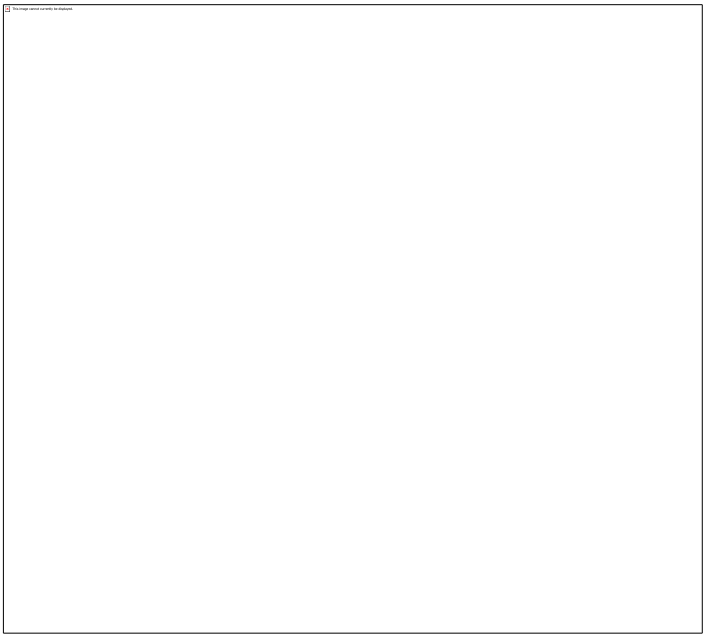
BINDURA UNIVERSITY OF SCIENCE EDUCATION

DEPARTMENT OF ENVIRONMENTAL SCIENCE

ASSESSING THE CAUSES AND RISK FACTORS OF OCCUPATIONAL ACCIDENTS AMONG PROBRANDS PRIVATE LIMITED EMPLOYEES.



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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE BACHELOR OF SCIENCE HONOURS DEGREE IN SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT.

30 June 2025

DEDICATION

I dedicate this research project to my beloved parents, brothers, and sisters in the Mutadza family.

DECLARATION

To be compiled by the student

Registration number B212161B

I Anesu T Mutadza do hereby declare that this work-related project is my original work and has not been submitted before. All the information derived from other sources is indicated in the project.

Signature of the student:  Date: 30 June 2025

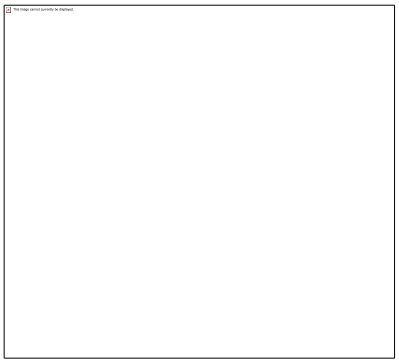
To be compiled by the supervisor

This dissertation is suitable for submission to the faculty and has been checked for conformity with the faculty guidelines.

Signature of the supervisor  Date…30 June 2025.

Signature of faculty chairperson…  ……

Date 30/06/2025



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I also want to thank the Mutadza family for their financial and social support. My siblings Passion Mutadza and Princess Mutadza provided support and encouraged me.

ABSTRACT

Occupational accidents remain a pressing issue in the manufacturing sector, particularly in developing countries where safety systems are often under-resourced or inconsistently enforced. This study investigated the causes and risk factors of occupational accidents among employees at Probrands Private Limited, a manufacturing company in Zimbabwe. The research aimed to assess the prevalence and types of occupational accidents, identify their underlying causes, and explore environmental and organizational risk factors contributing to workplace injuries. A mixed methods approach was employed to combine quantitative data from 30 structured questionnaires and qualitative insights from interviews with 10 departmental heads. Data analysis involved descriptive statistics and thematic analysis. The findings revealed a moderate but concerning prevalence of accidents, with 56.7% of employees reporting personal experience of a workplace incident and many having witnessed injuries among colleagues. Slips, burns, machinery-related injuries, and cuts were the most commonly reported accidents, particularly in labour-intensive units such as Production and Engineering. Core causes identified included poor supervision, insufficient training, faulty equipment, and the neglect of safety protocols. Environmental risk factors such as slippery floors, poor lighting, excessive noise, and heat contributed to the occupational accidents. The study also found that young, inexperienced, and temporary employees were especially vulnerable to injury. Notably, underreporting of workplace accidents was common due to fear of reprisal and a lack of trust in existing reporting systems. While safety policies are in place, their enforcement was found to be inconsistent, contributing to a passive safety culture within the organisation. The study recommends enhancing safety training tailored to employee educational levels, improving equipment maintenance, strengthening supervision, promoting a just reporting culture, and investing in safer physical work environments. These measures are essential for shifting from a compliance-based model to a proactive safety culture that protects the wellbeing of all employees.

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LIST OF ABBREVIATION AND ACRONYMS

HR : Human Resource

SHEQ : Safety Health Environment and Quality

NSSA : National Social Security Authority

SHE : Safety, Health, and Environment

QC : Quality Control

CHAPTER ONE: INTRODUCTION

1.1 INTRODUCTION

This section explores the workplace safety context at Probrands, emphasising the significance of occupational health in the manufacturing industry. It discusses global and local patterns of workplace accidents, highlighting the need to understand their causes and risk factors. By examining these issues, this study aims to inform strategies for improving employee safety and reducing operational risks.

1.2 BACKGROUND OF THE STUDY

Every year, a significant number of people die, and many are mostly affected by work-related accidents (Ahmad et al., 2020). Moreover, this is mostly common in developing and underdeveloped countries. According to Arachchige (2023), occupational accidents are unplanned events that cause damage to property and loss of lives. In addition, occupational accidents in food manufacturing industries like Probrands are mostly caused by physical, biological, mechanical, psychosocial, chemical, ergonomic and electrical hazards (Geller, 2021). This research aims to assess the specific causes and risk factors contributing to occupational accidents among employees at Probrands Private Limited, a food manufacturing company. Neal and Griffin (2020) state, it is crucial to understand these factors because it is used in developing targeted interventions and preventative measures to minimise the occurrence of accidents and foster a safer working environment for all Probrands employees. This study will explore potential contributing factors such as equipment malfunctions, unsafe work practices, inadequate training, and environmental conditions, ultimately seeking to identify areas for improvement in Probrands' safety protocols and practices.

Ghasemi et al, (2021) stated that physical and environmental hazards, organisational culture and employee attitudes play a pivotal role in fostering workplace safety outcomes. Research indicates that a strong safety culture where management commitment, free rights to communicate, and employee involvement in safety decisions are prioritised can significantly reduce accident rates (Fernandez et al., 2020). When workers perceive that their safety is genuinely valued by leadership,

they are more likely to comply with safety procedures, report hazards, and take part in safety training (Hinze et al., 2020). Conversely, a culture of complacency or fear of reprisal can lead to underreporting and unsafe behaviours. In manufacturing settings like Probrands, fostering a proactive safety culture is particularly vital because of the fast paced, high risk type of the work (Arachchige, 2023). Promoting regular safety briefings, employee feedback mechanisms, and a non-punitive approach to incident reporting could strengthen accountability and reinforce safe practices across departments (Cooper, 2020).

According to Ahmad (2020), each year, about 2.78 million employees killed by occupational accidents and 374 million workers experience non-fatal occupational accidents. 65 percent of occupational accidents occur in Asia, the second continent is Africa where there are 11.8 percent, followed by Europe with 11.7 percent, America has 10.9 percent, and Oceania has the least number of occupational accidents as it consists of 0.6 percent (Alruqi and Hallowell, 2020). This shows that the rate of occupational accidents differs from region to region as 100,000 workers in Africa and Asia experience occupational accidents, which are 4 to 5 times higher than those in Europe (Ghasemi et al., 2021). The 28 members of the EU stated that, in 2015, they recorded more than 3.2 million workplace accidents, which resulted in 4 days of work leave and 3876 deaths (Ghosh, 2022). In addition, most of the occupational accidents in food manufacturing industries occur in production plants where the workers work hand-to-hand with the processing machines (Alruqi and Hallowell, 2020).

Costs are incurred indirectly as lost production time and directly when the company has to pay for medical bills for the injured personnel (Taherdoost, 2020). Moreover, in some cases, the company has to pay large sums in compensation in the case that an employee gets permanent disability as a result of an injury (Beus et al., 2016). According to Schulte et al, (2021), the organisation also has a brand name to protect. Negative publicity as a result of LTIs may give the public the impression that the organisation does not care about its workforce (Hinze et al., 2020). Furthermore, to reduce injuries at work, management at Probrands has put in place safety strategies. Coming up with strategies which reduce work-related injuries is the responsibility of management (Adman et al., 2010).

LTIFR (loss time injury frequency rate) is an important indicator which is also used by many organisations to find out how well they are keeping the work environment safe for the workers, which is calculated as shown below and as adopted by (Safe Work Australia, 2023).

LTFR = n (LTI)/ number of man hours worked X 1 million.

Where n (LTI) is the number of lost time injuries.

If an organisation is performing well then the LTIFR should be less than 1 according to international standards on safety (Occupational Safety and Health Administration (OSHA), 2022). Lost Time Injury Rate (LTIR) and Lost Time Severity Rate (LTISR) are also important indicators which are used by the manufacturing plant (Safe Work Australia, 2023). According to work injury indices and experience modification rates for your workers' (Biney, 2013), keeping the number of injuries down will also help you maintain low lost days compensation.

A workplace that is free from occupational accidents is critical to ensure higher productivity (Cunningham and Sinclair, 2019). This study aims to assess the causes and risk factors contributing to occupational accidents at Probrands Pvt Ltd. Currently Probrands Pvt Ltd has a total of 150 employees. The plant workers are the ones with a high risk of being affected by occupational accidents as they are always exposed to production machines like conveyor belts, forklifts and Trolley Jacks (Taherdoost, 2020).

1.3 PROBLEM STATEMENT

Since its official launch, Probrands Pvt Ltd has struggled with a steady rise in occupational accidents. The records mention that the most frequent incidents are First Aid Cases (FAC), Medical Treatment Cases (MTC), and Road Traffic Accidents (RTA), all surpassing the National Social Security Authority (NSSA)’s acceptable Lost Time Injury Frequency Rate (LTIFR) of below 1 annually. Recorded data reveals that, in just November and December of 2018, there were 4 FACs, 3 MTCs, and 2 RTAs. The situation has worsened over the years, with 2023 recording 6 FACs, 7 MTCs, 2 RTAs, and 2 Lost Time Injury (LTI). Most of these incidents occur in areas where machinery is operated, materials are handled, and sometimes even within office settings.

Although some Occupational Safety and Health (OSH) systems are in place, accidents have continued to rise, particularly during the busy end of year months of November and December. If this challenge is not tackled, Probrands may face more employee injuries, rising insurance costs, potential penalties, reduced staff morale, and damage to its public image. This study seeks to help address the issue by identifying the underlying causes and contributing risk factors. It will offer practical recommendations such as enhanced safety training, better equipment design, improved work procedures, and a stronger safety culture aimed at lowering accident rates, supporting employee welfare, and fostering a safer, more efficient workplace at Probrands.

1.4 AIM

To investigate the causes and risk factors contributing to occupational accidents among Probrands Employees.

1.5 OBJECTIVES

1. To determine the prevalence and types of occupational accidents among Probrands employees.

2. To determine the causes of workplace accidents among Probrands employees.

3. To determine risk factors of occupational accidents among Probrands employees.

1.6 RESEARCH QUESTIONS

1. What are the primary causes of occupational accidents among Probrands employees?

2. What are the possible risk factors that contribute to occupational accidents?

3. How do workplace conditions and organisational factors influence occupational accident rates?

1.7 JUSTIFICATION

The results of this study will assist Probrands Private Limited in developing or strengthening a robust occupational safety and health management framework aimed at minimising workplace accidents, associated risks, and health hazards, ultimately safeguarding employee well being. This, in turn, is expected to enhance the company's operational efficiency through increased productivity, lower rates of absenteeism, and reduced costs related to employee compensation. These improvements will not only benefit the organization but also contribute positively to the broader community by promoting worker safety. Additionally, the research will support company

leadership in formulating a strategic approach to address and reduce the frequency of workplace incidents. Understanding the underlying causes of these accidents can help pinpoint areas where safety compliance may be lacking, enabling the implementation of corrective measures to prevent potential legal issues. Moreover, ensuring a secure working environment is likely to uplift employee morale, which can positively influence overall productivity. A commitment to workplace safety also reinforces the company's public image, thereby enhancing its competitive edge in the industry.

1.8 ASSUMPTIONS

- Probrands employees are expected to give truthful and accurate answers to the questionnaires and during interviews, reflecting their actual experiences and opinions about workplace safety. Additionally, the study assumes that Probrands' accident records are thorough and fairly depict the incidents that have happened within the business.
- It is also believed that the selected sample of workers is typical of Probrands's entire workforce, enabling the results to be extrapolated to the entire workforce.
- A meaningful evaluation of the current safety environment could be possible by the research's assumption that the risk factors and accident causes at Probrands have to remain constant throughout the data collection period.

1.9 DELIMITATIONS OF THE STUDY

Assessing the causes and risk factors for accidents among workers at Probrands, a food manufacturing company in Zimbabwe, is the focus of this study. The study has a delimitation in a way that it does not compare Probrands's safety record with that of other food manufacturing companies, nor does it examine the efficacy of particular safety interventions, even though its goal is to identify common safety issues and possible contributing factors within Probrands's operations. The research also explores how Probrands workers perceive and experience workplace safety, looking at a variety of possible risk factors associated with working conditions, employee conduct, and organisational elements. However, it does not look into the more general socioeconomic elements that could affect workplace safety in Zimbabwe's manufacturing industry overall. This may affect the research.

1.10 LIMITATIONS

The first limitation is that relying on self reported data through questionnaires may lead to biased responses, as employees may not accurately recall or truthfully report their experiences. The study may not identify all contributing factors to accidents, as some may be hidden or difficult to observe. Finally, the findings are specific to Probrands's context and may not apply to other food manufacturing companies with different procedures, safety cultures, or regulatory environments.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 2 reviews the previous studies and scholarly work related to occupational accidents, with specific emphasis on their frequency, underlying causes, and contributing risk factors. The purpose of this review is to build a solid foundation for the study by highlighting what is already known and identifying areas that require further investigation, particularly within the context of the manufacturing industry.

The chapter is organised according to the key objectives of the study. It begins by exploring available literature on how often workplace accidents occur and the types most commonly experienced by employees in industrial environments. The next section focuses on the various causes of such incidents, including factors linked to human behaviour, equipment, the work environment, and organisational systems. Lastly, the review examines known risk factors that may increase the chances of occupational accidents, for example, no training, unsafe work practices, and inadequate safety policies. By reviewing these areas, the chapter helps to justify the need for the current research and provides a framework for understanding the situation at Probrands.

2.2.1 PREVALENCE OF OCCUPATIONAL ACCIDENTS

Occupational accidents remain a significant concern worldwide, affecting millions of employees across diverse industries each year (Alangari and Alrashed, 2023). The International Labour Organisation (ILO, 2023) estimates that annually, around 2.3 million people died because of work related injuries and sicknesses, while another 340 million workplace accidents occur globally. The increase in accidents has been most pronounced in high risk operational areas like construction areas and food manufacturing plants (Johnson et al, 2023). These findings are consistent with broader international patterns, where sectors involving intensive physical labour, the operation of heavy machinery, and exposure to hazardous substances tend to report elevated accident rates (Smith et al., 2023). The data suggests that the nature of the work environment and the tasks performed play a crucial role in determining accident prevalence, emphasising the necessity for sector-specific safety protocols.

The frequency and types of occupational accidents tend to differ depending on geographic location and the industrial setting in question (Isik and Isikhan, 2024). Developing nations, in particular,

often face disproportionately high rates of workplace injuries, largely due to lax implementation of safety and health standards and insufficient investment in protective infrastructure (Alangari and Alrashed, 2023). Research conducted by Adeyemi et al. (2023) revealed that occupational accidents in Sub-Saharan Africa occur at nearly three times the rate found in more economically developed regions, illustrating a stark disparity in workplace safety conditions. In line with these findings, Gatar a food manufacturing industry in China has observed similar trends within its international operations.

Facilities located in developing or emerging markets have consistently recorded more frequent incidents compared to their counterparts in developed countries, where regulatory oversight and safety management systems tend to be more robust (Adeyemi et al, (2023). This discrepancy points to the need for tailored, context specific strategies aimed at mitigating occupational risks, especially in regions where systemic challenges hinder the implementation of global safety standards (OSHA, 2023). Addressing these gaps requires not only investment in training and equipment but also an organisational commitment to cultivating a culture of safety that transcends geographical boundaries. Layne and Pollack, 2020).

2.2.2 TYPES OF OCCUPATIONAL ACCIDENTS

Falls, slips and trips represent most common types of workplace incidents, especially at high risk sectors such as healthcare, construction and food manufacturing industries (Bell et al., 2019). These accidents often result from wet or uneven surfaces, poor housekeeping practices, or inadequate footwear. According to recent statistics from the Occupational Safety and Health Administration (OSHA, 2023), approximately one quarter 25% of all documented workplace injuries are caused by these types of incidents. With reference to Reliance infrastructure Private Limited, internal safety reports from 2024 indicate that these incidents account for nearly 30% of all recorded workplace accidents, particularly in areas such as warehouses and production floors where employees are frequently on the move. This data highlights the pressing need for improved floor maintenance, hazard identification systems, and employee awareness campaigns to mitigate the risks associated with these types of accidents.

Lockhart et al, (2011) mention that Accidents involving heavy machinery pose a substantial risk to workers, often resulting in severe injuries such as entanglements, crushing incidents, and even amputations. These risks are particularly pronounced in industrial environments where machines

are integral to daily operations. Research conducted by Johnson et al. (2023) revealed that machinery related incidents contribute to approximately 15% of all serious occupational injuries worldwide. The nature of these accidents often points to mechanical failures, insufficient machine guarding, or inadequate training, thereby emphasising the importance of regular maintenance checks, strict compliance with safety protocols, and comprehensive training for machinery operators (Afanuh and Anderson, 2022).

Occupational exposure to harmful chemicals remains a serious hazard in many industrial and laboratory environments (Cao, et al., 2024). These accidence can lead to acute health outcomes for example chemical burns and respiratory distress, as well as chronic conditions that may develop over time (VanHoy, 2023). According to the International Labour Organisation (ILO, 2023), around 10% of all workplace accidents are attributed to exposure to hazardous substances. Within many organisations worldwide, this concern is particularly evident in their chemical processing units, where improper handling practices and lapses in protective equipment usage have led to several reportable incidents. The increasing frequency of these events underscores the necessity for stricter compliance with handling procedures, the availability of appropriate personal protective equipment (PPE), and consistent employee training on chemical safety.

Incidents related to transportation, especially those involving company vehicles or logistics operations, present another significant source of occupational injuries and fatalities (Palmer, 2024). Workers engaged in driving or operating transportation equipment are constantly at risk due to factors like driver fatigue, road hazards, or mechanical failures. The National Safety Council (NSC, 2023) has reported that transportation-related accidents are responsible for approximately 20% of all workplace fatalities in the United States. At Gammon India Limited, similar challenges have been observed, particularly within the logistics division, where an uptick in accidents among delivery drivers has been documented in the past year. These findings point to the need for improved vehicle maintenance, enhanced driver training, and better route planning to ensure worker safety during transport related tasks.

Although not always classified as traditional workplace accidents, repetitive strain injuries (RSIs) are a major occupational health issue that can lead to long-term impairment if left unaddressed (Johnson et al, 2023). RSIs typically result from repetitive tasks, poor ergonomic setups, or prolonged static postures. Lee et al. (2023) conducted a study indicating that RSIs account for

approximately 10% of occupational health complaints. This trend is echoed within Probrands, where administrative personnel and assembly line workers frequently report symptoms associated with repetitive motion, such as muscle soreness, joint pain, and reduced mobility (Probrands, 2024). The persistence of these injuries highlights the importance of ergonomic interventions, such as adjustable workstations, frequent rest breaks, and job rotation, to enhance employee wellbeing (Lee et al, 2023).

2.3 CAUSES OF OCCUPATIONAL ACCIDENTS

Occupational accidents are caused by the interaction of human, organisational, and environmental factors (Guldenmund, 2020). Recent internal audits at Afcons Infrastructure Limited have shown that workplace accidents are primarily caused by unsafe practices, inadequate training, poor equipment maintenance, and lapses in supervision. These findings align with international research, which highlights the multifaceted nature of accident causation in the workplace (Hale and Hovden, 2021).

According to Lyon et al. (2018), the causes of occupational accidents can be categorised into immediate, basic, and underlying causes. Immediate causes refer to unsafe acts or conditions that directly precede an accident, such as slipping on a wet floor or operating machinery without guards. (Lyon and Popov, 2018). Basic causes include human factors like lack of skill or fatigue, as well as job factors like inadequate tools or procedures (Manuele, 2021). Underlying causes often relate to organisational deficiencies, such as lack of clear safety culture or no control from the management (Hale and Hovden, 2021).

A widely accepted theoretical framework in accident analysis is the Domino Theory of Accident Causation, developed by Heinrich in 1931 and updated in modern safety literature (Manuele, 2023). This theory posits that accidents are a result of a chain of sequential events, starting with a lack of control, which leads to basic and immediate causes, and ultimately results in injury. For instance, incidents involving entanglement in machinery at Tata Projects Limited were traced back to both inadequate machine guarding (immediate cause) and poor training (basic cause), indicating a failure in management oversight (underlying cause) (Guldenmund, 2020).

Another relevant model is Reason's Swiss Cheese Model that sees accidents as a defence failing simultaneously (Salminen, 2022). Each layer, such as training, equipment maintenance, or

supervision, has inherent weaknesses or holes (Reason, 2022). When these holes align, accidents occur. For example, a recent forklift accident at Shamva Mine occurred due to untrained operation (human error), failure to perform equipment checks (technical failure), and inadequate supervision (organisational lapse), demonstrating how multiple deficiencies can converge to cause an incident.

Globally, similar trends are observed in workplace accidents. A study conducted in the Nigerian manufacturing sector found that poor hazard identification, low compliance with safety procedures, and insufficient employee training were leading causes of workplace accidents (Adeyemi et al., 2023). In India, Kumar et al. (2022) reported that 40% of factory accidents were due to operational negligence and unsafe behaviours, often influenced by production pressures and lack of awareness.

In Brazil, Migueles and Zanini (2024) highlighted that the root causes of occupational accidents were multifaceted, involving poor communication between management and workers, substandard working conditions, and a reactive rather than proactive safety approach. These findings resonate with incidents at Pacifics' regional branches, where delayed reporting and corrective actions have exacerbated incident rates. The importance of addressing these underlying issues is crucial for improving workplace safety.

According to Roets and Folkard, (2022), behaviour based safety (BBS) theory has gained prominence in recent years. This theory posits that unsafe behaviours are the most common contributors to accidents and that modifying worker behaviour through observation, feedback, and reinforcement can reduce incident rates (Cooper, 2021). Accident causation theories such as the Domino Theory, the Swiss Cheese Model, and behaviour-based safety frameworks provide critical lenses for understanding and mitigating these incidents. To address the accidents causes requires a comprehensive, proactive safety strategy that integrates training, supervision, communication, and a strong organisational safety culture.

2.4 RISK FACTORS OF OCCUPATIONAL ACCIDENTS

Workplace accidents have a devastating impact worldwide, affecting not only the well-being of workers and their families but also the productivity of businesses and the broader social fabric (Takala et al., 2014). To reduce these accidents, it's important to understand the complex web of factors that contribute to them (Roets and Folkard., 2022) this review brings together existing

research to shed light on the key risk factors that cut across various industries and explores how individual, organizational, and environmental factors intersect to create hazardous conditions. By gaining a deeper understanding of these dynamics, we can develop targeted strategies to prevent accidents and create safer, healthier workplaces for everyone (Cooper, 2019).

2.4.1 INDIVIDUAL FACTORS

A key aspect of accident causation research involves studying individual traits and behaviours (Kwak et al., 2023). Age and experience are frequently highlighted as important factors. Younger, less experienced workers tend to have higher accident rates, often due to limited situational awareness, inadequate training, and a greater tendency to take risks (Abas et al., 2023). On the other hand, older workers may experience physical limitations and slower reaction times, which can lead to certain types of accidents (Wiciak et al., 2022). Traits like impulsivity, sensation seeking, and low conscientiousness had caused (Acosta et al., 2020). Additionally, fatigue and stress impair cognitive abilities, reaction times, and decision making, raising the chances of errors and accidents (Juhari and Arifin, 2020). Substance abuse, including alcohol and drug use, worsens these impairments, directly causing accidents and also affecting judgment and risk perception (Ahamad et al., 2023).

2.4.2 ORGANISATIONAL FACTORS

According to Arifin et al. (2021), the organisational environment plays a crucial role in determining workplace safety. They continued defining culture of safety as a shared values, beliefs, and norms regarding safety. A strong safety culture, which includes committed management, open communication, and proactive hazard identification, significantly lowers accident rates (Alruqi and Hallowell, 2020). In contrast, a weak safety culture, characterised by insufficient training, poor supervision, and lack of enforcement, heightens risks (Lin et al., 2022). Factors like workload and work pace are also vital, as excessive demands and time pressures can result in mistakes and shortcuts (Juhari and Arifin, 2020). Communication failures, such as unclear instructions, inadequate information sharing, and poor reporting systems, lead to misunderstandings and errors (Cooper, 2023). Management systems, such as safety policies, procedures, and risk assessments, are key to creating safer working environments. The lack of inadequacy of the systems increases accident likelihood (Ahamad et al., 2022). Additionally,

organisational changes like restructuring or downsizing can disrupt safety protocols and create uncertainty, thus increasing accident risks (Arifin et al. (2021).

2.4.3 ENVIRONMENTAL FACTORS

Boaye and Zhao (2023) state that, the physical work environment poses various potential hazards. Physical risks, such as slippery floors, unguarded machinery, and exposure to dangerous substances, directly contribute to accidents (Roets and Folkard, 2022). Environmental factors like extreme temperatures, noise, and inadequate lighting can reduce worker performance and raise the chances of mistakes (Bongers et al., 2023). Ergonomic issues, including repetitive tasks, awkward positions, and heavy lifting, can cause musculoskeletal disorders and heighten accident risk (Liang et al., 2022). The design and upkeep of equipment are also crucial, as faulty or poorly maintained equipment can malfunction and lead to accidents. Additionally, the industry`s nature plays a an important role in accident risk (Xia et al., 2022). Sectors with high risks, for example construction, mining, and manufacturing, lead to higher accident rates due to their inherent hazards and complex working conditions (Acosta, 2020).

3.4.4 INTERACTION AND SYSTEMIC PERSPECTIVE

According to Roets and Folkard, (2022), it is important to understand that these risk factors do not function independently. Instead, they interact in intricate ways, creating a system of interconnected influences For example, a heavy workload can lead to fatigue, which subsequently raises the chances of human error (Guldenmund, 2020). Likewise, a poor safety culture can worsen the effects of physical hazards (Alruqi and Hallowell, 2020). Contemporary accident causation theories focus on a systemic approach, acknowledging that accidents are frequently caused by the interaction of multiple factors at different system levels (Arifin et al., 2021).

CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

The chapter outlines study approaches used in carrying out the research. It gives a detailed explanation of the study area, the design of the research, the population involved, and how the sample was selected. It also describes the methods used in data collection and analysis. Finally, it outlines the timeframe within which the research activities were carried out.

3.2 STUDY AREA DESCRIPTION

This research was conducted at Probrands Private Limited Company located in the Harare Ruwa Industrial Area of Goromonzi District, within Zimbabwe's Mashonaland East Province. The company's main offices are positioned at the intersection of Hacha and Shumba Roads in Ruwa. Geographically, this location lies at approximately 17.8872° south latitude and 31.2402° east longitude. Ruwa itself is a small but growing town situated about 22 kilometres southeast of Harare, along the Harare-Mutare highway.

The figure 3.1 below shows the map of Probrands Private Limited

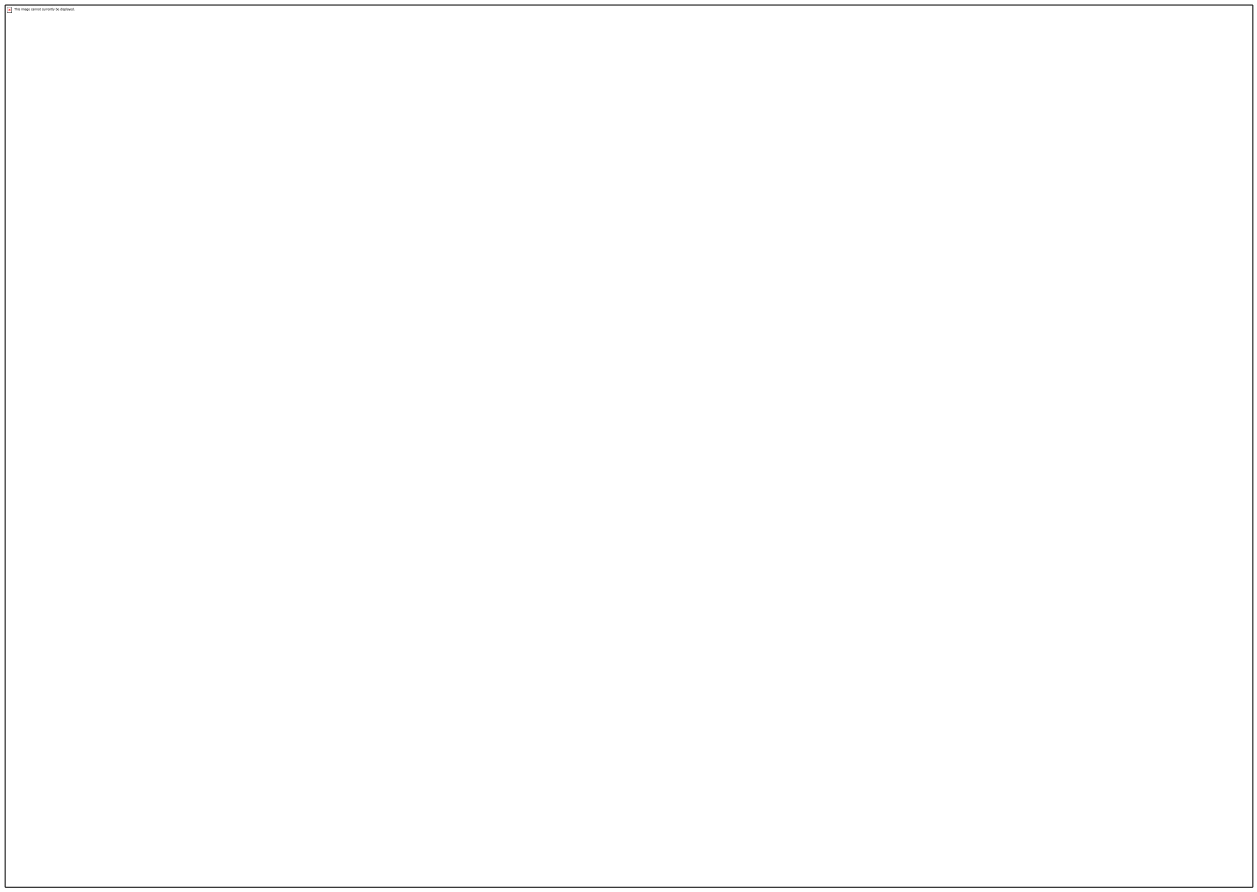


Figure 3.1: Map of Probrands Pvt Ltd Company in Ruwa, Goromonzi District.

3.3 RESEARCH DESIGN

The research combined both quantitative and qualitative approaches to ensure a deep understanding of occupational accidents among employees. Data collection tools used are structured questionnaires and structured interviews. The questionnaires consisted only of closed-ended questions and were distributed to employees across various departments. These questionnaires aimed to gather data on participants' demographic characteristics, the anticipated prevalence and types of occupational accidents, causes of occupational accidents and risk factors in the workplace.

In-depth interviews were conducted with departmental heads. This qualitative component was essential for gaining managerial perspectives and minimising potentially biased responses from employees only. Departmental leaders were selected due to their supervisory roles and familiarity with operational workflows and safety procedures. Their input will provide a broader organisational viewpoint on workplace accident trends and contributing factors.

The rationale for employing this design was to enable a detailed exploration of the study topic while ensuring the validity as well as the reliability of the findings. By integrating data from both employees and management, the study benefited from a well rounded analysis of the causes and risks associated with occupational accidents at Probrands.

3.4 STUDY POPULATION AND SAMPLE SIZE

Probrands employees were the targeted population, a food manufacturing industry located in Ruwa, within Goromonzi District of Mashonaland East Province, Zimbabwe. The company has a total workforce of 150 employees distributed across various departments, including Administration, SHEQ (Safety, Health, Environment, and Quality), Quality Assurance, Warehouse and Distribution, Finance, Engineering, Human Resources and Canteen, Sales and Marketing, Production, Procurement, and Information and Technology. Using Yamane's simplified formula for sample size (see Yamane's formulae in Appendix 1), the sample size was 30 participants as shown in Table 3.1.

A total size of 40 participants were taken from the study population. Thus 30 employees from various departments, selected to complete structured questionnaires (see questionnaire in appendix 2), and 10 departmental managers or supervisors, selected for in-depth interviews (see interview guide in appendix 3).

The 30 employees were chosen to represent a cross section of different roles and departments, ensuring a diverse range of perspectives on occupational health and safety. Meanwhile, the 10 interviews targeted managerial level staff who possess insight into departmental operations, safety protocols, and incident reporting mechanisms.

Table 3.1: Number of participants who will be used for questionnaires

Department	Population	Sample
Administration	10	3
Quality Assurance	20	2
Warehouse & Distribution	40	5
Finance	15	2
Engineering	16	2
Human Resources and Canteen	7	2
Sales & Marketing	8	3
Production	30	5
Procurement	2	2
Information Technology	2	4
Total	150	30

3.4.1 SAMPLING PROCEDURES FOR QUESTIONNAIRES

A stratified random sampling method was used to distribute questionnaires. The questionnaires were distributed to all plant workers except for managers because interviews were used for that. Employees were grouped according to their departments, and then individuals were randomly selected from each group. This approach helped ensure that different sections of the company were proportionately represented in the data collection process.

3.4.2 SAMPLING PROCEDURES FOR INTERVIEWS

Interview participants were selected using purposive sampling. Individuals such as supervisors, safety officers, and department heads were chosen based on their knowledge and involvement in workplace safety. These participants were expected to provide more detailed and informed insights on the factors that contribute to occupational accidents within the company.

3.5 DATA COLLECTION INSTRUMENTS

This research used two main tools to gather relevant data which are questionnaires and interviews. These instruments helped in collecting both numerical and descriptive information, offering a more complete view of the factors contributing to workplace accidents at Probrands. To ensure fairness and inclusivity, both male and female employees were included in the study, helping to create a sample that accurately reflects the workforce and avoids gender bias.

3.5.1 QUESTIONNAIRES

Questionnaires were created and shared with employees across different departments at Probrands. This approach was useful in gathering a wide range of opinions and experiences in a consistent and efficient questionnaire that consisted of closed-ended questions to allow for easy analysis. The questionnaire was in four segments. Section A will focus on sociodemographic information, while Section B will investigate the prevalence and types of accidents occurring at Probrands Private Limited. Section C will examine the causes of workplace accidents among Probrands employees, and Section D will explore the risk factors of occupational accidents at Probrands Private Limited.

3.5.2 INTERVIEWS

Interviews were held on supervisors and department heads. These individuals were selected due to their broad oversight of workplace activities and their involvement in safety management. Their input provided important context and depth to the study, particularly on how safety policies are applied and how accidents are handled at the management level. Interviews with management is that it enable exploration of strategic and policy related factors that may not be visible at the employee level, thus enriching the analysis of organisational safety practices. A flexible interview guide was used to ensure all key topics are covered while allowing follow up questions as needed.

3.6 STATISTICAL ANALYSIS

The data obtained from questionnaires and interviews was analysed using the Statistical Package for the Social Sciences (SPSS) version 27 for Windows. This software was used to generate descriptive statistics such as frequencies and percentages, helping to determine the prevalence and types of occupational accidents occurring at Probrands Private Limited. Through this analysis, patterns and trends in accident occurrences were identified, providing insight into the specific hazards faced by employees. Descriptive statistics were also applied to explore the underlying causes and contributing risk factors of workplace accidents among Probrands staff. The findings were presented through methods including graphs, tables, and pie charts to help everyone understand them well.

3.7 ETHICAL CONSIDERATIONS

The principles of research ethics, including confidentiality, anonymity, voluntary participation, and informed consent, were strictly adhered to ensure the well being and protection of the study participants. To obtain official permission to collect data, a letter of approval was submitted to Probrands Private Limited (see letter of approval in appendix 4). Before getting consent from each participant, the research objectives and purpose were clearly mentioned so that they understood the study. To maintain anonymity, the identities of participants were not included in the questionnaire responses or interview transcripts. It was voluntary to participate in the research Participants could decide to join the study and leave whenever they felt bothered by anything related to their role in it.

3.8 RELIABILITY AND VALIDITY

To make sure there is clarity and effectiveness of a questionnaire, a pilot test was conducted with five employees. This helped to determine whether the questions were easily understood and capable of gathering the necessary information. Additionally, respondent validation was carried out by consulting a subset of participants to confirm the accuracy of their responses. These steps aim to enhance the validity and reliability of the data collected.

3.9 RESEARCH TIMEFRAME

This research was conducted over more than 3 months. This timeline covered the planning and approval stages, data collection, analysis, and the writing of the report. Each phase of the study

was guided by a clear schedule to ensure that the research was completed on time and in an organised manner.

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION

Chapter 4 starts by providing information on the demographic profile of Probrands participants, offering context for interpreting the results. Secondly it addresses the study objectives. First section discusses how frequently occupational accidents occur among Probrands employees and identifies the common types reported. The next part explores the main causes of these incidents as experienced or observed by employees. Lastly, the chapter highlights the risk factors that may be contributing to workplace accidents, based on both employee responses and the views shared by selected key informants. To support clarity and comprehension, the findings are presented using summaries, tables, and visual aids where appropriate.

4.2: DEMOGRAPHIC CHARACTERISTICS OF RESEARCH PARTICIPANTS FOR QUESTINNAIRES

The study engaged a total of 30 employees from Probrands, whose demographic profiles provide insight into the composition of the workforce. The gender distribution revealed a clear male dominance, with 76.6% of participants being male and only 23.3% female. Age wise, the majority fell within the 26–43 age bracket (40%), followed closely by the 18–25 group (36.6%), indicating a relatively young workforce. Smaller proportions were observed in the 35–40 and 41–49 age ranges, each accounting for 10%, while only one participant (0.03%) was aged 50 and above. In terms of work experience, most employees (83.3%) had 0–15 years of service, suggesting a predominantly early to mid-career employee base. A few (13.3%) had between 16–25 years of experience, and only one individual had over 25 years. Marital status was equal making the singles 15 and married also 15. Educational attainment varied, with over half (53.3%) having completed secondary education, 30% having attained tertiary qualifications, and 16.6% having only primary-level education. These demographic patterns offer valuable context for interpreting occupational accident trends and risk factors within the organization (refer to table 4.1).

Table: 4.1: Demographic characteristics

DEMOGRAPHIC VARIABLES	CATEGORY	TOTAL NUMBER N=30	PERCENTAGES %
GENDER	Male	23	76.6
	Female	7	23.3
AGE GROUP	18-25	11	36.6
	26-43	12	40
	35-40	3	10
	41-49	3	10
	50+	1	0.03
EXPERIENCE	0-15	25	83.3
	16-25	4	13.3
	25+	1	0.03
MARITAL STATUS	Single	15	50
	Married	15	50
EDUCATIONAL LEVEL	Primary	5	16.6
	Secondary	16	53.3
	Tertiary	9	30

4.3: THE PREVALENCE AND TYPE OF OCCUPATIONAL ACCIDENTS AMONG PROBRANDS EMPLOYEES.

The analysis of occupational accident data among Probrands employees reveals a moderate prevalence of incidents in the workplace. Having a mean score of 1.57 (SD = 0.504) for workers experienced an accident, it suggests that over half of the sampled workforce has encountered such incidents. Similarly, the mean values for frequent accidents (Mean= 1.60, Standard Deviation = 0.498), witnessing injuries (Mean=1.60, Standard Deviation=0.498) further emphasise the regularity with which employees are exposed to hazardous events. Notably, the rate of reported accidents (M = 1.53, SD = 0.507) indicates a relatively lower level of formal reporting, which

could point to underreporting tendencies or a lack of trust in reporting systems. These findings are consistent with studies such as those by Gyekye and Salminen (2024), who observed the relationship between perceived safety climates as well as accident involvement in Ghanaian manufacturing settings. Moreover, similar trends have been identified in comparable industries, where high exposure to risk factors led to both experienced and observed injuries being commonplace (Kiconco & Ruhinda, 2016). The total average score across all accident indicators (M = 1.58, SD = 0.502) confirms that occupational accidents are a notable concern within the organization (refer to figure 4.2). This pattern highlights a need in improvement in safety measures, enhanced reporting mechanisms, as well as consistent enforcement in occupational health policies (Takala et al, 2017).

During interviews with department heads most departments reported experiencing minor to moderate accidents in the last year, including slips, trips, burns, lacerations, and equipment-related injuries. Departments with physical workspaces like Production, Engineering, and Warehouse experienced higher accident rates, aligning with a study carried by Ghosh et al. (2020), mentioned sectors with machinery and material handling have increased injury rates due to the nature of tasks involved. Production and Warehouse departments reported monthly incidents, while office based departments like Finance and Procurement reported infrequent occurrences (once or twice a year). These differences reinforce the view of task-specific exposure, as supported by Choudhry et al. (2023), who highlighted that job roles heavily influence accident probability.

Most departments reported accidents via incident forms submitted to SHEQ, although some managers acknowledged underreporting, especially of near misses. This underreporting trend is supported by Probst and Estrada (2022), who found that organisational culture and fear of blame reduce transparency in incident reporting.

Table 4.2: Prevalence and type of occupational accidents among Probrands employees

Descriptive Statistics

Types of occupational accidents	N	Minimum	Maximum	Mean	Std. Deviation
Experienced Accident	30	1	2	1.57	0.504
Frequent Accidents	30	1	2	1.60	0.498
Witnessed Injury	30	1	2	1.60	0.498
Reported Accident	30	1	2	1.53	0.507
Total average	30	1	2	1.58	0.502

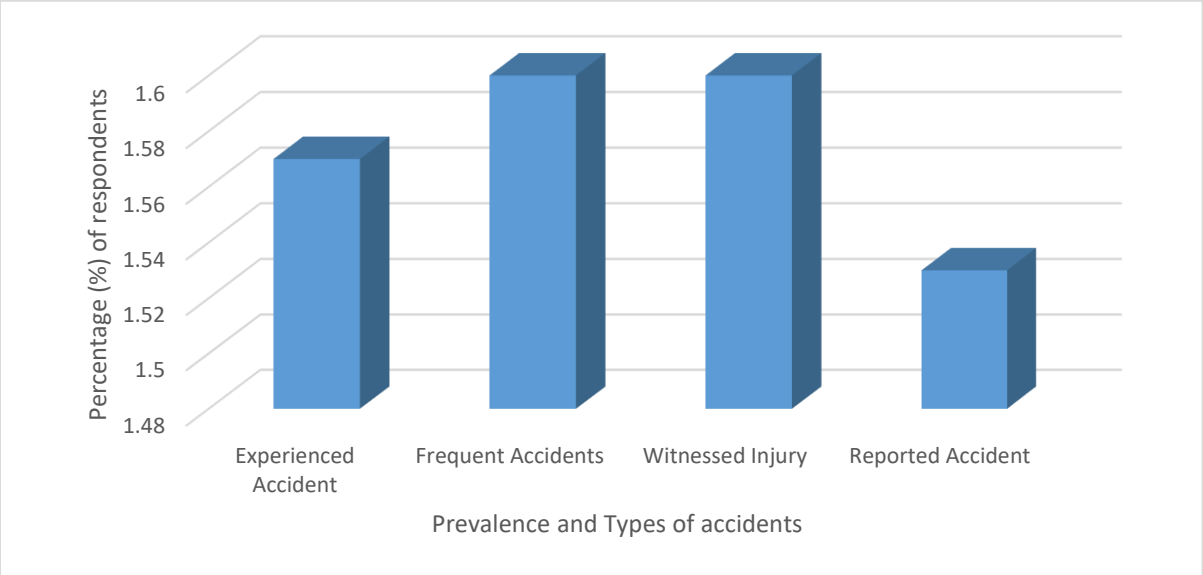


Figure 4.1: Prevalence and type of occupational accidents among Probrands employees

4.4: THE CAUSES OF WORKPLACE ACCIDENTSAMONG PROBRANDS EMPLOYEES

The findings from the analysis indicate that several factors contribute to workplace accidents among Probrands employees, with varying degrees of prevalence. The most frequently cited cause was unsafe equipment, which recorded the highest mean score (M = 1.67, SD = 0.479), suggesting that inadequately maintained or poorly designed machinery is a primary contributor to occupational incidents. The information matches the research done by Ghosh et al. (2020), which found the physical condition of workplace tools and equipment significantly affects safety outcomes in industrial settings. Poor supervision followed closely (Mean=1.63, Standard Deviation=0.490), indicating that the absence of effective oversight and monitoring may allow unsafe practices to go unchecked echoing the findings of Ali and Subramaniam (2009), who reported that supervisory commitment to safety plays a crucial role in accident prevention. Ignoring safety rules also showed a considerable mean (Mean= 1.50, Standard Deviation = 0.509), implying that employee behaviour and attitudes toward rules contribute to the risk of incidents. Meanwhile, both lack of training (M = 1.43, SD = 0.504) and fatigue (M = 1.43, SD = 0.504) were rated equally, reflecting the underlying human factors that increase vulnerability, especially when employees are not well-prepared or are physically and mentally exhausted. These results align with the work of Salminen (2023), who emphasised the relationship between worker fatigue and incident rates, as well as the importance of continuous safety training. The overall average score (M = 1.53, SD = 0.497) confirms that a combination of equipment-related, behavioural, and organisational causes contributes substantially to workplace accidents, necessitating a comprehensive safety intervention strategy (refer to figure 4.2).

The results from inteviews shows that the non-use of PPE (SHEQ, Engineering), lack of training (Production, Quality Assurance), equipment malfunction (Engineering), and poor housekeeping (Administration, Finance) were among the most cited causes. These align with the findings of Hinze and Teizer (2021), who linked accident causality to inadequate training and substandard equipment maintenance. Engineering and Production highlighted that ageing equipment, lack of preventive maintenance, and unguarded machinery contributed to serious injuries. This finding echoes Leigh (2020), who emphasised the significant risk posed by poorly maintained or obsolete machinery in industrial environments.

Fatigue, lack of focus, negligence, and in some cases, pressure to meet targets, were cited as contributors. Particularly in Sales, workers were often rushing to fulfil orders, leading to unsafe behaviour. These insights are consistent with Reason's (2020) human error theory, which states that organisational pressure and mental fatigue significantly increase accident likelihood. While all departments acknowledged having safety procedures, many indicated that they were not consistently followed due to a lack of supervision or employee complacency. Wachter et al., (2024), emphasised that having safety policies is insufficient without enforcement and employee engagement.

Table 4.3: Causes of workplace accidents among Probrands employees

Descriptive Statistics

Causes of workplace Accidents	N	Minimum	Maximum	Mean	Std. Deviation
Lack of Training	30	1	2	1.43	0.504
Ignored Safety Rules	30	1	2	1.50	0.509
Unsafe Equipment	30	1	2	1.67	0.479
Fatigue	30	1	2	1.43	0.504
Poor Supervision,	30	1	2	1.63	0.490
Total average	30	1	2	1.53	0.497

Source: own survey (2025).

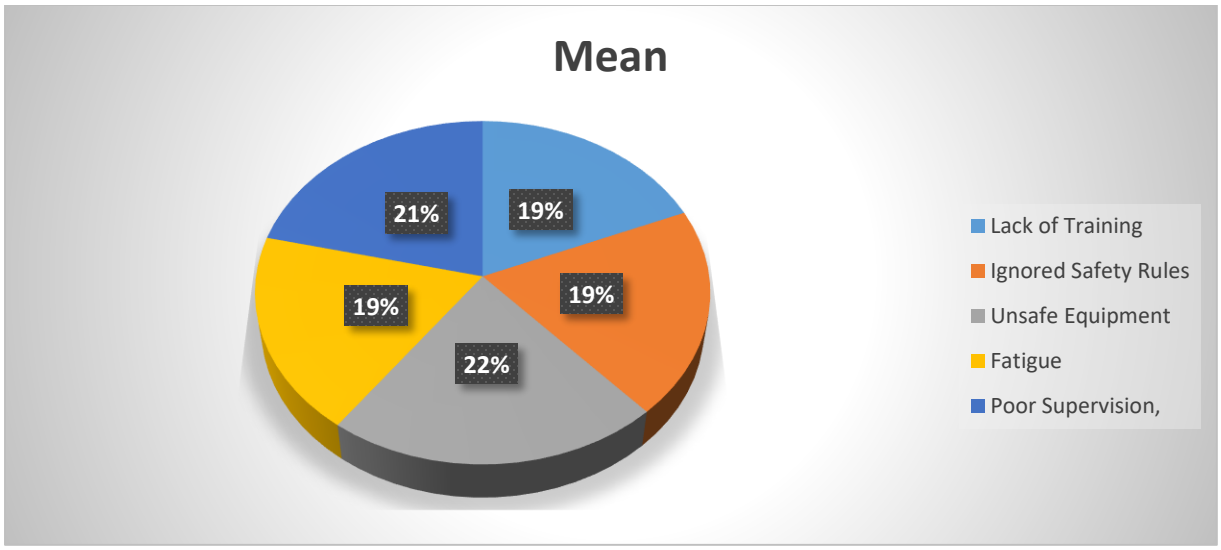


Figure 4.2: Causes of workplace accidents among Probrands employees

4.5: RISK FACTORS OF OCCUPATIONAL ACCIDENTS AMONG PROBRANDS EMPLOYEES

The data gathered from Probrands employees highlight several risk factors contributing to occupational accidents, with notable differences in their levels of influence (refer to figure 4.3). The most prominent risk factor identified was working in high risk environments, which yielded a high mean score (Mean = 1.77), that indicate, workers being frequently exposed to settings where the potential for accidents is inherently elevated. The statement aligns with a study done by Chi et al, (2022), who emphasised that high-risk physical environments significantly correlate with the likelihood of injuries in industrial workplaces. Time pressure as well as lack of PPE known as Personal Protective Equipment were both rated with equal mean values (M = 1.60), suggesting that productivity demands and inadequate safety gear contribute substantially to unsafe working conditions. These results align with the study by Lingard (2023), who reported that tight schedules often lead to the neglect of safety procedures, while improper PPE usage remains a persistent hazard across various industries. Environmental factors (M = 1.50) such as noise, temperature extremes, or poor lighting were also perceived as moderate contributors to accidents. Interestingly, the variable feel safe had the lowest mean (M = 1.47), which, while slightly lower than the others, still reflects a notable perception of safety risk among employees. This perception may mirror an underlying lack of confidence in the company's overall safety culture, a factor previously identified by Neal and Griffin (2006) as critical in determining worker behaviour and accident rates. Overall, the findings suggest that occupational accidents at Probrands are influenced by a combination of environmental exposure, operational pressures, and safety resource inadequacies, highlighting areas for targeted intervention.

Slippery floors at Finance, Human Resources and Canteen, poor lighting, excessive heat in production areas, and noisy environments were common contributors. According to Salminen et al. (2023), poor environmental conditions are leading contributors to slips, trips, and falls the most frequent workplace accidents. Departments such as Production, Sales, and Warehouse cited long hours and heavy workload as exacerbating factors for accidents. This matches the work of Folkard and Tucker (2022), who established that fatigue from extended shifts significantly impairs cognitive and motor skills.

Most managers agreed that new and temporary employees are more prone to accidents due to a lack of experience and incomplete orientation. Kinn et al. (2020) found that temporary workers are disproportionately affected by workplace injuries, primarily due to inadequate training and unfamiliarity with hazards. Some departments like Safety, Health, Environment and Quality (SHEQ) and HR which Human Resources run quarterly induction programs, but many acknowledged gaps in ongoing training, especially for low-tier staff. This supports the argument made by Mullen (2024) that training must be continuous and tailored to job-specific risks to be effective.

Table 4.4: Risk factors of occupational accidents among Probrands employees.

Descriptive Statistics

Risk factors of occupational accidents	N	Sum	Mean
High-risk Environment	30	53	1.77
Time Pressure	30	48	1.60
Lack of PPE	30	48	1.60
Environmental Factors	30	45	1.50
Feel Safe	30	44	1.47

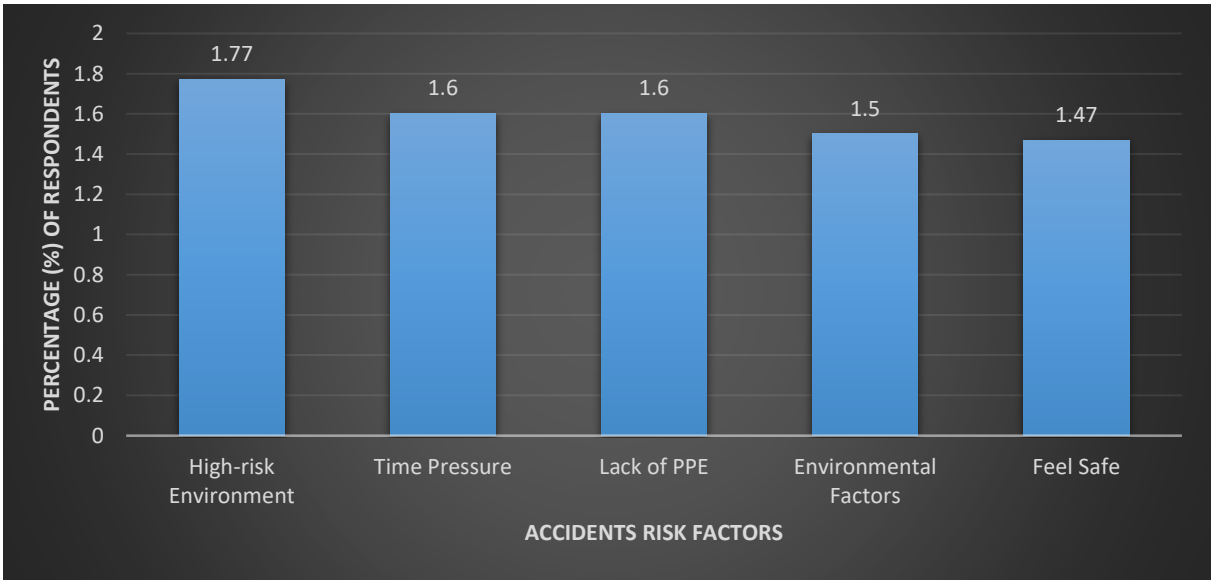


Figure 4.3: Risk factors of occupational accidents among Probrands employees

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The chapter presents an analysis of the key findings from the research, with an aim to explain their significance aligning to the study objectives. It discusses types, risk factors and prevalence of occupational accidents reported among Probrands employees, explores the underlying causes of these incidents, and examines the various factors that increase the risk of workplace injuries. The findings are examined alongside existing literature to highlight consistencies and differences, offering a deeper understanding of the occupational safety challenges faced by the organization. Through this discussion, the research aims to provide meaningful insights that inform improvements at workplace practices and safety policies.

5.2 PREVALENCE AND TYPES OF OCCUPATIONAL ACCIDENTS AMONG PROBRANDS EMPLOYEES

The results indicate a moderate but notable prevalence of occupational accidents at Probrands. Over half of the surveyed employees (56.7%) reported having experienced an accident, and the mean scores for related items such as frequency of accidents (M = 1.60) and witnessing injuries (M = 1.60) reinforce the pervasiveness of safety issues in the workplace. This frequency reflects underlying systemic vulnerabilities within the company's operational structure. Probrands operates in a manufacturing context, where physical labour, machine use, and environmental risks are inherently high. The fact that most employees are male (76.6%) and under 35 years old, with limited experience (0–15 years), also points to a young and potentially less risk aware workforce, which is more prone to accidents (Ghosh et al., 2023).

Furthermore, departmental interviews especially in the Production and Engineering units identified recurrent incidents such as slips, burns, and equipment-related injuries, supporting the quantitative findings. These injuries are consistent with what is observed globally in manufacturing (Hinze and Teizer, 2022). Kiconco and Ruhinda (2024) found similar prevalence rates in comparable Ugandan manufacturing settings, suggesting Probrands is not an outlier. However, the concern remains that injury data may be underreported, as indicated by the low mean score (M = 1.53) on the item are injuries reported? And echoed in several interviews.

Underreporting is a known barrier to occupational safety improvements. Probst and Estrada (2020) noted that fear of retaliation, lack of follow up, and an absence of trust in the system suppress reporting. This could mean the actual prevalence is even higher than reported, which seriously impacts safety planning.

5.3 CAUSES OF WORKPLACE ACCIDENTS AMONG PROBRANDS EMPLOYEES

The study reveals a complex mix of human, organisational, and technical causes of occupational accidents. Poor supervision (M = 1.63), Faulty equipment (M = 1.67), Ignored safety rules (M = 1.50), Insufficient training (M = 1.43), these values reflect a failure in both management systems and individual behaviour. These causes are not isolated. They indicate a breakdown in the safety culture of the organisation. For example, poorly supervised workers may not be held accountable for using PPE, while faulty equipment reflects gaps in maintenance protocols.

Department heads highlighted that training is irregular, especially for temporary workers. This aligns with Mullen (2019), who found that training deficiencies correlate with higher accident rates. Moreover, the finding that many employees have only secondary education (53.3%) further complicates their ability to understand technical safety guidelines, a point supported by Gyekye and Salminen (2021). Another underlying theme was time pressure and productivity demands. Sales and production managers noted that staff often skip procedures to meet targets. Lingard (2002) explained that when production is prioritised over safety, it inevitably increases the likelihood of injury. This is a classic production vs. protection conflict (Reason, 2022).

Probrands needs a more integrated safety management system where procedures are enforced, supervision is active, and training is adapted to the educational levels of workers. Otherwise, unsafe behaviours will persist despite formal rules.

5.4 RISK FACTORS OF OCCUPATIONAL ACCIDENTS AMONG PRODAIRY EMPLOYEES

Key risk factors include are, High-risk work environment (M = 1.77, Lack of PPE (M = 1.60), Time pressure (M = 1.60), Unsafe physical conditions (heat, noise, slippery floors, poor lighting). These reflect both environmental and systemic hazards, with wide implications. Manufacturing inherently involves physical risks, but the data suggests inadequate control of these risks.

Interviewees described wet floors, old machines, narrow passages, and noise. These are all known contributors to accidents (Salminen et al., 2021). The low feel safe at work score (M = 1.47) further confirms employee dissatisfaction with current conditions.

Another critical risk factor was worker vulnerability, especially among new, young, or temporary staff. Managers consistently noted that accidents were more frequent among these groups, which aligns with international findings (Kinn et al., 2023). These workers often lack familiarity with hazards, confidence to speak up, and inclusion in safety briefings. These findings suggest Probrands must rethink how it manages new and temporary employees, possibly through onboarding programs, buddy systems, and tailored safety education. Without targeted support, these workers will remain the most at risk.

Despite having safety policies, Probrands appears to suffer from a paper compliance culture rules exist, but enforcement and commitment are weak. The gap between what is written and what is practised became apparent through interviews where employees noted management's inconsistent attention to safety. Wachter and Yorio (2019) emphasised that real safety requires engaged leadership, not just written policies. Probrands' situation illustrates the classic gap between a passive safety climate (policies without practice) and an active safety culture (leadership driven engagement).

The findings have direct implications for workplace policy. Need for more rigorous enforcement and accountability. Employee training must be job specific, ongoing, and adjusted for educational levels. Safety equipment like Personal Protective Equipment (PPE) must be available, maintained, and enforced. Supervisors need to model and monitor safety behaviours. There must be an environmental investment, for example, fixing poor lighting, slippery floors, and ventilation must be prioritised.

CHAPTER SIX: CONCLUSION AND RECOMMETIONS

6.1 INTRODUCTION

This chapter summarizes the key findings of the study on the causes, risk factors and prevalence of occupational accidents among Probrands employees. It draws together the main insights from both the questionnaire responses and interviews with departmental heads, offering a clear picture of the factors contributing to workplace accidents. Based on these findings, the chapter outlines practical recommendations aimed at improving workplace safety and reducing accident risks. These suggestions are intended to guide management in strengthening health and safety measures while fostering a safer working environment for all employees.

6.2 CONCLUSION

This study examined the causes and risk factors of occupational accidents at Probrands, focusing on their prevalence, underlying causes, and contributing risk factors. It found that over half of employees had experienced or witnessed an incident, especially in labour intensive areas like Production and Warehouse. Common accidents included slips and equipment-related injuries. Contributing causes included inadequate training, faulty equipment, fatigue, and lax supervision. Risk factors such as hazardous environments, time pressure, and lack of PPE were prominent. Environmental issues like poor lighting and heat also played a role. The findings highlight that both systemic and human factors contribute to accidents, and many incidents go unreported. This underscores the need for stronger safety practices and more effective accident reporting.

6.3 RECOMMENDATIONS

Recommendation for the Employer:

- Enhance Safety Training and Awareness
- Strengthen Supervision and Enforcement of Safety Protocols
- Modernise and Maintain Equipment
- Improve Reporting Systems and Promote a Justic Culture
- Enhance Workplace Conditions
- Prioritise Safety Culture at Leadership Level

Recommendations for the Employees:

- Participate Actively in Safety Training
- Comply with Safety Protocols and Use PPE
- Report Incidents and Hazards Promptly
- Manage Fatigue and Time Pressure Responsibly

REFERENCES

Abas, A., Arifin, K., Ali, M. A. M., & Khairil, M. (2023). A systematic literature review on public participation in decision-making for local authority planning: A decade of progress and challenges. Environmental Development, 46, 100853.

Acosta, S., Garza, T., Hsu, H. Y., & Goodson, P. (2020). Assessing Quality in Systematic Literature Reviews: A Study of Novice Rater Training. SAGE Open, 10(3).

Adeyemi, A., Ogunlade, K., & Bello, T. (2023). Determinants of workplace accidents in Nigerian manufacturing firms. African Journal of Occupational Health, 11(2), 45–56.

Adeyemi, O., et al. (2023). Occupational Safety in Sub-Saharan Africa: Challenges and Solutions. Journal of Safety Research, 45(3), 123-135.

Afanuh, S., Anderson, V. P., & Bell, J. L. (2012). Slips, trips, and falls prevention for the wholesale and retail trade sector. National Institute for Occupational Safety and Health (NIOSH).

Agyekum, K., Simons, B., & Botchway, S. Y. (2023). Factors influencing the performance of safety programmes in the Ghanaian construction industry. Acta Structilia, 25(2), 39-61.

Ahamad, M. A., Arifin, K., Abas, A., Mahfudz, M., Cyio, M. B., Khairil, M., Ali, M. N., Lampe, I., & Samad, M. A. (2022). Systematic literature review on variables impacting organization's zero accident vision in occupational safety and health perspectives. Sustainability, 14(13), 7523.

Ahmad, I., Balkhyour, M. A., Abokhashabah, T. M., Ismail, I. M., & Rehan, M. (2022). Workplace safety and health conditions and facilities in small industries in Jeddah, Saudi Arabia. Journal of Safety Studies, 3(1), 37-52.

Ahmad, I., Rehan, M., Balkhyour, M. A., & Ismail, I. M. (2020). Assessment of occupational health and safety in motor vehicle repair workshops in Jeddah. Biosciences Biotechnology Research Asia, 14(3), 901-913.

Alangari & Alrashed (2023): In Saudi Arabia, falls (38%) and mechanical forces (42%) were the leading causes of workplace injuries, with the Riyadh region most affected.

Albuquerque, U. P., Ramos, M. A., de Lucena, R. F. P., & Alencar, N. L. (2019). Methods and techniques used to collect ethnobiological data. Methods and techniques in ethnobiology and ethnoecology, 15-37.

Ali, H., Abdullah, N. A. C., & Subramaniam, C. (2009). Management practice in safety culture and its influence on workplace injury: An industrial study in Malaysia. Disaster Prevention and Management: An International Journal, 18(5), 470–477.

Alruqi, W. M., & Hallowell, M. R. (2020). Critical success factors for construction safety: Review and meta-analysis of research findings. International Journal of Environmental Research and Public Health, 17(20), 7348.

Alruqi, W. M., & Hallowell, M. R. (2020). Critical success factors for construction safety: Review of recent evidence. Journal of Construction Engineering and Management, 146(7), 04020077.

Arachchige, B. J. (2023). Absence of Induction and Its Impact on the Organization. IUP Journal of Management Research, 13(2).

Arifin, K., Lui Juhari, M., Khairil, M., & Ahsan Samad Abstrak, M. (2021). Organizational factors in contributing to occupational accidents in the mass rapid transit (MRT) rail construction industry in Malaysia. Akademika, 91(2), 17–32.

Bell, J. L., Collins, J. W., Chiou, S., & Webb, S. (2019). Preventing slips, trips, and falls in the workplace. NIOSH Science Blog.

Boaye Belle, A., & Zhao, Y. (2023). Evidence-based decision-making: On the use of systematicity cases to check the compliance of reviews with reporting guidelines such as PRISMA 2020. Expert Systems with Applications, 217.

Bongers, P. M., Kremer, A. M., & Kuijer, P. P. F. M. (2023). Musculoskeletal disorders due to work: Current knowledge and future challenges. Journal of Occupational Health, 65(1), e12345.

Cagno, E., Micheli, G. J. L., Jacinto, C., & Masi, D. (2019). An interpretive model of occupational safety performance for small and Medium-sized Enterprises. International Journal of Industrial Ergonomics, 44(1), 60-74.

Cao, Y. et al. (2024). Acute and subacute chemical-induced lung injuries: HRCT findings. Radiology journal.

Chi, C. F., Chang, T. C., & Ting, H. I. (2005). Accident patterns and prevention measures for fatal occupational falls in the construction industry. Applied Ergonomics, 36(4), 391–400.

Chiwara, O. M. (2021). An evaluation of the factors affecting the growth of small and medium enterprises (SMEs) in Zimbabwe: A case study of SMEs in Harare (2009 to 2015) (Doctoral dissertation).

Choudhry, R. M., Fang, D., & Mohamed, S. (2007). The nature of safety culture: A survey of the state-of-the-art. Safety Science, 45(10), 993–1012.

Clarke, V., & Braun, V. (2013). Successful qualitative research: A practical guide for beginners. Successful qualitative research, 1-400.

Cooper, M. D. (2021). Behavioural safety: A framework for success. London: Human Performance Associates.

Cunningham, T. R., & Sinclair, R. (2020). Application of a model for delivering occupational safety and health to smaller businesses: case studies from the US. Safety Science, 71, 213-225.

Fernandez Muniz, B., Montes Peón, J. M., & Vázquez-Ordas, C. J. (2020). Safety management system: Development and validation of a multidimensional scale. Journal of Loss Prevention in the Process Industries, 64, 104062.

Folkard, S., & Tucker, P. (2003). Shift work, safety and productivity. Occupational Medicine, 53(2), 95–101.

Geller, E. S. (2021). The psychology of safety: How to improve behaviours and attitudes on the job (2nd ed.). CRC Press.

Ghasemi, F., Aghaei, H., & Rezaei, R. (2021). Investigating the relationship between safety climate and safety performance: The mediating role of safety knowledge and motivation. Safety and Health at Work, 12(2), 221–227.

Ghosh, A. K., Bhattacherjee, A., & Chau, N. (2013). Relationships of working conditions and individual characteristics to occupational injuries: A case-control study in coal miners. Journal of Occupational Health, 55(1), 66–75.

Ghosh, A. K., Bhattacherjee, A., & Chau, N. (2013). Relationships of working conditions and individual characteristics to occupational injuries: A case-control study in coal miners. Journal of Occupational Health, 55(2), 73–83.

Ghosh, R. (2022). Global trends in occupational health and safety: A review of accident statistics and safety performance. Journal of Occupational Safety and Ergonomics, 28(1), 45–53.

Guldenmund, F. W. (2020). Safety management systems: Foundations and practice. CRC Press.

Gyekye, S. A., & Salminen, S. (2009). Educational status and organisational safety climate: Does educational attainment influence workers' perceptions of workplace safety? Safety Science, 47(1), 20–28.

Hale, A. R., & Hovden, J. (2021). Management and culture: The third age of safety. In A. Hopkins (Ed.), Beyond compliance: Developing a safety culture (pp. 45–65). CCH Australia.

Hamalainen, P., Takala, J., & Kiat, T. B. (2017). Global estimates of occupational accidents and work-related illnesses 2017. Workplace Safety and Health Institute.

Hinze, J., & Teizer, J. (2011). Visibility-related fatalities related to construction equipment. Safety Science, 49(5), 709–718.

Hinze, J., Thurman, S., & Wehle, A. (2020). Leading indicators of construction safety performance. Safety Science, 113, 163–170.

International Labour Organization (ILO). (2023). A global strategy on occupational safety and health: Towards safe and healthy working environments for all.

Isik & Isikhan (2024): Trend analysis of occupational accidents (2013–2020) in Turkey: manufacturing (58.5%) vs construction (19.4%).

Johnson, P., et al. (2023). Machinery-Related Accidents in the Workplace: A Global Perspective. Safety Science, 78, 45-58.

Juhari, M. L., & Arifin, K. (2020). Validating measurement structure of materials and equipment factors model in the MRT construction industry using Confirmatory Factor Analysis. Safety Science, 131, 104905.

Kiconco, A., & Ruhinda, N. (2016). Occupational health and safety in small scale industries: A case of Uganda. International Journal of Business and Social Science, 7(3), 160–167.

Kinn, S., Khuder, S. A., Bisesi, M. S., & Whoolery, M. (2000). Evaluation of safety orientation and training programs for reducing injuries in the plumbing and pipefitting industry. Journal of Occupational and Environmental Medicine, 42(12), 1142–1147.

Kumar, R., Mehta, D., & Shah, V. (2022). An analysis of industrial accident causes in Indian factories. International Journal of Occupational Safety and Health, 12(1), 33–41.

Kwak, J., Park, J., & Kim, J. (2023). Age-related differences in occupational injury severity among Korean workers: A nationwide study. International Journal of Environmental Research and Public Health, 20(3), 2212.

Layne, L. A., & Pollack, K. M. (2004). Nonfatal occupational injuries from slips, trips, and falls among older workers treated in hospital emergency departments, United States 1998. American Journal of Industrial Medicine, 46(1), 32–41.

Lee, S., et al. (2023). Repetitive Strain Injuries in the Workplace: Causes and Prevention. Ergonomics Journal, 34(2), 89-102.

Leigh, J. P. (2011). Economic burden of occupational injury and illness in the United States. The Milbank Quarterly, 89(4), 728–772.

Liang, H., Wang, C., & Zhou, Y. (2022). Impact of ergonomic hazards on industrial safety: A systematic review. Safety Science, 149, 105729.

Lin, C. H., Hsiao, H. Y., & Yeh, Y. Y. (2022). The relationship between safety climate and safety behavior: A meta-analytic review. Safety Science, 150, 105734.

Lingard, H. (2002). The effect of first aid training on Australian construction workers' occupational health and safety motivation and risk control behavior. Journal of Safety Research, 33(2), 209–230.

Lockhart, T. E., Smith, J. L., & Woldstad, J. C. (2011). Effects of age on the biomechanics of slips and falls. Human Factors, 43(4), 671–684.

Lyon, B. K., & Popov, G. (2018). Risk assessment: A practical guide to assessing operational risks. Wiley.

Manuele, F. A. (2021). Advanced safety management: Focusing on Z10 and serious injury prevention (3rd ed.). Wiley.

Migueles, A., & Zanini, R. (2024). Organizational failures and occupational accidents in Brazilian industries. Journal of Safety Management Studies, 9(1), 21–37.

Mullen, J. (2004). Investigating factors that influence individual safety behavior at work. Journal of Safety Research, 35(3), 275–285.

National Safety Council (NSC). (2023). Transportation Accidents in the Workplace: Trends and Prevention. NSC White Paper.

Neal, A., & Griffin, M. A. (2006). A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents at the individual and group levels. Journal of Applied Psychology, 91(4), 946–953.

Neal, A., & Griffin, M. A. (2020). Safety climate and safety behavior: The role of safety motivation. Journal of Occupational Health Psychology, 25(1), 15–28.

Occupational Safety and Health Administration (OSHA). (2022). Injury and Illness Recordkeeping and Reporting Requirements.

Occupational Safety and Health Administration (OSHA). (2023). Common causes of workplace accidents.

Palmer, I. I., Odesola, A. S., & Ekpenkhio, J. E. (2024). Chemical Exposure in Workplace Environments: Assessing Health Risks and Developing Safety Measures. International Journal of Research and Innovation in Applied Science IX(XI):229-238.

Probarnds. (2024). Internal Safety and Risk Assessment Report. Unpublished company document.

Probst, T. M., & Estrada, A. X. (2010). Accident under-reporting among employees: Testing the moderating influence of psychological safety climate and supervisor enforcement of safety practices. Accident Analysis & Prevention, 42(5), 1438–1444.

Reason, J. (1997). Managing the risks of organizational accidents. Ashgate Publishing.

Reason, J. (2000). Human error: Models and management. BMJ, 320(7237), 768–770.

Roets, B., & Folkard, S. (2022). Estimating hourly work schedule risk in railway traffic controllers. Safety Science, 151, 105757.

Safe Work Australia. (2023). Measuring and reporting on work health and safety.

Salminen, S. (2004). Have young workers more injuries than older ones? An international literature review. Journal of Safety Research, 35(5), 513–521.

Salminen, S. (2022). Updated applications of Reason's Swiss Cheese Model in workplace safety. International Safety Review, 17(4), 98–109.

Salminen, S., Saari, J., Saarela, K. L., & Rasanen, T. (2004). Risk factors in fatal occupational accidents in Finland. Accident Analysis & Prevention, 24(3), 281–287.

Schulte, P. A., Bhattacharya, A., Butler, C. R., Chun, H. K., Jacklitsch, B., & Lee, E. G. (2021). Advancing the framework for employer action on work-related safety and health. Journal of Occupational and Environmental Medicine, 63(12),

Smith, D., & Thomas, R. (2023). Understanding the causes of industrial accidents: A global review. Journal of Global Occupational Health, 15(3), 88–102.

Taherdoost, H. (2020). Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in research. How to test the validation of a questionnaire/survey in a research.

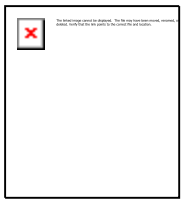
Takala, J., Hmalainen, P., Saarela, K. L., Yun, L. Y., Manickam, K., Jin, T. W., ... & Lim, S. (2014). Global estimates of the burden of injury and illness at work in 2012. Journal of Occupational and Environmental Hygiene, 11(5), 326–337.

VanHoy, T. B., Metheny, H., & Patel, B. C. (2023). Chemical Burns. In StatPearls. Updated July 17, 2023.

Wachter, J. K., & Yorio, P. L. (2014). A system of safety management practices and worker engagement for reducing and preventing accidents. Journal of Safety Research, 51, 59–68.

Wiciak, I., Buczaj, A., & Czupryna, M. (2022). Occupational accidents among young workers: Trends and contributing factors in Poland. International Journal of Occupational Safety and Ergonomics, Advance online publication.

Xia, N., Zhang, X., & Skitmore, M. (2022). Influence of equipment maintenance on accident risk in construction and manufacturing. Automation in Construction, 141, 104394.



APPENDICES

APPENDIX I: STATISTICAL FORMULAS

Yamane's Formula

$$n = n \div (1 + N \times e^2)$$

Whereas n = population size

e represents the margin of error (12%) whilst,

n denotes the sample size.

$$n = \frac{150}{1 + 150\,(0.12^2)} \qquad n \approx 30.96 \qquad n = 30$$

Hence the sample size will be 30 participants.

To make sure the sample size represents population in each department, the following formula will be used,

$$n = \frac{N\_s}{N}$$, multiply answer by n_t

Where n = sample size for the stratum (department), N_s = population size of the stratum (department), N = total population size and n_t =desired total sample size

APPENDIX II: RESEARCH QUESTIONNAIRE

My name is **ANESU TAURAI MUTADZA**. Studying Safety Health and Environment Management with the Bindura University of Science Education, researching on a topic titled ***"Assessing the causes and risk factors of occupational accidents among Probrands employees"***. Being a participant in this research is optional. I guarantee that any details you provide will be handled with the highest level of privacy and discretion. The study aims to gather insights that will help in suggesting ways to improve occupational health and safety measures and decrease frequency of accidents at Probrands Private Limited.

INSTRUCTION TO RESPONDENTS

- Make sure to tick all the boxes without writing your name on any part of the paper.

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. Gender: Male ☐ Female ☐
2. Age (years): 18-25 ☐ 26-34 ☐ 35-40 ☐ 41-49 ☐ 50+ ☐
3. Highest Education Level: Primary ☐ Secondary ☐ Tertiary ☐
4. Marital Status: Single ☐ Married ☐
5. Work Experience: 0-15 years ☐ 16-25 years ☐ 25-35 years

	SECTION B: PREVELANCE AND TYPES OF OCCUPATIONAL ACCIDENTS	
Number	**Knowledge**	**Answers**
6.	Have you ever experienced a workplace accident at Probrands?	Yes ☐ No ☐

7.	7. Do accidents happen frequently in your department?	Yes ☐ No ☐
8.	Have you witnessed a colleague getting injured at work?	Yes ☐ No ☐
9.	Have you ever reported an accident to management?	Yes ☐ No ☐
10.	Have you suffered from any of the following? (Tick all that apply) [ ] Slips or trips [ ] Machinery-related injuries [ ] Burns or chemical exposure [ ] Falling objects [ ] Cuts or lacerations [ ] None of the above	
	SECTION C: CAUSES OF WORKPLACE ACCIDENTS	
11.	Do you believe lack of training causes accidents?	Yes ☐ No ☐
12.	Do you think unsafe equipment contributes to accidents?	Yes ☐ No ☐
13.	Are safety rules and guidelines often ignored at your workplace?	Yes ☐ No ☐
14.	Do you believe fatigue or overworking leads to accidents?	Yes ☐ No ☐
15.	Do you feel that poor supervision leads to workplace incidents?	Yes ☐ No ☐
	SECTION D: RISK FACTORS OF OCCUPATIONAL ACCIDENTS	
16.	Do you work in a high-risk environment (e.g. heavy machinery, chemicals)?	Yes ☐ No ☐
17.	Do you often work under time pressure or deadlines?	Yes ☐ No ☐
18.	Do you think lack of personal protective equipment (PPE) increases risks?	Yes ☐ No ☐
19.	Do environmental factors like poor lighting and slippery floors contribute to accidents?	Yes ☐ No ☐

20.	Do you feel safe while performing your duties?	Yes ☐ No ☐

APPENDIX III: INTERVIEW GUIDE (HEADS OF DEPARTMENTS)

"Assessing the causes and risk factors of occupational accidents among Probrands employees"

My name is **ANESU TAURAI MUTADZA.** As a learner at Bindura University of Science Education, I am undertaking a research project focused on the topic mentioned above. You are welcome to answer the following interview questions. Any information you share will be used exclusively for academic purposes, and I will ensure complete confidentiality of your responses.

Department: …… Date: ……

1. Please provide a brief explanation of your company's profile

…….

…….

2. What types of occupational accidents have occurred in your department over the past year?

……

……

3. How frequently do these accidents happen?

……

4. How are accidents reported and documented in your department?

……

……

5. What are the main causes of accidents in your department?

……..

6. Do you believe equipment or machinery plays a role in these accidents? Please elaborate.

……

……

7. Are there any human factors (e.g. fatigue, negligence, lack of training) that contribute to accidents?

……

8. How effective are the current safety measures and procedures in preventing accidents?

……

9. Are there any specific environmental or physical conditions (e.g. heat, noise, slippery floors) that increase accident risks?

……

……

10. Does employee workload or shift length influence accident occurrence?

…….

…….

11. Are new or temporary employees more at risk compared to experienced staff? Why or why not?

……..

……..

12. What training or induction programs are in place to reduce accident risks?

……..

……..

Thank you very much for your involvement in this research.

APPENDIX IV: LETTER FOR DATA COLLECTION