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A STUDY INTO KNOWLEDGE, ATTITUDES AND PRACTISES ON OCCUPATIONAL HAZARDS AND RISKS. A CASE OF DIAMOND CEMENT.

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

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DECLARATION

To be compiled by the student

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

Signature of the student……Date……

To be compiled by the supervisor

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

Signature of the supervisor……Date…….

DEDICATION

This research project is dedicated to all Diamond Cement workers and all who have fallen victim of occupational hazards and risks.

ACKNOWLEDGEMENT

I would like to thank the General Manager of diamond cement Mrs Gong Lilly who happily allowed and gave me permission to carry out my research project among the workers at diamond cement. I would also like to give thanks to my supervisor Mr Tendai Nyamugure who did a great job to patiently guide, encourage, and correct me throughout the journey, and until the end of this research project. Above all, I would like to thank the Almighty God who continues to guide and protect me in my day to day activities.

ABSTRACT

Background: Occupational hazards and risks are among the most frequently reported occupational dangers and have depicted increasing exposure trend from cement manufacturing sector. There are limited studies about Knowledge, Attitude and Practices (KAP) on occupational hazards and risks from employer and employee perspectives. Hence, it is necessary to discover the underlying KAP factors in order to provide interventions to prevent occupational hazards and risks. This study aims to develop an appropriate KAP instrument, identify the pattern of KAP on hazards and risks from employee and employer perspective, and to compare the level of KAP on hazards and risks among employee and employer.

Materials and methods: The study was carried out at Diamond Cement in Zimbabwe. A descriptive cross-sectional study was carried out and research questionnaires were used as data collecting instruments. 100 research questionnaires were administered among the respondents. The questionnaire consisted of four sections, demographic characteristics section, knowledge, attitude, and practices (KAP) section. Data analysis was performed using Microsoft Excel 2019 and SPSS version 20. Binary logistic analysis was used to determine factors affecting Covid-19 vaccination among the respondents.

results: A total of 100 respondents participated in the survey, with 79% males and 21% females. The respondent's knowledge score was quite fair (58.4%). The attitudes score was also quite poor (47.7%). The practice score was (64.9%) which was quite good. The majority of the respondents (70%) knew the types of hazards in their workplace. The majority, (70%) of the respondents think job rotation cause hazards and risks and (69%) of the respondents were willing to learn about risks and hazards in their work place while 29% of the respondents were not willing to learn at all. KAP towards hazards and risks was significantly associated with age class (p=0.0318), work experience (p=0.0172), educational level (p=0.0148) (95% CI, 5% Significance)

Conclusion: The respondents had fair knowledge and attitudes towards occupational hazards and risks. The respondents demonstrated good practices towards hazards and risks. KAP towards occupational hazards and risks was significantly associated with age class, work

experience, educational level. Despite fair knowledge and good practices, the respondents were worried about future unknown effects of most of the hazards and risks in the workplace.

recommendations: Periodic training on occupational hazards and risks so as to increase awareness on control measures. Constantly monitor and supervise employees on safety procedures. Improve working conditions thus enhancing safe practices. The organisation to invest in occupational health and safety.

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1.1 INTRODUCTION

A hazard is anything that can cause harm for example electricity, chemicals, working up a ladder, noise, a keyboard, a bully at work, stress to mention but a few. A risk is the chance, high or low, that any hazard will actually cause somebody harm. Occupational health and safety has become a public health priority in industrialized countries and a primary concern, especially in high risk industries (rachid et. al. 2015. In addition to the various health hazards, Bcement workers are especially exposed to dust which causes lung function impairment, obstructive lung disease, restrictive lung disease, pneumoconiosis and carcinoma of the lungs, stomach and colon at various production process such as quarrying, crushing, raw material grinding, blending, kiln burning, cement grinding and packaging in cement industry (Meo 2004).

Dust emissions are one of the most significant impacts of cement manufacturing and associated with handling and storage of raw materials (including crushing and grinding of raw materials), solid fuels, transportation of materials (e.g. by trucks or conveyor belts), kiln systems, clinker coolers, and mills, including clinker and limestone burning and packaging/bagging activities (IFC 2007). Packaging is the most polluting process (in terms of dust) in cement production (Cumbane 2011). Nitrogen oxide (NOX) emissions are emitted from the high temperature combustion process of the cement kiln. Carbon dioxide defined as greenhouse gas is mainly associated with fuel combustion and with the decarbonation of limestone (IFC 2007). In addition to specific hazards, there are also general hazards in all of the cement manufacturing process such as safe behaviour, work equipment, safety labelling, personal protective equipment (PPE), manual load handling. Typical injury causes in cement plants are defined as slips, trips and falls (29%); falling or moving objects (19%) and lifting, overload and exertion (18%). Fatalities are the most serious tragedy that can happen in the cement Industry. 79% of all fatalities arise from 3 main causes: Traffic & Mobile Plant (43%), Falls from Heights & Items falling (21%) and Caught in Moving/Starting Equipment (15%).

El - Sobky (2008), indicates that workers are exposed to many health hazards which are tremendously harmful on their health, these hazards may result from physical, chemical and mechanical agents, which could have a detrimental influence on their health. Cement can cause ill health in workers through skin and eye contact or inhalation. The risk injury attached to the cement factory workers depends on the duration and level of exposure and individual sensitivity. (Saucier and Jane, 2004:45). The term “cement” was derived from the Latin word

cementum, which means stone chippings that were used in roman mortar. This hydraulic cement was discovered during ancient Greece and rome where it was made from volcanic ash mixed with slaked limes, and the roman engineer Vitruvius describes the surprising properties of this mixture differed completely from all other materials and was even able to set under water by Smeaton, 1758. There are difficulties to determine the extent of work-related illnesses and diseases because of the delayed period of most occupational diseases on workers in the cement factory. Environmental Health and Safety Management (2009) explains that some of the diseases do not emanate on the workers' health quickly as expected. When the diseases finally manifest it is often difficult to trace the root causes to the workers' past exposure (ElSobky, 2008:46). The International Labour Organisation (ILO) observed in 2008 that more than two million workers die each year from work-related accidents and diseases, and added that this is probably an underestimation. The ILO estimates that workers suffer 270 million accidents and at least 335 000 fatal injuries annually, while avoidable occupational diseases affect 160 million people every year. The results of a study by (McCann and Babin 2007:10) show a need for good dilution ventilation and additional protective gear such as goggles and NIOSH-approved toxic dust masks for workers in the chemical industry. This is very important for the cement chemical section; as such masks will protect the workers from hazardous toxic materials. Many cement factories around the globe are re-examining their factory operations in a fundamental way.

1.2 PROBLEM STATEMENT

Cement is mostly found everywhere in everyday life and it is hard to imagine a modern society without it. But workers in these cement factory are exposed to many occupational hazards which contribute to work injuries, while some workers become allergic to chromium content in cement component. A significant percentage of all workers in cement factory are allergic to chromium dust particles in cement, these cement dust particles symptoms ranging from a mild rash to severe skin ulcers. According to (Zuskin, et al., 2007) cement, had a significantly higher prevalence of chronic cough, chronic bronchitis, hearing disorders and chronic sinusitis attacking worker's health in workplace. It shows that both workers and people living in the vicinity of cement factories are at risk, as it has been suggested that the components of cement dust can be airborne and inhaled. When the cement dust enters the bloodstream it is transported to the different tissues of the body, including the liver, spleen, heart, bone, and muscles. This could affect the physiological micro-structure and performance and if an irritation of the eyes

is not treated immediately, chemical burns leading to blindness can be caused (Saucier and Janes, 2004). Therefor there is the need to assess the knowledge and attitudes practises towards hazards and risks at Diamond Cement so as to reduce occupational hazards and risks.

1.3 OBJECTIVES

1. To determine the knowledge of Diamond Cement workers on Hazards and risks associated with their workplace
2. To determine the attitude of Diamond Cement workers on hazards and risks in their workplace
3. To determine the practices of Diamond Cement Workers towards Hazards and risks at their workplace
4. To determine the factors influencing Diamond cement employees' knowledge, attitudes, and practices towards hazards and risks prevention

1.4 RESEARCH QUESTIONS

1. What knowledge do the Diamond Cement employees have on Occupational hazards and risks?
2. What attitude do the Diamond Cement employees portray towards Occupational hazards and risks?
3. What are the Diamond Cement employees' practices towards Occupational hazards and risks?
4. What might be the factors that significantly influence the Diamond cement employee's knowledge, attitudes, and practice towards the Occupational hazards and risks associated with their work place?

1.5 JUSTIFICATION

Workplace safety refers to the limitation of elements that can cause harm, accidents, and other negative outcomes in the workplace. It represents a culmination of policies, behaviours, and precautions that work to limit hazards, accidents, and other kinds of harm in a work environment. More often than not, workplace safety directly affects the productivity and well-being of your workforce, and these directly affect the quality of output of your business. Hence, employers must strive to create a safe environment that offers an acceptable level of risk for all employees. Also, employees must be quick to identify situations and conditions in the workplace that can jeopardize their safety or expose them to unacceptable risk levels. The study

will be beneficial to all district stakeholders involved in health management. Having a rudimentary understanding of Occupational hazards and risks will assist the community. Employees' and the surrounding community's knowledge, attitude, and habits will aid in the suppression of these Hazards and risks resulting in increased productivity. This will benefit the health of the workers and will also save the corporation money by buying less medication. The research will help Diamond Cement to know the sources of Hazards and risks in workplace and to manage the identified hazards. By identifying the hazards and managing them this will protect the employees' health and safety.

CHAPTER 2

2.0 INTRODUCTION

Since this research is centred on a KAP Study, this chapter seeks to dwell on previously published work on the Knowledge, Attitude, and Practices towards Occupational safety ,hazards and risks as well as identifying factors that could affect the Knowledge, Attitude and Practices people have towards the Occupational safety ,hazards and risks.

2.1 DEFINNITION OF HAZARDS AND RISKS

The meaning of the word hazard may be unclear since definitions commonly mix hazard with the phrase danger. Actually, danger and risk are extremely different. A hazard is any cause of possible damage, injury or ill health impact on something or someone (Balkhyou and Ahmad, 2019). Basically, a hazard is anything that may cause harm or undesirable consequences such as to persons as health impacts, to the environment or to organizations as property or equipment damage. Some instances are: a lighted cigarette, a damp floor, direct exposure to the sun, or exposure to harmful substances. risk is the likelihood or probability that a person may be injured or have an undesirable health outcome if exposed to a danger (Tamene *et al.*, 2020).. For example: there is a chance of acquiring lung cancer from breathing construction dust, of tripping on the wet floor and fracturing a bone, of developing skin cancer from long-term exposure to the sun.

2.2 OCCUPATIONAL HAZARDS AND RISKS AT DIAMOND CEMENT PLANT

Inhalation: Inhaling excessive quantities of cement dust may occur at any time when employees are handling cement. In the short term, such exposure irritates the nose and throat and causes choking and trouble breathing. Packing and loading may potentially discharge enormous volumes of dust with high levels of crystalline silica. Prolonged or recurrent exposure may lead to a debilitating and sometimes deadly lung illness called silicosis. Some studies also reveal a relationship between crystalline silica exposure and lung cancer.

Eye contact: If your eye comes in touch with the cement dust it may cause immediate or prolonged irritation of the eyes. Depending on the degree of exposure, impacts may vary from redness to chemical burns and blindness (Ngah *et al.*, 2022).

Allergic skin reaction: Some employees develop allergic to the hexavalent chromium in cement. A tiny but substantial proportion of all employees using cement will develop an allergy to chromium, with symptoms ranging from a slight rash to serious skin ulcers. In addition to

skin responses, hexavalent chromium may induce a pulmonary allergy termed industrial asthma. Symptoms include wheezing and trouble breathing. Workers may develop both skin and respiratory sensitivities to hexavalent chromium. It's possible to work with cement for years without any allergic skin reaction and then to suddenly develop such a reaction. The condition gets worse until exposure to even minute quantities triggers a severe reaction. The allergy usually lasts a lifetime and prevents any future work with wet concrete or powder cement.

Falls: Falling, tripping, and slipping on loose materials all contribute to falls being one of the top three causes for injury, time off, or death at diamond cement workplace. Keeping an eye out not only for where one is walking but what is in one's path getting there is just as important as wearing safety gear.

Powered Industrial Trucks: Workplace deaths and injuries that involve powered industrial equipment is another top three hazard that workers face at diamond manufacturing site. Proper training and procedures should be followed at all times, something that OSHA will gladly provide.

Electrical Hazards: Besides the common vocational hazards faced by engineers and electricians, diamond cement company contain electrical hazards that put employees at risk. Unfastened electrical panels, exposed wiring, inadequately placed gear, and myriad additional potential for electrocution put personnel at danger. Verifying that equipment is correctly placed, wire is insulated, and electrical panels are secured are basic actions to keep employees safe when working near electrical components.

Working at heights: Working at heights is regarded any tasks taking place where the worker may face a fall of 3 feet (1m) or higher in walkway areas or 9 feet (3m) or higher on scaffolding and ladders etc. This involves work in locations such as loading docks, employing scissor lifts and other aerial platforms, ladders, scaffolding, rooftop work, or holes in the work area floor. Where the fall hazard is located along a walkway area, guardrails are recommended in order to prevent workers from falling. When the fall is 9 feet or greater fall protection devices and systems are necessary.

2.3KNOWLEDGE OF PEOPLE TOWARDS OCCUPATIONAL HAZARDS AND RISKS

The principal hazards and risk in the cement business are dust related, which is released from many areas of the manufacturing process such as the raw material crusher, rotary kiln, cranes,

mills, storage silos and packaging sections (Gautam and Prasain, 2011). Air born dust levels have been observed in the air of workplace of cement manufacturers from less than 5 to more than 40 mg/m3. The aerodynamic diameter of the cement dust varies from 0.05 to 20 lm that is adequate to create a target for complete respiratory tract to be infected (Singh and Pandey, 2011). The exposure to cement dust, fume and gases have led to impairment of breathing and a predominance of respiratory symptoms amongst employees resulting in what has been defined as a "Cement factory lung disease" The degree of the impairment of pulmonary function has been demonstrated to depend on exposure up to sever years (Fanan-Ujoh et al., 2014). In the same manner, cement dusts induce chronic obstructive lung disease, restrictive lung disease, pneumoconiosis, and cancer of the lungs, stomach and colon. Other studies have shown that cement dust may enter into the systemic circulation; thereby reach the essentially all the organs of body and affect the different tissues including heart, liver, spleen, bone, muscles and hairs; and ultimately affecting their micro-structure and physiological performance (Zeleke et al., 2010).

Employees who work in cement manufacturing businesses that involve the use of equipment and tools such as construction or transportation are at risk of machinery and tools accidents. A survey by the Occupational Safety and Health Administration estimates that 12 of the 874 fatalities in these sectors in 2014 were from equipment and tools incidents. In many cases, these accidents are caused by the risks and hazards associated with the use of faulty equipment, lack of adequate knowledge, product defects, or negligence of stipulated safety precautions. Common examples of workplace machinery and tools accidents are: \s• A burn caused by a faulty heater in the factory.

• Falls from a defective ladder or shaky scaffolding.

• Cuts from broken tools or sharp tool edges.

• Injuries caused by the use of the inappropriate tool.

• Hearing loss as a consequence of working in the workplace without earmuffs.

Lacerations or amputations as a consequence of the usage of equipment without safety devices. Crush injuries due to machine entanglement. Workers who are victims of equipment and tools accidents are entitled to some type of compensation that caters to medical bills and similar expenditures. If the accident was caused by a faulty product, such an employee may have a product liability claim against the maker (s) of the equipment.

2.4ATTITUDES OF PEOPLE TOWARDS OCCUPATIONAL HAZARDS AND RISKS

Workers beliefs and attitudes towards their occupational hazards and risks have been described in some studies. Different people have different attitudes toward the risk and hazards around them. Many individuals believe that dangers and risks impact or happen to others around them, but not to themselves. They may be knowledgeable enough to know that things may happen and have impacts to anybody at any moment, but they never truly feel or think that they will be directly involved. People with this attitude are more prone to enhance their risk by taking risks. A built-in sense of invulnerability originates as a survival mechanism It allows people to cope with the prospect of injury or death. If everyone believed they would be injured constantly, we would never have left the cave. People observe horrible things happening to others so they believe that if they make the "right" choices, they will be (Alrig Gebreeyessus 2022). Of course, not every occurrence is a consequence of poor decision making or not being aware of risks around them that's why they're called accidents. The impression of invulnerability should be matched alongside an equally sharp sense of vigilance.

Workers typically want to show that they are better than one another. People with this mentality desire to show themselves and will do so by taking risks to impress others. While this trend is regarded to be a masculine feature, women are equally vulnerable (Qaraman *et al.,* 2022). Confidence sometimes outweighs talent. When there is a strong desire to achieve a goal, individuals trick themselves into thinking that they can do something that strains the bounds of their talents and that they have enough experience that no dangers or hazards can bring them down. People with this mindset feel the need to always show that they are superior to others. Foolish risks like carrying too much or driving too quickly are done to display their superior skills (Ngah *et al.* 2022). Keeping this mind set in control, and recognising limitations, is crucial for the safety of everyone. Being wounded while taking a dumb risk is worse than any supposed appraisal of strength.

Some employees don't want to be told what to do share the anti-authority mentality. They may assume that "No one can tell me what not to do". They may be irritated of having someone attempting to tell them what to do and may see rules, regulations, and processes as superfluous or foolish. While it is one's responsibility to challenge authority and seek for flaws, doing so continually, and without looking for alternate answers, may lead to difficulties. The very real risks of falls, crushing, punctures, etc. are neglected for the sake of ease or expediency. They

are justified with an anti-authority attitude since they could persuade themselves that the rules don't apply in this specific case and that they can get away with neglecting them. Psychological pressures are the most typical cause of enabling anti-authority attitudes to run uncontrolled.

Workers don't pause to think about what they're going to do and fail to contemplate whether they should be doing it. They generally don't choose the ideal choice but instead, do the first thing that comes to mind. Often, the need to respond fast is important in response to a changing circumstance but there are instances when it may lead to difficulty because there is need to complete a risk assessment of the region you are operating in.

2.5 PRACTISES OF PEOPLE TOWARDS OCCUPATIONAL HAZARDS AND RISKS

According to Adesokan and raji, (2014) if certain individuals know there will be no resource for certain degrees of rule-bending save maybe a sharp word or an email then they'll be more prone to flout these rules, perhaps at the price of their own safety and others. For example, they drive a forklift into the heart of the manufacturing floor knowing the dangers and hazards, even though it should follow a designated safety corridor since they know nobody will say anything. Workers tend to have this conscious behaviour to forget things and have no idea they're at risk until they've made the mistake (Zahiri *et al.* (2020),

Memory is reinforced through repetition and daily toolbox talk to remind people of the dangers and risks of their work place even if they feel like they know it. The more times we do something, the more entrenched it becomes in our brain. This is why regular training is the best way to become a professional and why you can drive to work in the morning without thinking about the direction you're going. Eliminating the risk of forgetful behaviour is about adapting the subconscious to be aware of things, to get your workers essentially following health and safety automatically (Simpson *et al.* (2016).

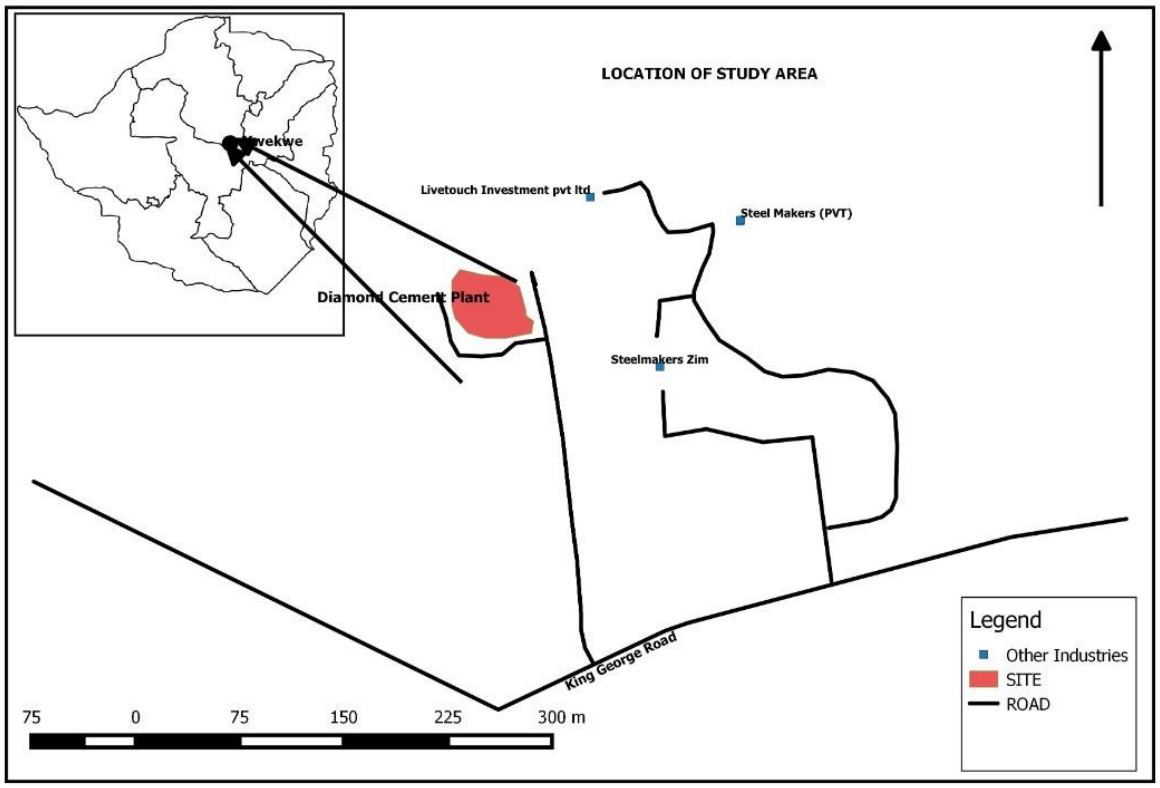
The practices of the top management towards occupational hazards and risks of their work to see human error and behaviour as the biggest cause of workplace accidents without doing the root cause analysis of accidents which are usually hazards, with surveys suggesting up to 80% of incidents are caused by such problems. However, a report for the Health & Safety Executive by Martin Anderson, Specialist Inspector of Health & Safety, found that in many cases, it was the mind-set of business management that was causing health & safety hazards, not employee behaviours at all. risk analysis, audits and making judgments based upon such study. In brief,

management concentrates on front-line personnel being the cause of health & safety problems, the fact is that it is the actions of management that is causing risks a quotation from Anderson's paper implies.

CHAPTER 3

3.0 STUDY AREA

The study was confined to Diamond Cement redcliff Division, a producer of high carbon quality cement brands. This division is situated in the city of redcliff.



3.1 STUDY DESIGN

This research employed a cross-sectional study design. A cross-sectional study is a type of observational research that examines data from variables collected at one point in time across a sample population or a pre-defined subset of the population (Brandon, 2018). Since the study is descriptive, the data collected through questionnaires were analysed using both qualitative and quantitative tools. Cross-sectional studies are much easier to perform than other options that are available to researchers because there is no follow-up required with this type of research. Once the information is collected from the entire study group, it can be analysed because only that single time reference is considered. A sample of 100 participants was used to collect data during the research.

3.2 STUDY POPULATION

The population in statistics includes all members of a distinct group that one is studying or collecting information on for data driven decisions. The target population was sufficiently specific to permit each individual component to exhibit the same defining characteristics MugoFridah (2009). The target population for this study comprised key informants which included the SHEQ Manager, Human resources personnel, Head of Departments (HOD's) as well as Diamond Cement employees at large. A subset of this population called a sample was used to extrapolate data about the population under study. A sample is a scientifically drawn group that has the same characteristics as the population.

Sample size, Latham (2007) argues that for effective sampling the sample should be representative of the population in the sense that each "sampled unit will represent the characteristics of a known number of units in the population". The target population for this study, Diamond Cement (redcliff) has a total of 105 permanent employees. To determine the sample size for questionnaire distribution the researcher adopted Yamane's (1967) formula adapted from Henderson and Bialeschki (2010) . Where n is the sample size, N is the population size and e is the precision level. Assuming a confidence level of 95% and margin of error of 5%, the sample size for this research was less than 100. Most statisticians agree that the minimum sample size to get any kind of meaningful results is 100 if the population has less than 100 then you really need you survey all of them.

3.3 SAMPLING PROCEDURE

Both probability and non-probability sampling techniques were employed for the sampling procedure. Under probability sampling stratified random sampling was used to select employees from the different departments and sections from a list provided by the Hr department which contained the names of all active employees. Each employee in the list was given an identification number in Microsoft Excel and the names were automatically randomised using the 'rand ()' function. According to Collis and Hussey (2013) a stratified sample is a random sample chosen by selecting an appropriate proportion from each stratum of the population. The percentage distribution of individuals from different strata within the whole population was then considered to work out a proportion to represent each department. Key informants were sampled using the purposive sampling technique. In this case the researcher set her sample based on their knowledge and the experiences to help the researcher to gain full appreciation of peoples' safety and risks perceptions.

3.4 DATA COLLECTION METHOD

For this research project, questionnaires were made use of document analysis as a secondary data source was used to compliment the above-mentioned instrument.

3.5 QUESTIONNAIrES

For the purpose of this research both open ended questions and closed questions with pre-coded answers were used (See Appendix 1). They were administered to gather information from employees on their knowledge levels pertaining the importance of safety and health measures in the work environment, to determine the unsafe work practices and conditions on site contributing to accidents and to assess top management's commitment to a safe working environment. These were a vital tool as they allowed employees to express themselves freely because of the anonymous nature of the research instrument.

3.6 SECONDARY DATA SOURCES

In this research secondary data sources included firstly an in-depth literature review of the attitudes, knowledge and practices of employees on safety and health risks followed by the organisation's document analysis.

3.8 DATA ANALYSIS AND PRESENTATION

As a means of communicating the results, statistical tools such as Statistical Package for Social Sciences (SPSS) version 20 was used. Further, the Chi-square tool was used to determine if there was association between age of employees as well as length of service, as possible factors contributing to the knowledge, attitudes and practices of employees on safety and health risks. Descriptive tools such as tables and graphs were employed with responses from open ended questions and were presented as text for easy interpretation and conception of the results.

CHAPTER 4

4.0 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF STUDY RESPONDENTS

The study managed to interview a total of 100 respondents. Table 4.1 shows the socio-demographic attributes of the respondents at Diamond cement. Most respondents were male

(79%), and were in the 18-25 years age group (42%). In addition, most respondents had attained secondary education (84%), had <5 years working experience (53%), and were from the packaging department (40%).

Table 4.1: Demographic characteristics of study respondents (n = 100)

Characteristic	Category	Frequency (%)
1. Gender	Female	21
	Male	79
2. Age class	18 – 25 years	42
	26 – 33 years	28
	34 – 41 years	15
	42 – 49 years	6
	> 50 years	9
3. Educational level	Primary	4
	Secondary	84
	Tertiary	12
4. Work experience	< 5 years	53
	6 – 10 years	29
	> 10 years	18
5. Department	Administration	12
	Furniture plant	13
	Loading bay	35
	Packaging	40

4.1 KNOWLEDGE ON HAZARDS AND RISK BY RESPONDENTS

respondent's knowledge on occupational hazard and risks is shown in Table 4.2. Most employees felt there was noise in the workplace (80%), were exposed to vibrations (53%), though there were no extreme temperatures (72%) in the workplace. In addition, 71% admitted being exposed to dust and radiation, whereas 78% confirmed that biological hazards were safely disposed. Though there were poorly lit areas and blind spot (55%), the walking and driving paths were clear from obstructions (73%). Overall, knowledge scores ranged from 0.53 to 0.78 with a total score of 5.84.

Table 4.2: Knowledge on occupational hazards and risks by employees at Diamond cement

Variable	Frequency (%)		Preferred response	Score
	Yes	No		
1. Is there any noise in the workplace?	60	40	Yes	0.60
2. Would workers be subject to vibrations?	53	47	Yes	0.53

3.	Are there any temperature extremes that could affect workers, equipment, or materials?	28	72	No	0.72
4.	Are workers exposed to any dust or radiation?	71	29	Yes	0.71
5.	Are workers exposed to anything that can be inhaled, ingested, or absorbed into the body?	63	37	Yes	0.63
6.	Is there proper disposal of biological hazards available ?	78	22	Yes	0.78
7.	Can injury or strain arise from the design and organization of the workspace?	55	45	Yes	0.55
8.	Are there any blind spots or poorly lit areas in the workspace?	59	41	Yes	0.59
9.	Are walking and driving paths clear and free of obstructions?	73	27	Yes	0.73
	Total knowledge score				5.84

Total knowledge was calculated as total score divided by total possible score multiplied by 100%. Thus it was (5.84/9)*100 = 64%

The association of socio-demographic characteristics with knowledge on occupational hazards and risks is shown in Table 4.3. Knowledge scores ranged from 3.75 to 8.50. Age class (X^2 = 43.65; p = 0.0027), educational level (X^2 = 17.04; p = 0.0148), and work department (X^2 = 37.19; p = 0.0306) significantly influenced knowledge on occupational hazards and risks.

Table 4.3: Association of socio-demographic attributes with knowledge on occupational hazards and risks

Variable	Category	Knowled0ge score	Pearson X^2-Test	
			X^2-Test Value	p-Value
1. Gender	Male	5.25±1.37	21.48	2.9743
	Female	6.50±2.14		
2. Age class	18 – 25 years	5.50±1.86	43.65	0.0027*
	26 – 33 years	5.25±1.44		
	34 – 41 years	4.75±1.09		
	42 – 49 years	4.50±1.15		
	> 50 years	5.00±1.65		
3. Educational level	Primary	3.75±0.93	17.04	0.0148*
	Secondary	5.25±1.07		
	Tertiary	8.50±2.19		
4. Work experience	< 5 years	5.00±1.33	24.53	3.4091
	6 – 10 years	6.25±2.26		
	> 10 years	6.00±2.45		
5. Department	Administration	4.50±1.38	37.19	0.0306*
	Furniture plant	5.50 ±1.20		
	Loading bay	6.25±2.04		

Packaging	5.75±1.93	

4.2 ATTITUDE ON HAZARD AND RISK BY RESPONDENT AT DIAMOND CEMENT

Most respondents did not think they were at risks from attacks by the public (64%), or risks from bullying by other employees (61%), with the majority (64%) feeling they were protected from hazards and risks they encountered. However, most respondents did not think it was possible to reduce the prevalence of workplace hazards and risks (60%), though 69% were willing to learn about risks and hazards in their workplaces (Table 4.3).

Table 4.3: Attitudes on occupational hazards and risks by employees at Diamond cement

Variable	Category	%	Preferred response	Score
1. Do you think workers are at risk of threats or violent attacks from the public?	Yes	17	No	0.64
	No	64		
	Don't know	19		
2. Do you feel like they are protected from hazards and risks they encounter?	Yes	64	Yes	0.64
	No	21		
	Don't know	15		
3. Do you think there is risk from bullying or aggression from other employees within the company?	Yes	21	No	0.61
	No	61		
	Don't know	18		
4. Do you feel like tasks are evenly distributed to prevent one individual from experiencing work overload?	Yes	42	Yes	0.42
	No	39		
	Don't know	19		
5. Do you feel like you get the proper safety training?	Yes	45	Yes	0.45
	No	31		
	Don't know	24		
6. Do you feel like it's possible to reduce the prevalence of hazards and risks in working environments?	Yes	27	No	0.60
	No	60		
	Don't know	13		
7. Do you think job rotation cause hazards and risks?	Yes	12	No	0.72
	No	72		
	Don't know	16		
8. Do you want to learn about risks and hazards in your work place?	Yes	69	Yes	0.69
	No	14		
	Don't know	17		
Total Attitude Score				4.77

4.3 PRACTICES ON HAZARD AND RISK BY RESPONDENTS AT CEMENT

Table 4.4 shows the practices on hazards and risks by respondents at Diamond cement. Most respondents attended toolbox talks (79%), and read signage around the workplace (83%). In

addition, 74% of the respondents always wore dust masks, with 84% acknowledging that good housekeeping reduces hazards and risk in the workplace. Also, 91% acknowledged the company having a Safety and Health risk management plan, with 72% admitting that the management plan was communicated to everyone. In addition, practice scores ranged from 0.72 to 0.91, with a total practice score of 6.49.

Table 4.4: Practices on occupational hazards and risks at Diamond cement

Variable	Frequency (%)		Preferred score	Score
	Yes	No		
1. Do you attend tool box talks?	79	21	Yes	0.79
2. Do you read and follow the signage in your workplace?	83	17	Yes	0.83
3. Are workshops on occupational hazards and risk necessary?	86	14	Yes	0.86
4. Do you wear your dust mask always in the workplace?	74	36	Yes	0.74
5. Do you consider working above 2m as working on heights?	80	20	Yes	0.80
6. Does good housekeeping reduce hazards and risks in the workplace	84	16	Yes	0.84
7. Does the company have a Safety and Health risk management plan?	91	9	Yes	0.91
8. Is the Safety and Health risk management plan communicated to everyone?	72	28	Yes	0.72
Total practice score				6.49

The association between socio-demographic characteristics and practice on workplace hazards and risks is shown in Table 4.6. Practice scores ranged from 3.75 to 6.25. Age class (X^2 = 33.68; p = 0.0318), and work experience (X^2 = 15.62; p = 0.0172) significantly influenced practice on occupational hazards and risks. On the other hand, gender, educational level, and work department were not associated with practice on hazards and risk (p > 0.05).

Table 4.5: Association of socio-demographic attributes with practice on hazards and risks

Variable	Category	Practice score	Pearson X^2-Test	
			X^2-Test Value	p-Value
1. Gender	Male	4.50±1.15	11.42	2.6539
	Female	4.00±1.31		
2. Age class	18 – 25 years	3.75±0.88	33.68	0.0318*
	26 – 33 years	5.00±2.29		
	34 – 41 years	5.75±2.42		
	42 – 49 years	4.50±2.70		
	> 50 years	4.00±1.72		

3. Educational level	Primary Secondary Tertiary	3.50±0.98 4.75±1.62 6.25±1.97	19.24	1.4297
4. Work experience	< 5 years 6 – 10 years > 10 years	4.50±1.37 5.25±2.41 6.00±2.58	15.62	0.0172*
5. Department	Administration Furniture plant Loading bay Packaging	5.50±1.89 4.25±1.56 5.50±2.04 4.75±2.33	24.09	3.1684

*Denotes significantly different ($p < 0.05$

4.5 FACTOrS AFFECTING KNOWLEDGE ATTITUDE AND PrCTICES ON HAZArD AND rISK

The factors affecting knowledge, attitudes and practices on hazards and risk are shown in Table 4.5. Scores ranged from 3.75 to 8.50. Age class, educational level, and work department were the major factors that significantly influenced knowledge on occupational hazards and risks ($p < 0.05$).

Table 4.3: Factors influencing knowledge, attitudes and practices on hazards and risks

Variable	Score	df	Sig.
6. Gender	5.25	1	2.9743
7. Age class	4.75	4	0.0027*
8. Educational level	8.50	2	0.0148*
9. Work experience	5.00	2	3.4091
10. Department	5.50	3	0.0306*

*denotes significantly different scores ($p < 0.05$)

CHAPTEr 5

5.1 KNOWLEDGE ON HAZArDS AND rISKS BY rESPONDENTS AT DIAMOND CEMENT

Majority of respondents had high knowledge on occupational hazards and risks and were aware on how to handle them. For example, employees knew they were exposed to noise, vibrations and dust. This coincided with Mukhtar *et al.* (2020) who observed high level of knowledge among workers in the petrochemical industries. These employees were aware of the potential risk to health and safety and knew the precautions to be implemented to protect them from occupational risks. In addition, Hasan *et al.* (2022) reported high knowledge scores among healthcare workers attributed to a high level of education among the employees who had mostly attained tertiary education.

High knowledge increases awareness hence employees are able to identify hazards at their respective work stations and implement control measures (Balkhyou and Ahmad, 2019). This eliminates the potential to cause harm to both employees and property hence increasing production. In addition, medical expenses for work injuries and occupational illnesses are reduced (Tamene *et al.*, 2020).

5.2 ATTITUDES ON HAZArDS AND rISKS BY rESPONDENTS AT DIAMOND CEMENT

The respondent's attitudes were fair, as nearly two thirds of the respondents perceived they were protected from hazards and risks they encountered. However, Mukhtar *et al.* (2020) reported employees displaying high attitudes towards occupational risks. Moreover, some respondents perceived that reducing workplace hazards and risks was impossible. Thusin the present study, the respondents were willing to learn more about the hazards and risks in their workstations. This would again improve their knowledge as well as enhance their behaviour towards working safely (Ngah *et al.*, 2022).

As opined by Gebreeyessus (2022) employees tend to expressed good attitude on occupational hazards if they understand the risks involved. As such, effective training is needed to increase employee awareness on occupational hazards and risk. Such training helps improve work concentration, minimise accidents, injuries and lost time (Qaraman *et al.*, 2022). Ultimately, productivity is enhanced and the organisation's image is not tarnished.

5.3 PRACTICES ON HAZARDS AND RISKS BY RESPONDENTS AT CEMENT

A total practice score of 65% obtained in this study was comparably higher than that reported by Omer and Abdullah (2012) though lower compared with Hassan *et al.* (2020) and Ngah *et al.* (2022) as some workers did not always wear dust masks, hence increasing the risk of respiratory illnesses. Usage of personal protective equipment (PPE) is due to the employer's commitment on safety and health issues. If employers do not provide or enforce PPE usage, most employees are usually reluctant to use PPE if there is a lack of supervision and monitoring (Ngah *et al.*, 2022). In addition, PPE such as masks and gloves is considered uncomfortable and is seldom used (Balkhyou and Ahmad, 2019; Tamene *et al.*, 2020).

Key safety practices were attending toolbox talks, reading signage around the workplace and good housekeeping. These practices reduced hazards and risk in the workplace concurring with Hassan *et al.* (2020) who reported good practices on occupational hazards attributed to high knowledge levels. However, Gebreeyesus (2022) reported poor practices amongst hospital employees despite having favourable attitude. This was mainly a result of the shortage of safety equipment hence adherence to safe procedures was not done.

5.4 FACTORS AFFECTING KNOWLEDGE, ATTITUDES AND PRACTICES ON HAZARDS AND RISK

In the present study, age, educational level, and work department were the major factors affecting knowledge, attitudes and practices on occupational hazards and risks. Those aged below 33 years had better knowledge on occupational hazards and risks compared with those aged above 34 years, attributed to awareness they received during safety inductions, and trainings as the majority of them were recently employed. This concurs with Aziz and Osman (2019), who reported that effective training aids in increasing the knowledge, skills, and attitude of participants.

Those who attained tertiary education had better practice on occupational hazards and risks compared with the lowly educated. This could have been a result of the ability to identify and control hazards and risks due to a constant habit of reading standard operation procedures and signage. This coincides with Adesokan and raji, (2014) who found that meat-handling employees with higher educational levels and longer work experience were more likely to obtain good knowledge, attitude and practice. On the contrary, Ngah *et al.* (2022) found no association between knowledge and practice among confined space workers.

Work department also affected KAP on occupational hazards and risks with employees in the loading bay and packaging departments showing safer practices than those in the administration and furniture plant. This could be attributed to daily exposure to the hazards in these departments as most of the tasks involve manual handling, resulting in increased awareness to the hazards. This corresponds with Simpson *et al.* (2016) who concluded that earlier experiences with injuries increases knowledge and improves attitudes and practices on occupational flood hazard and risk. According to Zahiri *et al.* (2020), poor safety management and monitoring, and lack of supervision towards workplace safety contributes to unsafe behaviour. This was evidenced in low KAP on work hazards and risks in the administration department compared to the loading bay and packaging departments that are subject to constant supervision.

Unsafe acts may also be triggered by ineffective resource management towards health and safety (Naghavi *et al.,* 2019). In addition, poor working conditions influence employees' capacity to implement safe practices (Zhang *et al.,* 2016). Moreover, inadequate staffing places employees at risk of occupational accidents as a result of work overload and exhaustion, leading to errors (Zhang *et al.,* 2016; Simpson *et al.,* 2016).

CHAPTER 6

6.1 CONCLUSION

The study showed that most respondents had high knowledge on occupational hazards and risks, perceived that it was not possible to reduce the prevalence of workplace hazards and risks, but were willing to learn more about risks and hazards in their workplaces. In terms of practices, most respondents attended toolbox talks, read signage and always wore PPE. The factors that mostly affected KAP on occupational hazards and risks included age, level of education and work department.

6.2 RECOMMENDATIONS

From the study findings it can be recommended that:

1. Periodic training on occupational hazards and risks so as to increase awareness on control measures.
2. Constantly monitor and supervise employees on safety procedures.
3. Improve working conditions thus enhancing safe practices.
4. The organisation to invest in occupational health and safety.

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