employed to identify themes and patterns within the data that could provide insights into the challenges faced by companies in implementing workplace safety performances and potential strategies for improvement. The findings from the qualitative analysis were then presented in combination with the quantitative information obtained from the questionnaire data analysis, providing a more nuanced understanding of workplace safety practices in the construction industry in Addis Ababa.

In conclusion, the combination of quantitative and qualitative data analysis techniques allowed for a comprehensive evaluation of the workplace safety administration practices in the building construction industry in Addis Ababa. SPSS version 26 software was instrumental in interpreting and analyzing questionnaire data, while qualitative techniques were valuable for identifying themes and patterns within the interview responses and observations. The use of multiple data sources and analysis techniques led to a more robust and full understanding of the challenges faced

by construction companies in implementing Workplace safety responses, as well as effective strategies for improvement.

3.8. Reliability and Validity Analysis

To ensure the reliability of this study, the researcher conducted a thorough review of relevant literature, articles, and previous research. The findings of this study were cross-checked against existing knowledge to maintain consistency. The reliability of the questionnaire, which was measured using Likert scales, was assessed using the Cronbach's Alpha test. An acceptable limit for the Cronbach's Alpha is a result greater than 0.7. In this study, all the results exceeded this threshold, as depicted in the table below, validating their reliability.

In addition, the researcher took measures to determine the validity of the research results. Before distributing the questionnaires and conducting interviews, the researcher sought approval from an advisor and obtained feedback from a select group of construction professionals. This process ensured that the measuring instrument used aligned with both theoretical foundations and expert opinion, enhancing the validity and trustworthiness of the research findings.

Reliability Statistics		
Questionnaire No.	**Cronbach's Alpha**	**No. of Items**
Part Three (3.1)	0.911	5
Part Three (3.2)	0.851	10
Part Three (3.3)	0.881	12
Part Three (3.4)	0.921	12

Table 1: Reliability Statistics

3.9. Ethical considerations

The study obtained informed consent from all participants before conducting interviews or observations. Confidentiality and anonymity were also maintained throughout the study to protect the privacy of participants.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

In this chapter, the data triangulated from questionnaires, interviews, and observation checklists is presented. In order to draw conclusions and make suggestions for workplace safety procedures for construction projects generally and for a chosen group of Addis Ababa building projects in particular, it also includes the analysis and interpretation of the data.

4.1.General information of the respondents

This section briefly shows the descriptions of the construction professionals participated in the study. A total number of 80 questionnaires were distributed but only 60 questionnaires were collected. The number of the questions in the questionnaire was not small in order to get full information on the current Workplace safety responses but was easy to answer. Due to time constraint, unwillingness of some of the employees, absence of incentive to the respondent (which motivates some people) and other factors, it was difficult to gather all the distributed questionnaires.

Estimated Population (No)	Sample Size	Distributed Questionnaires (No)	Collected Questionnaires (No)	Return Rate (Percentage)
100	80	80	60	75%

Table 2 : Questionnaire Response Rate

Summary of Respondent's General Information			
No	**Description**	**Frequency**	**Percentage**
1	**Gender**		
	Male	40	66.7
	Female	20	33.3
2	**Age**		
	20-30	19	31.7
	30-40	35	58.3
	40-50	4	6.7
	Above 50	2	3.3
3	**Education Status**		
	Diploma	1	1.7
	Advanced Diploma	1	1.7
	Bachelor's Degree	49	81.7
	Master's Degree	9	15
4	**Experience**		
	0-5 Yrs.	15	25
	5-10 Yrs.	26	43.3
	10-15 Yrs.	14	23.3
	15-20 Yrs.	3	5
	Above 20 Yrs.	2	3.3
5	**Employment condition**		
	Permanent	42	70
	Contract	18	30

Table 3: Summary of Respondent's General Information

4.1.1. Gender of the Respondents

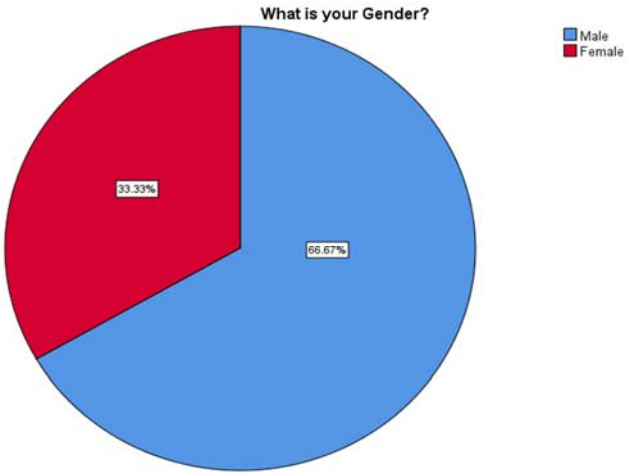

Figure 5: Gender of Respondents

As shown in figure 5, of all the participants, 33.3% of the respondents were female and 66.67% of them were male. Even though the overall participation of females in the construction industry is rapidly increasing with each passing year, the number still tends to seem low when it comes to construction sites where the actual activities are being undertaken and is the focus of the study.

4.1.2. Age of Respondents

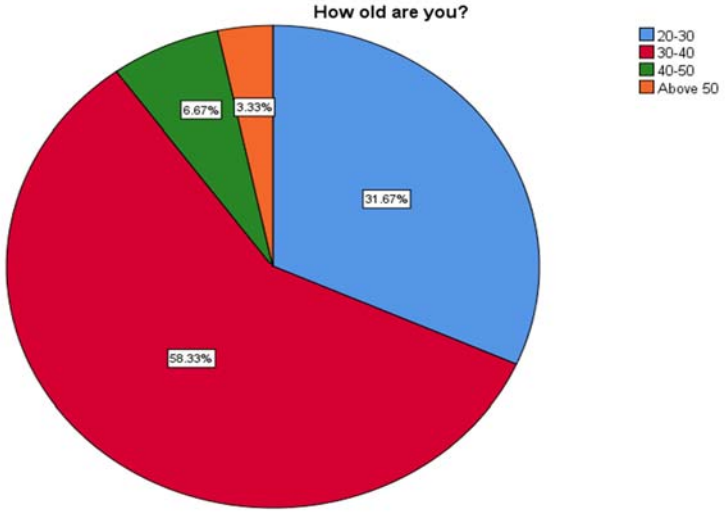

Figure 6: Age of Respondents

The majority of respondents (58.33%) who answered the questionnaire regarding the subject of managing workplace safety responses in construction projects in Addis Ababa were between the ages of 30-40. 31.67% were between 20-30 years old, while only 6.67% were between 40-50 years

old. A small percentage (3.33%) were above the age of 50. This distribution suggests that younger professionals are more likely to be involved in the construction industry.

4.1.3. Job Title/Position of Respondents

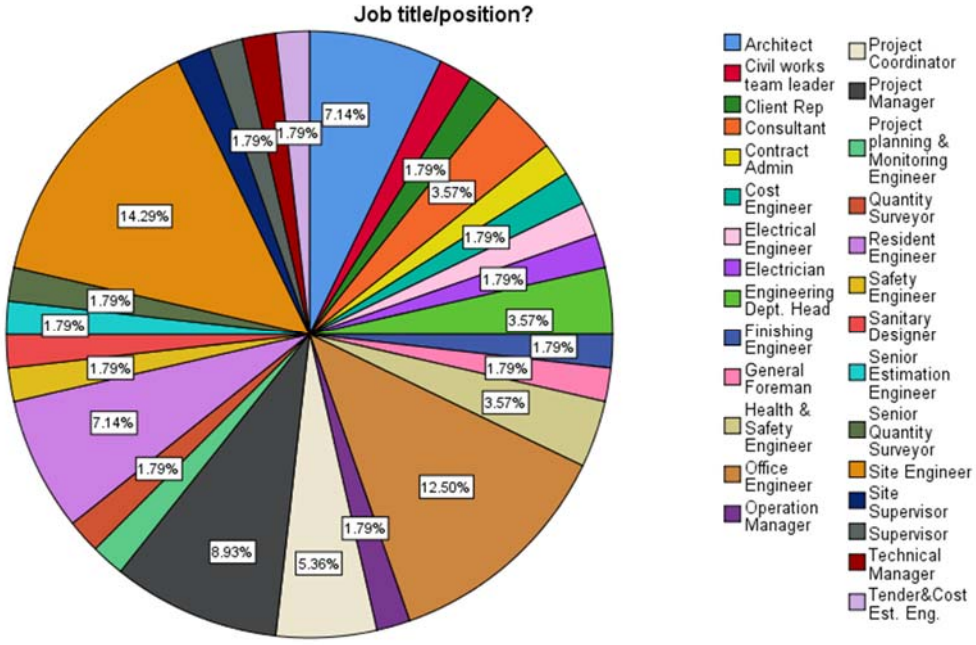

Figure 7: Position of Respondents

As the study tried to gather as much information as possible from different perspectives, the researcher distributed the questionnaires to various professionals around the building construction industry who are thought to be capable of responding and are directly or indirectly involved to the study. Based on this, the researcher was able to gather responses from 28 different professionals from above five of them scored a relatively high percentage of responses from the others. From the high scoring five positions, 7.14% were Architects, 12.5% were office engineers, 5.36% were project coordinators, 8.93% were project managers, 7.14% were Resident engineers and 14.29% were site engineers.

4.1.4. Education status of Respondents

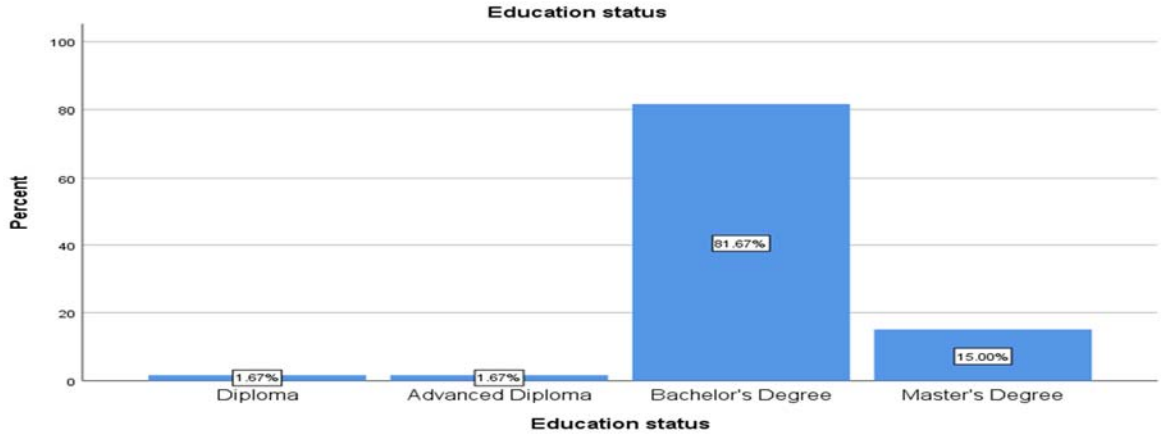

Figure 8: Education Status of Respondents

As it can be seen from the graph on figure 8, high majority or 81.67% of all the respondents were holders of Bachelor's degree. Based on the inspection of the researcher this high number of Bachelor degree holder respondents occur because of two main reasons. From one perspective, the researcher wanted to focus on those who are somewhat related to the study and therefore, ended up contacting those who are better education and on a better position on the industry. On the other hand, the researcher observed that most professionals in the industry tend to stick to the first-degree level due to the unique feature of the building construction industry where experience tends to be more valued than education level in most cases.

4.1.5. Experience Level of Respondents

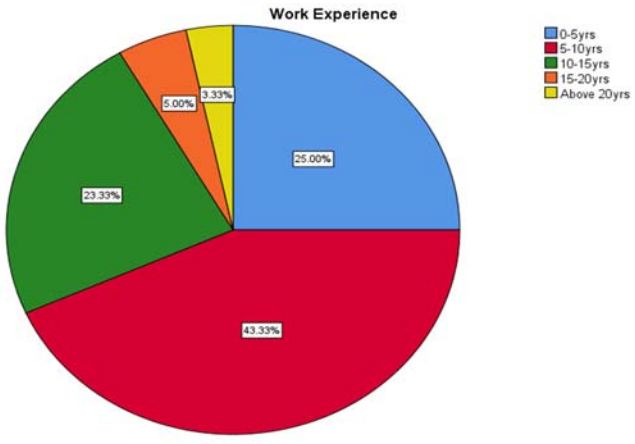

Figure 9: Experience Level of Respondents

As can be shown from the graph on figure 9, majority of construction professionals in Addis Ababa and specifically those who participated in the study are categorized in the young/adult age zone which is reflected on the work experience level. 25% of the respondents are in the first few years of their career with 0-5 years on the job, 43.3% were on the job for 5-10 years and 23.3% were on the job between the range of 10-15 years.

4.1.6. Employment Condition of Respondents

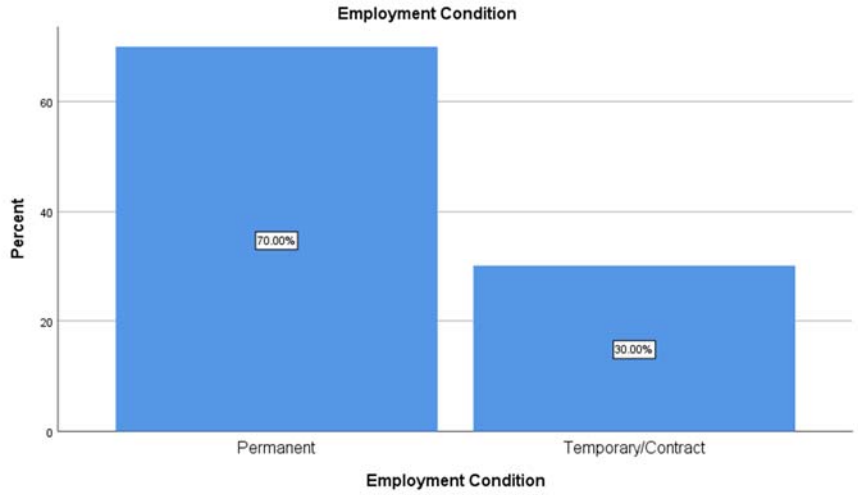

Figure 10: Employment Condition of Respondents

As the building construction industry is one of the leading industries within the country with a high employment rate most of the participating respondents are permanently employed. As can be gathered from figure 9, 70% of the respondents are permanent workers for their organizations and 30% are temporarily employed as contract workers for the duration of the project they are working on.

4.1.7. Profile of respondent companies

Name of Organization * Type of organization Crosstabulation

Count

		Type of organization			
		Client/Owner	Contractor	Consultant	Total
Name of Organization	Addis Ababa Abatoirs Enterprise	1	0	0	1
	Benyam Ali Architects& Urbanist	0	0	1	1
	Black Interior Design	1	0	0	1
	CCCC	0	2	0	2
	Cherenet General Contractor	0	3	0	3
	China Jiangsu International	0	1	0	1
	Elhazz Engineers	0	1	0	1
	Fasil Giorghis Consult	0	0	1	1
	Kassa&Sons Construction	0	3	0	3
	Oadus Architecture & Engineering PLC	0	0	2	2
	Ovid Construction	0	6	0	6
	Private	0	1	0	1
	Rama Construction	0	1	0	1
	TL Foundation Specialist	0	1	0	1
	Unity Park/Friendship square	2	0	0	2
	V Designs PLC	0	0	1	1
Total		4	19	5	28

Table 4: Profile of Respondent Companies

About 16 different companies were involved in the study data collection process out of which 4 of them were categorized as clients, 19 and majority of them were categorized as contractors and about 5 of them were in the category of consultants.

4.2. Current Health and safety management practices in building construction projects

This section presents information on the current safety and health practice of the projects under study, appropriate data was collected from different literatures and the analysis was conducted based on responses of questionnaires and is supported tables and graphical representations. Additional information was added from responses of selected Interview questions to aid the analysis.

4.2.1. Training Programs

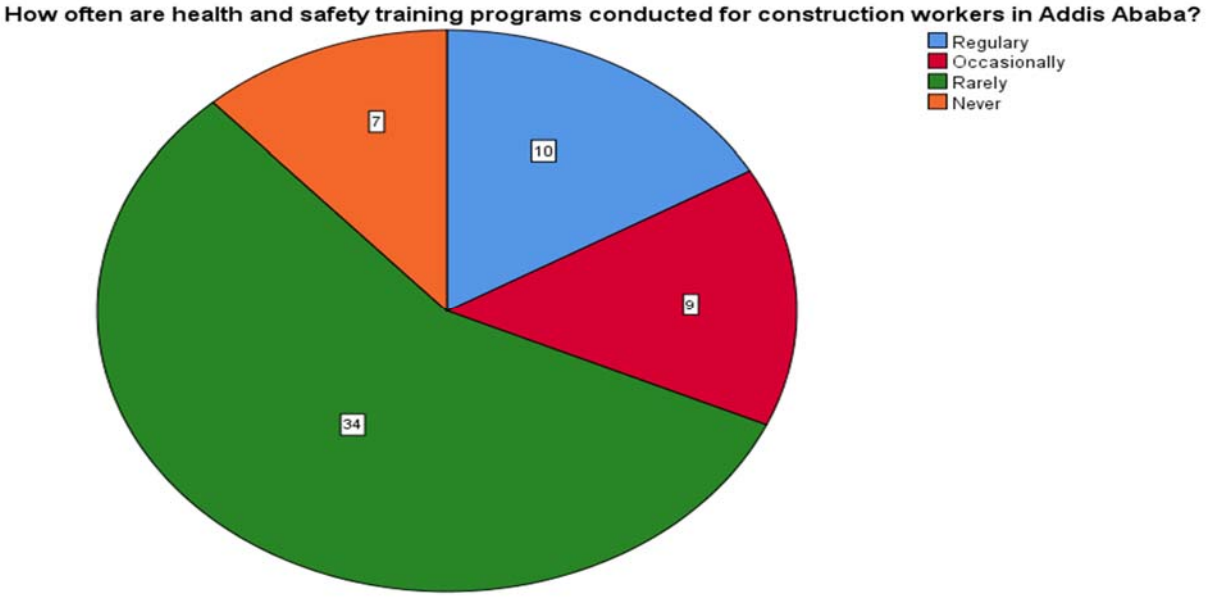

Figure 11: Training Programs

Based on the survey results, it is evident that a significant portion of the respondents perceive a lack of training programs in building projects in Addis Ababa. Out of the total respondents, more than half, specifically 34 participants, expressed the belief that training programs are rarely provided on these projects. This finding raises concerns about the potential gaps in ensuring proper training and development opportunities for workers in the construction industry.

Furthermore, the distribution of responses among the remaining participants reveals a varied perception regarding the frequency of training programs. Seven participants stated that trainings are never given on these projects, indicating a more pessimistic view of the current situation. Nine respondents believe that training programs are occasionally given, suggesting sporadic efforts to provide training opportunities but with room for improvement. On the other hand, 10 participants

reported experiencing regular training programs being given on the projects they are involved in, depicting a more positive perspective.

These statistical results can be interpreted as indicative of a potential lack of emphasis on consistent and comprehensive training practices in the construction industry in Addis Ababa. The findings highlight the need for further investigation into the reasons behind perceived inadequacies in training programs, such as identifying potential barriers or constraints that hinder the provision of regular and effective training opportunities.

Additional research and analysis are required to investigate deeper into this issue. It would be beneficial to explore factors such as organizational policies, resource availability, stakeholder engagement, and industry regulations that may influence the availability and implementation of training programs in construction projects. By conducting a more comprehensive study, actions can be taken to address these concerns and enhance health and safety practices through improved training initiatives within the construction sector in Addis Ababa.

4.2.2. Safety Measures

		Responses	Percentage
SPECIFIC SAFETY MEASURES	Use of personal protective equipment (PPE)	36	55.4%
	Regular site inspections	13	20%
	Implementation of safety rules and regulations	14	21.5%
	Others	2	3.1%
	TOTAL	65	100%

Table 5: Concept of Safety Measures

Personal Protective Equipment (PPE) Implementation: Among the respondents who agreed with the presence of safety measures, 55.4% acknowledged that the use of personal protective equipment is being implemented on their respective projects. This indicates that a significant portion of the construction workforce recognizes the importance of PPE in ensuring their safety.

Regular Site Inspections: Approximately 20% of the participants implied that regular site inspections are applied as safety measures on their projects. This result suggests that there is room for improvement in terms of ensuring consistent monitoring and evaluation of safety practices on construction sites.

Implementation of Safety Rules and Regulations: Around 21.5% of the respondents stated that the regular implementation of safety rules and regulations is part of their routine safety measures in the workplace. This finding indicates that a considerable number of workers are aware of the importance of adhering to safety protocols and regulations.

Overall, these statistical results highlight both positive aspects and areas for improvement regarding health and safety practices in construction projects in Addis Ababa. While a significant portion of respondents acknowledge the use of personal protective equipment and the implementation of safety rules, there is still a need for increased emphasis on regular site inspections to ensure compliance and enhance overall safety performance.

4.2.3. Consequences of failing to adhere to health and safety regulations

		Responses	Percentage
CONSEQUENCES FOR CONSTRUCTION COMPANIES	Fines or Penalties	18	29.5%
	Suspension or revocation of license	4	6.6%
	Legal Action	31	50.8%
	Others	8	13.1%
	TOTAL	61	100%

Table 6: Consequences of Failing to adhere to Health and Safety Regulations

Fines or Penalties: When asked about the consequences of not following workplace safety regulations, 29.5% of respondents identified fines or penalties as a potential outcome. This suggests that a significant portion of individuals recognize the financial implications associated with non-compliance.

Suspension or Revocation of License: Approximately 6.6% of participants indicated that the consequence of failing to adhere to safety regulations could be suspension or revocation of their license. This finding highlight that a small percentage of individuals are aware that their professional credentials could be at risk if they do not prioritize safety measures.

Legal Action: The majority, accounting for 50.8% of respondents, identified legal action as the potential consequence of non-compliance with workplace safety regulations. This implies that a significant number of participants recognize the severity and potential legal ramifications associated with disregarding safety protocols.

Overall, these statistical results emphasize the importance of taking workplace safety regulations seriously in construction projects in Addis Ababa. The findings showcase that a significant proportion of respondents acknowledge the potential consequences, including fines or penalties, license suspension or revocation, and legal actions. This highlights the need for companies and individuals to prioritize safety measures to avoid these outcomes and ensure a safe working environment for all involved in construction projects.

4.2.4. Common types of Injuries and Accidents

		Responses	Percentage
COMMON TYPES OF ACCIDENTS AND INJURIES	Falls	47	43.1%
	Electrocution	16	14.7%
	Struck by objects	32	29.4%
	Caught in between objects	8	7.3%
	Others	6	5.5%
	TOTAL	109	100%

Table 7: Common Types of Accidents and Injuries

Firstly, falls were identified as the most commonly reported type of injury or accident, with 43.1% of respondents stating that falls were the most frequent occurrence. This highlights the significance

of addressing fall hazards and implementing preventive measures such as the use of proper scaffolding, guardrails, and personal fall arrest systems.

Secondly, electrocutions were also reported as a common occurrence, with 14.7% of respondents selecting this type of accident. This underscores the importance of electrical safety practices, including proper grounding, insulation, and adherence to electrical codes and regulations.

Thirdly, being struck by objects ranked third among the reported incidents, with 29.4% of respondents experiencing such hazards. This emphasizes the need for effective hazard identification and control measures, such as ensuring the use of safety helmets, protective eyewear, and proper storage of materials to prevent falling objects.

Lastly, being caught in between objects ranked lowest among the reported incidents, with only 7.3% of respondents stating they had experienced this type of hazard on a construction project. While this percentage is relatively low compared to other types of accidents, it is still crucial to implement measures to mitigate risks associated with working in confined spaces or near heavy machinery.

These statistical results highlight the importance of prioritizing safety measures that address the most common types of injuries and accidents in construction projects. By focusing on fall prevention, electrical safety, hazard identification, and control, construction companies in Addis Ababa can significantly reduce the occurrence of workplace accidents and promote a safer working environment for their employees.

4.3. Challenges in Implementing Effective Health and Safety Practices in Building projects

Lack of awareness, resistance to change, limited resources, cultural barriers, communication barriers, high turnover rate, risky work environment, time constraints, cost considerations and regulatory compliances are among the most commonly reported challenges in the literature and studies. These barriers can hinder organizational effectiveness, create safety concerns, and impede innovation. To overcome these hurdles, organizations must address each of these challenges with proactive strategies such as communication plans, cultural sensitivity training, and effective risk management programs. It is only by acknowledging and addressing these issues head-on that organizations can truly achieve success and sustainability.

Statistics

		Lack of awareness	Resistance to change	Limited resources	Cultural barriers	Communication barriers	High turnover rate	Risky work environment	Time constraints	Cost considerations	Regulatory compliance
N	Valid	60	60	60	60	60	60	60	60	60	60
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		3.97	3.45	3.65	3.00	3.37	2.98	3.42	2.60	3.88	3.50

Table 8: Overall Statistics of Expected Challenges

Lack of awareness: This challenge takes the top spot, with a mean score of 3.97, indicating a positive agreement among the participants. The results suggest that there is a need for improved awareness and knowledge regarding workplace safety practices in building projects. Efforts should be focused on educating stakeholders, including workers, contractors, and project managers, about the importance of safety and the potential risks involved.

Cost considerations: This challenge ranks second, with a mean score of 3.88. The data indicates that building projects in Addis Ababa often overlook the cost considerations required for implementing workplace safety customs. This omission during the planning phase can lead to accidents and injuries that could have been prevented with appropriate budget allocation for safety measures. It highlights the importance of considering safety as an integral part of project planning and resource allocation.

Limited resources, regulatory compliances, resistance to change, risky work environment, communication barriers, and cultural barriers: These challenges were identified as significant obstacles to the successful implementation of workplace safety customs. The respondents displayed a positive attitude towards these challenges, recognizing their impact on safety practices. It is crucial to address these issues through proactive measures such as providing necessary resources, enforcing regulatory compliance, fostering a culture of safety, promoting open communication channels, and addressing cultural barriers that may hinder safety implementation.

High turnover rate and time constraints: Interestingly, participants showed a relatively negative attitude towards high turnover rates and time constraints as significant challenges in implementing workplace safety customs. The respondents believed that these factors can be controlled and

managed properly through proper planning and considerations at the beginning of the projects. This emphasizes the need for effective project management strategies that prioritize safety within tight timelines and manage workforce turnover.

Overall, these statistical results highlight the challenges that construction projects in Addis Ababa face in implementing workplace safety customs. Addressing these challenges by promoting awareness, considering safety in project planning and resource allocation, and addressing other barriers to safety implementation can greatly enhance the overall safety performance of building projects in the region.

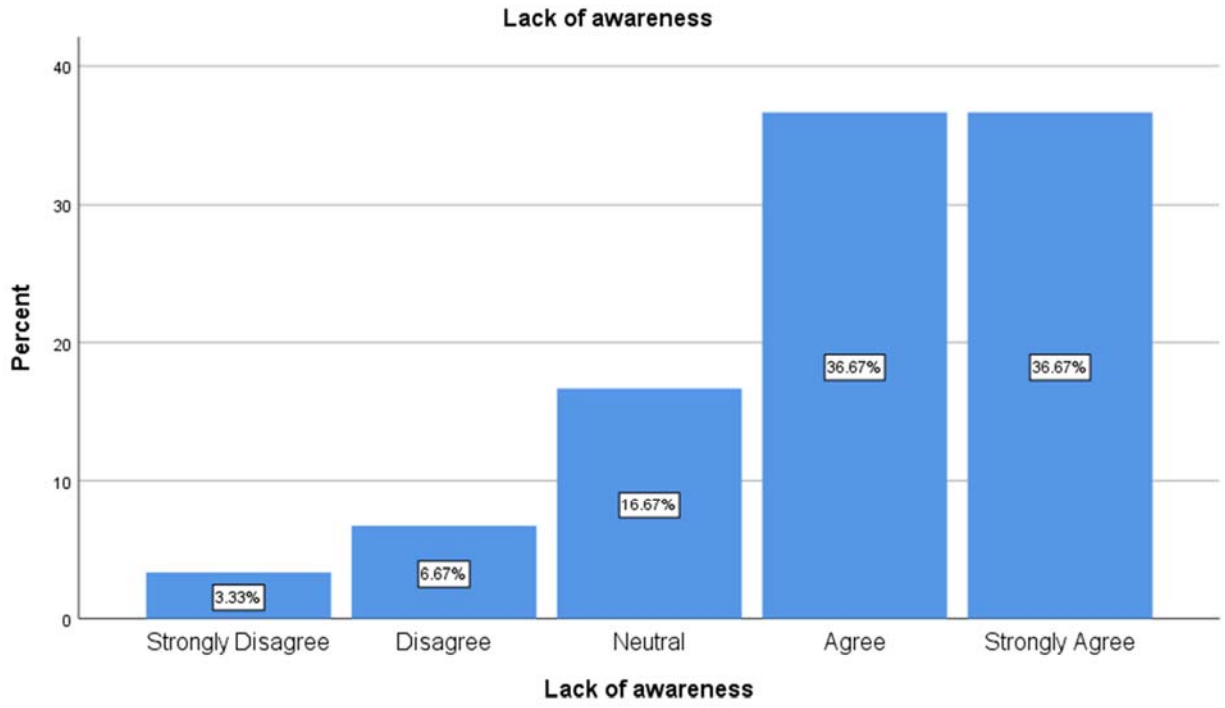

Figure 12: Lack of awareness

One of the major challenges identified was the lack of awareness about workplace safety customs. According to the survey conducted, 36.7% of the respondents strongly agreed that the lack of awareness is a hindrance to effective implementation. A similar percentage, 36.7%, agreed with this statement as well.

On the other hand, 16.67% of the respondents remained neutral on this issue. Only 6.67% disagreed with the statement, while a mere 3.33% strongly disagreed. These numbers indicate that

a significant portion of individuals in the construction industry recognize the lack of awareness as a challenge in enforcing safety practices.

These results highlight the critical need for increased education and communication regarding safety practices in the construction industry in Addis Ababa. Efforts should be made to raise awareness among workers, contractors, and other relevant stakeholders to ensure better compliance with safety regulations.

It is worth mentioning that these statistical findings are based on the survey responses obtained from the participants involved in the study. Therefore, it is essential to consider these results while formulating strategies to address and overcome the challenges related to workplace safety customs in building projects in Addis Ababa.

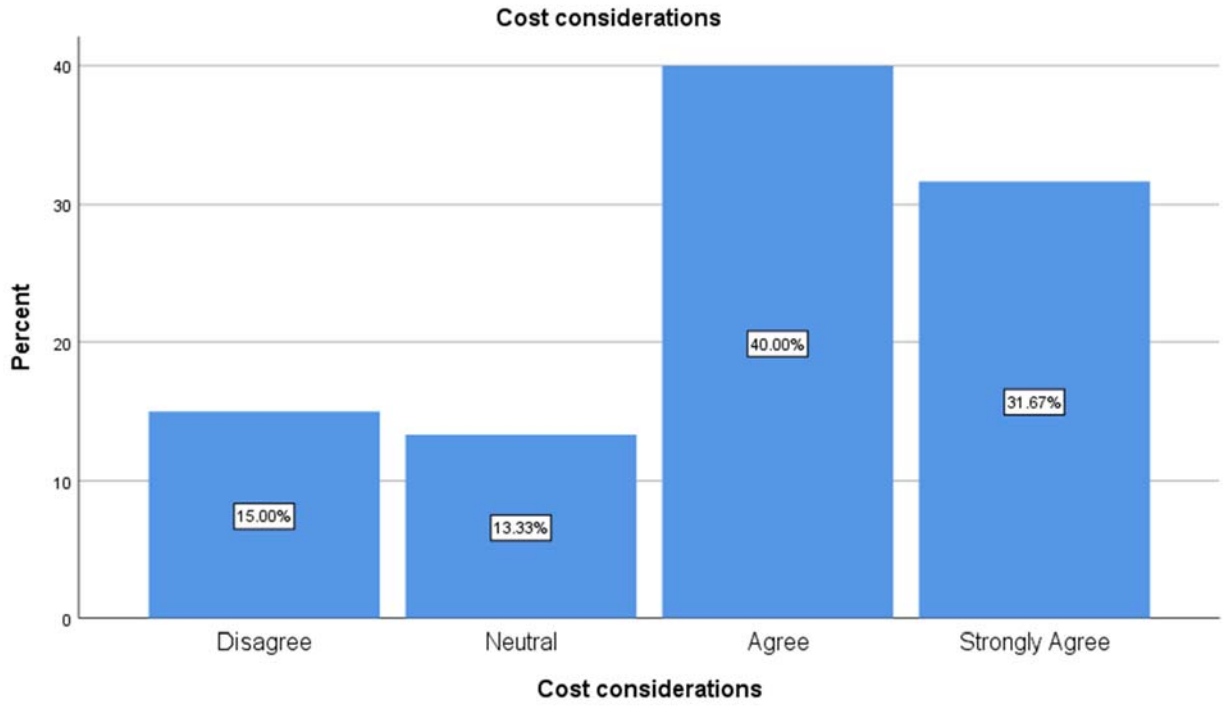

Figure 13: Cost considerations

The statistical results reveal that cost considerations pose a major challenge in implementing effective workplace safety customs. According to the survey conducted, 40% of the respondents agreed with this statement, indicating that cost considerations are a significant factor in hindering

the implementation of safety measures. Additionally, 31.67% of the respondents strongly agreed with this view.

On the contrary, 15% of the respondents disagreed with the statement, suggesting that they do not consider cost as a significant obstacle to implementing workplace safety customs. Furthermore, 13.33% of the respondents remained neutral on this issue.

These statistical results highlight the complexity surrounding workplace safety practices in building projects in Addis Ababa. The significant agreement and strong agreement percentages show that a considerable number of participants acknowledge financial constraints as a barrier to ensuring adequate safety measures.

However, it is important to note that prioritizing cost over safety can lead to increased risks for workers and the public. It is crucial for stakeholders in the construction industry to recognize the potential consequences and find ways to strike a balance between cost considerations and the implementation of effective workplace safety customs.

Based on these findings, it is evident that addressing the financial constraints and providing adequate resources and support for workplace safety should be prioritized. This may involve conducting cost-benefit analyses, implementing proactive budget planning, and promoting a stronger safety culture within the construction industry.

These statistical results provide valuable insights for policymakers, project managers, and other relevant stakeholders involved in construction projects in Addis Ababa to take appropriate measures to overcome the challenges related to cost considerations in implementing workplace safety customs.

Table 9 summarizes the overall response of participants particularly towards the possible challenges that building projects face in implementing an effective Workplace safety custom.

Description Challenges to Implement Effective Health and Safety Practices in Building Projects	TOTAL RESPONDENTS	Strongly Disagree(%)	Disagree(%)	Neutral(%)	Agree(%)	Strongly Agree(%)	TOTAL
Lack of awareness	**60**	3%	7%	17%	37%	37%	**100%**
Resistance to change	**60**	7%	13%	25%	38%	17%	**100%**
Limited resources	**60**	3%	13%	22%	38%	23%	**100%**
Cultural barriers	**60**	17%	18%	27%	25%	13%	**100%**
High turnover rate	**60**	0%	23%	25%	43%	8%	**100%**
Risky work environment	**60**	5%	27%	37%	28%	3%	**100%**
Time constraints	**60**	3%	23%	13%	48%	12%	**100%**
Cost considerations	**60**	7%	43%	33%	17%	0%	**100%**
Regulatory compliance	**60**	0%	15%	13%	40%	32%	**100%**
Regular safety training for workers	**60**	5%	7%	30%	50%	8%	**100%**

Table 9: Overall Response of Participants towards expected Challenges

4.4.Perception of workers on current aspects of Health and Safety Practices

Workers' perception towards Health and Safety (H&S) issues on building projects in Addis Ababa is multifaceted and influenced by several factors. One crucial aspect is the availability of appropriate personal protective equipment (PPEs). Some workers may perceive their employers as neglecting H&S concerns if they lack proper PPEs or if the PPEs provided are substandard. Another significant aspect is the adequacy of training and education on safety practices. Workers who receive inadequate H&S training may feel less confident in their ability to stay safe at work. Additionally, the implementation of strict safety protocols and procedures is essential for ensuring a safe workplace. Workers typically respond favorably to employers who enforce these protocols rigorously. Worker participation in safety committees also fosters a sense of ownership and collaboration, which contributes to a safer working environment. Finally, the availability of first aid kits and emergency response plans gives workers peace of mind as they know assistance is available immediately if they encounter an emergency situation.

Statistics

		Availability of appropriate personal protective equipment (PPE)	Adequacy of training and education on safety practices	Implementation of strict safety protocols and procedures	Worker participation in safety committees	Availability of first aid kits and emergency response plans
N	Valid	60	60	60	60	60
	Missing	0	0	0	0	0
Mean		3.47	2.73	2.87	2.73	3.32

Table 10: Overall Statistics of workers perception

Based on the statistical results of the research study on health and safety practices in construction projects in Addis Ababa, several key findings have emerged.

Firstly, the majority of participants responded positively regarding the availability of appropriate personal protective equipment (PPE) in their building projects. This is reinforced by a mean score value of 3.47, indicating that workers generally perceive that their employers prioritize their workplace safety needs. This finding suggests that most employers are aware of their legal and ethical responsibilities to protect their employees' well-being. However, continuous evaluation is necessary to ensure that workers always have access to the necessary PPEs to minimize risks on-site.

Secondly, a significant number of participants reported that first aid kits and emergency response plans are available in their building projects. This finding is further supported by a mean score value of 3.32. Immediate access to medical assistance in case of an accident or injury is crucial in any construction project. However, the study revealed a slightly lower satisfaction level regarding the availability of first aid kits and emergency response plans compared to personal protective equipment. This highlights the need for employers to continuously assess and upgrade their emergency preparedness measures to ensure maximum protection for their workers.

On the other hand, participants expressed concerns about strict safety protocols and procedures, adequacy of safety training and education, and worker participation in safety committees. These areas received mean score values of 2.87, 2.73, and 2.73 respectively, indicating a negative attitude or dissatisfaction among some participants. Some workers felt that safety procedures were too rigid and impractical for their work processes, while others reported feeling inadequately trained

to implement safety practices or participate effectively in safety committees. These findings underscore the importance of tailoring safety protocols and training to meet the unique needs and preferences of different workers and work environments, ensuring optimal compliance and effectiveness.

Overall, these statistical results provide valuable insights into how workers perceive health and safety issues in the construction industry in Addis Ababa. Policymakers and industry stakeholders can use these findings to guide actions that promote a safer work environment for all workers, including the continuous assessment of safety practices, ensuring access to necessary PPEs and emergency response measures, and tailoring safety protocols and training to suit individual needs.

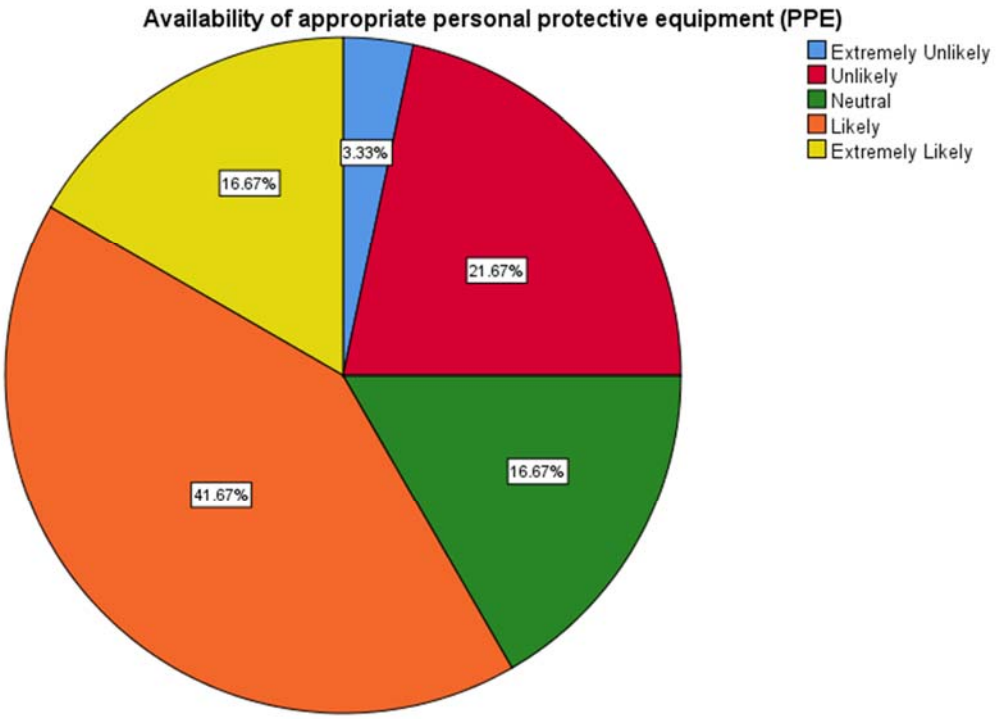

Figure 14: Availability of PPE

Based on the statistical results of our research study on health and safety practices in construction projects in Addis Ababa, it is evident that there is a positive perception regarding the availability of appropriate personal protective equipment (PPE) on building sites. The data shows that 41.67%

of respondents considered it likely to have access to adequate PPE, while only 21.67% believed it was unlikely.

Furthermore, a significant portion of participants (16.67%) expressed extreme likelihood in having access to appropriate PPE. This indicates a proactive approach from employers and contractors in prioritizing the safety of their workers by ensuring the availability of necessary equipment.

However, it is important to note that a small percentage of respondents (3.33%) still felt extremely unlikely to have appropriate PPE available. This highlights the need for further evaluation and improvement in ensuring consistent access to PPE across all construction projects.

To maximize the effectiveness and protection offered by PPE, it is imperative for all participants in building projects to receive adequate training and information on its correct usage. This will not only enhance safety but also contribute to the overall well-being of workers.

Effective communication between workers, contractors, and management also emerges as a crucial factor in promoting proper utilization of PPE. By fostering clear lines of communication, potential issues or concerns can be swiftly addressed, and workers can feel supported and adequately protected while carrying out their tasks.

In summary, while the majority of participants perceived a favorable availability of PPE, there is still room for improvement in ensuring consistent access to adequately trained workers. Enhanced communication and training protocols can further enhance safety practices on construction sites in Addis Ababa.

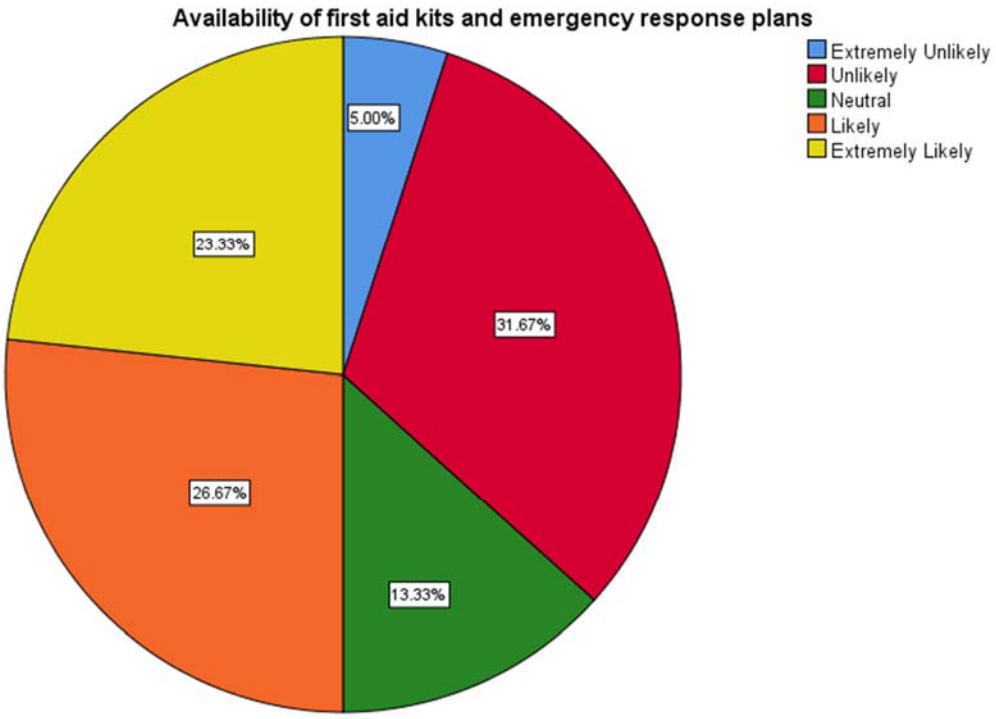

Figure 15: Availability of First aid kits

Based on the statistical results mixed perspectives were identified among participants regarding the availability of first aid kits and emergency response plans on their construction sites.

According to our findings, 26.67% of respondents indicated they were likely to have access to these essential resources, while a slightly higher percentage (31.67%) reported feeling unlikely to have them available. Additionally, 13.33% of participants reported feeling neutral on this issue.

It is worth noting that a significant portion of respondents (23.33%) expressed feeling extremely likely to have access to first aid kits and emergency response plans, whereas only 5% believed it was extremely unlikely. This indicates a variability in the provision of these critical resources across building projects in Addis Ababa.

Based on these results, it is evident that there may be inconsistencies in the availability and accessibility of first aid kits and emergency response plans in construction sites. This highlights the importance of establishing standardized protocols and ensuring widespread access to these resources to ensure the safety and well-being of workers.

To address this issue, it is recommended to increase the standardization and accessibility of first aid kits and emergency response plans across all building projects in Addis Ababa. This may involve implementing consistent guidelines and regulations that require the presence of these resources in every construction site.

Additionally, providing adequate training on the proper usage of first aid kits and emergency response plans is crucial to ensure their effectiveness during emergencies. Workers should be equipped with the knowledge and skills needed to handle different situations and respond quickly and effectively when needed.

In summary, the findings suggest that there is a need for improvement in the availability and accessibility of first aid kits and emergency response plans in construction projects in Addis Ababa. By implementing standardized protocols, increasing access, and providing training, we can enhance worker protection and response capabilities during emergencies on construction sites.

To summarize the overall perceptions of workers in building projects in Addis Ababa about the Workplace safety customs currently in place, data was compiled from the study into a table below. Table 11 presents an overview of the responses to a variety of Workplace safety customs, including the availability of PPE, first aid kits, and emergency response plans, as well as attitudes toward safety protocols and worker participation in safety committees. By aggregating the responses to these questions, the researcher hopes to provide valuable insights into the strengths and weaknesses of current Workplace safety customs in the building industry in Addis Ababa, as well as providing a foundation for future improvements and interventions.

Description Aspects of Health and Safety practices in place on Building projects	TOTAL RESPONDENTS	Extremely Unlikely(%)	Unlikely(%)	Neutral(%)	Likely(%)	Extremely Likely(%)	TOTAL
Availability of appropriate personal protective equipment (PPE)	**60**	3%	22%	17%	42%	17%	**100%**
Adequacy of training and education on safety practices	**60**	12%	43%	22%	7%	17%	**100%**
Implementation of strict safety protocols and procedures	**60**	10%	40%	18%	17%	15%	**100%**
Worker participation in safety committees	**60**	18%	30%	25%	13%	13%	**100%**
Availability of first aid kits and emergency response plans	**60**	5%	32%	13%	27%	23%	**100%**

Table 11: Summary of responses on current aspects of Health and Safety practices on building Projects

The Researcher also conducted a site observation on selected building construction sites in Addis Ababa to assess the safety and health practices on-site. The researcher used a checklist to analyze the safety and health practices of each of the observed sites. The checklist included questions such as whether workers are provided with appropriate personal protective equipment (PPE), whether the site is properly marked with warning signs and barriers, whether workers are trained on safe use of machinery and equipment before operating them, and whether there is a designated safety officer or supervisor responsible for enforcing safety practices on the construction site.

The researcher found a mixture of positive and negative results, given the varying levels of contractors and projects under observation. While higher grade level contractors and projects registered positive results, those with lower grades recorded negative results.

On the positive side, some sites had comprehensive safety protocols in place, including the provision of PPE, worker training on safe use of machinery, clear communication channels for reporting accidents/incidents/hazards, and designated supervisory roles for enforcing safety practices while also encouraging worker participation in identifying potential hazards. Workers took adequate rest breaks to prevent fatigue-related accidents. Additionally, some sites had a first aid kit available on site, with workers trained in basic first aid procedures.

However, some sites recorded negative results as well. There was a lack of appropriate PPE in some observed sites, with workers exposed to hazards including falling objects or slip/trip hazards.

Some sites lacked adequate warning signs or barriers to direct workers away from potential danger zones. There was also a lack of regular reminders or communication channels for enforcing and encouraging safety procedures. Encouragement for workers to report safety concerns without fear of retaliation was also lacking.

Overall, the study found that adherence to safety protocols was highly dependent on the grade level of the contractor/project under observation. Higher-grade level projects typically took safety infractions seriously, with comprehensive safety protocols in place, while lower-grade level projects carried a higher risk of safety breaches. The study recommends comprehensive adherence to safety protocols for all construction projects to ensure the safety of both workers and public safety.

On the other hand, the researcher tried to get information from a different perspective by interviewing two higher level officials from different companies working in the position of project manager and technical manager.

Both the project manager and technical manager recognize the importance of implementing strict workplace safety protocols in construction projects. They both stress the need for appropriate PPE, regular inspections and audits, worker participation in safety committees, and promoting a culture of safety throughout the organization. They also acknowledge that there are challenges to implementing these measures, such as lack of awareness, inadequate regulatory frameworks, and resistance to change.

The project manager suggests that enforcing strict regulations, providing regular training and education to workers, and promoting worker participation in safety committees can address these challenges. This response indicates that the project manager understands the importance of creating a regulatory environment that supports safe construction practices, as well as the need for worker involvement in developing and maintaining safety protocols.

The technical manager, on the other hand, emphasizes the importance of worker participation in safety committees and promoting a culture of safety to improve Workplace safety customs. They also mention the significance of training and education for workers to ensure that they are aware of safety guidelines and can identify potential hazards. Furthermore, they highlight the importance

of working closely with local authorities and regulatory bodies to ensure compliance with industry standards.

Overall, both the project manager and technical manager demonstrate a strong commitment to prioritizing the safety of workers on construction projects. Their strategies for achieving this goal differ slightly, with the project manager focusing more on regulatory frameworks and worker training, while the technical manager emphasizes worker participation and a strong organizational culture of safety. However, both perspectives are important for ensuring that construction projects are carried out safely and effectively.

4.5. Effective strategies or measures to Improve Health and Safety Practices in Building Projects

To improve Workplace safety customs in building construction projects in Addis Ababa, there are several measures that industry stakeholders can implement. The first measure is providing regular training and education to workers on the importance of safety practices and how to implement them effectively. Implementing strict safety protocols and procedures is also crucial, as is providing appropriate personal protective equipment (PPE) and encouraging worker participation in safety committees. Enforcing strict regulations and guidelines also plays a critical role in fostering a safe workplace environment. Providing financial and resource support for training and education programs can increase the number of workers with knowledge of safety practices. Conducting regular inspections and audits help identify areas with potential workplace safety risks. Collaborating with industry stakeholders to develop best practices ensures that safety standards are both high quality and applicable to unique situations. Promoting a culture of safety within the company incentivizes safe behavior, making it a natural part of everyday work activities. By implementing these measures, building industry stakeholders can improve Workplace safety customs on construction projects in Addis Ababa, creating safer environments for workers and fewer construction-related accidents.

Statistics

		Providing regular training and education to workers	Implementing strict safety protocols and procedures	Providing appropriate personal protective equipment (PPE)	Encouraging worker participation in safety committees	Enforcing strict regulations and guidelines	Providing resources for training and education programs	Conducting regular inspections and audits	Collaborating with industry stakeholders to develop best practices	Promoting a culture of safety within the company	Providing incentives for safe behavior
N	Valid	60	60	60	60	60	60	60	60	60	60
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4.53	4.65	4.57	4.07	4.55	4.40	4.43	4.22	4.37	4.13

Table 12: Overall statistics of suggested measures for improving Health and Safety Practices

The statistical results of the research study on health and safety practices in construction projects in Addis Ababa indicate that the participants had a positive attitude towards implementing strict safety protocols and procedures, with a mean score value of 4.65. This suggests that participants recognize the importance of adhering to safety standards and prioritizing worker safety. By strictly following safety protocols, construction companies can create a safer work environment and reduce workplace accidents and injuries.

The study also found that participants recognized the significance of providing appropriate personal protective equipment (PPE), with a mean score value of 4.57. This highlights the importance of management taking a proactive approach to ensure that workers have access to necessary PPE at all times. By improving access to PPE, employers can promote a culture of safety and mitigate workplace hazards.

Enforcing strict regulations and guidelines was perceived as the third most effective measure for improving workplace safety customs, with a mean score value of 4.55. This underscores the crucial role of management in upholding safety standards and consistently enforcing regulations. By implementing strict regulations, construction companies can create a safer work environment and prevent accidents or injuries on their construction sites.

Providing regular training and education to workers was identified as the fourth most effective measure for improving the implementation of workplace safety customs, with a mean score value of 4.53. This indicates the need for ongoing training programs to promote safety awareness and keep employees informed about the latest safety guidelines and procedures. Regular training

ensures that workplace safety is continuously promoted and reinforced, leading to better-prepared workers who are well-versed in safety protocols.

The study also highlighted other effective measures for improving workplace safety, such as conducting regular inspections and audits, providing resources for training and education programs, promoting a culture of safety within the company, collaborating with industry stakeholders to develop best practices, providing incentives for safe behavior, and encouraging worker participation in safety committees.

These statistical results demonstrate the importance of adopting a holistic approach to workplace safety. Implementing multiple measures that address various factors contributing to workplace accidents is key to ensuring a safer work environment. Employers should prioritize employee welfare by providing the necessary resources, training, and support to effectively implement safety protocols and prevent workplace accidents, injuries, and fatalities.

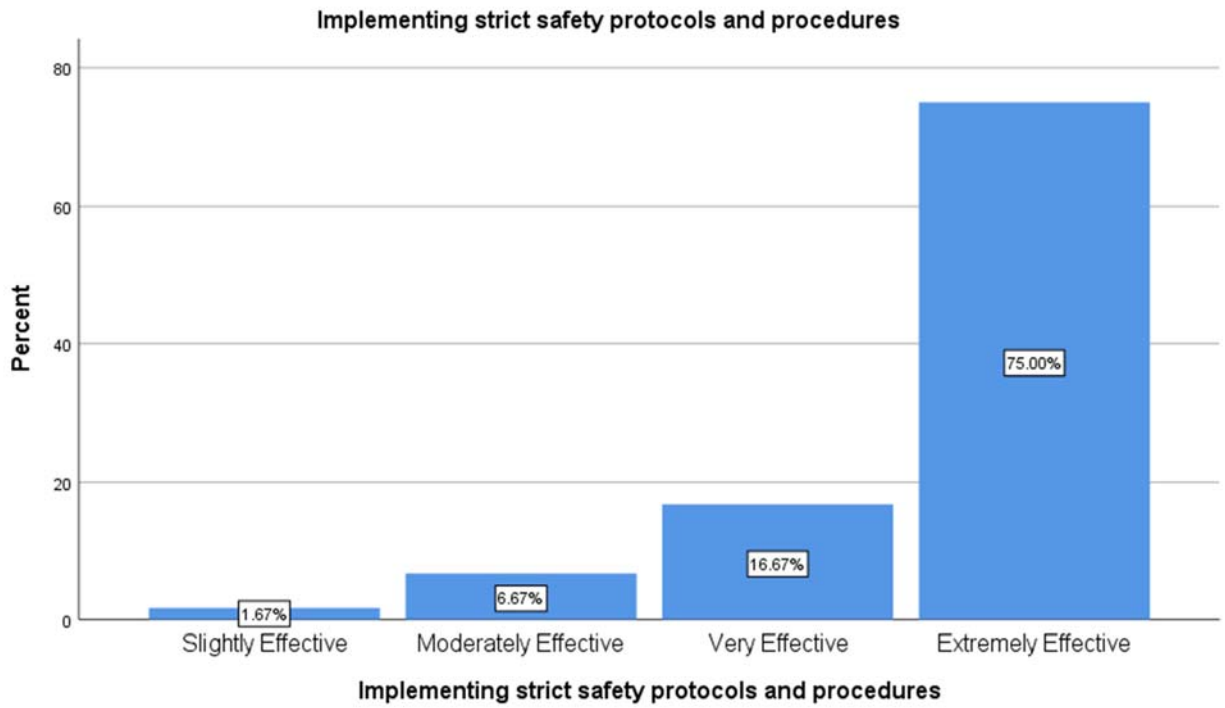

Figure 16: Implementation of strict safety protocols and procedures

The statistical results of the study show that the implementation of strict safety protocols and procedures received positive responses from the surveyed participants. The majority of

respondents (75%) rated these measures as "extremely effective," indicating a strong belief in the effectiveness of such protocols. Additionally, 16.67% considered them "very effective," and 6.67% rated them as "moderately effective." Only a small percentage of participants (1.67%) believed that the measures were "slightly effective."

These statistical findings suggest that the surveyed participants recognized the importance of implementing strict safety protocols and procedures in building projects. They believed that these measures were crucial for maintaining safety standards and preventing accidents or injuries.

However, it is worth noting that there was a small percentage (6.67%) of participants who viewed the implementation of strict safety protocols as only moderately effective. This indicates that there is room for improvement in order to maintain a safe work environment. Continuous efforts to enhance safety practices and address any shortcomings are necessary to meet the expectations of all participants.

To maintain the positive momentum observed in the study, several steps can be taken moving forward. Continuous training programs can be conducted to ensure that all workers are up-to-date with safety procedures and practices. Regular inspections and audits can be carried out to identify potential hazards and address them promptly. Encouraging worker participation in safety committees can also foster a culture of safety and ensure that their voices are heard in decision-making processes.

In conclusion, the statistical results indicate that strict safety protocols and procedures have been perceived as effective in enhancing workplace safety customs in building projects in Addis Ababa. However, addressing the concerns of a small percentage of participants and continually improving safety practices will be crucial for maintaining a safe work environment.

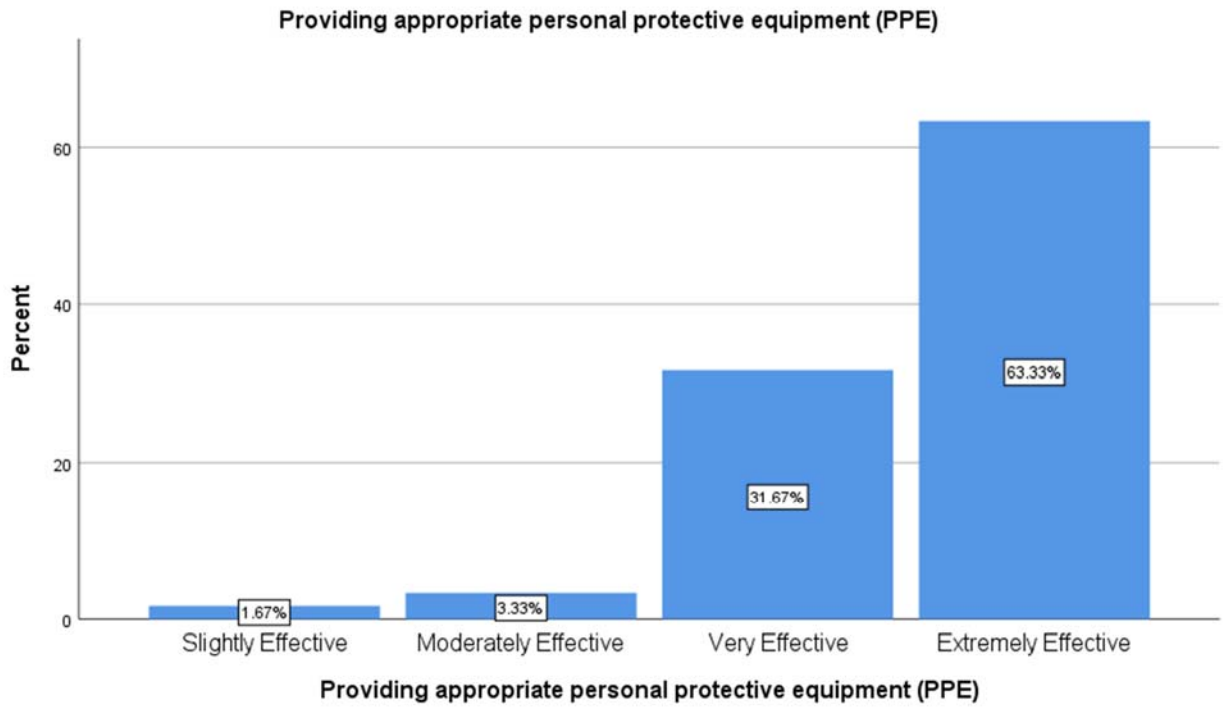

Figure 17: Providing appropriate PPE

The study on Workplace safety customs in building projects in Addis Ababa found that providing appropriate personal protective equipment (PPE) received largely positive responses from surveyed participants. Specifically, 63.3% respondents rated this measure as "extremely effective," while 31.67% found it "very effective," and 3.33% considered it "moderately effective." Only 1.67% of participants believed that this measure was "slightly effective."

These results highlight the importance of providing workers with appropriate personal protective equipment to ensure their safety in construction sites. It signifies that the provision of PPE was considered a crucial component of maintaining safe working conditions and preventing injuries or accidents.

It should also be noted that although a small percentage of participants considered this measure as moderately or slightly effective, the vast majority believed that providing appropriate PPE was a highly effective measure to improve Workplace safety customs in building projects.

Overall, the positive responses to providing appropriate PPE demonstrate its importance as a measure to enhance Workplace safety customs in building projects. To maintain these positive

results, it is necessary to continue providing workers with appropriate PPE that is well-maintained and regularly replaced. Additionally, comprehensive training programs must be implemented to ensure that workers understand how to properly use PPE and the risks associated with not using it. Finally, regular inspections must be carried out to ensure that PPE is consistently being used and any issues are addressed immediately.

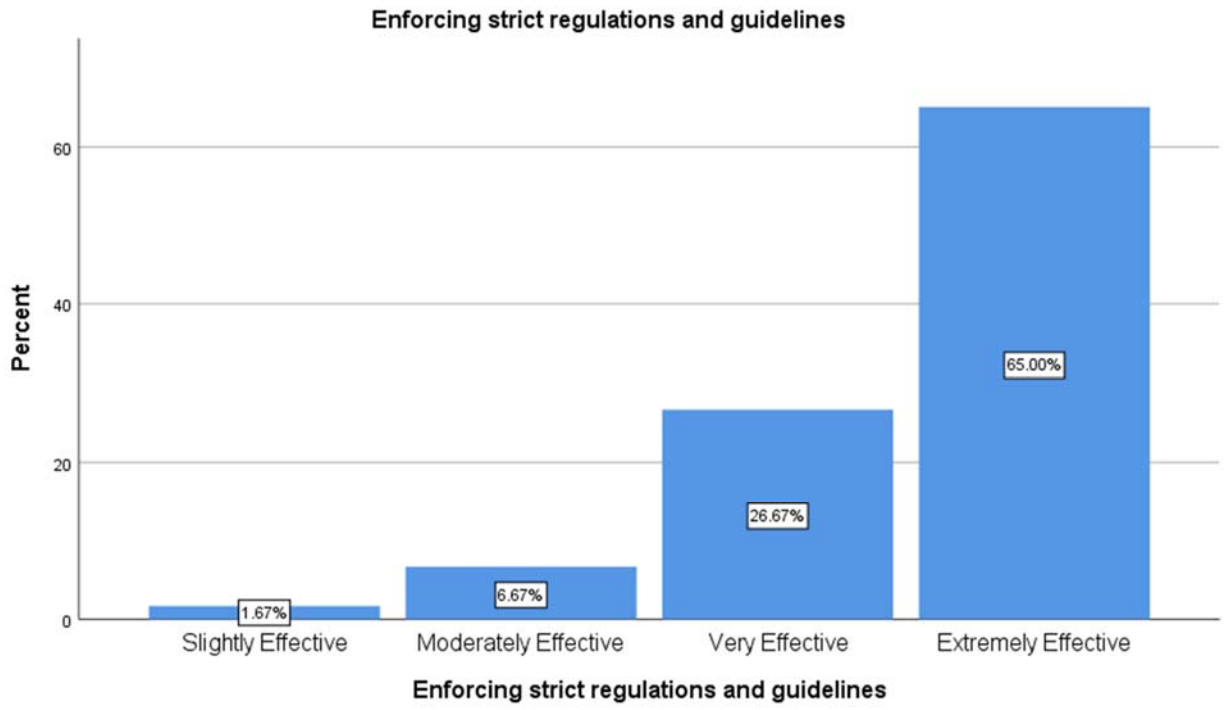

Figure 18: Enforcing strict regulations and guidelines

Enforcing strict regulations and guidelines is viewed by the majority of participants in the study as highly effective for improving Workplace safety customs in building projects in Addis Ababa. 65% of participants responded that this measure was extremely effective, while 26.67% indicated that it was very effective. This suggests that a significant proportion of participants recognize that rules and regulations are important for maintaining safety standards in the workplace.

Only a small minority of respondents (8.34%) viewed strict regulations and guidelines as only moderately or slightly effective, which is a positive indication that there is widespread agreement among participants that these measures are important for ensuring workplace safety. Overall, these

findings suggest that promoting strict protocols and enforcing appropriate personal protective equipment are effective measures for improving Workplace safety customs in construction projects in Addis Ababa.

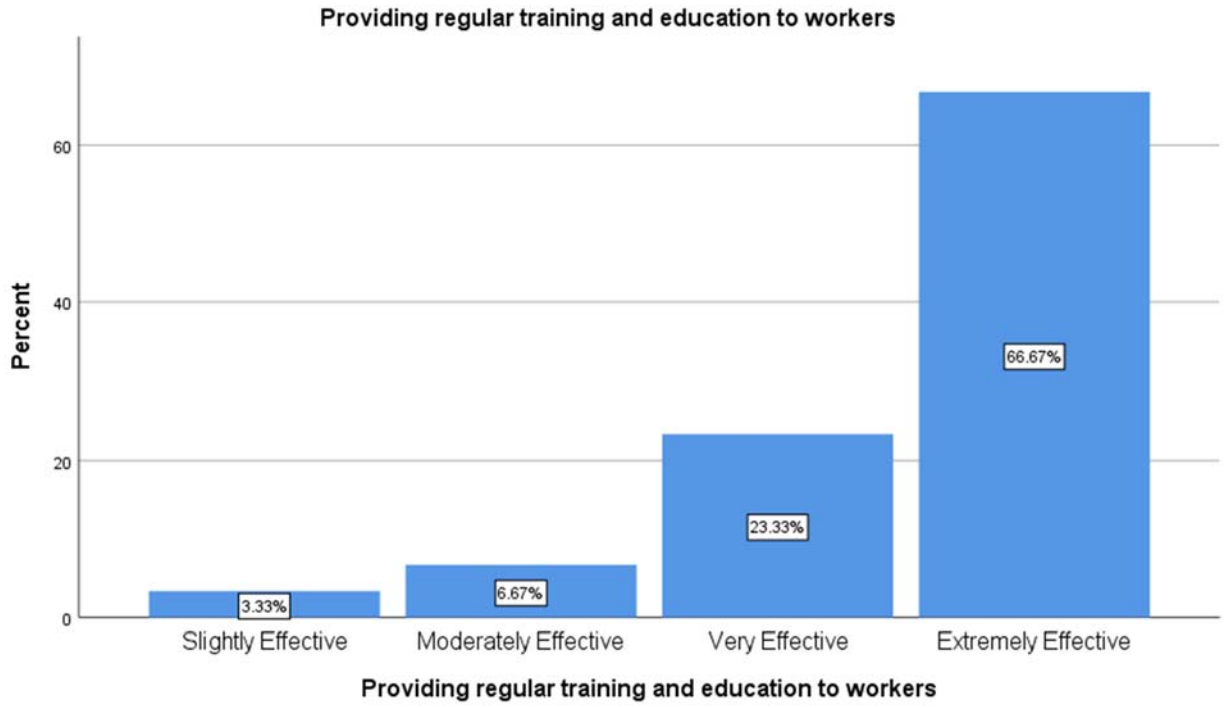

Figure 19: Providing regular training and education

Providing regular training and education to workers is viewed very positively by participants in the study on Workplace safety customs in building projects in Addis Ababa. Specifically, 66.7% of respondents indicated that this measure is extremely effective, while an additional 23.33% viewed it as very effective. This suggests that the majority of participants believe that providing ongoing education and training is important for improving the workplace safety customs of workers in construction projects.

On the other hand, only 6.67% of participants viewed regular training and education as moderately effective, while another 3.33% viewed it as slightly effective. This indicates that only a small minority of participants disagreed with the idea that providing ongoing education and training is an important measure for improving Workplace safety customs in building projects.

Overall, these findings suggest that providing regular training and education to workers is considered a highly effective measure for improving Workplace safety customs in construction projects in Addis Ababa. The high percentage of participants who found this measure extremely effective further underscores the importance of prioritizing ongoing education and training for workers in order to promote a culture of safety on construction sites.

Based on the results of the study, a table summarizing the perceptions of professional participants in building projects in Addis Ababa about the effectiveness of suggested measures in improving Workplace safety customs would be a useful visual aid. The study revealed that strict protocols, appropriate PPE, regular inspections and audits, worker participation in safety committees, and ongoing education and training are among the most effective measures to improve Workplace safety customs in construction projects. By promoting a culture of safety and ensuring compliance with regulations, workers are more likely to operate in a safe work environment where risks are minimized. Overall, the effectiveness of these measures was widely recognized by participants, making them critical aspects of building projects in Addis Ababa.

Description Measures to Improve Health and Safety Practices on Building Projects	TOTAL RESPONDENTS	Not Effective(%)	Slightly Effective(%)	Moderately Effective(%)	Very Effective(%)	Extremely Effective(%)	TOTAL
Providing regular training and education to workers	**60**	0%	3%	7%	23%	67%	**100%**
Implementing strict safety protocols and procedures	**60**	0%	2%	7%	17%	75%	**100%**
Providing appropriate personal protective equipment (PPE)	**60**	0%	2%	3%	32%	63%	**100%**
Encouraging worker participation in safety committees	**60**	0%	2%	18%	52%	28%	**100%**
Enforcing strict regulations and guidelines	**60**	0%	2%	7%	27%	65%	**100%**
Providing resources for training and education programs	**60**	0%	2%	8%	38%	52%	**100%**
Conducting regular inspections and audits	**60**	0%	2%	2%	48%	48%	**100%**
Collaborating with industry stakeholders to develop best practices	**60**	0%	3%	13%	42%	42%	**100%**
Promoting a culture of safety within the company	**60**	0%	0%	10%	43%	47%	**100%**
Providing incentives for safe behavior	**60**	2%	0%	13%	53%	32%	**100%**

Table 13: summarized response of participants on measures to improve Health and Safety Practices

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of Major Findings

The study found that the implementation of strict safety protocols and procedures was perceived as highly effective by the majority of respondents. However, there was a lack of training programs reported by more than half of the participants, highlighting the need for improvement in this area. The use of personal protective equipment (PPE) was acknowledged by over half of the respondents. Regular site inspections and the implementation of safety rules and regulations were reported by a smaller percentage of participants. Potential consequences for non-compliance included fines, license suspension, and legal action. The most common types of accidents reported were falls, followed by electrocutions, being struck by objects, and being caught in between objects. These findings emphasize the importance of enforcing safety protocols, addressing training needs, promoting PPE usage, conducting regular inspections, and highlighting the consequences of non-compliance. Prevention strategies should focus on fall prevention, electrical hazard control, object safety, and confined space safety. Overall, these findings provide insights into the current state of health and safety practices in construction projects in Addis Ababa and suggest areas for improvement.

The study also identified and analyzed challenges in implementing health and safety practices in building projects in Addis Ababa. Key findings include lack of awareness, cost considerations, limited resources, regulatory compliance, resistance to change, a risky work environment, communication barriers, cultural barriers, high turnover rates, and time constraints. Overcoming these challenges requires proactive strategies such as communication plans, cultural sensitivity training, and effective risk management programs. Addressing these challenges can enhance safety performance and ensure the sustainability of building projects in the region.

Workers generally perceive their employers prioritize safety by providing appropriate PPE, but consistent access to necessary PPEs needs improvement. Availability of first aid kits and emergency response plans exist, but concerns were raised about their adequacy. Standardization and accessibility should be improved. Some workers view strict safety protocols as rigid or impractical. Customized protocols aligned with individual needs and work processes can enhance compliance and effectiveness. Inadequate safety training leads to decreased worker confidence in

staying safe. Tailored programs addressing individual needs and promoting safety awareness are necessary. Workers feel inadequate in effectively participating in safety committees. Fostering collaboration and educating on active participation can enhance worker engagement and ownership.

These findings emphasize the need for continuous evaluation, improvement, and customization of health and safety practices in building projects in Addis Ababa. Addressing these areas can promote a safer working environment that prioritizes employee well-being and supports effective health and safety practices.

The study aimed to understand workers' perceptions of health and safety practices in building projects in Addis Ababa. The major findings revealed varying levels of compliance, with higher-grade projects generally having better safety protocols. Some sites demonstrated comprehensive safety measures such as PPE provision, worker training, clear communication channels, and first aid kits. However, other sites had deficiencies in safety practices, including a lack of PPE, inadequate enforcement, and communication channels. Adherence to safety protocols correlated with the grade level of contractors and projects. The study recommends strict regulations, regular training, worker participation, and a safety-oriented culture to ensure worker and public safety. Project and technical managers also emphasized the importance of safety protocols. Continuous evaluation and improvement in PPE, first aid kits, and emergency response plans are necessary to create a safer working environment that prioritizes employee well-being and supports effective health and safety practices in building projects in Addis Ababa.

The study revealed varying levels of compliance and positive and negative results in safety practices. Higher-grade projects generally displayed better safety protocols, while lower-grade projects had deficiencies. Some sites demonstrated comprehensive measures, while others had shortcomings such as a lack of appropriate PPE and communication channels for safety procedures. Adherence to safety protocols was closely related to the grade level of contractors and projects. Recommendations include comprehensive adherence to safety protocols, worker participation, and a culture of safety. The study emphasizes the importance of continuous evaluation and improvement, providing PPE and first aid kits, and addressing worker concerns to enhance workplace safety.

The study again found that providing appropriate personal protective equipment (PPE) received largely positive responses from surveyed participants. A majority of respondents rated this measure as extremely effective. Enforcing strict regulations and guidelines was also seen as highly effective by the majority of participants. Providing regular training and education to workers was viewed very positively and considered a highly effective measure for improving workplace safety customs. These findings highlight the importance of providing PPE, enforcing regulations, and prioritizing ongoing education and training to enhance workplace safety in construction projects. Continuous evaluation and improvement, comprehensive adherence to safety protocols, worker participation, and a culture of safety were recommended as key factors to ensure a holistic approach to workplace safety and maintain positive results.

5.2. Conclusion

In conclusion, this study sheds light on the current state of workplace safety practices in the construction industry in Addis Ababa. The findings of this study provide valuable insights into the strengths and weaknesses of safety protocols, highlighting areas that need improvement and emphasizing the importance of continuous evaluation and enhancement.

One of the major findings of this study is the varying levels of compliance with safety regulations and practices. While some construction sites demonstrated exemplary adherence to safety protocols, others fell short in implementing necessary measures. This variation in compliance underscores the need for comprehensive adherence to safety protocols for all construction projects, irrespective of their size or complexity.

The positive results observed in safety practices indicate that some construction sites have recognized the significance of prioritizing worker safety. The provision of Personal Protective Equipment (PPE), availability of first aid kits, and implementation of emergency response plans were found to be effective in safeguarding workers from potential hazards. These positive outcomes demonstrate that the implementation of safety measures can reduce the risk of accidents and ensure a safer working environment.

However, it is crucial to acknowledge the negative results identified during this study. The lack of training programs for workers and inadequate safety protocols were revealed as significant challenges within the construction industry. These shortcomings contribute to a higher likelihood of accidents and injuries on construction sites. It is imperative that construction companies invest

in training programs to educate workers about safety protocols and provide them with the necessary knowledge and skills to identify and mitigate potential hazards.

Non-compliance with safety regulations was another concerning finding. Some construction sites were found to be non-compliant with safety protocols, which not only puts workers at risk but also undermines overall workplace safety practices. It is essential for regulatory bodies to enforce safety protocols and impose penalties on non-compliant entities to ensure a culture of safety within the industry.

Regular inspections play a vital role in maintaining workplace safety standards. The study reveals that routine inspections were lacking in some construction sites, leading to potential lapses in safety procedures. Implementing a regular inspection system can help identify safety gaps and enable prompt corrective actions to be taken.

This study also draws attention to the importance of worker participation in safety practices. Involving workers in safety initiatives and decision-making processes enhances their ownership and commitment to workplace safety. Utilizing their valuable insights and experiences can contribute to the identification of potential hazards and the formulation of effective risk management strategies.

To overcome the challenges identified in this study, proactive strategies are required. Developing communication plans that foster effective dialogue between workers, supervisors, and management can facilitate the dissemination of safety information and ensure a shared understanding of safety protocols. Additionally, providing cultural sensitivity training can help bridge language and cultural barriers, enabling better communication and cooperation among diverse workforces.

Effective risk management programs should also be established to address potential hazards and minimize risks. Conducting thorough risk assessments before commencing any construction project can enable proactive identification and mitigation of potential hazards. This proactive approach is essential for maintaining a safe working environment.

In conclusion, this study highlights the need for continuous evaluation, improvement, and customization of health and safety practices within the construction industry in Addis Ababa. It emphasizes the importance of comprehensive adherence to safety protocols, worker participation,

and a culture of safety. The findings underscore the significance of providing adequate training programs, promoting the use of Personal Protective Equipment (PPE), conducting regular inspections, enforcing safety protocols, and addressing challenges such as non-compliance with safety regulations.

By embracing a holistic approach to workplace safety, construction companies can create a safer working environment, reduce accidents and injuries, and enhance overall productivity. It is essential for stakeholders within the construction industry to collaborate in a concerted effort to continuously improve safety practices and ensure the well-being of workers. Only through such collective action can Addis Ababa's construction industry reach its full potential while ensuring the safeguarding of its most valuable asset – its workforce.

5.3. Recommendation

Recommendations for Construction Companies:

Comprehensive Adherence to Safety Protocols: Construction companies should develop and enforce robust safety protocols that align with national and international standards. These protocols should cover a wide range of safety measures, including hazard identification, risk assessment, and control procedures.

Training and Education Programs: Companies must invest in regular safety training programs for all employees, including workers, supervisors, and management personnel. The training should focus on safe work practices, proper use of personal protective equipment (PPE), emergency response procedures, and hazard communication.

Provision of Personal Protective Equipment (PPE): Construction companies should provide adequate PPE to all workers and ensure its proper use and maintenance. This includes safety helmets, gloves, safety shoes, high-visibility vests, respirators, and eye and ear protection, among others.

Worker Participation: Encourage active participation of workers in safety committees, consultations, and decision-making processes. Workers' input can help identify potential hazards, suggest improvements in safety practices, and foster a culture of safety within the company.

Regular Safety Inspections: Conduct regular inspections to identify and rectify potential hazards. Inspection reports should be documented and shared with relevant stakeholders to ensure prompt action is taken to address any safety concerns.

Emergency Response Planning: Develop comprehensive emergency response plans that outline clear procedures for handling accidents, injuries, fires, and other emergencies. Regular drills and simulations should be conducted to ensure preparedness.

Continuous Improvement: Regularly evaluate safety practices, identify areas for improvement, and implement necessary changes. This could include periodic safety audits, incident investigations, and analysis of near-miss reports to proactively address potential risks.

Recommendations for Construction Workers:

Adherence to Safety Protocols: Construction workers should strictly follow safety protocols and guidelines set by the company. This includes wearing PPE, using safety equipment correctly, and reporting any unsafe conditions to supervisors.

Safety Training: Workers should actively participate in safety training programs provided by the company. They should stay updated on best practices, hazard identification, and emergency response procedures.

Personal Monitoring: Construction workers should take responsibility for their own safety by regularly checking their PPE, reporting defective equipment, and using equipment properly.

Reporting Unsafe Conditions: Encourage workers to report any unsafe conditions or near-miss incidents to supervisors or the designated safety committee. This will help in the identification and timely mitigation of potential hazards.

Active Engagement: Workers should actively participate in safety committees, safety drills, and safety meetings. They can contribute valuable insights and suggestions to improve workplace safety.

Recommendations for Policy:

Implement Mandatory Safety Training Programs: Introduce mandatory safety training programs for all workers in the construction industry. This training should cover key areas such as hazard identification, proper use of Personal Protective Equipment (PPE), emergency response procedures, and safe work practices. Training programs should be regularly updated to ensure that workers are equipped with the latest knowledge and skills to mitigate risks.

By implementing mandatory safety training programs, policymakers can ensure that construction workers are well-informed about potential hazards and have the necessary skills to prevent accidents and injuries. This proactive approach will greatly contribute to improving safety standards on construction sites and creating a safer working environment for all workers involved.

Additionally, policymakers should collaborate with relevant stakeholders, including industry associations, trade unions, and educational institutions, to develop standardized safety training curricula and certifications. Regular audits and inspections should be conducted to assess compliance with training requirements and ensure the effectiveness of these programs.

By prioritizing safety training, policymakers can empower workers with the knowledge and skills needed to promote a culture of safety in the construction industry, ultimately reducing workplace accidents and creating a safer work environment for all.

Recommendations for the Government of Ethiopia:

Strengthen Safety Regulations: The government should review and strengthen existing safety regulations in the construction industry. Regulations should be comprehensive, practical, and enforceable, addressing all aspects of workplace safety.

Enforcement of Safety Protocols: Authorities should enhance oversight and enforcement mechanisms to ensure construction companies comply with safety regulations. This can include regular inspections, penalties for non-compliance, and promoting a culture of safety through awareness campaigns.

Training Programs: The government should collaborate with relevant stakeholders to develop and promote training programs on workplace safety. These programs should be accessible to workers at all levels and address specific hazards related to the construction industry.

Awareness Campaigns: Launch public awareness campaigns about the importance of workplace safety in construction. Promote a culture of safety through media, workshops, and community engagement to educate workers, employers, and the general public.

Recommendations for Future Studies:

Longitudinal Studies: Conduct longitudinal studies to track the effectiveness of implemented safety measures over time. This will help assess the long-term impact and identify additional areas for improvement.

Comparative Studies: Conduct comparative studies to analyze safety practices and regulations in other countries or regions with successful safety records. Identify best practices that can be adapted to the local context.

Economic Evaluation: Conduct economic evaluations to quantify the benefits of investing in workplace safety, including reduced medical costs, improved productivity, and enhanced reputation for construction companies.

Overall, it is crucial for construction companies, workers, and the government to work collaboratively to ensure a safer working environment. Continuous evaluation, improvement, and customization of health and safety practices will create a culture of safety and prevent accidents and injuries in the construction industry.

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ANNEX 1: Questionnaire

ADDIS ABABA UNIVERSITY

School of Commerce

Department of Project Management

Dear Respondent,

Thank you for taking the time to complete this questionnaire on the "Analysis of health and safety practices in construction projects, specifically focusing on building projects in Addis Ababa", which is being used as an instrument to gather data from views of different professionals to feed a study which is being conducted as a partial fulfilment of Master of Arts in project management at Addis Ababa University, School of Commerce. Your input is valuable to the study in understanding the current state of Health and safety customs in the construction industry.

Please note that all responses will be kept strictly confidential and will only be used for research purposes. Your anonymity will be maintained throughout the study.

Your cooperation is highly appreciated and thank you for your participation.

Sincerely,

Merid Girma

Mob: +251-911553247

Email: bubumerid@gmail.com

Part One: Information about the respondent and Company

Direction: Please indicate your answer by ticking the provided box or with writing, as appropriate.

1.1. Respondent's Personal Information

1. **Sex**: Male [ ] Female [ ]

2. **Age**: 20-30 [ ] 30-40[ ] 40-50[ ] Above 50[ ]

3. **Job title/Position**: _____

4. **Education status**: Diploma [ ] Advanced Diploma [ ]

Bachelor's Degree [ ] Master's Degree [ ]

PhD [ ] Other: Please Specify_____

5**. Work Experience**:

0- 5 years [ ] 5-10 years [ ] 10- 15 years [ ]

15-20 years [ ] above 20 years [ ] Other: Please Specify_____

7**. Employment Condition**

Permanent [ ] Temporary/ Contract [ ]

1.2. Company Information

1. Name of the Organization (Optional): _____
2. Type of Organization:

   Client/Owner [ ] Contractor [ ] Consultant [ ]
3. Specific to Contractors or Consultants:

   3.1. Origin of the organization:

   Local [ ] Foreign [ ]

   3.2. Classification of the organization

   Governmental [ ] Private [ ] Other: Please Specify_____

Part Two: General Health and safety practices in building construction projects.

1. Do construction companies in Addis Ababa face challenges in implementing health and safety practices?
    a) Yes
    b) No
2. If yes, what are the major challenges faced by construction companies in implementing health and safety practices in building projects in Addis Ababa?
    a) Lack of awareness among workers
    b) Insufficient budget allocation
    c) Resistance from workers
    d) Inadequate training programs
    e) Others (please specify) _____
3. How often are health and safety training programs conducted for construction workers in Addis Ababa?
    a) Regularly
    b) Occasionally
    c) Rarely
    d) Never
4. Are there any specific safety measures that construction companies in Addis Ababa follow to ensure the safety of their workers?
    a) Yes
    b) No
5. If yes, what are the specific safety measures followed by construction companies in Addis Ababa to ensure the safety of their workers?
    a) Use of personal protective equipment (PPE)
    b) Regular site inspections
    c) Implementation of safety rules and regulations
    d) Others (please specify) _____
6. How effective are the current health and safety practices in preventing accidents and injuries in construction projects in Addis Ababa?
    a) Highly effective
    b) Moderately effective

c) Slightly effective
d) Ineffective

7. What are the consequences for construction companies that fail to adhere to health and safety regulations in Addis Ababa?
    a) Fines or penalties
    b) Suspension or revocation of license
    c) Legal action
    d) Others (please specify) _____
8. What is the role of government agencies in ensuring that construction companies follow health and safety regulations in Addis Ababa?
    a) Monitoring and inspection
    b) Enforcement of regulations
    c) Providing training programs
    d) Others (please specify) _____
9. How do construction workers perceive the importance of health and safety practices in their work environment?
    a) Very important
    b) Moderately important
    c) Slightly important
    d) Not important
10. What are the common types of accidents and injuries that occur in construction projects in Addis Ababa?
    a) Falls
    b) Electrocution
    c) Struck by objects
    d) Caught in between objects
    e) Others (please specify) _____
11. What are the existing communication channels between construction companies and their workers regarding health and safety issues in Addis Ababa?
    a) Regular safety meetings
    b) Use of safety posters and signs
    c) Safety training programs

d) Others (please specify) _____

12. Based on your experience, what strategies do you recommend for improving health and safety practices in construction projects in Addis Ababa?
    a) Increase awareness among workers
    b) Provide adequate training programs
    c) Strict enforcement of regulations
    d) Use of technology to improve safety measures
    e) Others (please specify) _____
13. Are there any cultural or social factors that affect the implementation of health and safety practices in construction projects in Addis Ababa?
    a) Yes
    b) No
14. If yes, what are the cultural or social factors that affect the implementation of health and safety practices in construction projects in Addis Ababa?
    a) Beliefs and attitudes towards safety
    b) Language barriers
    c) Lack of trust in authorities
    d) Gender stereotypes
    e) Others (please specify) _____
15. How do construction companies in Addis Ababa involve their workers in identifying and addressing health and safety issues?
    a) Regular feedback sessions
    b) Formation of safety committees
    c) Open-door policy
    d) Others (please specify) _____
16. How do construction companies in Addis Ababa ensure that subcontractors and other third-party workers follow health and safety practices?
    a) Regular inspections
    b) Signed agreements
    c) Training programs
    d) Others (please specify) _____

17. What are some effective measures that construction companies in Addis Ababa can take to improve health and safety practices on their projects?
    a) Providing regular training and education to workers
    b) Implementing strict safety protocols and procedures
    c) Providing appropriate personal protective equipment (PPE)
    d) Encouraging worker participation in safety committees
    e) Others (please specify) _____
18. How can the government of Addis Ababa support the implementation of health and safety practices in construction projects?
    a) Enforcing strict regulations and guidelines
    b) Providing resources for training and education programs
    c) Conducting regular inspections and audits
    d) Collaborating with industry stakeholders to develop best practices
    e) Others (please specify) _____
19. How can workers be empowered to take ownership of their own health and safety on construction projects in Addis Ababa?
    a) Encouraging worker participation in safety committees
    b) Providing regular training and education on safety practices
    c) Promoting a culture of safety within the company
    d) Providing incentives for safe behavior
    e) Others (please specify) _____

Part Three: Respondent's opinion towards current aspects of health and safety practices, barriers to effective implementation of health and safety practices, recommended strategies and measures in improving health and safety practices.

3.1 Please rate your perception of the following aspects of health and safety practices being in place on construction projects in Addis Ababa:

	(1=Extremely Unlikely, 2=Unlikely, 3=Neutral, 4=Likely, 5=Extremely Likely)					
		1	**2**	**3**	**4**	**5**
1	Availability of appropriate personal protective equipment (PPE)	☐	☐	☐	☐	☐
2	Adequacy of training and education on safety practices	☐	☐	☐	☐	☐
3	Implementation of strict safety protocols and procedures	☐	☐	☐	☐	☐
4	Worker participation in safety committees	☐	☐	☐	☐	☐
5	Availability of first aid kits and emergency response plans	☐	☐	☐	☐	☐

3.2 Please express your level of agreement on whether the following barriers are a significant challenge to implementing effective health and safety practices in construction projects

	(1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5= Strongly Agree)					
		1	**2**	**3**	**4**	**5**
1	Lack of awareness	☐	☐	☐	☐	☐
2	Resistance to change	☐	☐	☐	☐	☐
3	Limited resources	☐	☐	☐	☐	☐
4	Cultural barriers	☐	☐	☐	☐	☐
5	Communication barriers	☐	☐	☐	☐	☐
6	High turnover rate	☐	☐	☐	☐	☐
7	Risky work environment	☐	☐	☐	☐	☐

8	Time constraints	☐	☐	☐	☐	☐
9	Cost considerations	☐	☐	☐	☐	☐
10	Regulatory compliance	☐	☐	☐	☐	☐

3.3 Please state your level of agreement on the recommendation and effectiveness of the following strategies for improving health and safety practices in construction projects

	(1= Strongly Disagree, 2= Disagree, 3=Neutral, 4= Agree, 5= Strongly Agree)					
		1	**2**	**3**	**4**	**5**
1	Regular safety training for workers	☐	☐	☐	☐	☐
2	Enforcement of safety regulations by management	☐	☐	☐	☐	☐
3	Provision of personal protective equipment (PPE)	☐	☐	☐	☐	☐
4	Involvement of workers in identifying and reporting safety hazards	☐	☐	☐	☐	☐
5	Regular safety audits and inspections	☐	☐	☐	☐	☐
6	Collaboration between contractors and subcontractors on safety measures	☐	☐	☐	☐	☐
7	Adequate training and resources provided for emergency response procedures	☐	☐	☐	☐	☐
8	Encouragement of safety reporting and feedback from workers	☐	☐	☐	☐	☐
9	Regular review and update of safety policies and procedures	☐	☐	☐	☐	☐
10	Recognition and rewards for safe behavior and practices	☐	☐	☐	☐	☐
11	Implementation of safety committees or groups within the organization	☐	☐	☐	☐	☐
12	Investment in safety technology and equipment to improve safety measures	☐	☐	☐	☐	☐

3.4 Please rate the effectiveness of the following measures in improving health and safety practices on construction projects in Addis Ababa:

	(1= Not effective, 2= Slightly effective, 3= Moderately effective, 4= Very effective, 5= Extremely effective)					
		1	**2**	**3**	**4**	**5**
1	Providing regular training and education to workers	☐	☐	☐	☐	☐
2	Implementing strict safety protocols and procedures	☐	☐	☐	☐	☐
3	Providing appropriate personal protective equipment (PPE)	☐	☐	☐	☐	☐
4	Encouraging worker participation in safety committees	☐	☐	☐	☐	☐
5	Enforcing strict regulations and guidelines	☐	☐	☐	☐	☐
6	Providing resources for training and education programs	☐	☐	☐	☐	☐
7	Conducting regular inspections and audits	☐	☐	☐	☐	☐
8	Collaborating with industry stakeholders to develop best practices	☐	☐	☐	☐	☐
9	Promoting a culture of safety within the company	☐	☐	☐	☐	☐
10	Providing incentives for safe behavior	☐	☐	☐	☐	☐

ANNEX 2: Site Observation Checklist

Site Observation Checklist for Analysis of Health and Safety Practices in Construction Projects:

1	Are workers provided with appropriate personal protective equipment (PPE) such as hard hats, safety boots, gloves, etc.?	**YES**	**No**
2	Is the site properly marked with warning signs and barriers to indicate areas of potential danger?	☐	☐
3	Are workers trained on the safe use of machinery and equipment before operating them?	☐	☐
4	Is there a designated safety officer or supervisor responsible for monitoring and enforcing safety practices on the construction site?	☐	☐
5	Are workers regularly reminded of safety procedures through posters, safety talks, and other forms of communication?	☐	☐
6	Is there a system in place for reporting and investigating accidents, incidents, and near-misses?	☐	☐
7	Are workers involved in identifying and addressing potential hazards on the construction site?	☐	☐
8	Is there a first aid kit available on site and are workers trained on basic first aid procedures?	☐	☐
9	Are workers provided with adequate rest breaks to prevent fatigue-related accidents?	☐	☐
10	Are workers encouraged to report safety concerns without fear of retaliation?	☐	☐

ANNEX 3: Interview Questions

1. What are the major challenges faced by construction companies in implementing health and safety practices in Addis Ababa?

2. How do you think these challenges can be addressed to improve health and safety practices in construction projects?

3. What measures are currently in place to ensure that workers are provided with appropriate personal protective equipment (PPE)?

4. Are workers trained on the safe use of machinery and equipment before operating them? If yes, what is the training process like?

5. How does the company monitor and enforce safety practices on the construction site? Is there a designated safety officer or supervisor responsible for this?

6. Are workers involved in identifying and addressing potential hazards on the construction site? If yes, how is this done?

ANNEX 4: Time and Budget Schedule

TASK	TIME FRAME	BUDGET
Develop survey questions	1 Week	2500 ETB
Recruit survey participants	2 Weeks	1500 ETB
Administer survey	1 Week	1000 ETB
Data Analysis	4 Weeks	1150 ETB
Report writing	2 Weeks	500 ETB
Presentation of findings	2 Weeks	500 ETB
TOTAL	**12 Weeks**	**7150 ETB**

Table 14: Time and Budget Schedule