BINDURA UNIVERSITY OF SCIENCE EDUCATION

DEPARTMENT OF ENVIRONMENTAL SCIENCE

Perceived occupational safety knowledge and practices of employees in a new construction industry: case of 4 Lions Builders Construction Company, Bindura.

By

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RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT TO THE REQUIREMENTS OF THE BACHELOR OF SCIENCE HONOURS DEGREE IN SAFETY HEALTH AND ENVIRONMENTAL MANAGEMENT (BSc. SHEM)

MAY 2024

SUPERVISOR APPROVAL LETTER

Supervisor Acceptance Letter

The Chairman

Department of Environmental Science

Date: 19 September, 2023

I wish to inform you that I am accepting *Blessing Ndebele (B201443B)* as my student to guide her research work leading to attainment of a BSc. (Hons) SHEM degree with Bindura University Science and Education. I will supervise her throughout the research process.

Proposed title:

Perceived occupational safety knowledge and practices of employees in a new construction industry: case of 4 Lions Builders Construction Company, Bindura

Sincerely,

A. Kanda (PhD PH, MSc WREM, BSc Hons Chem, PostGrad Dip WSS, Dip Ed)

DEDICATION

This project is dedicated to my family

DECLARATION

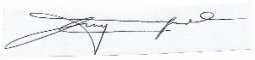
Registration number B201443B

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

Signature of the student.…  …Date: 28 June 2024

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

Signature of the supervisor…Date…15/ July 2024

Signature of the Chairman ….  Date…15/ July 2024

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ABSTRACT

Background: occupational safety is a critical concern in construction industry.
Objectives: Level of occupational safety knowledge and practices among employees in a new construction industry (4 Lions Builders Construction Company) were explored. Association between employees' demographic characteristics and their occupational safety knowledge and practices were determined.

Methods and materials: A closed ended coded questionnaire consisting of 27 items was self-administered to 40 participants on 10 May, 2024. Participants' responses were scored, summed up and categorized into levels of good, moderate and poor. Chi squared was used to determine whether there is association between demographic details and workers' occupational safety knowledge and practices.
Key findings: The company's majority of workers were general hands. It was dominated by males (85%). The majority of the participants (80%) had more than two years of work experience in the construction industry. About 60% of the participants had occupational safety training. Participants had moderate knowledge (3.40), and moderate level of practices (3.41) on occupational safety. There were significant associations between knowledge with years of experience (χ^2 = 79.006; p = 0.015) and age (χ^2 = 77.071; p = 0.021) of the participant. Similarly, years of experience and age of the participant were significantly associated with the level of practice (χ^2 = 79.825; p = 0.006 and χ^2 = 88.585; p = 0.001, respectively). Further, having received safety training was associated with the level of practice of the participant (χ^2 = 27.698; p = 0.049).

Conclusion: Participants had moderate level of knowledge, moderate level practices on occupational safety. The findings highlight the influence of demographics in shaping knowledge and practices suggesting the need for comprehensive interventions.

Key terms: association, demographic details, new construction workers, participants, practices.

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LIST OF ACRONYMS

ILO:	International Labour Organization
NSSA:	National Social Security Authority
KAP:	Knowledge, Attitude and Practices
PPE:	Personal Protective Equipment
ZimSat:	Zimbabwe National Statistics
SPSS:	Statistical Package for the Social Sciences

TURNTIN REPORT

CHAPTER 1: INTRODUCTION

Introduction

1.1 Background and context

Globally, construction is one of the high risky occupations for accident-related fatalities and injuries (0SHA, 2019; Birhane et al., 2020; Bumjin et al., 2021). It accounts for more than half of all fatal work accident (IFCW, 2022). Work-related (occupational) accidents cause around 2.7 million deaths per year and result in around 50 million lost work days every year (ILO, 2022). The annual fatality rate in the construction industry is estimated to be between 10 and 30 per 100 000 workers in Zimbabwe (ILO, 2022). In 2021, NSSA (2022) reported that there were 582 fatal injuries in the construction sector, with falls being leading cause of death.

Construction projects involve various complex hazards (Xiong et al., 2022). The commonest are (i) falls from heights caused by lack of safety compliance (Martinez-Perez et al., 2021), (ii) exposure to hazardous substances without proper safety equipment (Oluwafemi et al., 2017)), (iii) risk of being stuck by objects, (iv) electrocution, (v) musculoskeletal disorders, and (vi) fire and explosions (Oluwafemi et al., 2017; Bumjin et al., 2021). The industry is evolving which causes increasing complexities and risks, making occupational safety and health a critical concern. This may present challenges to new companies in the construction industry.

New organisations face unique challenges due to limited knowledge of occupational health and safety (OHS) risks (Okoro and Okoro, 2019), an important factor in the safety culture of construction workers (Mulimani et al., 2021; Tom and Collingwood, 2021). However, studies have shown that employees' good level of knowledge about safety and health hazards does not always match their attitudes and behaviour (Oluwafemi et al., 2017). Literature appears to show that there is a need to focus on employees in construction industry (Oluwafemi et al., 2017) because their knowledge on occupational hazards was found to be related to their attitude to and practices of occupational measures. Therefore, it is crucial to understand the knowledge and practices of employees in a new construction industry.

1.2 Problem statement

The new construction industry is characterised by unique challenges and risks (Bumjin et al., 2021) as projects involve various complex hazards (Xiong et al., 2022) necessitating a strong focus on occupational safety to ensure the wellbeing of employees. Despite the implementation of safety regulations and standards, and several training programmes to enhance employees' safety knowledge and practices, accidents are still common in the construction industry (Sungjin et al., 2020). There is a need for comprehensive understanding regarding perceived occupational safety knowledge and practices among employees in a new construction industry, under resource-constrained settings as they influence developing a safety culture. The current work used a local case study in a small town to understand this.

1.3.1 Aim

To explore perceived occupational safety knowledge and practices of employees in a new construction industry.

1.3.2 Objectives

- To determine the level of occupational safety knowledge and practices among employees in a new construction industry.
- To determine whether there is an association between employees' demographic characteristics and their occupational safety knowledge and practices

1.4 Research questions

- What are the levels of occupational safety and practices among employees at 4 Lions construction company?
- Is there any association between employees' demographic characteristics and their occupational safety knowledge and practices?

1.5 Significance of the study

Findings from the current study may be used to inform and make aware, workers in new construction companies of the anticipated safety knowledge requirements and good safety practice important to develop a safety culture. Further, they will inform management to craft

informed and tailor-made occupational safety training programmes to meet the safety knowledge and practices gap in the ever-evolving hazards of construction industry. Overall, the study findings will enhance the understanding of occupational safety in the construction industry, contributing to the broader knowledge base, supporting the effective strategies to enhance occupational safety within the construction industry.

1.6 Assumptions

- Participants will provide honest and accurate responses to survey questions.
- Sample represents the broader population of employees in the construction company.
- Occupational safety knowledge and practices remain stable during the study period.

1.7 Limitations

- Cross sectional study findings may affect the generalisability of the findings.
- Findings may be influenced by specific characteristics of participants
- Self-reported data which may be subject to recall or social desirability biases.

1.8 Delimitations

- The study focused on a selected organisation, not other workers or locations.
- The study focused on prevailing occupational safety among workers, not historical trends or future projections.
- A specific timeframe was considered without considering long-term effects or changes in occupational safety knowledge and practices
- Occupational safety challenges were beyond the scope of the study.

CHAPTER 2: LITERATURE REVIEW

2. Literature review

2.1 Introduction

This chapter provides a comprehensive understanding of the perceived occupational safety knowledge and practices of employees in a new construction industry. It synthesises existing research to examine various factors that influence employees' safety knowledge and practices.

2.2 Importance of the construction industry

The construction industry plays a crucial role in economic development of the country (Harold, 2023) by creating job opportunities, generating income, and attracting investments. Construction is essential for the development and maintenance of infrastructure, including roads, bridges, buildings, schools, hospitals, and utilities (Pheng, 2019).

2.3 Occupational safety knowledge in the construction industry

Occupational safety knowledge in the construction industry is critical due to the inherent risks and hazards involved, most common being falls from heights caused by lack of safety compliance (Martinez-Perez et al.,2021). Oluwaseun et al., (2022), emphasized that having adequate safety knowledge leads to reduction in accident rates and injuries on construction sites. He et al. (2023) found that knowledge can be determined by demographic details of workers. Research by Bumjin et al. (2021) emphasised the role of safety climate in influencing safety knowledge in the construction industry. Rejoice et al. (2023) concluded that occupational management systems are however essential to address the poor workplace conditions and risks that construction industry continues to encounter and enhancing safety knowledge when workers are well trained.

Key elements in promoting occupational safety knowledge in the construction industry include (i) effective safety training (Sungjin et al., 2020, Oluwaseun et al., 2022), (ii) regular safety inspections (Kofi et al., 2018), (iii) open and proper channel of communication (Bhavana et al., 2019, Norrazan et al., 2020), (iv) improving the employees' awareness and

attitude towards PPE (Syed et al, 2021), (vii) effective safety leaders who prioritise safety (Abdirahman and Fatemah, 2024), and (viii) offering safety rewards and incentives (Ouwaseun et al., 2022; Tianfei et al., 2022). Addressing these factors and promoting safety knowledge in new construction industry is crucial for protecting workers and creating safer working environment.

2.4 Occupational safety practices in the construction industry

Occupational safety practices in the construction industry are crucial to ensuring the well-being and health of workers on construction sites (Oluwaseun et al., 2022). Employers should provide comprehensive safety training to all workers, including new hires and subcontractors (Kofi et al., 2018, Sungjin et al., 2020, Oluwaseun et al., 2022). Regular inspections of construction sites should be conducted to identify potential hazards and risks (Kofi et al., 2018). This includes evaluating the structural integrity of scaffolding, identifying electrical hazards, assessing fall risks, and recognising potential dangers associated with heavy machinery and equipment. Risk assessments should be performed to determine the severity and likelihood of identified hazards.

Employers must ensure that appropriate PPE is provided to workers and that they receive training on its proper use (Syed et al., 2021). Employers should foster a culture of safety by promoting open communication and encouraging workers to report hazards, incidents, and near-misses (Bhavana et al., 2019, Norrazan et al., 2020). Regular safety meetings, safety programmes and toolbox talks can be effective in keeping safety (Kofi et al., 2018). There is a need to remain updated on relevant occupational safety regulations and ensure compliance with standards (Abdirahman and Fatemah, 2024).

2.5 Scoring of occupational knowledge and practices

The commonly used scoring method to determine KAP levels is the Likert scale (Tianfei et al., 2022; Oluwaseun et al., 2022, Rejoice et al., 2024). It is frequently used to assess occupational knowledge and practices. Respondents rate their level of agreement on a scale e.g., "strongly agree" to "strongly disagree" or "very frequently" to "never" with numerical scores attached for easy quantification of the degree of agreement (Kofi et al., 2018). The

scale has been used in similar studies (Tianfei et al., Kofi et al., 2018). The mean scores are calculated and rated where 1 is strongly disagree, 2 is disagree, 3 is neutral and 4 is agree, 5 is strongly agree (Oluwaseun et al., 2022).

Percentage scoring, as described by Busetto (2020), involves calculating the proportion of correct responses to the total number of questions in a specific KAP domain. This method allows researchers to rapidly assess participants' knowledge, attitudes, and practices related to a particular topic, based on factual correctness, as observed by Busetto (2020).

2.6. Theoretical framework

The independent variables are the demographic characteristics of employees such as age, gender, educational level and experience. The dependent variable is perceived occupational safety knowledge and practices. The framework suggests that employees' demographic characteristics may influence their occupational safety knowledge and practices.

2.7 Summary

The existing literature on the knowledge and practices of employees in new construction companies is limited. It shows that the management and leadership of the construction company has a great role to play on imparting knowledge to workers. A lot of training is needed. There is inadequate exploration of strategies and interventions that can effectively address these challenges and improve safety practices in new construction organisations. Comprehensive studies examining the impact of these poor safety knowledge and practices are lacking.

CHAPTER 3: METHODS AND MATERIALS

3. Methods and materials

3.1 Description of the study area

The study was conducted at 4 Lions Builders Company which is located in Bindura town (17.303138 S, 31,31988 E) about 88 km north east of Harare, Zimbabwe (Fig. 3.1). Bindura is the provincial town Mashonaland Central province. The town has a population 5 1394 (ZimSat, 2022). It is a fast-growing town hosting big mines such as Fredda Rebbecca, Trojan Nickel and Wran.

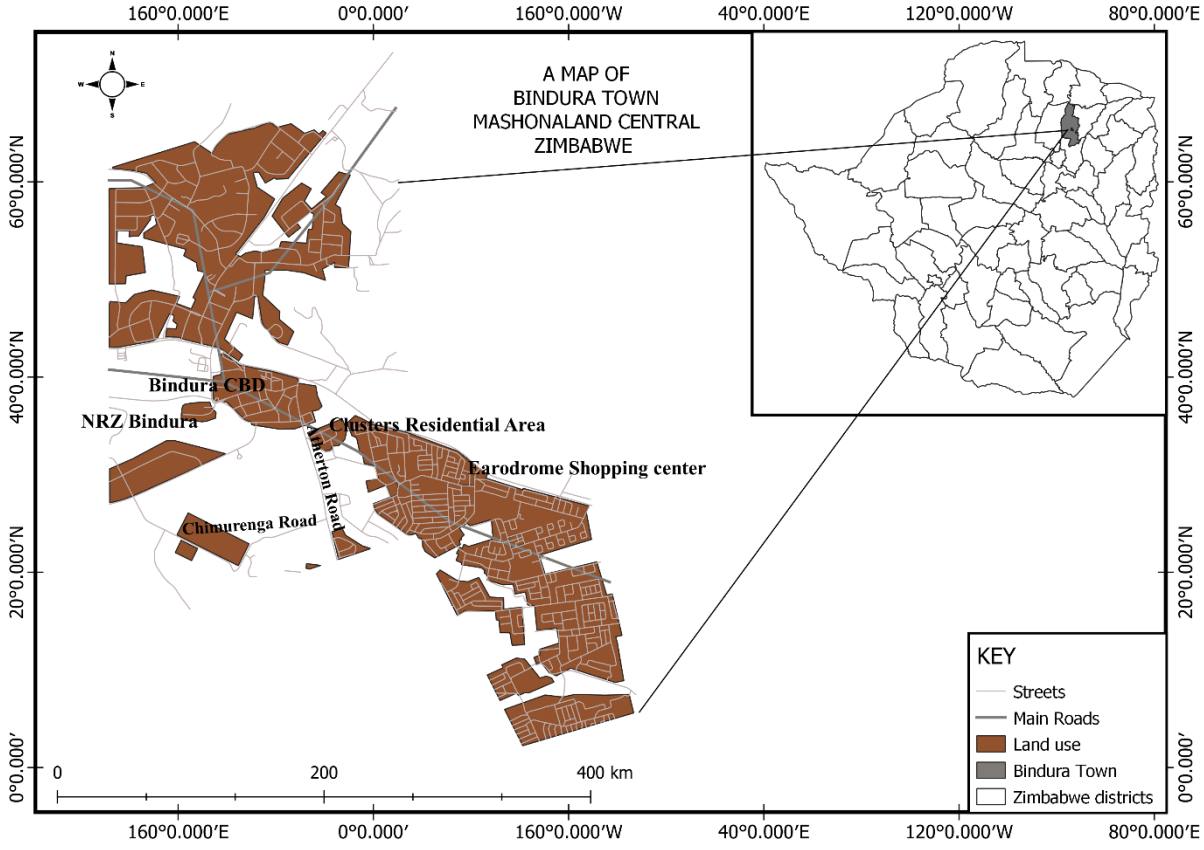

Figure 3.1 Map showing the location of the study area in Bindura, Zimbabwe

3.2 Research design

The study assumed a cross-sectional design using a new construction organisation as a case study. A cross-sectional study involves collection of data from a specific population at a particular point in time (Wang and Cheng, 2020). It was selected for the current study

because it allows gathering of information about the prevalence or distribution of variables of interest within the population, and is relatively faster and inexpensive (Wang and Cheng, 2020). A case study involves conducting an in-depth investigation of a particular individual, organisation, group, or situation (Oluwafemi et al., 2017). In this case, 4 Lions Builders Construction Company served as a case study.

3.3 Determination of sample size

The organisation comprises 40 employees. This was considered a small population. Therefore, the population was considered the sample size (Table 3.1).

Table 3.1 Workforce at 4 Lions construction company

Job description	Number of employees
Brickwork	8
Carpentry	8
Steel fixing	4
General hands	20
Total	40

3.4 Recruitment and selection of participants

The whole population was considered participants. Participation was based at the department level.

3.5 Ethical considerations

Organisational approval from the manager of 4 Lions Builders Construction company to conduct research and access the employees was first granted (Appendix 1). The research was conducted adhering to relevant ethical considerations where human subjects are used (Mirza et al., 2023). These included (i) fair presentation, (ii) protection from harm, (iii) informed consent, (iv) confidentiality of the details given by the respondents, (v) anonymity, and (vi) voluntary participation. The study protocol was cleared by Bindura University of Science Education through the department of Environmental Science (Appendix 2).

3.6 Research instrument

A closed-ended and coded questionnaire (27 items) was developed from literature (Oluwafemi et al., 2017; Kofi et al., 2019; Oluwaseun et al., 2022) to collect data on the perceived occupational safety knowledge, attitudes and practices among construction employees (Appendix 3.) The questionnaire had three sections: demographic characteristics of participants, safety knowledge, and practices. A closed-ended questionnaire allows for standardised data collection from a large number of participants (Oluwaseun et al., 2022). To address the potential disadvantage of self-report bias, it was evaluated by an expert and pre-tested in the field by administering it to 10 random construction workers. Responses were collected and analysed to identify issues or problems.

3.7. Data collection

A closed-ended questionnaire was self-administered to 40 workers at 4 Lions Builders construction company on 20 April. Participants were given three days to complete the questionnaire. The procedure was supervised by the company manager to ensure compliance and timely completion. Questionnaires were thoroughly checked for completion and correctness.

3.8 Data management

Data were entered into SPSS version 27 (Rejoice et al., 2023) in a way that facilitated statistical analysis. Demographic data were described using frequencies and percentages. To determine the level of knowledge and practices (good, moderate or poor), the mean score for each question and sum of all, were used as described by Only agree and strongly agree was considered in calculations to indicate one knows neutral to show moderate and strongly disagree and disagree poor knowledge (Oluwaseun et al., 2022). A mean value between 1 and 2 was considered poor, 3 bad and 4 - 5 good.

The Chi squared test was used to check for association between demography and KAP following the procedure described by (McClenaghan, 2023). Demographic details were cross tabulated with KAP levels, with statistical significance determined by the chi squared

statistic. The chi squared is appropriate to determine whether there is a significant association between demographic variables and KAP level, which is categorical outcome variable.

CHAPTER 4: RESULTS

4. Results

4.1 Demographic characteristics of participants

Table 4.1 shows the characteristics of participants. The results show that the company's majority of workers were general hands. It was dominated by males (85%). The majority of the participants (80%) had more than two years of work experience in the construction industry. About 60% of the participants had occupational safety training.

*Table 4.1 Characteristics of participants (*n =40*)*

Questionnaire item	Category	Frequency: number (%)
Job description	Brick layer	8 (20)
	Carpenter	8 (20)
	Steel fixer	4 (10)
	General hand	20 (50)
Gender	Male	34 (85)
	Female	6 (15)
Age group (years)	18 – 25	14 (35)
	26 - 35	18 (45)
	36 - 45	7 (17.5)
	Above 45	1 (2.5
Job experience (years)	Less than 2	8 (20)
	2 - 5	21 (52.5)
	6 - 9	6 (15)
	Above 10	5 (12.5)
Religion	Christianity	38 (95)
	Traditional	2 (5)
Level of education	Primary	2 (5)
	Secondary	19 (47.5)
	Tertiary	19 (47.5)
Received occupational	Yes	25 (62.5)

safety training	No	15 (37.5)

4.2 Level of knowledge of participants

Table 4.2 shows the level of knowledge of participants. The majority of participants had good knowledge in handling hazardous materials (82.5%; 4.30) and about their rights (90%; 4.28). Poor knowledge was observed for safety regulations (60%; 2.43) and evacuation procedure (40%; 2.70).

4.3 Level of practices of participants

Table 4.3 shows the levels of practices of participants at 4 Lions builders construction company. Results indicate an overall moderate level of practices (3.41). Participants reported good levels of practices in identifying hazards (75%; 4.18) and taking regular breaks (85%; 4,28). However, low practices were observed for seeking clarification (40%; 2.80), participating in safety meetings (42,5%; 2.95) and participating in improvement techniques (12,5%; 2.80).

*Table 4.2 Level of knowledge of participants (*n = 40*).*

	Questionnaire Item	Response frequency: number (%)					Mean score
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
1	I am aware of the potential hazards and risks associated with my job.	0	1 (15)	15 (37.5)	15 (37.5)	9 (22.5)	3.80
2	I understand the safety protocols and procedures to follow in my work area.	3 (7.5)	7 (17.5)	10 (25)	15 (37.5)	5 (12.5)	3.30
3	I received adequate training on OS for my job role	4 (10)	11 (27.5)	15 (37.5)	6 (15)	4 (10)	2.86
4	I am aware of safety communication systems in my workplace	2 (5)	7 (17.5)	18 (45.0)	10 (25)	3 (7.5)	3.13
5	I have sufficient knowledge of OS regulations and standards for my job.	8 (20)	16 (40)	9 (22.5)	5 (12.5)	2 (5)	2.43
6	I know the emergency evacuation procedure.	4 (10)	12 (30)	18 (45)	4 (10)	2 (5)	2.70
7	I have good knowledge about safe work practices in my workplace.	0	6 (15)	11 (27.5)	18 (45)	5 (12.5)	3.55
8	I know my rights and responsibilities regarding OS in my workplace.	0	2 (5)	2(5)	18 (45)	18 (45)	4.28
9	I am aware of the signs and labels used to identify hazard in my workplace.	0	1 (2.5)	16 (40)	18 (45)	5 (12.5)	3.68
10	I know safe handling of hazardous materials and equipment in my workplace.	0	3 (7.5)	4 (10)	12 (30)	21 (52.5)	4.30
	Overall level- moderate						3.40
	Levels: Good (mean =1-2,9), Moderate: (mean=3-3,9), poor: (mean = 4-5.0)						

*Table 4.3 Level of practices of participants (*n = 40*).*

	Questionnaire Item	Response frequency: number (%)					Mean scores
		Never	Rarely	Sometimes	Often	Always	
1	I actively participate in safety improvement initiatives	5 (12.5)	9 (20)	18 (45)	3 (7.5)	8 (15)	3.25
2	I wear appropriate personal protective equipment for my job	1 (2.5)	4 (10)	24 (60)	5 (12.5)	6 (15)	3.28
3	I report unsafe conditions or hazards to my supervisor or safety personnel	1 (2.5)	4 (10)	21 (52.5)	9 (22.5)	5 (12.5)	2.80
4	I participate in safety meetings or training sessions provided by my employer	6 (15)	11 (27.5)	13 (32.5)	5 (12.5)	5 (12.5)	2.95
5	I follow established safety procedures and protocols.	0	9 (22.5)	15 (37.5)	7 (17.5)	9 (22.5)	3.40
6	I take regular breaks and rests to prevent fatigue.	1 (2.5)	3 (7.5)	2 (5)	12 (30)	22 (55)	4.28
7	I first identify hazards and risks associated with the place I am working on.	2 (5)	1 (2.5)	7 (17.5)	8 (20)	22 (55.0)	4.18
8	I keep my work area clean and organised to prevent accidents.	1 (2.5)	1 (2.5)	12 (30)	22 (55)	4 (10)	3.68
9	I follow proper ergonomic practices to prevent musculoskeletal disorders.	4 (10)	4 (10)	9 (22.5)	14 (35.0)	9 (2.5)	3.50
10	I seek clarification on safety procedures or polices when needed.	10 (25)	8 (15)	13 (32.5)	4 (10)	7 (17.5)	2.80
	Overall level:						3.41
	Levels: Good (mean =1-2,9), Moderate: (mean=3-3,9), poor: (mean = 4-5.0)						

4.4 Association between KPP and demographic characteristics of participants

Table 4.4 shows the association between KPP and demographic characteristics of participants. Results shows that there were significant associations between knowledge with years of experience (χ^2 = 79.006; p = 0.015) and age (χ^2 = 77.071; p = 0.021) of the participant. Similarly, years of experience and age of the participant were significantly associated with the level of practice (χ^2 = 79.825; p = 0.006 and χ^2 = 88.585; p = 0.001, respectively). Further, having received safety training was associated with the level of practice of the participant (χ^2 = 27.698; p = 0.049).

Table 4.4. Association between demographic characteristics of participants and the levels of knowledge and practice.

Demographic factor	Knowledge		Practice	
	χ^2	p – value	χ^2	p - value
Job description	70.467	0.066	52.317	0.423
Safety training	28.085	0.061	27.698	0.049*
Age group	29.535	0.768	47.140	0.066
Religion	11.595	0.867	10.175	0.896
Years of experience	79.006	0.015*	79.825	0.006*
Age	77.071	0.021*	88.585	0.001*
Gender	19.115	0.382	22.353	0.172

* Indicates significant association ($p < 0.05$)

CHAPTER 5: DISCUSSION

5. Discussion

5.1 Introduction

This chapter discusses the findings of the study, relating them to broader literature and research questions. The results are interpreted in light of the research objectives and the potential reasons underlying the observed patterns. The implications of the findings for improving safety knowledge and practices in construction setting are explored.

5.2 Demographic details of study participants

The results show a predominantly male population and a relatively young age distribution with most participants falling in the range of 26 – 35 years of age. This is in agreement with other reports that the construction industry has historically been male-dominated with young workers more likely to be employed in physical demanding job (Oluwafemi et al., 2017, He et al., 2023). The majority of participants were general hands. Labourers generally comprise significant proportion of construction workers (Oluwafemi et al., 2017).

Most of the participants had 2-5 years of job experience. This could be explained by that construction workers often have limited tenure and job security (Oluwafemi et al., 2017). Several participants had received occupational safety training. This observation is quite encouraging as since training has been attributed to reduced workplace injuries and illnesses (Kofi et al., 2018, Oluwaseun et al., 2022). The need for continued attention to workforce demographics, training and safety in the construction industry has been highlighted (Oluwafemi et al., 2017).

5.3 Level of knowledge of participants

The majority of participants had good knowledge in handling hazardous materials and their rights, an encouraging finding. Handling of hazardous materials is a critical aspect of construction work (Oluwafemi et al., 2017). Therefore, workers are likely to receive specific training and awareness, even during safety talks. Awareness of workers' rights may be a result of efforts to promote worker empowerment and safety by their supervisors

(Abdirahman and Fatemah (2024). However, poor knowledge in safety regulations and evacuation procedures are concerns that need to be addressed.

The possible reasons for poor knowledge could be inadequate training, lack of effective communication (Kofi et al., 2018), and limited access to safety resources by the organisation (Belayutham, 2019). Oluwaseun et al. (2022) suggested that construction workers often receive inadequate training which can lead to knowledge gaps. These findings highlight the need for tailor-made targeted training and safety interventions to address the knowledge gaps and ensure a safer working environment.

5.4 Level of practices of participants

The moderate level of practices observed in various area in the study may suggest that while participants may be aware of the importance of safety, there is still room for improvement in translating this awareness into consistent practices. The moderate level of practices may be attributed to factors such as inadequate training, lack of supervision (Belayutham (2019), or limited resources, employees not being recognised for their good behaviours (Tianfei et al., 2022), and workload pressure (Kofi et al., 2018).

The low level of practices in seeking clarification and participating in improvement techniques among participants is a cause for concern as it may indicate lack of proactive approach to safety. This could be due to lack of encouragement from management (Abdirahman and Fatemah 2024), limited opportunities for participation, or fear of retaliation (Kofi et al., 2018). It is essential to address these gaps and promote a culture of safety participation and continuous improvement

5.5 Association between KPP and demographic characteristics of participants

The findings indicate significant association between age and level of practice, and age and knowledge. Older workers tend to have more experience and knowledge which translates to better safety practices (He et al., 2023). Older workers tended to exhibit higher levels of adherence to proper safety practices compared to younger workers. This may be explained by

the greater knowledge and experience that comes with age, allowing older workers to better recognize and apply appropriate safety behaviours (Oluwafemi et al., 2017). Younger construction workers may be more likely to adopt and apply new evidence-based practices, while older workers may be more resistant to change (He at al., 2023).

Similarly, the analysis found a significant association between the participant's years of experience and their level of knowledge and level of safety practices. Individuals with more years of work experience in the construction industry exhibited higher levels of knowledge about key safety practices (Oluwafemi et al.,2017). This aligns with the finding for age, as more experienced workers have had more time to develop their knowledge through on-the-job learning and training (He et al., 2023). The accumulation of knowledge and skills over time appears to translate into better safety behaviours on the job site (Oluwafemi et al., 2017). The analysis revealed a significant link between whether the participant had received safety training and their level of safety practices. Those who undergo safety training are more likely to exhibit higher levels of adherence to proper safety protocols and procedures (Oluwaseun et al., 2022). This highlights the importance of providing comprehensive safety training to construction workers to promote the adoption of safe work habits.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6. Conclusion and recommendations

6.1 Conclusion

The study found out that the participants had moderate knowledge (3.40), and moderate practices (3.41) on sanitary occupational safety. Age and work experience were significantly associated with knowledge of occupational safety ($p < 0.05$), age, work experience and receiving occupation safety training were associated with occupational safety practices. The novelty of the study lies in its examination of the participants' level of knowledge and practices under new construction company settings. The study findings are important as they highlight the need for targeted training and safety interventions to address knowledge gaps and promote culture of safety participation and continuous improvement.

6.2 Recommendations

- Provide regular and comprehensive safety training on safety regulations, evacuation procedures and hazardous material s handling to construction workers.
- Encourage worker participation in safety improvement techniques and provide opportunities for feedback and suggestions.

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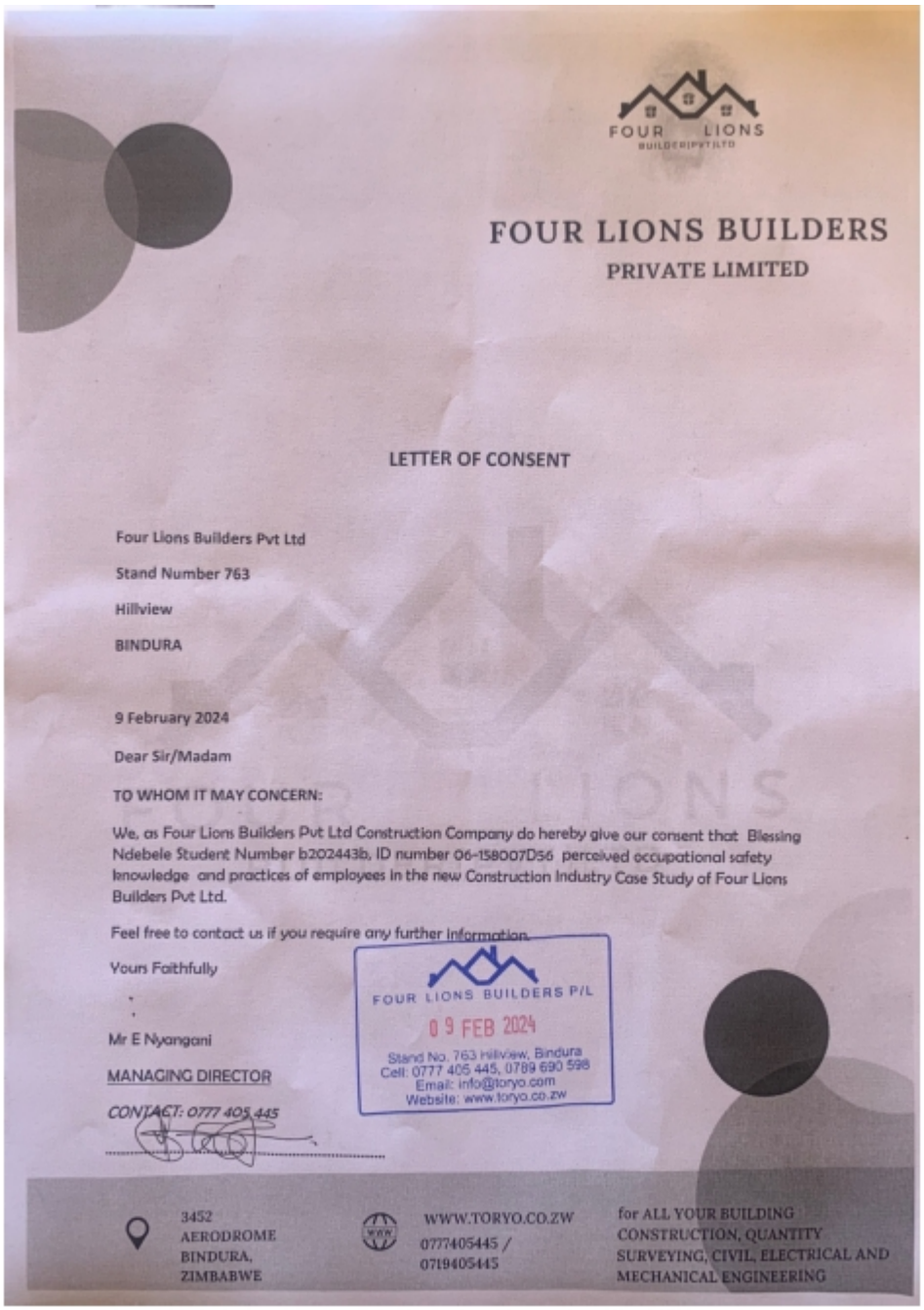
APPENDICES

Appendix 1: Consent letter from the company



FOUR LIONS BUILDERS
PRIVATE LIMITED

LETTER OF CONSENT

Four Lions Builders Pvt Ltd

Stand Number 763

Hillview

BINDURA

9 February 2024

Dear Sir/Madam

TO WHOM IT MAY CONCERN:

We, as Four Lions Builders Pvt Ltd Construction Company do hereby give our consent that Blessing Ndebele Student Number b202443b, ID number 06-158007D56 perceived occupational safety knowledge and practices of employees in the new Construction Industry Case Study of Four Lions Builders Pvt Ltd.

Feel free to contact us if you require any further information.

Yours Faithfully

Mr E Nyangani

MANAGING DIRECTOR

CONTACT: 0777 405 445

FOUR LIONS BUILDERS P/L
09 FEB 2024
Stand No. 763 Hillview, Bindura
Cell: 0777 405 445, 0789 690 598
Email: info@toryo.com
Website: www.toryo.co.zw

3452
AERODROME
BINDURA,
ZIMBABWE

WWW.TORYO.CO.ZW
0777405445 /
0719405445

for ALL YOUR BUILDING CONSTRUCTION, QUANTITY SURVEYING, CIVIL, ELECTRICAL AND MECHANICAL ENGINEERING

Scanned with CamScanner

Appendix 2: department consent letter

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

DEPARTMENT OF ENVIRONMENTAL SCIENCE

P. Bag 1020
BINDURA, Zimbabwe
Tel : 263 - 71 – 6505
Cell : 0778371588
Email :
tnyamugure@buse.ac.zw

BINDURA UNIVERSITY OF SCIENCE EDUCATION

14 March 2024

Dear Sir/Madam

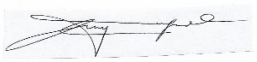
REQUEST FOR PERMISSION TO COLLECT DATA FOR ACADEMIC RESEARCH PROJECT

This letter serves to inform you that **Ndebele Blessing (B201443B)** 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
Chairperson - Department of Environmental Science

Appendix 3: Study questionnaire

BINDURA UNIVERSITY OF SCIENCE EDUCATION

DEPARTMENT OF ENVIRONMENTAL SCIENCE

Date- 10 May 2024

Research questionnaire

Introduction

My name is Blessing Ndebele (B201443B) a final year student studying towards obtaining a BSc degree in Safety, Health and Environmental management with Bindura University of Science Education. I am conducting a research project entitled '*Perceived occupational safety knowledge and practices of employees in a new construction industry: case of 4 Lions Builders Construction Company, Bindura*'. You have been chosen, like everyone else, to participate in the study. The information collected may be used to inform management to make informed decisions making prevent the occurrence of accidents. Information shared is only used for academic purposes and cannot be traced back to you. If you agree to participate it means I have your informed content. The interview will take about 30 minutes.

Contacts:

Blessing: 0788551273 (calls), 0713796016 (WhatsApp only).
Academic supervisor: Dr. A. Kanda (0772773560)

Interview date: …… Venue: …… …… Time: …….

INSTRUCTIONS

Tick in the space for the number corresponding to your responses

Section 1: Demographic information

1. Job description: **1**. Brick layer **2**. Carpenter **3**. Steel fixer
4. General hand **5**. Management

2. Gender of participant: **1**. Male **2**. Female

3. Age group (Years) **1**. 18 - 25 **2.** 26 - 35 **3.** 36 - 45 **4**. Above 45

4. Job experience (Years) 1. less than 2 **2.** 2 – 5 **3.** 6 – 9 **4**. ≥ 10

5. Religion **1**. Christianity **2.** Muslim **3**. Traditional **4**. Other

6. Highest level of formal education completed
1. None **2**. Primary **3.** Secondary **4**. Tertiary

7. Received occupational safety training **1**. Yes **2**. No

Section 2: Perceived occupational safety knowledge

Please indicate your level of agreement with the following statements by placing a tick against responses given.

	Questionnaire Item	Responses				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I am aware of the potential hazards and risks associated with my job.					
2	I understand the safety protocols and procedures to follow in my work area.					
3	I received adequate training on occupational safety for my job role					
4	I am aware of safety communication systems in my workplace					
5	I have sufficient knowledge of the occupational safety regulations and standards that apply to my job.					
6	I know the emergency evacuation procedure.					
7	I have good knowledge about safe work practices in my workplace.					
8	I know my rights and responsibilities regarding occupational safety in my workplace.					
9	I am aware of the signs and labels used to identify hazard in my workplace.					
10	I know how to handle hazardous materials and equipment safely in my					

	workplace.					

Section 3: Perceived occupational safety practices

Please indicate the frequency of the following safety practices you engage in:

	Questionnaire Item	Responses				
		Never	Rarely	Sometimes	Often	Always
1	I actively participate in safety improvement initiatives					
2	I wear appropriate personal protective equipment for my job.					
3	I report unsafe conditions or hazards to my supervisor or safety personnel					
4	I participate in safety meetings or training sessions provided by my employer					
5	I follow established safety procedures and protocols.					
6	I take regular breaks and rests to prevent fatigue.					
7	I first identify hazards and risks associated with the place I am working on.					
8	I keep my work area clean and organised to prevent accidents.					
9	I follow proper ergonomic practices to prevent musculoskeletal disorders.					
10	I seek clarification on safety procedures or polices when needed.					

THE END