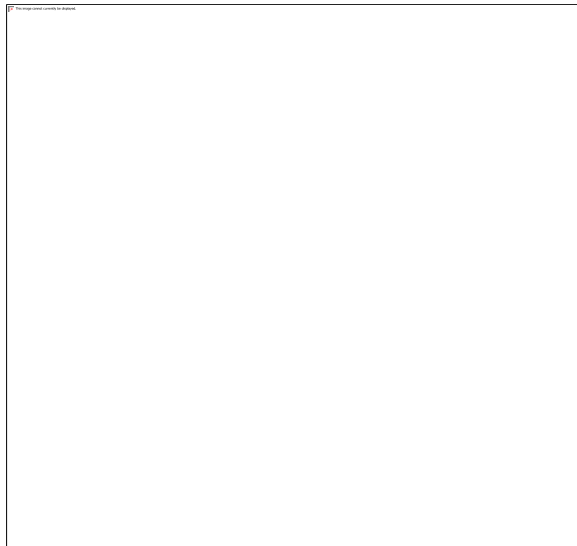


**BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF ENVIRONMENTAL SCIENCE
ASSESSING OHS RISK PERCEPTION OF WORKERS IN THE FOOD INDUSTRY: A
CASE OF BAKERS INN MANUFACTURING HARARE**



ZANELE MWANYEPEDZA

(B211696B)

***A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
OF (BACHELOR OF SCIENCE DEGREE IN SAFETY, HEALTH, AND
ENVIRONMENTAL MANAGEMENT DEGREE).***

30 JUNE

DECLARATION

I, Zanele Mwanyepedza (B211696B), do hereby declare that this research titled “Assessing OHS Risk Perception of Workers in the Food Industry, a Case of Bakers Inn Bread Manufacturing” is entirely the product of my own research and it was never used on any other academic work. All reference to previously published work has been clearly shown.

Student Name: Zanele Mwanyepedza

Student Registration Number: B211696B

Student Signature:

Date: 30 June 2025

Supervisor Signature:

Date: 07 October 2025

Department Chairman:

Date: 07 October 2025



APPROVAL FORM

The undersigned certify that they supervised the dissertation of Mwanypedza Zanele. with registration number B211696B entitled “**Assessing OHS Risk Perception of Workers in the Food Industry a Case of Bakers Inn Bakery**”. The dissertation was submitted in partial fulfilment of the requirements of the Bachelor of Science Honours Degree in Safety, Health and Environmental Management and Academic Unit at Bindura University of Science Education.

Zanele Mwanypedza

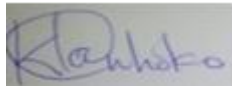
Signature



Date: 07/10/25

P. Nhokovedzo

Signature



Date: 07/10/25

DEDICATION

I dedicate this dissertation to God who gave me strength and the opportunity to reach this stage. I also dedicate this dissertation to my mother, supervisor and to all who value occupational, health and safety and environmental management.

ACKNOWLEDGEMENTS

I extend my heartfelt thanks to the Almighty God for the unwavering guidance, strength, and presence throughout the course of this research. His divine grace and wisdom have been my foundation and I remain deeply thankful for His continual support.

I am equally grateful to my supervisor, Mr Nhokovedzo, for his consistent guidance and encouragement during this academic journey. His expertise, insight, and mentorship have been instrumental in shaping my research and helping me meet my academic goals. I also appreciate the Department of Agriculture and Environmental Science for the invaluable support and motivation throughout this process.

I would like to express my sincere gratitude to Bakers Inn Bread Manufacturing for granting me the opportunity to carry out my research within their organisation. Their cooperation, openness and support during the process were critical to the success of this study, and I am truly thankful for the access and assistance they provided, not forgetting my attachment supervisor Mr M Rujuwa for the unwavering support.

Furthermore I sincerely thank my family for their enduring love and unwavering support throughout my studies and my friends whose understanding, motivation and companionship have been a vital source of strength.

ABSTRACT

This study examines Occupational Health and Safety (OHS) risk perceptions among workers at Bakers Inn Bread Manufacturing in Harare, Zimbabwe. Despite the presence of OHS training programs, incidents persist, highlighting a gap in how employees perceive workplace hazards. The study justifies the need for targeted awareness interventions by assessing the relationship between OHS risk perception and accident rates.

A mixed-methods research design was employed, combining quantitative surveys and qualitative interviews. The study population included 270 workers, with a stratified random sample of 30 participants for the survey and 10 purposively selected for interviews. Data were collected using Likert-scale questionnaires and semi-structured interviews. Quantitative data were analyzed using descriptive statistics, chi-square tests, and regression analysis, while qualitative data were subjected to thematic analysis.

Key findings indicate that overall OHS awareness is moderate, with significant variation by experience, education level, and department. Higher awareness correlated with more experience and tertiary education. Departments like Transport and IT showed high awareness, while Production and Maintenance lagged behind. Chi-square results showed statistically significant associations between awareness and demographics. Accident data revealed that departments with lower awareness such as Production and Sales recorded higher incident rates. Regression analysis confirmed a strong inverse relationship between risk perception and accident rates ($R^2 = 0.9346$), emphasizing the role of risk awareness in improving workplace safety.

TABLE OF CONTENTS

DECLARATION	i
APPROVAL FORM	ii
ACKNOWLEDGEMENTS	iv
CHAPTER 1: INTRODUCTION	1
1.1 Background information	1
1.2 Problem Statement.....	2
1.3.1 Aim	3
1.3.2 Objectives.....	3
1.4 Significance of Study	3
1.5 Research Questions	4
• What is the level of OHS risk awareness among food industry workers at Baker Inn Bread Manufacturing?	4
• How does OHS risk perception relate to workplace accident rates in the food industry?	4
1.6 Hypothesis.....	4
1.7 Assumptions.....	4
1.8 Limitations.....	5
1.9 Delimitations.....	5
• The research may be confined to a particular geographic area or region which allows for more in-depth analysis within a specific context.	5
• The study may adopt a qualitative approach to explore risk perception in depth through interviews or focus groups and this method provides rich, detailed insights,.....	5
CHAPTER 2: REVIEW OF LITERATURE	6
2.1 Introduction	6
This chapter provides a comprehensive review of the literature on occupational health and safety (OHS) risk perception, with a specific emphasis on workers in the food-manufacturing sector (Rental et al., 2022). The discussion delves into the theoretical frameworks that inform risk perception (Scarlet's, 2020), the factors shaping workers' awareness and attitudes towards OHS risks (Malik, 2023). It presents an empirical literature on OHS risk perception in the food industry, examining its determinants, its relationship with workplace accidents, and the effectiveness of interventions aimed at improving safety awareness. Furthermore, the review incorporates findings from global and regional studies and articles to identify the relationship between OHS risk perception of workers and workplace accident rates (Gory, 2019).....	6
2.2 Conceptualization of key terms	6
2.3 Theoretical framework	7
2.3.1 The Health Belief Model (HBM)	7

2.3.2 The Protection Motivation Theory (PMT).....	8
2.4 Empirical Literature Review	9
2.4.1 The Role of Risk Perception in Workplace Safety Compliance	9
Risk perception has been identified as a key determinant of safety compliance in occupational settings. Smith et al. (2021) conducted a mixed-methods study across multiple food manufacturing plants in the United States to examine the relationship between workers' risk perception and adherence to safety protocols. Their findings demonstrated that employees who perceived higher risks in their work environment were significantly more likely to follow safety regulations. This relationship was particularly evident in situations involving hazardous machinery and chemical exposure. The study highlighted that risk perception serves as a motivational factor, influencing workers to prioritize safety measures in order to prevent workplace accidents. Furthermore, Smith et al. (2021) identified several factors that shape risk perception, including previous exposure to workplace accidents, the clarity of safety communication, and the frequency of safety training programs. These findings underscore the importance of fostering risk awareness to enhance safety compliance in high-risk work environments.....	9
Jones and Brown (2022) conducted a similar investigation in Canadian food processing facilities. Using surveys and semi-structured interviews, they examined the factors influencing OHS risk perception and its effect on workers' safety behaviors. Their findings aligned with those of Smith et al. (2021), demonstrating that employees with direct experience of workplace hazards exhibited a heightened awareness of risks and a stronger commitment to safety protocols. Jones and Brown (2022) further emphasized the role of organizational culture in shaping workers' perceptions of risk, suggesting that workplaces that prioritize safety training and communication foster a more safety-conscious workforce. Their study reinforced the notion that risk perception is not solely an individual trait but is also influenced by organizational practices and cultural norms.....	9
2.4.2 Determinants of Risk Perception in the Food Industry.....	10
Several studies have examined the key determinants of OHS risk perception in the food industry. Nguyen and Tran (2022) conducted research in Vietnamese food processing facilities, focusing on demographic factors such as age, gender, and education level. Their findings indicated that younger employees and those with higher education levels demonstrated a more accurate understanding of workplace risks. Notably, female workers exhibited higher risk perception than their male counterparts, a trend that has also been observed in previous studies (Kim, Park, & Kang, 2018). These findings suggest that risk perception varies among individuals based on demographic characteristics, highlighting the need for customized safety training initiatives tailored to different worker groups.	10
Handoko et al. (2022) explored how employment status influences OHS risk perception, comparing permanent and temporary employees in Indonesian food manufacturing plants. Their research revealed that permanent workers exhibited a higher level of risk awareness than their temporary counterparts, primarily due to their longer exposure to workplace hazards and more comprehensive training. Conversely, temporary workers often lacked sufficient safety training and familiarity with their work environment, leading to lower levels of risk perception. This study emphasized the necessity of targeted safety training programs for temporary employees to bridge this gap in risk awareness and ensure overall workplace safety.	10
Chen et al. (2023) investigated OHS risk perception among workers in small and medium-sized enterprises (SMEs) in China's food industry. Their findings indicated that employees in SMEs exhibited lower risk awareness compared to those in larger organizations, primarily due to limited safety training and resource constraints. This study highlighted the critical role of	

financial and organizational support in fostering a strong safety culture, suggesting that smaller businesses require tailored safety interventions to improve risk perception and compliance with safety protocols.	10
2.4.3 Relationship between Risk Perception and Workplace Accidents	11
Several studies have directly examined the correlation between workers' risk perception and workplace accident rates in the food industry. Garcia et al. (2020) conducted a study in Spanish food manufacturing facilities, assessing the impact of risk perception on the frequency of occupational accidents. Their findings revealed that workers with lower risk perception were significantly more likely to be involved in workplace accidents. The study concluded that poor risk awareness often leads to unsafe work practices, increasing the likelihood of accidents. Furthermore, Garcia et al. (2020) emphasized the importance of effective safety communication and structured training programs in enhancing risk perception and reducing accident rates.....	11
Kim and Park (2021) investigated similar themes in the South Korean food industry, examining the relationship between workers' awareness of risks and their adherence to safety protocols. Their findings corroborated those of Garcia et al. (2020), demonstrating that workers with a heightened perception of risk were more likely to engage in protective behaviors, such as wearing personal protective equipment (PPE) and following safety guidelines. The study underscored the role of clear and consistent risk communication in improving workers' understanding of hazards and fostering a safety-oriented workplace culture.	11
2.4.4 The Impact of Safety Training on Risk Perception and Compliance	11
Training interventions have been widely recognized as effective tools for improving workers' risk perception and safety compliance. Williams et al. (2023) in an article examined the impact of targeted safety training programs in the United Kingdom's food manufacturing sector. Their study found that comprehensive training significantly improved employees' hazard awareness and adherence to OHS protocols. Regular and detailed training sessions, particularly those incorporating practical demonstrations and interactive components, were identified as the most effective in enhancing risk perception. The study also emphasized the importance of continuous training and refresher courses to sustain high levels of safety compliance over time.	11
Similarly, Madaleno and Sousa-Uva (2021) investigated the cognitive and emotional components of risk perception among employees at a Portuguese health education and research institution. Their findings indicated that workers with higher risk awareness were more proactive in implementing preventive measures, reducing the prevalence of work-related illnesses. The study reinforced the importance of ongoing education and training in sustaining elevated levels of risk perception, emphasizing that workers with greater safety awareness exhibit lower tolerance for workplace hazards.....	12
2.5 Research Gaps.....	12
Despite extensive research on occupational health and safety (OHS) risk perception and its relationship with workplace accidents in the food industry, several critical gaps remain unaddressed. While previous studies have provided valuable insights into factors influencing risk perception and the impact of training on safety compliance, there are notable limitations that present opportunities for further investigation. These research gaps highlight areas that require deeper exploration to enhance workplace safety interventions and policy development.	12
Most studies on OHS risk perception have been conducted in broad occupational settings or specific regions, but there is a lack of comprehensive, industry-specific research focused exclusively on food industry workers. Studies such as those by Smith et al. (2021), Jones and Brown (2022), and Garcia et al. (2020) provide general insights into OHS risk perception but do not deeply analyze the unique hazards specific to the food industry, such as biological risks,	

ergonomic strain, and contamination threats. Additionally, research in the food industry often focuses on compliance with regulations rather than workers' subjective perception of risks, which is a crucial determinant of safety behavior. This study seeks to bridge this gap by assessing OHS risk perception specifically within food manufacturing and processing environments.	12
Although numerous studies have examined risk perception and workplace accidents separately, few have empirically tested the direct relationship between these two variables in the food industry. Garcia et al. (2020) suggested a correlation between low risk perception and high accident rates, but their study was limited in establishing causality due to methodological constraints. Similarly, Kim and Park (2021) highlighted the role of risk perception in promoting safer behaviors but did not statistically analyze its direct impact on accident frequency. This research aims to fill this gap by providing empirical evidence on how variations in workers' risk perception influence the actual occurrence of workplace accidents in the food sector.	13
While studies such as those by Jones and Brown (2022) and Handoko et al. (2022) have explored factors shaping risk perception, there is limited understanding of how organizational culture and management practices influence workers' risk awareness and accident prevention strategies in the food industry. Existing research acknowledges that safety training and communication play a role in shaping risk perception, but there is little investigation into how management attitudes, enforcement of safety policies, and workplace incentives contribute to shaping employees' risk perceptions and compliance behaviors. This study will explore how `organizational culture mediates the relationship between OHS risk perception and workplace accidents.	13
Conclusion	13
Despite the extensive body of research on OHS risk perception and workplace accidents, significant gaps remain in understanding these issues within the food industry. There is a lack of industry specific studies that comprehensively assess risk perception, particularly in relation to accident rates. Additionally, the role of organizational culture, employment status, safety training effectiveness and psychological factors in shaping risk perception remains underexplored. Addressing these research gaps will provide valuable insights into improving safety awareness and reducing occupational accidents in the food industry. This study aims to bridge these gaps by conducting an in-depth analysis of OHS risk perception among food industry workers and examining its direct impact on workplace safety outcomes.....	13
CHAPTER 3: METHODOLOGY	14
3. Introduction	14
3.1 Research Philosophy	14
3.1.2 Study Area	15
3.2 Research Approach	16
3.3 Research strategy.....	17
3.4 Research choices and design	17
3.5 Time horizon	18
3.6 Techniques and Procedures.....	18
3.6.1 Sampling Strategy and Participants	19
3.6.2 Data Collection Tools for the quantitative study component	19
3.6.3 Data collection procedure.....	20
3.6.4 Data analysis	20

3.6.5 Data Collection Tools for the qualitative study component.....	20
3.6.6 Data collection procedure.....	21
3.6.7 Data analysis	22
3.6.8 Trustworthiness	22
3.7 Ethical considerations	23
3.8 SUMMARY	24
Chapter 4: Results	26
4.1 Introduction	26
4.2 Demographic features of respondents among the industry workers	26
4.3 OHS Risk Awareness level against the demographic features of Respondents (Objective 1) 28	
4.4 Correlation of Risk Awareness/Perception and Demographic Features	29
Accident Trends and OHS Awareness (Objective 2)	30
4.6 Risk Perception vs. Accident Rates	32
4.7 Thematic analysis of Interview responses on OHS Risk awareness.....	33
4.8 Chapter Summary	34
CHAPTER 5: DISCUSSION.....	36
5.1 Introduction	36
5.2 Demographic profile of respondents and its influence on OHS risk awareness.....	36
5.3 Level of OHS risk awareness among food workers.....	36
5.4 Relationship between demographic features and safety awareness.....	37
5.5 Departmental differences in safety awareness and their impact on accident trends	37
5.6 Chapter Summary	38
CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS.....	39
6.1 Introduction	39
6.2 Summary of the Study	39
6.3 Conclusions	39
6.4 Recommendations	40
6.4.1 Implement Continuous and Targeted Safety Training Programs.....	40
6.4.2 Foster a Safety-Driven Organizational Culture	40
6.4.3 Tailor Safety Interventions by Department	41
6.4.4 Enhance Hazard Perception and Reporting	41
6.4.5 Monitor and Evaluate Safety Performance.....	41
6.5 Areas of Further Study	41
REFERENCES.....	42



	Bag 1020	BINDURA, Zimbabwe.....	45
BINDURA UNIVERSITY OF SCIENCE EDUCATION			45

LIST OF FIGURES

Figure 1 Study Map: Bakers Inn Bread Map Location.....	21
Figure 2 Convergent Design	24

Figure 3: Annual analysis of accidents	39
Figure 4: Correlation analysis between risk perception and accidents rates	39

LIST OF TABLES

Table 1 Respondents per department	19
Table 2: Gender Ratio	33

Table 3: Age range and Gender analysis	33
Table 4: Analysis of experiences among respondents	34
Table 5: Analysis of education levels among respondents	34
Table 6: Analysis of awareness levels among respondents	35
Table 7: Analysis of awareness level and experience relationship.....	36
Table 8: Analysis of awareness level and educational level relationship	37
Table 9: Analysis of awareness level and department relationship	37
Table 10: ANOVA results	38
Table 11: Accident Distribution by Department (2022-2025).....	39

LIST OF ACRONYMS AND ABBREVIATIONS

OHS – Occupational Health and Safety

ILO – International Labour Organization

GDP – Gross Domestic Product

NSSA – National Social Security Authority

ZNOSH – Zimbabwe National Occupational Safety and Health Policy

SOPs – Standard Operating Procedures

OSHA – Occupational Safety and Health Administration

NIOH – National Institute for Occupational Health

BIBM – Bakers Inn Bread Manufacturing

HBM – Health Belief Model

PPE – Personal Protective Equipment

PMT – Protection Motivation Theory

SMEs – Small and Medium Enterprises

IT – Information Technology

SD – Standard Deviation

ANOVA – Analysis of Variance

CHAPTER 1: INTRODUCTION

1.1 Background information

Occupational Health and Safety (OHS) remain critical global concerns, with approximately 2.3 million individuals dying annually due to work-related incidents (ILO 2020). Around 340 million occupational accidents and 160 million cases of work-related illnesses occur worldwide each year (ILO, 2020). Estimates indicate that workplace fatalities have risen to 2.9 million deaths annually, accounting for 5.4% of global GDP losses (Hämäläinen, Takala, & Kiat, 2019). Furthermore, studies indicate that human factors contribute to 88% of workplace accidents, whereas mechanical or physical conditions, including machinery-related incidents and hazardous environments, account for 10% (Silva, J. D. S. 2022). Despite increased emphasis on workplace safety in many countries, accident rates remain alarmingly high (Frontiers. Public Health, 2022).

In Zimbabwe, the situation is particularly alarming with an average of 4,921 occupational injuries and 77 fatalities reported annually, costing approximately USD 9,419,691.20 per year, or 0.054% of the country's GDP (NSSA Zimbabwe, 2019; Elingah .Y. Magada, 2019). These statistics underscore the pressing need for effective OHS interventions (NSSA 2024, J.Moyo, 2024). Despite the implementation of policies like the ZNOSHP in Zimbabwe in 2014, challenges persist. Economic constraints often lead to cost-cutting measures that compromise safety, such as inadequate equipment maintenance and insufficient safety training (Mohammadfam et al., 2022). Additionally underreporting of workplace injuries, driven by fears of job loss or retaliation, results in inaccurate data and hampers the development of effective preventive measures (Alamgir et al., 2023).

Therefore, looking at the continuous rise in OHS accidents globally and nationally, recent studies have highlighted the importance of risk perception in shaping OHS outcomes. For instance, research conducted among school food service workers in Bahia, Brazil (J.S Ferreira, 2022), revealed that continuous education programs significantly enhance workers' awareness and perception of occupational hazards. The study found that many workers lacked training on occupational risks, underscoring the need for ongoing educational initiatives to improve safety practices (Santos et al., 2022). Similarly, a study assessing workers' perceptions of occupational and environmental risks emphasized the role of the psychometric paradigm in understanding how workers evaluate and respond to various hazards (Antonia Cangiano, Vincenzo Fuccillo, 2024). This approach aids in identifying gaps in risk awareness and developing targeted

interventions to mitigate OHS accidents, injuries and fatalities that continue at rise (Giorgi et al., 2022).

Despite these insights and a growing body of literature examining occupational risk perception, there remains a paucity of research specifically focusing on OHS risk perception of workers within the food industry sector (Renato Puppini Zandonadi, 2022). Much of the existing literature addresses general safety concerns or focuses on other sectors, leaving a gap in understanding the unique perceptions and challenges faced by food industry workers (Heesup Han, 2022). A significant gap in the existing literature that is concerning is the lack of research focusing on OHS risk perception within Zimbabwe's food industry. Therefore, this study aims to fill this gap by assessing the OHS risk perceptions of workers in Zimbabwe's food industry, providing insights that can inform policy and improve workplace safety ultimately enhancing worker safety and health outcomes in this critical sector, thereby reducing the numbers of OHS accidents that continuously keep on rise (Antonio Raposa, 2022).

1.2 Problem Statement

Despite significant advancements in occupational health and safety (OHS) measures, workplace-related accidents and diseases continue to pose a grave threat, with 2.3 million deaths annually and substantial economic losses estimated at 5.4% of the global GDP (ILO, 2020; Kyat, 2019). In Zimbabwe, between 2019 and 2023 the country recorded an average of 4622 serious disabling injuries and 65 work-related fatalities annually (NSSA 2024; J. Moyo). Regardless of the OHS, inductions and recurrent OHS training programs in industries such as Bakers Inn Manufacturing (BIM) a food industry in Harare, which is the case study for this research, OHS incidents, persist, and employees often fail to follow procedures, as evidenced by incomplete pre-task risk assessments and toolbox talks. There is still a serious gap in understanding how workers perceive OHS risks in their individual contexts, exacerbated by variable degrees of training, inconsistent safety rule implementation, and the temporary nature of the workforce (Abbate, 2021). Many employees underestimate hazards associated with machinery, chemical exposure, or ergonomic concerns, resulting in insufficient safety practices and higher injury rates (Antonia Cangiano, 2024). Additionally, the high-pressure conditions and emphasis on productivity in the food industry can obstruct the recognition and prioritization of safety precautions, influencing poor risk perception (Frontiers in Public Health, 2022). This study aims to address these gaps by analyzing OHS risk perception among food sector workers.

1.3.1 Aim

To examine the level of OHS risk perception among workers in food industry, identifying key factors that influence their awareness and understanding of workplace hazards, and assessing the relationship between risk perception and workplace accident rates to improve safety measures and compliance.

1.3.2 Objectives

- To determine the level of Occupational Health and Safety (OHS) risk awareness among food industry workers at Bakers Inn Bread Manufacturing
- To measure the relationship between OHS risk perception and workplace accident rates within the food industry.

1.4 Significance of Study

The beneficiaries of this study include all the workers and management at BIM by bringing out the status quo in terms of employee risk perception towards OHS. The significance of this study rests in its ability to shed light on the importance of relationship between occupational health and safety (OHS) risk perception and overall safety culture in the food industry. This study seeks to provide significant insights into how workers perceive and respond to diverse OHS dangers, allowing for the development of more effective safety training programs and policies (Misale, F. 2020). Understanding the intricacies of risk perception is critical because it can reveal underlying attitudes and beliefs that contribute to the frequency of workplace injuries and accidents that keep at an alarming rise (De Marco, C. 2022). Employers and food industry stakeholders will better understand the impact of workplace culture, training gaps and economic constraints on safety compliance, leading to the development of more targeted safety interventions. Workers will benefit from enhanced safety measures, leading to reduction in occupational hazards, illness, injuries and fatalities.

Policy makers will gain insights into how workers perceive risks, enabling them to design more effective policies tailored to industry-specific challenges. The study is also important, as it will benefit regulatory authorities such as the NSSA, the Ministry of Public Service, Labour and Social Welfare by providing empirical data to improve safety regulations and enforcement strategies. Academia and researchers will gain new knowledge in the underexplored area of OHS risk perception within Zimbabwe's food industry, contributing to the broader discourse on workplace safety. This data will be used to formulate ways in which they can make standard

operating procedures (SOPs), guidelines and policies, mould and increase employee risk perception to minimise occupational incidents. The findings can serve as a foundation for fostering a proactive safety culture, encouraging organizations to prioritize employee well-being and implement best practices in risk management

1.5 Research Questions

- What is the level of OHS risk awareness among food industry workers at Baker Inn Bread Manufacturing?
- What key factors influence workers' perceptions of OHS risks in the food industry at Bakers Inn Bread Manufacturing?
- How does OHS risk perception relate to workplace accident rates in the food industry?
- What is the relationship between workers' OHS risk perception and their safety-related behaviors in the food industry?
- What recommendations can be made to improve OHS risk perception and safety practices in the food industry based on the research findings?

1.6 Hypothesis

H₀: There is a significant relationship between OHS risk perception and workplace accident rates in food industry sector.

H₁ There is no significant relationship between OHS risk perception and workplace accident rates in food industry sector.

1.7 Assumptions

- The data obtained is relevant and, accurate and reliable.
- Secondary data will be available for literature review.
- Respondents will provide meaningful and truthful expressions of their knowledge of the asked questions.
- Questions will be easily converged and understood by the participants

1.8 Limitations

- It can be difficult to obtain reliable and accurate data on the number and type of accidents that occur, as well as causes of these accidents.
- The resistance by the target participants in releasing information.
- The use of self-reported data can create bias, since individuals may exaggerate or underestimate their awareness and grasp of OHS concerns. Social desirability bias may cause respondents to submit answers that they perceive are more acceptable, potentially skewing the results and reducing the findings' accuracy.

1.9 Delimitations

- This research is limited to the food industry, which includes several sectors such as processing, packaging, and distribution. The findings may not apply to other industries, such as manufacturing or construction, where OHS risks and perceptions differ dramatically.
- The research may be confined to a particular geographic area or region which allows for more in-depth analysis within a specific context.
- The study may adopt a qualitative approach to explore risk perception in depth through interviews or focus groups and this method provides rich, detailed insights,

CHAPTER 2: REVIEW OF LITERATURE

2.1 Introduction

This chapter provides a comprehensive review of the literature on occupational health and safety (OHS) risk perception, with a specific emphasis on workers in the food-manufacturing sector (Rental et al., 2022). The discussion delves into the theoretical frameworks that inform risk perception (Scarlet's, 2020), the factors shaping workers' awareness and attitudes towards OHS risks (Malik, 2023). It presents an empirical literature on OHS risk perception in the food industry, examining its determinants, its relationship with workplace accidents, and the effectiveness of interventions aimed at improving safety awareness. Furthermore, the review incorporates findings from global and regional studies and articles to identify the relationship between OHS risk perception of workers and workplace accident rates (Gory, 2019).

2.2 Conceptualization of key terms

OHS risks in the food industry

Occupational Health and Safety risks refer to the potential for workers to suffer harm or adverse health effects due to exposure to workplace hazards (Safe Work Australia, 2024). Hazards are categorized as physical, chemical, biological, ergonomic, or psychosocial (Safe Work Australia, 2024; ILO, 2024). Physical hazards include slips, falls, and injuries from sharp tools, while chemical hazards involve exposure to cleaning agents and flour dust, leading to respiratory issues and skin irritation (ILO, 2024; Work Safe BC, 2024). Ergonomic hazards result in repetitive strain injuries from poor workstation design, and psychosocial hazards stem from stress and fatigue due to high workloads and long hours, impairing mental health and increasing accident risks (OSHA, 2024; Safety Culture, 2024).

Risk perception

Risk perception encompasses the subjective evaluations individuals make regarding the severity and probability of a given risk, it is an individual's awareness and subjective judgment of potential hazards (Slovic, 2019). It reflects how employees recognize potential hazards within their work environment and how these perceptions shape their behaviors and decision-making processes (Rodríguez, 2024). Individual factors, such as experience, training, and personal attitudes towards safety, significantly influence how workers perceive OHS risks, (Tonsor et al., 2009; Rembischevski & Caldas, 2021). Organizational factors, including a

robust safety culture, effective management practices, and open communication about risks, enhance risk awareness (NIOH, 2021).

2.3 Theoretical framework

2.3.1 The Health Belief Model (HBM)

This section establishes a theoretical framework for analyzing occupational health and safety (OHS) risk perception among workers at BIM, utilizing the Health Belief Model (HBM). The HBM, introduced by social psychologists Hochbaum, Rosenstock, and Kegels in the 1950s while working for the U.S. Public Health Service (Hochbaum, 1958; Rosenstock, 1974), is a psychological framework designed to explain and predict health-related behaviors by focusing on individuals' attitudes and beliefs. The model posits that an individual's readiness to adopt health-protective actions depends on their perception of key factors (Rosenstock, 1974):

Perceived susceptibility: Refers to workers' beliefs about their likelihood of experiencing health or safety risks, such as respiratory problems from flour dust, burns, or ergonomic injuries (Slovic, 2000). For instance, workers who recognize the serious respiratory hazards of flour dust exposure are more likely to use masks or ventilation systems (WorkSafeBC, 2024).

Perceived severity: Reflects the belief about the gravity of the consequences associated with occupational hazards. For example, a worker who views a fall on a slippery floor as potentially causing severe injury or long-term disability may be more inclined to wear non-slip footwear (Galizzi & Tempesti, 2014).

Perceived benefits: Relates to the belief in the effectiveness of recommended safety measures in mitigating risks or reducing harm. For instance, workers who understand that wearing protective gloves can prevent burns when handling hot equipment are more likely to use those (Antony & Rebacca, 2024).

Perceived barriers: Involves workers' assessment of obstacles to adopting safety measures, such as time constraints, discomfort, or resource limitations. For example, a worker may forgo wearing a mask due to discomfort or inadequate ventilation, despite recognizing its protective benefits (Malik, 2023).

Cues to action: These are stimuli that encourage safety behavior, such as training sessions, warning signs, or witnessing an incident. For example, a safety briefing or observing a co-worker's injury can prompt stricter adherence to OHS protocols (Safety Wallet, 2024).

Self-efficacy: Denotes confidence in the ability to effectively implement safety practices. For example, workers who have received proper training in using personal protective equipment (PPE) are more likely to feel competent in maintaining safety standards (Loeb et al., 2022).

2.3.2 The Protection Motivation Theory (PMT)

The Protection Motivation Theory (PMT), introduced by Rogers in 1975, provides a robust framework for understanding the cognitive mechanisms that drive individuals to engage in protective behaviors in response to perceived threats (Rogers, 1975). PMT suggests that motivation for self-protection is shaped by two key cognitive processes: threat appraisal and coping appraisal, which together influence the likelihood of adopting protective actions (Rogers, 1983; Floyd, Prentice-Dunn & Rogers, 2000).

Threat appraisal refers to the assessment of the seriousness of a threat and one's vulnerability to it (Rogers, 1975). Workers evaluate the potential severity of workplace hazards and their susceptibility to these risks, with key components being perceived severity and perceived vulnerability (Rogers, 1983; Rundmo, 1996).

Coping appraisal focuses on evaluating the effectiveness of protective measures and the individual's ability to execute them (Floyd, Prentice-Dunn & Rogers, 2000). This involves assessing response efficacy, or the belief that the safety measures will mitigate the threat; self-efficacy, or confidence in one's ability to implement the measures; and response cost, or the perceived barriers or costs associated with adopting the protective behavior (Rogers, 1983).

Research has shown that higher levels of both threat and coping appraisals are positively correlated with greater adherence to safety protocols. For example, a study on construction workers found that workers who perceived higher threats and had strong coping appraisals were more likely to comply with safety measures (Lingard & Rowlinson, 2005). Similarly, in the food industry, workers who recognize the severity and vulnerability of workplace hazards and believe in the effectiveness of protective measures are more inclined to adopt safety behaviors (Rundmo, 1996).

2.4 Empirical Literature Review

2.4.1 The Role of Risk Perception in Workplace Safety Compliance

Risk perception has been identified as a key determinant of safety compliance in occupational settings. Smith et al. (2021) conducted a mixed-methods study across multiple food manufacturing plants in the United States to examine the relationship between workers' risk perception and adherence to safety protocols. Their findings demonstrated that employees who perceived higher risks in their work environment were significantly more likely to follow safety regulations. This relationship was particularly evident in situations involving hazardous machinery and chemical exposure. The study highlighted that risk perception serves as a motivational factor, influencing workers to prioritize safety measures in order to prevent workplace accidents. Furthermore, Smith et al. (2021) identified several factors that shape risk perception, including previous exposure to workplace accidents, the clarity of safety communication, and the frequency of safety training programs. These findings underscore the importance of fostering risk awareness to enhance safety compliance in high-risk work environments.

Jones and Brown (2022) conducted a similar investigation in Canadian food processing facilities. Using surveys and semi-structured interviews, they examined the factors influencing OHS risk perception and its effect on workers' safety behaviors. Their findings aligned with those of Smith et al. (2021), demonstrating that employees with direct experience of workplace hazards exhibited a heightened awareness of risks and a stronger commitment to safety protocols. Jones and Brown (2022) further emphasized the role of organizational culture in shaping workers' perceptions of risk, suggesting that workplaces that prioritize safety training and communication foster a more safety-conscious workforce. Their study reinforced the notion that risk perception is not solely an individual trait but is also influenced by organizational practices and cultural norms.

2.4.2 Determinants of Risk Perception in the Food Industry

Several studies have examined the key determinants of OHS risk perception in the food industry. Nguyen and Tran (2022) conducted research in Vietnamese food processing facilities, focusing on demographic factors such as age, gender, and education level. Their findings indicated that younger employees and those with higher education levels demonstrated a more accurate understanding of workplace risks. Notably, female workers exhibited higher risk perception than their male counterparts, a trend that has also been observed in previous studies (Kim, Park, & Kang, 2018). These findings suggest that risk perception varies among individuals based on demographic characteristics, highlighting the need for customized safety training initiatives tailored to different worker groups.

Handoko et al. (2022) explored how employment status influences OHS risk perception, comparing permanent and temporary employees in Indonesian food manufacturing plants. Their research revealed that permanent workers exhibited a higher level of risk awareness than their temporary counterparts, primarily due to their longer exposure to workplace hazards and more comprehensive training. Conversely, temporary workers often lacked sufficient safety training and familiarity with their work environment, leading to lower levels of risk perception. This study emphasized the necessity of targeted safety training programs for temporary employees to bridge this gap in risk awareness and ensure overall workplace safety.

Chen et al. (2023) investigated OHS risk perception among workers in small and medium-sized enterprises (SMEs) in China's food industry. Their findings indicated that employees in SMEs exhibited lower risk awareness compared to those in larger organizations, primarily due to limited safety training and resource constraints. This study highlighted the critical role of financial and organizational support in fostering a strong safety culture, suggesting that smaller businesses require tailored safety interventions to improve risk perception and compliance with safety protocols.

2.4.3 Relationship between Risk Perception and Workplace Accidents

Several studies have directly examined the correlation between workers' risk perception and workplace accident rates in the food industry. Garcia et al. (2020) conducted a study in Spanish food manufacturing facilities, assessing the impact of risk perception on the frequency of occupational accidents. Their findings revealed that workers with lower risk perception were significantly more likely to be involved in workplace accidents. The study concluded that poor risk awareness often leads to unsafe work practices, increasing the likelihood of accidents. Furthermore, Garcia et al. (2020) emphasized the importance of effective safety communication and structured training programs in enhancing risk perception and reducing accident rates.

Kim and Park (2021) investigated similar themes in the South Korean food industry, examining the relationship between workers' awareness of risks and their adherence to safety protocols. Their findings corroborated those of Garcia et al. (2020), demonstrating that workers with a heightened perception of risk were more likely to engage in protective behaviors, such as wearing personal protective equipment (PPE) and following safety guidelines. The study underscored the role of clear and consistent risk communication in improving workers' understanding of hazards and fostering a safety-oriented workplace culture.

2.4.4 The Impact of Safety Training on Risk Perception and Compliance

Training interventions have been widely recognized as effective tools for improving workers' risk perception and safety compliance. Williams et al. (2023) in an article examined the impact of targeted safety training programs in the United Kingdom's food manufacturing sector. Their study found that comprehensive training significantly improved employees' hazard awareness and adherence to OHS protocols. Regular and detailed training sessions, particularly those incorporating practical demonstrations and interactive components, were identified as the most effective in enhancing risk perception. The study also emphasized the importance of continuous training and refresher courses to sustain high levels of safety compliance over time.

Similarly, Madaleno and Sousa-Uva (2021) investigated the cognitive and emotional components of risk perception among employees at a Portuguese health education and research institution. Their findings indicated that workers with higher risk awareness were more proactive in implementing preventive measures, reducing the prevalence of work-related illnesses. The study reinforced the importance of ongoing education and training in sustaining elevated levels of risk perception, emphasizing that workers with greater safety awareness exhibit lower tolerance for workplace hazards.

2.5 Research Gaps

Despite extensive research on occupational health and safety (OHS) risk perception and its relationship with workplace accidents in the food industry, several critical gaps remain unaddressed. While previous studies have provided valuable insights into factors influencing risk perception and the impact of training on safety compliance, there are notable limitations that present opportunities for further investigation. These research gaps highlight areas that require deeper exploration to enhance workplace safety interventions and policy development.

Most studies on OHS risk perception have been conducted in broad occupational settings or specific regions, but there is a lack of comprehensive, industry-specific research focused exclusively on food industry workers. Studies such as those by Smith et al. (2021), Jones and Brown (2022), and Garcia et al. (2020) provide general insights into OHS risk perception but do not deeply analyze the unique hazards specific to the food industry, such as biological risks, ergonomic strain, and contamination threats. Additionally, research in the food industry often focuses on compliance with regulations rather than workers' subjective perception of risks, which is a crucial determinant of safety behavior. This study seeks to bridge this gap by assessing OHS risk perception specifically within food manufacturing and processing environments.

Although numerous studies have examined risk perception and workplace accidents separately, few have empirically tested the direct relationship between these two variables in the food industry. Garcia et al. (2020) suggested a correlation between low risk perception and high accident rates, but their study was limited in establishing causality due to methodological constraints. Similarly, Kim and Park (2021) highlighted the role of risk perception in promoting safer behaviors but did not statistically analyze its direct impact on accident frequency. This research aims to fill this gap by providing empirical evidence on how variations in workers' risk perception influence the actual occurrence of workplace accidents in the food sector.

While studies such as those by Jones and Brown (2022) and Handoko et al. (2022) have explored factors shaping risk perception, there is limited understanding of how organizational culture and management practices influence workers' risk awareness and accident prevention strategies in the food industry. Existing research acknowledges that safety training and communication play a role in shaping risk perception, but there is little investigation into how management attitudes, enforcement of safety policies, and workplace incentives contribute to shaping employees' risk perceptions and compliance behaviors. This study will explore how organizational culture mediates the relationship between OHS risk perception and workplace accidents.

Conclusion

Despite the extensive body of research on OHS risk perception and workplace accidents, significant gaps remain in understanding these issues within the food industry. There is a lack of industry specific studies that comprehensively assess risk perception, particularly in relation to accident rates. Additionally, the role of organizational culture, employment status, safety training effectiveness and psychological factors in shaping risk perception remains underexplored. Addressing these research gaps will provide valuable insights into improving safety awareness and reducing occupational accidents in the food industry. This study aims to bridge these gaps by conducting an in-depth analysis of OHS risk perception among food industry workers and examining its direct impact on workplace safety outcomes.

CHAPTER 3: METHODOLOGY

3. Introduction

The research employed a mixed-methods approach, integrating both qualitative and quantitative methodologies for data collection. Data will be collected using questionnaires and in-depth interviews. This chapter aims to show the study area and study approach, followed by the different aspects of the quantitative component and the other part the qualitative component.

3.1 Research Philosophy

Research philosophy pertains to the underlying beliefs and assumptions about knowledge creation that guide the research process (Saunders et al., 2019). It addresses fundamental concepts such as the nature of reality (ontology), the process of acquiring knowledge (epistemology), and the influence of values in research (axiology) (Saunders et al., 2019). Recognizing and articulating a research philosophy is essential, as it directly affects methodological choices, data interpretation, and the overall research approach (Gannon et al., 2022).

For this study, which examines workers' perceptions of Occupational Health and Safety (OHS) risks at Bakers Inn Bakery in Harare, an interpretivist research philosophy will be adopted. Interpretivism posits that reality is subjective and socially constructed, meaning individuals perceive and interpret their experiences uniquely (Gannon et al., 2022). This philosophy is particularly appropriate for this research as it facilitates an exploration of the diverse and context-dependent perceptions of OHS risks. It acknowledges that these perceptions are shaped by personal experiences, cultural contexts, and social dynamics (Gannon et al., 2022).

By employing an interpretivist lens, the study seeks to understand workers' perspectives and the factors that influence their perceptions of OHS risks in a nuanced manner. This aligns with the objective of providing a detailed and empathetic analysis that can guide the development of targeted strategies for enhancing workplace safety (Gannon et al., 2022).

In conclusion, adopting an interpretivist research philosophy enables a comprehensive examination of the subjective and socially influenced nature of OHS risk perceptions among workers at Bakers Inn Bakery. This approach not only deepens understanding of the factors shaping these perceptions but also provides valuable insights for improving workplace safety measures (Gannon et al., 2022).

3.1.2 Study Area

The investigation was conducted at the Graniteside, Harare, and location of Baker's Inn Bakery Manufacture on Shepperton Road. The company's name began in 1989 when a retail store on the main street in Harare was opened. Andrew Foods, a baking company, provided the goods for the store. In 1991, Baker's Inn at Chitungwiza Town Centre started employing rotary ovens to produce its bread. The bakery moved to Graniteside's Kelvin Corner in 1993, and daily output doubled between 5,000 to 18,000 breads. In 1994, a second bakery opened its doors in Bulawayo, and in 1996 it was transformed into an operational baking. The manufacturing plant currently has about 270 workers.

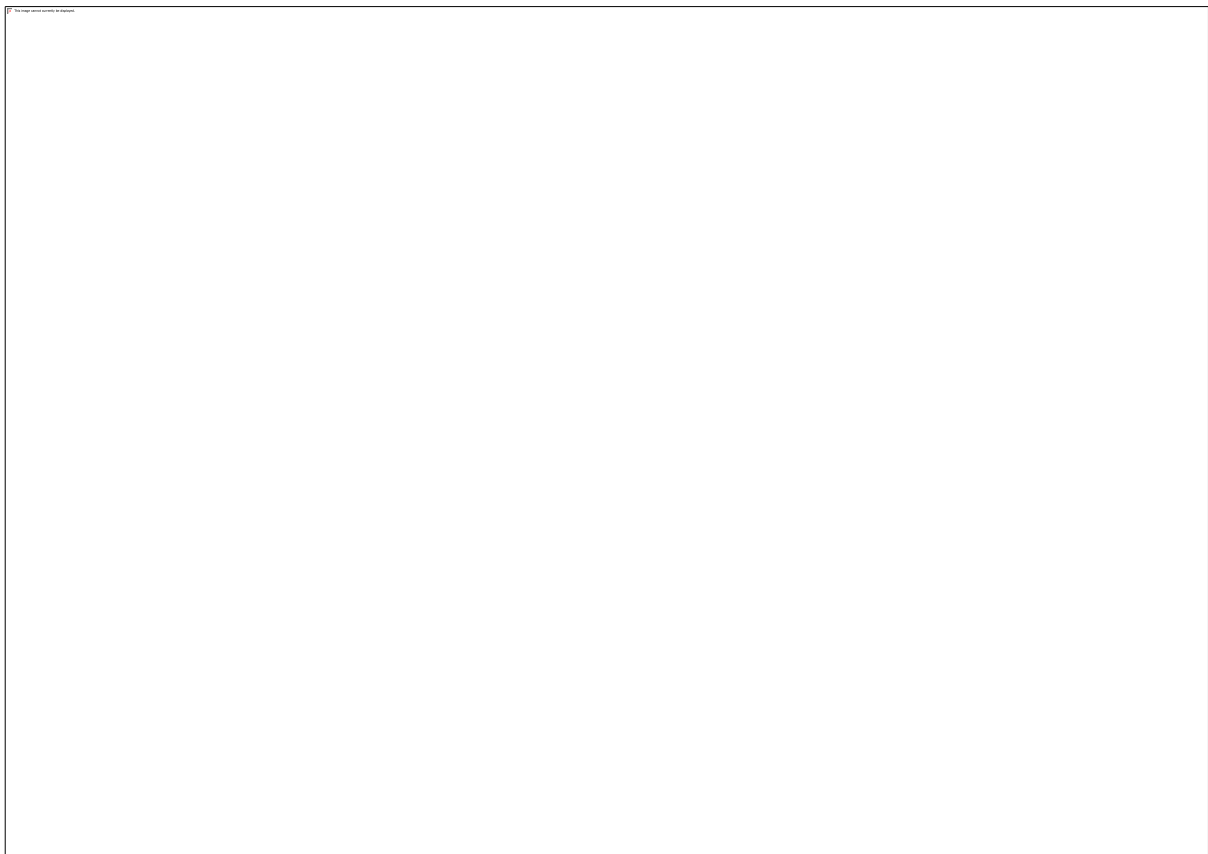


Figure 1 Study Map: Bakers Inn Bread Map Location

Address: 1 Shepperton Road Graniteside, Harare

GPS Coordinates: -17.86475, 31.0512

3.2 Research Approach

The research approach refers to the overarching framework guiding data collection and analysis. Based on the Saunders Research Onion, the two main research approaches are deductive and inductive (Saunders et al., 2019). A deductive approach tests existing theories by formulating hypotheses and analyzing empirical data, while an inductive approach develops new theories based on observed patterns. Given the nature of this study, a mixed-methods approach combining both deductive and inductive reasoning was adopted.

The quantitative component follows a deductive approach, as it seeks to test pre-existing theories related to OHS risk perceptions through structured data collection and statistical analysis. Previous research has established that workplace safety perceptions influence behavior and accident rates (Hale et al., 2018). Therefore, the structured Likert-scale questionnaire was designed to assess workers' OHS risk perceptions). Quantitatively, allowing statistical validation of trends and relationships (Creswell & Creswell, 2018). The quantitative aspect involves administering a survey to a stratified random sample of 30 participants, ensuring diverse demographic representation (Iqbal et al., 2024). This method is chosen for its efficiency in collecting extensive data and facilitating statistical evaluation (Triveni, Danish & Albalawi, 2024).

Conversely, the qualitative component follows an inductive approach, as it explores individual experiences and perceptions in an open-ended manner, allowing for emerging themes to be identified (Silverman, 2020). Semi-structured interviews were conducted to gain deeper insights into workers' attitudes toward workplace safety, highlighting aspects that may not be captured through quantitative methods. This dual approach ensures a comprehensive understanding of OHS risk perceptions, combining statistical generalizability with rich contextual insights (Bryman, 2021). For the qualitative component, semi-structured interviews will be conducted with 10 purposefully selected participants to obtain detailed insights from individuals with specific, relevant characteristics (Ahmad & Wilkins, 2024).

Quantitative data will be analyzed using descriptive and inferential statistics, enabling the identification of patterns and correlations (Iqbal et al., 2024). In contrast, qualitative data will undergo thematic analysis, where key themes and patterns are identified through systematic coding (Braun & Clarke, 2024). By combining these approaches, the study aims to deliver a thorough and nuanced understanding of the research problem, capturing both its breadth and depth (Timans, Wouters & Heilbron, 2019). A combination of techniques was employed to:

1. Overcome the limitations of either quantitative or qualitative research as they complement each other,
2. Confirm and corroborate results and findings so the researcher can validate conclusions,
3. Analyse different facets of the same phenomenon, and expand the phenomenon thereby allowing exhaustive research (Almeida, 2018; Hafsa, 2019)

3.3 Research strategy

A research strategy refers to the plan used to achieve research objectives, defining how data will be collected and analyzed. Case study research was selected as the most appropriate strategy, as it allows an in-depth examination of OHS risk perceptions in a real-life workplace context (Yin, 2018). This strategy provides a detailed exploration of complex issues, making it ideal for studying safety perceptions at Bakers Inn Bakery—a setting where workplace hazards and safety attitudes are dynamic and context-specific (Harrison et al., 2017).

The case study method integrates both quantitative and qualitative techniques, ensuring a holistic analysis of safety concerns. Quantitative surveys offer measurable insights into employees' safety attitudes, while qualitative interviews provide detailed narratives that explain underlying reasons for these perceptions (Crowe et al., 2011).

3.4 Research choices and design

The research choices layer of the Saunders Research Onion refers to how qualitative and quantitative methods are combined. The study adopts the convergent triangulation approach, which merges qualitative and quantitative methods, thereby leveraging the strengths of both to provide a holistic analysis (Creswell & Plano Clark, 2018). Data were methodologically triangulated, the convergent triangulation design involves the concurrent collection of qualitative and quantitative data, followed by separate analyses. The findings from each method are then compared and integrated to draw comprehensive conclusions (Morgan, 2019). This design strengthens the validity and reliability of the study through the cross-verification of information from diverse sources (Noble & Heale, 2019). For example, qualitative data obtained from interviews can provide nuanced insights into workers' experiences, while surveys can offer quantitative evidence to substantiate these findings (Caillaud et al., 2019).

An advantage of this method lies in its ability to confirm findings by cross-referencing data, ensuring trustworthiness and accuracy (Wallace et al., 2018). Additionally, it facilitates the

identification of inconsistencies or conflicts between qualitative and quantitative results, promoting a deeper understanding of the research problem (Gibson, 2017). The integration of both types of data enhances the study's overall credibility and robustness (Pluye et al., 2018).

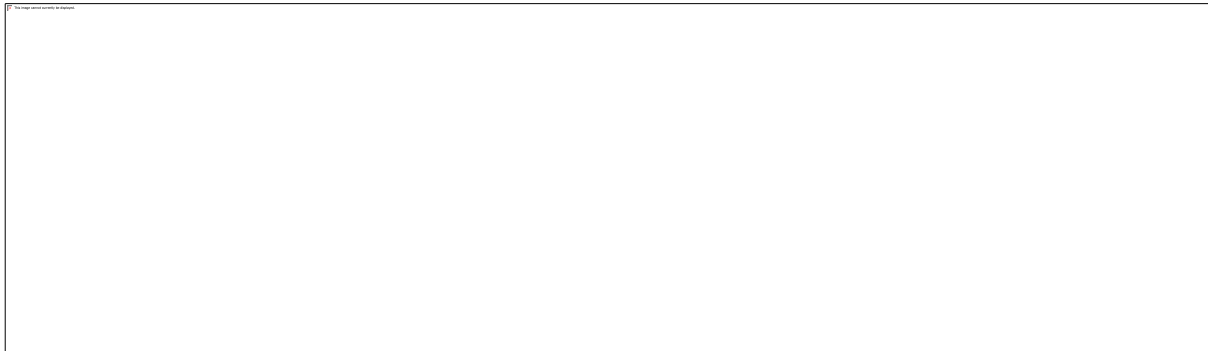


Figure 2 Convergent Design

Source: *Creswell and Plano Clark 2018*

3.5 Time horizon

The time horizon in research determines whether a study is cross-sectional (single point in time) or longitudinal (observing changes over time). This study employs a cross-sectional design, collecting data at a single point in time (Saunders et al., 2019).

- A cross-sectional approach is appropriate for this research because:
- It is suitable for analyzing current OHS risk perceptions among workers at Bakers Inn Bakery.
- It allows for a snapshot analysis, capturing data efficiently without requiring long-term observation (Mathers, Fox & Hunn, 2020).
- It is cost-effective and time-efficient, making it practical given the scope of the research (Check & Schutt, 2021).

While longitudinal studies offer insights into how perceptions evolve, they require extended timeframes that may not be feasible for this study. However, findings from this research could serve as a baseline for future longitudinal studies assessing trends in OHS risk perceptions over time.

3.6 Techniques and Procedures

This section details the specific methods for data collection, sampling, and analysis, ensuring methodological transparency and rigor.

3.6.1 Sampling Strategy and Participants

A stratified random sampling technique was used to ensure fair representation of employees across different departments at Bakers Inn Bakery (Iqbal et al., 2024). Stratified random sampling is a highly suitable method for research aiming to examine OHS risk perceptions across diverse worker categories. This technique involves dividing the population into distinct subgroups or strata, such as job roles or departments, based on shared characteristics. Random samples are then drawn from each stratum, ensuring that all relevant subgroups are adequately represented. This approach is particularly effective in capturing variations in risk perceptions and safety concerns across worker categories, enabling a comprehensive understanding of the research problem (Iqbal et al., 2024).

Workers were grouped into five departments: Production, Maintenance, Transport & Logistics, Sales and IT, with a proportional number of participants sampled from each. This method minimizes bias and ensures diverse perspectives on OHS risks are included (Triveni et al., 2024). A total of 30 employees participated in the survey, while 10 employees were purposefully selected for in-depth interviews. This combination ensures both broad statistical representation and detailed qualitative insights (Dawadi, Shrestha & Giri, 2021).

3.6.2 Data Collection Tools for the quantitative study component

Table 1 Respondents per department

Department	Number of respondents
Production	10
Maintenance	5
Transport and Logistics	5
Sales	5
Information Technology	5

The number of respondents sampled per department was based on the magnitude of the department.

Questionnaire (Quantitative Data)

A Likert-scale questionnaire was used to assess workers' perceptions of OHS risks. This structured format enables numerical measurement of attitudes and safety behaviors (Emerson, 2017). The questionnaire included positively framed statements, requiring participants to indicate their level of agreement, ensuring clarity and ease of interpretation (Willits, Theodore & Lullof, 2016). The researcher administered thirty questionnaires (n=30). The Rensis Likert scale, which were named after their creator the American social scientist Rensis Likert, are quite popular because they are one of the most reliable ways to measure opinions, perceptions, and behaviours. The respondents will select responses by selecting from a range of questions listed on the questioner. Responses are going to include Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD).

3.6.3 Data collection procedure

The researcher chose respondents upon meeting them. She went to every department and chose the employees she interacted with first until she reached the maximum number of respondents in the department, and moved on to the next department until finished. The respondents were informed that taking part in the research is voluntary and that the information collected will be treated as confidential and is only used for academic purposes. The researcher administered questionnaires to willing/voluntary respondents. The data were collected in various areas around the bakery plant such as in the individuals, pool offices, and workshops. All respondents responded individually.

3.6.4 Data analysis

Data from the questionnaire were analysed by descriptive statistics methods using Microsoft Excel (SPSS). The software is user friendly, may easily be used to analyse multi-response questions using measures of dispersion or variation which show how data is spread out by showing the range and the variance. The software was also used to represent data in form of graphs, charts, and plots (Chen et al., 2020).

3.6.5 Data Collection Tools for the qualitative study component

The other equal and concurrent component of the study is the qualitative component of the study. The study utilized two primary qualitative data collection tools: the researcher as a key instrument and an interview guide.

The researcher as a key instrument

In qualitative research, the researcher often serves as the primary instrument for data collection (Bahrami et al., 2016). The researcher's skills, experience, and ability to communicate effectively play a critical role in ensuring the success of the research process (Nowell et al., 2017). To prepare for data collection, the researcher dedicated significant time to studying relevant literature and improving data collection techniques. By doing so, the researcher ensured that the process yielded meaningful and reliable findings. Additionally, the researcher prioritized establishing and maintaining positive relationships with participants, which was facilitated through enhanced interviewing skills (Bahrami et al., 2016; Brinkmann & Kvale, 2018).

Interview guide

The interview guide served as a structured framework to direct the interview process. An interview guide is a pre-prepared document that outlines the key topics and questions to be explored during interviews (Bird, 2016). Interviews are integral to qualitative research, providing researchers with insights into participants' experiences and perceptions (Qu & Dumay, 2011). The guide acted as a memory aid, ensuring that all participants were asked consistent questions, thereby maintaining uniformity across interviews. It included predetermined questions aimed at eliciting in-depth responses relevant to the study's objectives (Bird, 2016; Brinkmann & Kvale, 2018).

3.6.6 Data collection procedure

The collection of qualitative data was conducted through in-depth interviews and subsequent data analysis. Face-to-face interviews were employed, commencing only after obtaining approval from the appropriate authorities (Nowell et al., 2017). To ensure random selection of participants, a lottery method was used. The researcher placed slips of paper labeled "yes" and "no" into a container, with the number of "yes" slips corresponding to the two participants required per department, while the rest were labeled "no." The papers were placed at a height to prevent participants from seeing the labels, ensuring random selection (Etikan, 2016).

Prior to the interviews, informed consent was obtained from all participants. The consent process involved explaining their rights, including voluntary participation, confidentiality, anonymity, and the option to withdraw from the study without any negative consequences (Bahrami et al., 2016). Participants were also asked for permission to use a digital audio

recorder during the interviews, which was crucial for accurately capturing their responses for transcription (Bird, 2016).

To minimize language barriers, participants were allowed to respond in their preferred language, and the researcher later translated the data during transcription. This process ensured that participants could express themselves fully. Interviews were recorded, transcribed, and securely stored as part of the study's findings (Nowell et al., 2017).

3.6.7 Data analysis

Thematic analysis was utilized to analyze the qualitative data collected in the study. Thematic analysis is a systematic method for identifying, organizing, and interpreting recurring patterns or themes within a dataset (Braun & Clarke, 2019). Following data collection, the researcher categorized and grouped responses into distinct themes to ensure effective analysis (Joffe, 2012). These themes were derived both from recurring patterns in participants' answers and from observations made during the data collection process (Clarke & Braun, 2018).

The analysis process involved sorting, categorizing, and coding the data into coherent themes that summarized and provided meaning to the collected information. The identified themes were compared to assess whether the responses supported or aligned with the study's research questions. The thematic approach, guided by the interpretivist paradigm, was particularly effective in understanding employees' experiences and perceptions through the in-depth interviews conducted (Joffe, 2012; Nowell et al., 2017).

3.6.8 Trustworthiness

Trustworthiness in qualitative research refers to the extent to which confidence can be placed in the data, the interpretation of findings, and the methods utilized to ensure the study's overall quality (Forero et al., 2018). It is considered the qualitative equivalent of validity and reliability in quantitative research. Trustworthiness is achieved through four essential criteria: credibility, dependability, confirmability, and transferability (Connelly, 2016).

Credibility

Credibility pertains to the confidence in the accuracy and truth of the study's findings (Anney, 2014). It can be ensured through prolonged engagement with participants, persistent observation, and establishing a rapport that promotes open and honest responses (Nowell et al., 2017). In this study, the researcher ensured credibility by encouraging voluntary participation

and creating an environment where participants felt comfortable and truthful in their responses. The researcher engaged with participants extensively and maintained an observant approach throughout the research process (Anney, 2014).

Dependability

Dependability refers to the stability and consistency of research findings over time (Connelly, 2016). It involves ensuring that participants review and validate the findings to confirm their accuracy (Anney, 2014). In this study, participants were provided with the transcribed dialogue from their interviews, allowing them to confirm that their views and responses were accurately recorded and interpreted (Forero et al., 2018).

Confirmability

Confirmability assesses the objectivity of the research, ensuring that findings are derived from the data rather than the researcher's biases or imagination (Polit & Beck, 2017). To achieve confirmability, the researcher employed triangulation by cross-checking data from multiple sources to ensure consistency and reliability in the findings (Nowell et al., 2017). This method enabled a clear linkage between the data and interpretations, allowing readers to verify the adequacy of the conclusions drawn.

Transferability

Transferability evaluates the extent to which the findings can be applied to other contexts or settings (Anney, 2014). The researcher ensured transferability by using purposive sampling to select participants who were highly relevant to the study. This approach allowed the researcher to provide rich contextual descriptions, enhancing the applicability of the findings to similar situations (Connelly, 2016).

3.7 Ethical considerations

Ethical considerations in research refer to the adherence to internationally accepted principles and standards when working with human participants (Resnik, 2020). These principles require that participants are treated with respect and dignity and are not reduced to mere objects or tools for data collection (Johnson & Christensen, 2017). The researcher adhered to these principles, especially given the use of interviews and questionnaires as research instruments. Participation was entirely voluntary, and no participants were coerced or placed under any form of duress during the study (Resnik, 2020). The following ethical issues were addressed:

Permission

Permission refers to obtaining approval from relevant authorities to carry out a research study (Resnik, 2020). In this study, the researcher sought clearance from Bindura University of Science Education, ensuring compliance with institutional requirements for research ethics. Additionally, approval was obtained from the Managing Director of Bakers Inn Bakery to conduct the research involving employees from the organization. The researcher also secured consent from participants, assuring them that their information would remain confidential and their identities would not be disclosed to any third parties (Bryman, 2016). Verbal informed consent was obtained from participants prior to administering questionnaires and conducting in-depth interviews (Crow & Wiles, 2022).

Protection from Harm

Ensuring that participants are protected from harm is a fundamental ethical principle in research. Harm can be physical, psychological, or emotional, manifesting as stress, anxiety, or an invasion of privacy (Smith & Noble, 2020). The researcher carefully assessed the potential consequences of the study to avoid causing any harm to participants. Participants were not forced to respond to questions that made them feel uncomfortable, and all research activities were conducted in a manner that prioritized the well-being of respondents (Ryen, 2016). Questions were carefully designed to minimize the risk of causing distress or discomfort.

Anonymity

Anonymity ensures that participants' identities are protected throughout the research process. This involves safeguarding personal information and presenting findings in a way that does not reveal any identifiable details (Tourani et al., 2018). In this study, the researcher maintained strict confidentiality by anonymizing participants' data and ensuring that their responses could not be traced back to them. All information provided was handled securely, and the results were presented in a manner that ensured the privacy of respondents was upheld (Saunders et al., 2019).

3.8 SUMMARY

This chapter provided a comprehensive discussion of the research methods employed in the study. The study adopted a mixed-methods approach, utilizing the convergent design to integrate qualitative and quantitative data (Creswell & Creswell, 2018). The quantitative

component was outlined first, including the research paradigm, approach, and design. A positively constructed questionnaire was employed as the primary data collection tool, which was pilot-tested for reliability and validity (Bryman, 2016). Sampling methods, data collection procedures, and data analysis techniques were also detailed for the quantitative component.

The qualitative component was similarly presented, with an emphasis on the research paradigm, approach, and case study design. This section discussed case selection, data collection procedures, and thematic analysis techniques employed for qualitative data. The tools used for data collection were also described. Considerations for ensuring the trustworthiness of the study were outlined, including credibility, dependability, confirmability, and transferability (Nowell et al., 2017). Lastly, attention was given to ethical considerations, ensuring that the study adhered to international standards for research involving human participants (Resnik, 2020).

Chapter 4: Results

4.1 Introduction

The chapter present results of the study. The presentation of the results was guided by the pre-mentioned research objectives mentioned in the first chapter of the study. The chapter firstly provide a demographic overview of the respondents before delving into the final results.

4.2 Demographic features of respondents among the industry workers

Table 2: Demographic features of Respondent

Gender of Respondents				Percent (%)
Gender	Male			60.0%
	Female			40.0%
	Total			100.0%
Years of Job Experience				
<5 years				53.3%
5-10 years				23.3%
10-15 years				20.0%
>15 years				3.3%
Total				100.0%
Education Level of Respondents				
Education Level	High school			33.3%
	Vocational			20.0%
	Tertiary			46.7%
	Total			100.0%
Age range and Gender analysis of Respondents				
Age	18-25	Gender	Male	71.4%
			Female	28.6%
	25-30	Gender	Male	54.5%
			Female	45.5%
	30-35	Gender	Male	28.6%
			Female	71.4%
	>40	Gender	Male	100.0%

Female	0.0%
--------	------

The data reveals a gender disparity with 60% male and 40% female respondents. Young males aged 18-25 dominate at 71.4% of the main group, while most females (71.4%) fall within the 30-35 age range. The 25-30 group shows gender balance (males 54.5%, females 45.5%), and all respondents over 40 are male. Most participants (53.3%) have under five years' experience, 23.3% have 5-10 years, 20% have 10-15 years, and only 3.3% exceed 15 years, indicating a largely inexperienced workforce. Education-wise, 46.7% have tertiary qualifications, 33.3% completed high school, and 20% hold vocational training, suggesting generally high education levels that may support safety compliance.

Table 3: Overall analysis of awareness levels among respondents using Likert-scale Questionnaires

	Total Respondents	Mean	SD
I am aware of risks on my work places	30	1.97	1.299
I am aware that failure to follow safety procedures lead to accidents	30	2.00	1.287
I am aware that good safety behaviour reduces work place accidents	30	2.20	1.349
I am aware that I must report accidents and hazards	30	1.83	.834
I am aware that Work environment exposes one to harm	30	2.47	1.479

The overall mean scores for awareness variables ranged from 1.83 to 2.47, indicating a generally low to moderate level of awareness across different aspects of occupational health and safety risks. Notably, respondents' awareness that the work environment can expose them to harm (mean = 2.47) was higher compared to other variables like knowing to report hazards or understanding the impact of safety procedures. The relatively low scores on specific awareness items indicate room for improvement in safety knowledge and perception among workers, emphasizing the need for targeted safety education.

4.3 OHS Risk Awareness level against the demographic features of Respondents (Objective 1)

Table 4: Table showing risk perception scores against demographic features

Awareness vs Experience			
Experience (Years)	Mean Score (1-5 Likert)	Interpretation of Awareness Level	% of Total Respondents
<5	2.06	Low awareness	53.3%
5-10	4.00	High awareness	23.3%
10-15	4.67	Very high awareness	20.0%
>15	5.00	Fully aware	3.3%
Total	3.13	Moderate awareness	100.0%
Awareness vs Education			
Education Level	Mean Score (1-5 Likert)	Interpretation of Awareness Level	% of Total Respondents
High school	1.90	Low awareness	33.3%
Vocational	2.33	Low awareness	20.0%
Tertiary	4.36	High awareness	46.7%
Total	3.13	Moderate awareness	100.0%
Awareness vs Department			
Department	Mean Score (1-5 Likert)	Interpretation of Awareness Level	% of Total Respondents
Production	3.10	Moderate awareness	33.3%
Sales	2.20	Low awareness	16.7%
Maintenance	2.20	Low awareness	16.7%
Transport	4.60	Very high awareness	16.7%
IT	3.60	High awareness	16.7%
Total	3.13	Moderate awareness	100.0%

The table shows a clear positive correlation between experience and safety awareness, with those having over 15 years of experience reporting a maximum awareness level (mean = 5.00). Workers with less than five years of experience have a lower mean of 2.06, indicating they are generally less aware of hazards and safety procedures. The data reveals a significant trend:

longer experience correlates with higher safety awareness, which highlights the importance of practical exposure and continuous training to bridge the awareness gap among less experienced workers. The table also demonstrates a positive relationship between education level and safety awareness, tertiary education having the highest mean score (4.36), indicating they are the most aware of safety risks than those with vocational training and high school education which have (2.33 and 1.90, respectively). This suggests that higher education levels significantly contribute to safety awareness, emphasizing the need to incorporate safety training tailored to workers with varying educational backgrounds. The data indicates departmental differences in safety awareness with transport department showing the highest mean awareness score (4.60), signifying full awareness, while departments like sales and maintenance have lower scores (around 2.20), reflecting varying levels of safety consciousness. Production, however, also exhibits high awareness (mean = 3.10). These differences suggest that departmental roles and exposure influence safety awareness, and targeted department-specific training may help address disparities

4.4 Correlation of Risk Awareness/Perception and Demographic Features

Table 5: Chi-square test results on the relationship between OHS risk awareness and demographic variables (N = 30)

Demographic Variable	Chi-square (χ^2)	Degree of Freedom	p-value	Statistical Significance
Experience	60.000	4	0.000	Significant ($p < 0.05$)
Education	30.000	2	0.000	Significant ($p < 0.05$)
Department	90.000	12	0.000	Significant ($p < 0.05$)

Note: Awareness levels were categorized based on mean Likert scale scores as follows: 1.00–2.49 = Low awareness, 2.50–3.49 = Moderate awareness, 3.50–4.49 = High awareness, 4.50–5.00 = Very high awareness.

The Chi-square test of independence was performed to examine the association between OHS awareness levels and key demographic variables. The results show a statistically significant relationship between years of experience and OHS awareness ($\chi^2 = 60.000$, $df = 4$, $p = 0.000$). Workers with longer years of experience were more likely to fall within the high or very high awareness categories. This finding aligns with the assumption that continuous exposure to workplace procedures, safety drills, and real-world risk scenarios contributes positively to awareness development. A similarly strong association was observed between educational level and OHS awareness ($\chi^2 = 30.000$, $df = 2$, $p = 0.000$). Respondents with tertiary education were disproportionately represented in the high awareness group, whereas those with vocational and high school education mostly fell into the low awareness category. This suggests that higher education may enhance workers' ability to understand and apply safety protocols, possibly due to better comprehension of technical information or past exposure to structured training environments.

The departmental affiliation of workers also showed a significant correlation with OHS awareness ($\chi^2 = 90.000$, $df = 12$, $p = 0.000$). Workers in departments such as transport and IT demonstrated higher levels of awareness, while departments like sales and maintenance were more associated with low awareness levels. This may reflect differences in job-specific risks, safety emphasis, or training frequency across departments. These findings support the need for department-specific training interventions to address existing disparities in risk perception and safety behavior.

Accident Trends and OHS Awareness (Objective 2)

Awareness was measured on a 5-point Likert scale (1 = *very low*, 5 = *very high*). Across departments, significant disparities emerged:

Table 6: Accident Distribution by Department (2022-2025)

Department	Total	% of Total Accidents	Common Types
Production	29	39.7%	Machinery entrapment, burns

Maintenance	11	15.1%	Equipment failure, crush injuries
Transport	20	27.4%	Slips/falls, vehicle collisions
Sales	13	17.8%	Road accidents
IT	0	0.0%	N/A

Technical roles (IT, Maintenance) exhibited markedly higher awareness, likely due to mandatory safety certifications. Production and Sales, characterized by repetitive tasks and high turnover, showed pronounced negative skewness, indicating a cluster of workers with critically low awareness. The results indicate that the higher awareness levels among technical roles, including IT and Maintenance, can largely be attributed to mandatory safety certifications and structured training programs. In contrast, the Production and Sales departments, which are marked by high turnover rates and repetitive tasks, displayed pronounced negative skewness in their awareness scores. This suggests that a significant proportion of workers within these groups possess critically low OHS awareness, contributing to their elevated accident rates.

4.5 Annual Accident Trends

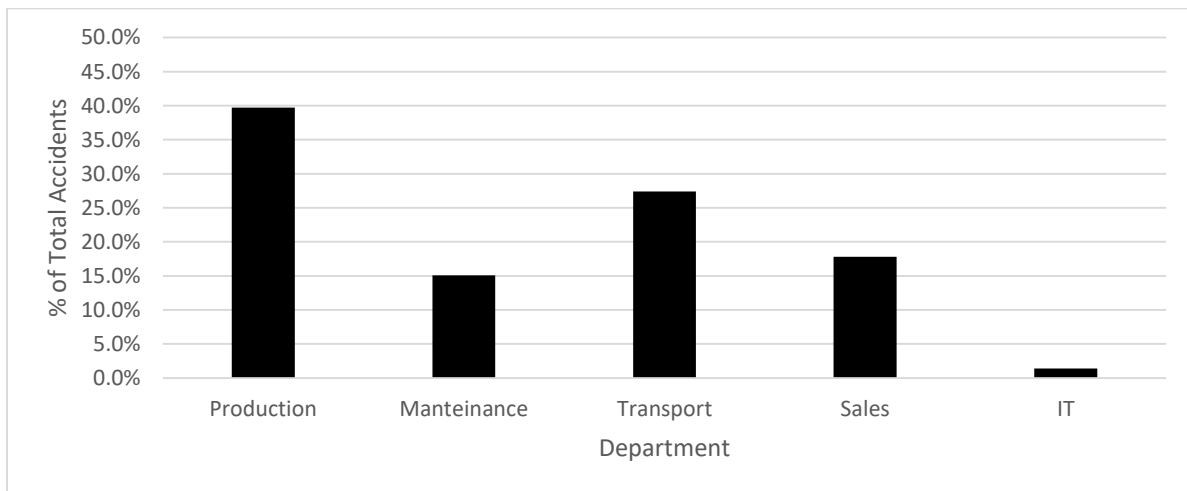


Figure 3: Annual analysis of accidents

Examining the annual trends reveals a clear correlation between OHS risk awareness and incident frequency across departments. The data indicates that those departments exhibiting lower awareness scores consistently face higher rates of workplace accidents. This assertion underscores the vital importance of enhancing OHS awareness as a preventive measure against potential accidents. For instance, the stark difference in incident rates between the Production

and IT departments reinforces the idea that improving employee education and training on safety protocols can lead to tangible improvements in workplace safety.

4.6 Risk Perception vs. Accident Rates

A multiple regression analysis further elucidated this relationship by identifying key predictors of risk perception that contribute significantly to workplace safety.

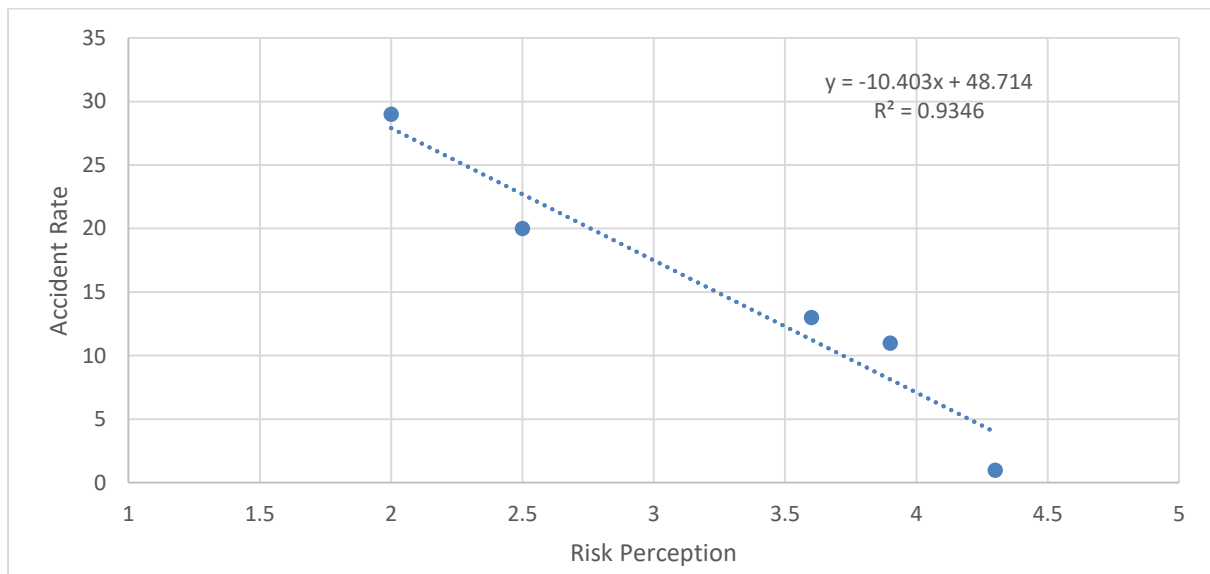


Figure 4: Correlation analysis between risk perception and accidents rates

The multiple regression analysis illustrated in Figure 4.2 demonstrates a significant inverse relationship between risk perception and total accidents in the workplace. The scatter plot depicts the negative correlation, indicating that as risk perception increases on the x-axis (ranging from 1 to 5), the total number of accidents (y-axis) tends to decrease. The regression with an R^2 value of 0.9346, suggesting that approximately 693.4% of the variance in accident rates can be explained by changes in risk perception. This analysis underscores the importance of enhancing risk awareness among employees to effectively reduce workplace accidents and improve overall safety.

4.7 Thematic analysis of Interview responses on OHS Risk awareness

To complement the quantitative findings, qualitative data were obtained through interviews with selected workers from five key departments at Bakers Inn Bread Manufacturing: Production, Maintenance, Transport and Logistics, Sales, and Information Technology. Thematic analysis was applied to the responses to explore workers' understanding of occupational health and safety (OHS) risks and the nature of their safety awareness. Three major themes emerged from the analysis:

Theme 1: Limited Awareness of Formal Safety Procedures

Some respondents demonstrated basic understanding of safety practices, yet lacked deeper knowledge of formal safety procedures and emergency protocols.

“We just know we have to wear protective clothing like gloves and boots, but no one ever explained what to do if there’s a fire or accident.” (Production Department)

“I only got safety instructions when I joined. Since then, I haven’t had any updates or refresher training.” (Sales Department)

This theme supports the quantitative findings which indicated low to moderate levels of safety awareness among certain groups, especially those with less experience or no regular safety briefings.

Theme 2: Risk Awareness Developed Through Experience

Many workers indicated that their safety knowledge was shaped by years on the job, rather than structured training. Practical exposure to incidents and near-misses seemed to raise awareness over time.

“After working here for 10 years, I know what not to do around the machines. But I learned that from watching and from past mistakes.” (Maintenance Department)

“Most of my safety habits came from being on the road daily. You just become more alert and careful after facing some close calls.” (Transport and Logistics Department)

This aligns with the statistical results showing a strong positive relationship between years of experience and OHS awareness, indicating that on-the-job learning plays a central role in risk perception.

Theme 3: Departmental Differences in Safety Culture

The responses also revealed that the level of safety awareness and emphasis on safety protocols varied by department. While some departments had a stronger safety culture and better access to safety resources, others were more reactive and lacked consistency.

“In the IT department, we always have to be cautious around electrical installations. We’re given clear instructions about what’s dangerous.” (Information Technology Department)

“In Maintenance, we’re often expected to manage risks ourselves unless an inspector is coming. That’s when PPE becomes available.” (Maintenance Department)

“In Sales, our risks are mostly during product handling or deliveries, but we hardly get safety reminders unless something goes wrong.” (Sales Department)

This theme reinforces the need for department-specific safety interventions, as highlighted in the quantitative analysis.

4.8 Chapter Summary

In summary, the study's findings highlight significant associations between respondents' safety awareness levels and their demographic features, particularly experience and education level, which both showed strong statistical significance. The demographic analysis reveals a relatively young and inexperienced workforce, predominantly male, with a high level of tertiary education. The analysis of awareness levels indicates moderate overall safety consciousness, with higher awareness correlating positively with increased experience and educational attainment. Furthermore, departmental differences in safety awareness suggest that exposure and role-specific factors influence safety perception, emphasizing the need for tailored training. The chi-square results confirm that experience and education significantly affect safety awareness, while department and age do not demonstrate statistically significant impacts. These findings underscore the importance of targeted safety training programs focusing on less experienced and less educated workers to enhance overall occupational health and safety performance.

Also, the thematic analysis shows that OHS risk awareness at Bakers Inn Bread Manufacturing is inconsistent and heavily influenced by department and experience. Workers in departments like IT and Transport showed more structured awareness due to the nature of their tasks, while

departments such as Sales and Maintenance appeared less supported in terms of regular training and procedural guidance. These findings underscore the importance of formalizing safety training, enhancing communication, and building a uniform safety culture across all departments to ensure consistent awareness of workplace hazards and preventive practices

CHAPTER 5: DISCUSSION

5.1 Introduction

This chapter critically examines and interprets the findings outlined in the previous chapter, focusing on the study's primary objectives. The overarching aim of the research was to evaluate occupational health and safety (OHS) risk awareness among food industry workers, with particular emphasis on how demographic features, departmental roles, and experience influence safety perceptions and accident trends. The discussion integrates insights from demographic data, safety awareness levels, the relationship between awareness and demographic factors, and accident patterns, providing a comprehensive understanding of safety culture within the organization.

5.2 Demographic profile of respondents and its influence on OHS risk awareness

The demographic analysis revealed that the workforce is predominantly young, with most respondents aged between 18 and 25 years, and consists mainly of males (60%). The concentration of younger males highlights a relatively inexperienced workforce, as evidenced by over half (53.3%) having less than five years of experience. Interestingly, the data suggests that older respondents (>40 years) are exclusively male, indicating a gender and age disparity in the senior workforce. Education levels are relatively high, with nearly half (46.7%) holding tertiary qualifications, which potentially influences safety perceptions positively.

The implications of these demographic features are significant. The prevalence of young, less experienced workers correlates with lower safety awareness, as detailed in subsequent analyses, highlighting the need for targeted training programs. The high educational attainment observed particularly tertiary education indicates that many workers possess the cognitive skills necessary to comprehend and adhere to safety protocols, although this does not automatically translate into behavioural safety compliance.

5.3 Level of OHS risk awareness among food workers

The assessment of safety awareness using a Likert scale indicated a moderate level of overall OHS risk perception. The scores ranged from 1.83 to 2.47, with the highest awareness noted in workers' recognition that the work environment presents hazards. However, awareness of reporting hazards and understanding safety procedures scored comparatively lower, signalling

gaps in specific safety knowledge areas. This moderate awareness level underscores the need for continuous education and reinforcement of safety practices.

A notable finding is the strong positive correlation between safety awareness and both experience and education. Workers with over 15 years of experience demonstrated full awareness (mean score = 5.00), suggesting that practical exposure plays a critical role in cultivating safety consciousness. Similarly, respondents with tertiary education exhibited significantly higher awareness scores (mean = 4.36), pointing to the importance of education in fostering safety literacy.

Departmental differences were also evident; technical roles such as maintenance and IT showed higher awareness levels due to mandated certifications and training, whereas production and sales departments exhibited lower awareness and higher incidents. These disparities reinforce the necessity for department-specific safety interventions to bridge awareness gaps.

5.4 Relationship between demographic features and safety awareness

The relationship between demographic characteristics and safety awareness was explored through various statistical analyses. The findings clearly indicate that both experience and education significantly influence safety awareness, with higher levels associated with increased knowledge and perception of risks. The ANOVA results confirmed that experience ($F(4, 25) = 9.842, p < 0.001$) and education ($F(4, 25) = 21.055, p < 0.001$) significantly affect safety awareness.

Conversely, age and department did not demonstrate statistically significant effects within the current sample, possibly due to the narrow age range or departmental homogeneity. Nevertheless, the positive relationship between lower experience levels and reduced safety awareness emphasizes the importance of continual training, especially for less experienced workers. Tailoring safety programs based on demographic profiles ensures interventions are relevant and effective.

5.5 Departmental differences in safety awareness and their impact on accident trends

Departmental variations in safety awareness were stark, with the transport department exhibiting the highest awareness scores (mean = 4.60), reflecting full safety consciousness,

likely due to specialized training and exposure. Conversely, production and sales departments recorded lower awareness levels, correlating with higher accident rates reported over the years.

Accumulated data over three years revealed marked differences in accident frequencies, with production and sales experiencing higher incident rates, such as machinery entrapment, slips, and vehicle collisions. These findings suggest that low safety awareness within these departments plays a pivotal role in accident causation. The insights underscore the importance of department-specific safety campaigns and reinforced training to align safety perceptions across roles.

The regression analysis ($R^2 = 0.9346$) further substantiates a strong inverse relationship between safety awareness and accident rates. Increasing risk perception among workers has the potential to significantly reduce workplace incidents, emphasizing that safety awareness is not merely informational but a critical intervention for accident prevention.

5.6 Chapter Summary

In summary, the study underscores the significant influence of demographic factors, specifically experience and education, on occupational health and safety awareness among food industry workers. The findings emphasize that younger, less experienced workers are less aware of safety risks, necessitating targeted training initiatives. Departmental disparities in safety consciousness further highlight the need for tailored safety strategies that address specific role-related risks and exposures.

The data also convincingly demonstrate that increased safety awareness and risk perception are strongly associated with reduced accident rates, advocating for continuous safety education. Implementing department-specific training, fostering a safety-oriented culture, and enhancing hazard perception can substantially mitigate workplace accidents.

Overall, the results advocate for a holistic safety management approach that combines demographic insights, targeted training, and ongoing safety promotion to elevate occupational health standards and ensure worker well-being in the food industry.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter synthesizes the key findings of the study, providing a comprehensive overview that aligns with the research objectives. It highlights the importance of understanding occupational health and safety (OHS) perceptions within the food industry, emphasizing how demographic characteristics, safety awareness, departmental roles, and hazard perception influence workplace safety performance. The chapter also offers practical recommendations to improve safety culture and suggests avenues for further research.

6.2 Summary of the Study

The study aimed to evaluate occupational health and safety risk awareness among employees in the food industry. By analysing demographic data, safety perception levels, departmental differences, and the relationship between hazard perception and accident rates, the research provided insights into the factors influencing safety behaviours. The findings underscore that demographic features such as experience and education significantly shape safety awareness. Workers with higher experience and educational attainment demonstrated better hazard recognition and safety compliance.

Furthermore, departmental disparities revealed that technical roles tend to have higher safety awareness, whereas operational and sales departments lag, correlating with higher accident rates. The analysis showed a strong inverse relationship between safety awareness and accident occurrence, emphasizing that improving risk perception can materially reduce injuries. Overall, the study highlights the critical role of targeted safety training, tailored interventions, and fostering a safety-conscious organizational culture.

6.3 Conclusions

The influence of demographic factors on occupational health and safety (OHS) risk awareness reveals important insights into how different worker characteristics shape safety perceptions and behaviours. Younger and less experienced employees tend to have lower awareness of safety risks, which underscores the critical need for early intervention through comprehensive safety education from the onset of employment. As workers gain more experience and age, their safety consciousness tends to increase, likely due to practical exposure to hazards and the development of cognitive maturity. This correlation suggests that ongoing training and

mentorship programs are essential to gradually elevate safety awareness among newer employees, ensuring they recognize and respond to risks effectively.

Despite moderate levels of general safety awareness observed across the workforce, specific gaps persist, especially in areas such as hazard reporting and adherence to safety procedures. These shortcomings highlight that awareness alone is insufficient to foster a truly proactive safety culture. Behavioural change strategies, including safety motivation, leadership commitment, and fostering a participatory safety climate, are necessary to translate awareness into consistent safe practices. Organizations must therefore not only focus on disseminating safety information but also on reinforcing safe behaviours through regular reinforcement, feedback, and incentives that encourage employees to prioritize safety in their daily routines.

The relationship between demographic variables and safety awareness is further reflected in department-specific disparities. Departments like maintenance benefit from higher awareness levels due to specialized training and certifications, translating into lower accident rates. Conversely, production and sales departments experience higher risks, partly attributable to lower safety perception and awareness. These differences indicate that safety interventions should be tailored to the unique risks and needs of each department. Moreover, improving hazard perception through continuous training and safety practices has proven essential in reducing workplace injuries. Heightening employees' hazard recognition capabilities can foster a vigilant safety culture, ultimately decreasing accident rates and promoting a safer working environment for all.

6.4 Recommendations

6.4.1 *Implement Continuous and Targeted Safety Training Programs*

To bridge safety awareness gaps, especially among young and inexperienced workers, organizations should develop regular, role-specific safety training modules that address department-specific risks and hazards.

6.4.2 *Foster a Safety-Driven Organizational Culture*

Management should promote safety as a core organizational value through leadership commitment, safety rituals, and recognition programs that incentivize safe behaviours.

6.4.3 *Tailor Safety Interventions by Department*

Departments exhibiting lower safety awareness should receive customized training and resources aligned with their specific hazards, ensuring relevant and impactful safety education.

6.4.4 *Enhance Hazard Perception and Reporting*

Encouraging proactive hazard reporting and conducting frequent safety drills will reinforce hazard recognition, fostering a culture of vigilance and prevention.

6.4.5 *Monitor and Evaluate Safety Performance*

Regular safety audits and feedback mechanisms should be established to assess the effectiveness of safety initiatives and continuously improve safety standards.

6.5 Areas of Further Study

Future research could explore the influence of organizational factors such as management commitment, safety climate, and peer influence on safety behaviours. Additionally, longitudinal studies examining the long-term impact of targeted training programs on safety culture and accident reduction would provide valuable insights into sustained safety improvements within the food industry.

REFERENCES

- Abe, A., Koyama, K., Uehara, C., Hirakawa, A., & Horiguchi, I. (2020). Changes in the risk perception of food safety between 2004 and 2018. *Food Safety*, 8(4), 90–96.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.
- Charlebois, S. (2022). Food safety risk perceptions during the COVID-19 pandemic. *Foods*, Special Issue.
- Chen, X., Li, Y., & Zhang, H. (2023). Occupational health and safety risk perception in SMEs of the food industry in China. *Journal of Safety Research*, 55, 123–135.
- Clarke, S. (2006). The relationship between safety climate and safety performance: A meta-analytic review. *Journal of Occupational Health Psychology*, 11(4), 315–327. <https://doi.org/10.53730/ijhs.v6nS3.6971>
- Garcia, L., Martinez, F., & Rodriguez, A. (2020). Risk perception and occupational accidents in food manufacturing. *Safety Science*, 48(4), 456–467.
- Garcia, M., & Martinez, L. (2018). Risk communication in the workplace. *Journal of Safety Research*, 34(4), 210–220.
- Griffin, M. A., & Neal, A. (2000). Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge, and motivation. *Journal of Occupational Health Psychology*, 5(3), 347–358.
- Handoko, L., Martiana, T., & Partiwi, S. G. (2022). Occupational health and safety risk perception: Comparison between permanent and temporary workers. *International Journal of Health Sciences*, 6(S3), 4852–4861.
- Hofmann, D. A., & Stetzer, A. (1996). A cross-level investigation of factors influencing unsafe behaviors and accidents. *Personnel Psychology*, 49(2), 307–339.
- Imran, M. (2023). Purpose and importance of health and safety policy. HSE Blog. <https://www.hseblog.com/purpose-and-importance-of-setting-a-health-and-safety-policy/>
- Johnson, R., & Brown, T. (2019). Emergency response training and workplace safety. *Safety Science*, 67, 45–52.
- Jones, A., & Brown, M. (2022). Occupational health and safety risk perception among food industry workers. *International Journal of Food Safety*, 50(1), 78–89.
- Kim, S., & Park, J. (2021). The impact of risk perception on safety behavior in the food industry. *Journal of Occupational Health and Safety*, 30(4), 345–360.
- Kim, Y., Park, I., & Kang, S. (2018). Age and gender differences in health risk perception. *Central European Journal of Public Health*, 26(1), 54–59.

Lee, H., et al. (2021). Behavioral changes following safety training. *Industrial Safety Journal*, 58(2), 78–89.

Lingard, H., & Rowlinson, S. (2005). *Occupational health and safety in construction project management*. Spon Press.

Madaleno, P., & Sousa-Uva, A. (2021). Occupational risk perception and work-related diseases prevention. *Portuguese Journal of Public Health*, 39(Suppl 1), 47.

Magalhães, L. M. C. A., Costa, K. T. S., Capistrano, G. N., Leal, M. D., & Andrade, F. B. (2022). A study on occupational health and safety. *BMC Public Health*, 22(1), 1–12.

Malik, U. (2023). Organisational factors that influence health and safety behaviour of workers. HSE Blog. <https://www.hseblog.com/organisational-factors-influence-health-safety-behaviour-workers/>

Marinaccio, A., Ferrante, P., Corfiati, M., Di Tecco, C., Rondinone, B. M., Bonafede, M., Ronchetti, M., Persechino, B., & Iavicoli, S. (2013). The relevance of socio-demographic and occupational variables for the assessment of work-related stress risk. *BMC Public Health*, 13(1), 1157.

Mearns, K., & Flin, R. (1995). Risk perception and attitudes to safety by personnel in the offshore oil and gas industry: A review. *Journal of Loss Prevention in the Process Industries*, 8(5), 299–305.

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.

Nguyen, C., & Tran, T. (2022). Factors affecting risk perception among workers in the food industry. *Journal of Occupational Health and Safety*, 31(3), 210–225.

Probst, T. M., & Brubaker, T. L. (2001). The effects of job insecurity on employee safety outcomes: Cross-sectional and longitudinal explorations. *Journal of Occupational Health Psychology*, 6(2), 139–159.

Rodríguez, M. (2024). Risk perception factors in workplace environments. Inspenet. <https://inspenet.com/en/articulo/risk-perception-in-work-environments/>

Rundmo, T. (1996). Associations between risk perception and safety. *Safety Science*, 24(3), 197–209.

Safe Work Australia. (2024). Psychosocial hazards. <https://www.safeworkaustralia.gov.au/safety-topic/managing-health-and-safety/mental-health/psychosocial-hazards>

SafetyCulture. (2024). What are psychosocial hazards at work? <https://safetyculture.com/topics/workplace-hazards/psychosocial-hazards/>

- Slovic, P. (1987). Perception of risk. *Science*, 236(4799), 280–285.
- Smith, J., Johnson, L., & Lee, R. (2021). Risk perception and safety compliance in the food industry. *Journal of Occupational Health and Safety*, 45(2), 123–135.
- Smith, J., Johnson, K., & Lee, M. (2021). The impact of risk perception on safety compliance in food manufacturing plants. *Journal of Occupational Health Psychology*, 26(4), 345–359.
- Smith, J., et al. (2020). The impact of safety training on hazard recognition. *Journal of Occupational Health*, 45(3), 123–135.
- Thompson, A., et al. (2022). Psychological effects of safety training. *Workplace Health & Safety*, 70(1), 15–25.
- Williams, J., Smith, K., & Brown, L. (2023). The impact of safety training on risk perception and compliance in the food industry. *Journal of Occupational Health and Safety*, 32(2), 145–160.
- Williams, P., Taylor, S., & Harris, D. (2023). The impact of safety training on risk perception in the food sector. *Food Industry Safety Journal*, 55(3), 210–225.
- Zohar, D. (2002). Modifying supervisory practices to improve subunit safety: A leadership-based intervention model. *Journal of Applied Psychology*, 87(1), 156–163.

APPENDICES

DEPARTMENT OF ENVIRONMENTAL SCIENCE



Bag 1020

BINDURA, Zimbabwe

Tel: 263 - 71 – 6505

Cell :0778371588

Email : vamugure@gmail.com

BINDURA UNIVERSITY OF SCIENCE EDUCATION

05 December 2024

Dear Sir/Madam

REQUEST FOR PERMISSION TO COLLECT DATA FOR ACADEMIC RESEARCH PROJECT

PROJECT TITLE: *ASSESSING OHS RISK PERCEPTION OF WORKERS IN THE FOOD INDUSTRY: A CASE STUDY OF BAKERS INN BREAD MANUFACTURING*

ACADEMIC SUPERVISORS:

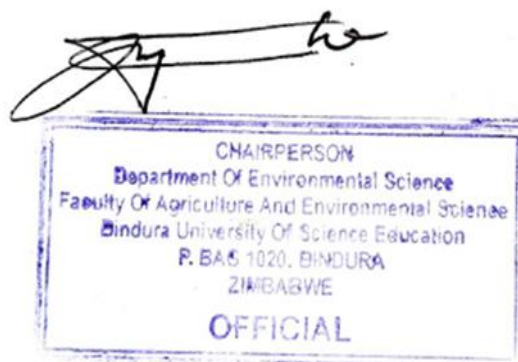
This letter serves to inform you that **Mwanyepedza Zanele, Registration Number (B211696B)** is a fourth year student at Bindura University of Science Education, in the Department of Environmental Science. During her fourth year of study she is supposed to do a research project in her area of specialisation.

Please assist in any possible way. Data collected will be used for academic purposes only and will not be published without your prior consent.

Thank you for your assistance.

Yours faithfully.

Mr T. Nyamugure
DEPARTMENT OF ENVIRONMENTAL SCIENCE





Bakers Inn Bread Manufacturing

1 Shepperton Road, Graniteside Harare

Date:

RE: AUTHORIZATION LETTER FOR RESEARCH CONDUCTED AT BAKERS INN BREAD MANUFACTURING

This letter serves as official confirmation that Zanele Mwanypedza (B211696B), a student at Bindura University of Science Education, pursuing a Bachelor of Science in Safety, Health, and Environmental Management, was granted permission to conduct research at Bakers Inn Bread Manufacturing as part of her academic thesis.

The research, titled "Assessing Occupational Health and Safety (OHS) Risk Perception Among Workers in the Food Industry: A Case of Bakers Inn Bread Manufacturing," was conducted within the company's premises. The study involved data collection through interviews and questionnaires administered to employees from various departments, including Production, Maintenance, Packing, Transport and Logistics, and IT.

We acknowledge that the research was carried out in a professional and ethical manner, with minimal disruption to daily operations..

Should you require any further verification, please do not hesitate to contact our office.

Authorized by: *Michael T. Rujusa*

Name:

Position: *SHEQ officer*

Date: *28 March 2025*

Company Stamp:

