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INVESTIGATING THE KNOWLEDGE, ATTITUDES AND PRACTICES TOWARDS OCCUPATIONAL HEALTH AND SAFETY (OSH) ISSUES AMONG CONTRACTING COMPANY WORKERS (A CASE STUDY OF ORAC SYSTEMS).

By

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DECLARATION

Registration number B201613B

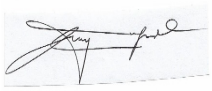
I Tanaka M Sithole do hereby declare that this work-related project is my original work and has not been submitted before. All the information derived from other sources is indicated in the project.

Signature of the student  Date : 03 / 07 / 2024

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 :2/10/24

 2/10/24

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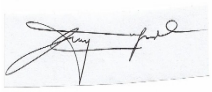

DEDICATION

I dedicate my study project to my friends and family in appreciation of their support.

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I would like to express my gratitude to my supervisor, Mr. Nyamugure, for his patience, direction, and intellectual support from the beginning to the finish of the study project. Additionally, I am grateful to Mr. K. Chamunorwa for allowing me to use ORAC Systems as my case study in my study. Lastly, a special thank you to my family for their love and emotional support. Above all, I want to express my gratitude to the Lord Almighty for allowing me to reach this point in my life.

ABSTRACT

Background: *The mining industry is known for its inherent occupational hazards and risks, making occupational health and safety (OHS) a critical concern. Contracting company workers play a significant role in the mining sector. Improving workplace safety and health requires well-defined safety and health behaviors, attitudes, and commitment (Amponsah-Tawiah & Mensah). Understanding the knowledge, attitudes, and practices of contracting company workers towards OHS issues in the mining industry is essential for promoting a safe and healthy working environment. Adequate knowledge of mining-specific safety regulations, hazard identification, and risk assessment is crucial for preventing accidents and injuries. Positive attitudes towards safety, such as recognizing the importance of OHS and personal responsibility, contribute to the establishment of a safety culture. Additionally, the implementation of safe practices, such as proper use of personal protective equipment (PPE), adherence to safety protocols, and participation in safety training programs, is vital for mitigating occupational risks.*

Materials and Methods: *A descriptive cross-sectional study was carried out and data was collected using research questionnaires. 80 research questionnaires were administered amongst the participants. The questionnaire consisted of four sections namely, demographic characteristics, knowledge, attitude, and practices (KAP) section. Data was analyzed using SPSS version 23.*

Results: *A total of 80 respondents participated in the study with 67.5% being male, while* 32.5% *were female. 27.5% of the participants were accounted for by the 16-25 age group. The remaining age groups (26-35 and 36-45) each accounted for 62.5%, 10% respectively. 58.75% were graduates (artisans) occupying most of the population. Most of the population in study was employed to the company for a between 1-5 years with a percentage of 60. 16.25%, 21.25% and 62.5% of the population represented 8 hours, more than 8 hour and less than 8 hours duration of working hours respectively. Majority of the population were single. The participant's knowledge score was quite fair at 53.05%. The attitude score was positive at 61.91%. The highest score on assessing knowledge is 67.5% on safety talks promoting worker's safety. The lowest score is 40%*

for the question on team work reducing accidents. The practices score was positive at 73.4%. The highest score is on assessing the workers' attitudes is 71.3%, in response to the question on mock drills wasting work time. Lastly, the mean score across all the practices of ORAC Systems workers survey items is 73.4%.

Conclusion: *In conclusion, the ORAC Systems workers demonstrated fair knowledge, positive attitude and positive practices towards occupational and safety issues. Despite fair knowledge and good attitude and practices, the respondents showed interest in the topic and where keen on knowing more about how effective safety and health manage systems can be promoted by their input.*

Recommendations*. Conducting regular training sessions for all staff members. These programs should focus on creating awareness about OSH principles, safe work practices, and the importance of compliance.*

Foster a positive safety culture within the company. Employees should understand that safety is everyone's responsibility.

Encouragement reporting of hazards, near misses, and incidents without fear of reprisal. Regularly assess workplace risks and identify hazards. Implement preventive measures to mitigate risks. Involve employees in hazard identification. They are often the best source of information about potential risks in their work areas and it improves compliance.

Key terms: Occupational safety and health, Knowledge, Attitudes, Practices, mining

ACRONYMS AND ABBREVIATIONS

OSH……. OCCUPATIONAL SAFETY AND HEALTH

KAP…….…… KNOWLEDGE, ATTITUDES AND PRACTICES

SMC……... SELOUS METALOGICAL COMPLEX

CONC…… CONCENTRATOR

CONTENTS

List of Tables

List of figures

CHAPTER 1

1.1 INTRODUCTION

The purpose of this research project is to investigate investigating the knowledge, attitudes and practices towards occupational health and safety (OSH) issues among contracting company workers. The study will focus on investigating the knowledge, attitudes and practises of contracting company workers regarding OSH issues. The research will to identify potential gaps in OSH awareness and compliance, as well as explore the underlying reasons for these gaps. The finding of this study will be useful for contracting companies as they will provide recommendation for improving OSH knowledge, attitudes and practices among contracting workers to enhance workplace safety and reduce occupational hazards.

1.2 BACKGROUND OF STUDY

Virchow (2015) opined that the mining and quarrying industry is one of the riskiest occupational undertakings in the world. Accidents rarely happen promptly; near-miss events usually build up accident events (Gnoni & Saleh, 2017). The mining and quarrying industry is regarded as a risk industry worldwide because of the hazardous nature of its activities. van den Honert and Vlok (2015) observed the accidents death rate for mining and quarrying industry in South Africa at one death per 300 workers was exceedingly double the worldwide fatality rate resulting from occupational hazards. Workers represent half of the world's population. Maintaining a safe working environment is reflected on a healthy worker (N.S Mostafa). The mining industry is known for its inherent occupational hazards and risks, making occupational health and safety (OHS) a critical concern. Contracting company workers play a significant role in the mining sector.

Improving workplace safety and health requires well-defined safety and health behaviours, attitudes, and commitment (Amponsah-Tawiah & Mensah 2013). Understanding the knowledge, attitudes, and practices of contracting company workers towards OHS issues in the mining industry is essential for promoting a safe and healthy working environment. Adequate knowledge of mining-specific safety regulations, hazard identification, and risk

assessment is crucial for preventing accidents and injuries. Positive attitudes towards safety, such as recognizing the importance of OHS and personal responsibility, contribute to the establishment of a safety culture. Additionally, the implementation of safe practices, such as proper use of personal protective equipment (PPE), adherence to safety protocols, and participation in safety training programs, is vital for mitigating occupational risks.

Research conducted in the mining industry has highlighted various challenges that may impact the OHS knowledge, attitudes, and practices of contracting company workers. There is a need to investigate the knowledge, attitudes, and practices of contracting company workers towards OHS issues in the mining industry to identify potential gaps and develop targeted interventions to improve workplace safety. Such research can provide valuable insights into the specific challenges faced by contracting company workers in the mining sector and the factors that influence their safety-related behaviours.

Reduction in occupational accidents save costs and improve business profitability and sustainability (Zwetsloot et al, 2017). Consequently, occupational safety is a result of leadership commitment, employees' knowledge towards OSH, attitudes and behaviour (Saujani, 2016). By conducting research in this area, several benefits can be achieved. Firstly, a comprehensive understanding of the current level of OHS knowledge among contracting company workers in the mining industry can help identify areas that require improvement. This knowledge gap can be addressed through targeted training programs that focus on mining-specific hazards and safety practices. Secondly, exploring the attitudes of workers towards workplace safety can provide insights into their motivation to comply with OHS regulations and the factors that influence their behaviour. This understanding can inform the development of strategies to enhance safety culture and promote positive safety attitudes among workers. Lastly, assessing the practices of contracting company workers in the mining industry can identify areas where compliance is lacking and highlight the need for improved implementation of safety protocols and procedures.

1.3 PROBLEM STATEMENT

The mining industry employs 1% of the global labour population (ILO, 2021) yet it accounts for 5% of the global occupational health and safety fatalities (Tsishla et al., 2021). The mining industry tends to hire contract workers in many of its operations who are expected to operate at the same level with the host organization in terms of OHS (Valluru et al., 2020).

Contracting company workers are frequently exposed to occupational hazards, and their knowledge, attitudes and practices towards OSH can vary. There is need to understand the extent of OSH awareness and compliance among these workers and identify potential gaps that may exist.

Exploring their attitudes and behaviours towards workplace safety is important for developing effective interventions and strategies to improve OSH practices. Therefore, this research aims to investigate the knowledge, attitudes and practices towards OSH among contracting company workers to address these concerns and enhance workplace safety

1.4 AIM

to investigate the knowledge, attitudes and practices of contracting company workers regarding OSH issues. By understanding these factors, the research aims to identify potential gaps in OSH awareness and compliance, as well as explore the underlying reasons for these gaps.

1.5 SPECIFIC OBJECTIVES

1. To assess the level of knowledge among contracting company (ORAC System) regarding OSH issues, including hazard identification, risk assessment and preventive measures
2. To examine the attitudes of contracting company ORAC Systems workers towards OSH issues, including their perception of the importance of workplace safety, their level of motivation to adhere of safety guidelines and their willingness to report safety concerns.
3. To evaluating the existing practices of contracting company ORAC Systems workers regarding OSH such as the use of Personal Protective Equipment, adherence to safety protocols and participation in safety training programs
4. To identifying potential barrier and challenges that hinder the implementation of effective OSH Practices among contracting company ORAC Systems workers.

1.6 RESEARCH QUESTIONS

1. What is the level of knowledge among contracting company (Orac Systems) workers in the mining industry regarding OSH regulations, hazard identification and risk assessment?

2. What are the attitudes of contracting company (Orac Systems) workers in the mining industry towards OSH issues, including their perception of the importance of workplace safety, their motivation to adhere to safety guidelines and willingness to report safety concerns?
3. What are the practices employed by contracting company (Orac System) workers at the customer mining company ZIMPLATS?
4. What are the potential barriers and challenges faced by contracting company workers in implementing effective OSH practices?

1.7 ASSUMPTIONS

- Contracting company workers have access to appropriate personal protective equipment necessary for their tasks.
- The participants in the study will provide accurate and truthful information regarding their knowledge, attitudes and practices towards OSH.
- Orac Systems contracting company workers have received basic OSH training and are aware of general safety requirements.

1.8 LIMITATIONS

- The study relies on the participants' self-assessment of their knowledge, attitudes and practices which may not align with their actual behaviours in the workplace.
- The study may face limitations in terms of sample size and available participants which could impact on representativeness of the findings.
- The study's finding may be influenced by the participants self-reporting, which can introduce response bias.
- The study may be limited to a specific region or mining context and the finding may not be fully generalizable to other mining regions or sectors
- The research may be limited to the preceptive of contracting company workers and may not take into account the view of other stakeholders, such as mining company management or regulatory bodies.

1.9 DELIMITATIONS

- The research will focus specifically on investigating the knowledge, attitudes, and practices of contracting company workers in the mining industry towards OHS issues. It will not extensively explore other aspects of workplace safety or include other stakeholders such as permanent employees or regulatory bodies. The study will aim to gather data from a specific mining region or a selected group of mining companies, and the findings may not be directly applicable to other sectors or regions.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter borrows insight from related studies and publications in order to seal research sufficiently backed by empirical evidence. Literature review encompasses the summary, description, synthesis, and evaluation of sources relevant to a subject area (Paul and Criado, 2020). Academically accepted publications are thereby presented in a manner coherent with the study's stated objectives. These objectives are the base of systematic presentation of the research parameters.

2.2 GLOBAL OVERVIEW

An understanding of the phenomenon of Occupational Safety Health varies globally. However, it provides standardized grounds which are helpful in supplementing the contextual resolutions. An example would be the awareness and prevention of sexual harassment at work place improves worker morale (McCann, 2018). Although, such interventions are one way of managing stress and promoting well-being, they are rarely used (Giga, Cooper & Faragher, 2003).

2.3 KNOWLEDGES OF WORKERS TOWARDS OSH ISSUES

One hundred and fifty small-scale gold miners were chosen as the target population to take part in a study on small-scale gold mining carried out in Obuasi Municipality, Ghana. The majority of employees (95, 63.3%) knew very little about the laws governing occupational health and safety. Knowledge of regulations was linked to education level, according to multivariable logistic regression analysis (OR=8.5; 95% CI: 7-10.5). Workers acknowledged that water contamination (28%) and land pollution (30%) are two common impacts of mining. Further research showed that respondents were aware of air pollution (18.7%) and noise pollution (16%). According to the study, the primary factors influencing exposure to health risks related to mining were low educational attainment (14%), limited job experience (30.7%), incorrect handling of chemicals or equipment (26%), insufficient law enforcement (12.7%), and negligence (16.7%). Overall, occupational lung disease (16%), occupational hearing loss (14%), heat-related illnesses (12%), eye infections (16%), malaria (24%), and skin infections (18%) were the most common health problems reported by research participants (Berndt Stenberg 2020).

In conclusion, employees in private mines face a high degree of occupational health risks and issues associated with gold mining. To reduce the biggest hazards, safety programs ought to be included in related public health initiatives, it was further recommended education and training on regulations and the use of personal protective equipment (Berndt Stenberg 2020).

In a different study, the knowledge, attitudes, and behaviors of artisanal miners on the regulations governing occupational health and safety in the Democratic Republic of the Congo were evaluated, distinguishing between those who hold professional cards and those who do not. With 95% confidence intervals (CI), the outcomes were presented as odds ratios (OR) and adjusted odds ratios (AOR). The possibility of having a professional card was significantly greater for workers with no knowledge or incorrect knowledge on non-certified locations (OR= 1.91; CI: 1.04–3.51, AOR= 4.38; CI: 1.84–10.39) and (OR= 8.91; CI: 2.69–29.48), respectively (Maweja, 2021).

The artisanal miners without the professional certificate for artisanal mining were evidently unaware of the legislation governing mining in the Democratic Republic of the Congo and occupational health and safety. Continuous education, training, and oversight about DRC mining regulations and OHS was required (Maweja, 2021).

In Lolgorian, Kenya, in another study, implications of artisanal and small-scale gold mining (ASGM) practices have significantly grown, particularly on environment, socio, and livelihoods of the mining. The study aimed to investigate consequences of these practices towards occupational safety and health. The study had a target of 250 respondents. The total health implications of hazardous chemical exposure linked with ASGM activities are that 75.5% are aware of major health consequences. This demonstrated a good level of knowledge from the respondents although there is room for improvement (Tampushi, 2022).

2.4 ATTITUDES OF WORKERS TOWARDS OSH ISSUES

In 2021, Maweja evaluated the knowledge, attitudes, and practices of artisanal miners on occupational health and safety in a study carried out in Kolwezi, Democratic Republic of the Congo. The results were shown as odds ratios (OR) and adjusted odds ratios (AOR), with 95% confidence intervals (CI). In comparison to artisan miners who recognized that untrained workers shouldn't practice, those who thought or didn't know that untrained workers aren't

allowed to practice were substantially more likely to hold a professional card (AOR= 8.91; CI: 2.69–29.48 and AOR= 1.91; CI: 1.04–3.51), respectively (Maweja, 2021).

A study conducted by Kurniawan et al. (2020) in the Grasberg Mine, Indonesia, found that the majority of miners had good knowledge and a positive attitude towards OSH, but the practice of OSH was still lacking. 75% of miners had a positive attitude towards OSH. The study had a target of 120 miners as study population. This study concluded that Grasberg Mine workers had positive attitudes towards OSH.

According to a study done in the Tarkwa Mine in Ghana by Adjei et al. (2020), most miners have a good attitude regarding OSH. Data was collected for the study using an observational and cross-sectional approach. Two hundred miners in all took part in the research. According to the findings, 80% of the miners had a positive attitude towards OSH (Adjei et al., 2020).

2.5 PRACTICES OF WORKERS TOWARDS OSH ISSUES

In a cross-sectional study was conducted in Democratic Republic of the Congo with a target of 546 workers investigated knowledge and practices of artisans at a mine. The method of collecting data was the administration of a closed-ended questionnaire. The population was chosen by simple random sampling. The Statistical Package for Social Sciences (SPSS) version 25 and the CDC application EPINFO 7.2 were both used for data analysis. With 95% confidence intervals (CI), the outcomes were presented as odds ratios (OR) and adjusted odds ratios (AOR). Personal protective equipment (PPE) wearers were found to be significantly more likely than never-wearers to possess a professional card and knowledge of occupational safety and health (OR= 3.14; CI: 1.02–9.65) and (OR= 5.69; CI: 2.38–13.61, AOR= 7.36; CI: 2.72–19.88), respectively (Maweja, 2021).

The study's findings demonstrated that artisanal miners without the professional card for artisanal mining had clear disregard for mining legislation in the Democratic Republic of the Congo and for occupational health and safety. Continuous education, training, and oversight about DRC mining regulations and OHS are necessary (Maweja, 2021).

A total of 250 questionnaires were given to respondents chosen at random from among the artisanal mining and processing locations in a different study conducted in Kenya. The data were

analyzed using the statistical program for social sciences, version 26.0. The results show that 94.3% of gold miners do not carry out environmental impact studies for their mining operations, 95.5% operate illegally, and 97% of gold miners employ the mercury amalgamation technique. Regarding the formalization of ASGM, 68.1% of respondents claim that ineffective governance has impeded sustainable practices and operations and affected the process (Tampushi, 2022).

The study's statistical data on practices revealed bad behaviours, and corrective action is required to improve safety, health, and environmental issues.

In another study to assessing the knowledge and practices of occupational safety and health in the artisanal and small-scale gold mining sector in Obuasi, Ghana. An assessment of PPE usage and OSH compliance was used to determine practice of miners in the ASGM. 62% of the respondents representing the majority have positive practices towards occupational health and safety (Akosua and Grace, 2014).

In another study, the absence of a safety culture and inadequate OSH training significantly contributed to the poor OSH practices in the Grasberg Mine in Tembagapura, Papua, Indonesia (Kurniawan et al., 2020). Only 40% of miners practiced good OSH behaviours. To enhance OSH behaviours among miners, the study suggested that the firm implement a safety culture and provide regular OSH training.

2.6 POTENTIAL BARRIER AND CHALLENGES THAT HINDER THE IMPLEMENTATION OF EFFECTIVE OSH PRACTICES AMONG CONTRACTING COMPANY ORAC SYSTEMS WORKERS.

The most common barrier hindering the implementation of OSH practices is clearly the availability of resources. These are mainly financial and human capital shortages which limit innovative strategies

2.7 CONCLUSION

The chapter narrows down vast literature available on the subject matter and highlights prominent information that is compatible with overall goal of the research. The following chapter will outline the favoured methodology to further the study’s prospects in attaining relevant and useful data

CHAPTER 3

3.1 INTRODUCTIONS

This chapter covers research instruments, research reliability, research validity, research ethics, and analysis plan. In this study, the research methods utilized to investigate the knowledge, attitudes, and practices of contracting company workers towards OHS in the mining industry involved the administration of a questionnaire.

3.2 DESCRIPTION OF THE STUDY AREA

Zimplats mines and processes platinum-group metals. ZIMPLATS is located at Selous (-18.03613, 30.42888o) in Chegutu and in Ngezi (-18.66611o, 30.354722o) Kadoma districts of Mashonaland West province. Ngezi is located on a great dyke which contains platinum-group metals like gold, palladium, rhodium, nickel, platinum, e.t.c (Zimplats intranet, 2021). Ngezi area soils can be described light sandy loamy soils. Contracting companies are hired for tasks such as plant maintenance, cleaning and food provision services, roads and ground maintenance in the concentrator and smelter departments.

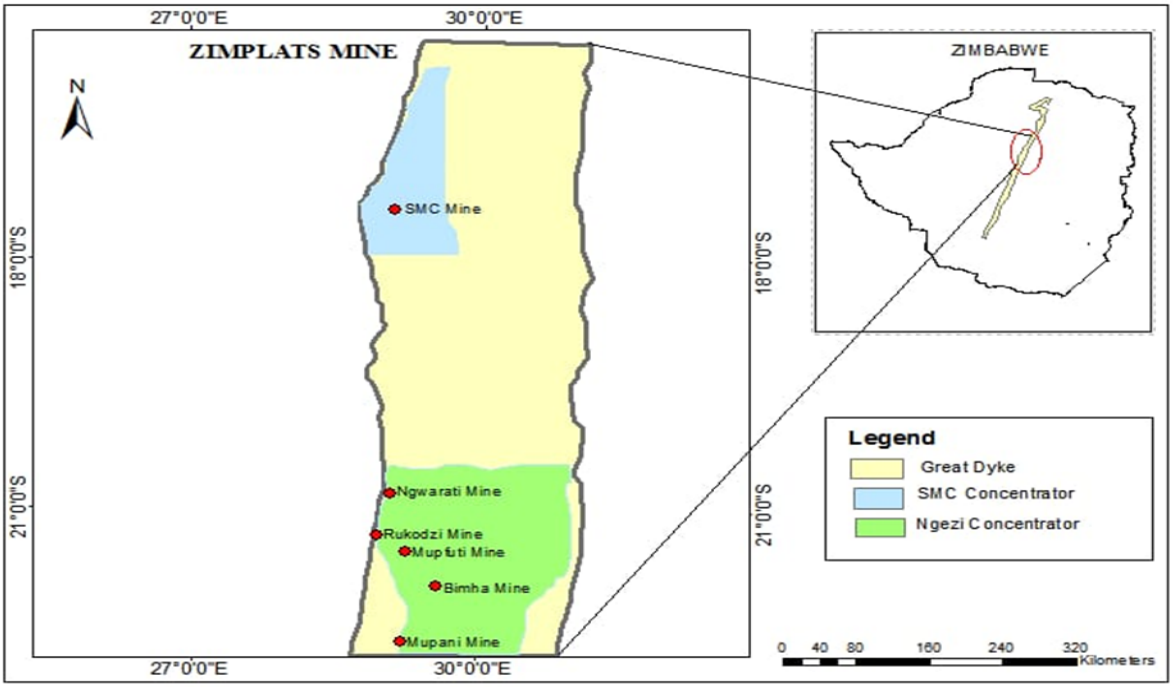

Figure 1 map showing location of ZIMPLATS mine

3.3 STUDY DESIGN

This study used a cross-sectional research design to examine the knowledge, attitudes, and practices of contracting firm workers about occupational health and safety (OHS) in the mining industry. Cross-sectional studies are performed to test the presence or absence of an outcome and the presence or absence of an exposure at a certain time (Girolamo and Mans, 2019). A cross-sectional design makes it possible to gather information at one specific moment in time, giving an overview of the traits, viewpoints, and actions of the participants.

This method was employed to get a complete picture of the current state of OHS knowledge, attitudes, and practices among contract workers in the mining industry. This research approach has been used in a number of studies looking at workplace safety, which provides a solid foundation for assessing the study's objectives and expanding the body of knowledge already accessible in the area of occupational health and safety in the mining industry.

3.4 DATA SOURCES

The researcher used primary sources. Primary data is information that researchers have directly gleaned from primary sources through questionnaire.

3.5 SAMPLING METHODS

The sampling method adopted for this study is random sampling. Random sampling is a widely recognized and rigorous method used to select participants from the target population in a way that ensures each individual has an equal chance of being included in the sample. By giving every member of the population an equal opportunity to be included in the sample, random sampling mitigates the risk of selection bias, ensuring that the sample accurately reflects the characteristics of the population it represents (Babbie, 2016).

In order to minimize potential biases and improve the generalizability of the findings, a random sample strategy was used in this study to guarantee that contracting firm workers in the mining industry had an equal opportunity to be selected as participants. It was possible to draw reliable conclusions on the knowledge, attitudes, and behaviours of contracting company employees about OHS because of the random sampling method's assistance in ensuring that the sample was representative of a sizable population. The study sought to improve the accuracy and

dependability of the data gathered by randomly choosing individuals, offering a stronger foundation for conclusions and suggestions.

3.6 SAMPLE SIZE

Solving formulae says.

$n = N/ (1+Ne^2)$

n= expected sample size

N= population

e = level of precision

The above formula was used to calculate sample size.

Given that ORAC Systems Contracting Company's estimated populations were known, Microsoft Excel was used to perform computations and proportional calculations in order to randomly select 40 respondents from Ngezi Concentrator (ZIMPLATZ) and 40 respondents from SMC (ZIMPLATZ), for a total of 80 respondents, as shown below.

Table 1 sample sizes

Campus	**POPULATION SIZE OF ORAC SYSTEMS CONCENTRACTORS**	**ARTISANS**	**ASSISTANTS**	**OTHER STAFF MEMBERS** **(Management, SHE dept and foreman(s))**	**Sample size**
SMC	141	60	73	8	40
Ngezi Conc	62	22	35	5	40

Total	**203**	**82**	**108**	**13**	**80**

3.7 RESEARCHER TOOLS

Questionnaires with both closed and open-ended questions were administered as research tool. A questionnaire is a research instrument consisting of a series of questions used for gathering information from respondents. It can be used in various fields such as psychology, sociology, marketing, and more (Bryman, A. 2016). The target populations at the selected received the questionnaires by hand from the researcher. The researcher awaited his time till the respondents completed their responses to the questionnaire.

The questionnaire consisted of four sections:

(i) Demographics background.
(ii) Knowledge towards occupational safety and health issues
(iii) Attitudes towards occupational safety and health issues
(iv) Practices towards occupational safety and health issues

The questionnaires were then taken by the researcher for analysis.

3.8 RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENTS

According to Drost (2011), reliability is “the extent to which measurements are repeatable when different people perform the measurement on different occasion, under different condition, supposedly with alternative instruments which measure the construct or skill”. It can also be defined as the degree to which the measure of a construct is consistent or dependable. Reliability indicates the consistency and stability of measurement, can be assessed through various techniques such as test-retest reliability and internal consistency (Streiner et al., 2015).

Validity is the extent to which an instrument measures what it purports to measure. Validity is the trying to explain the truth of research findings as explained by Zohrabi, (2013). Ensuring validity, which refers to the accuracy and appropriateness of the questionnaire in measuring the intended constructs, necessitates thorough evaluation through methods like content validity and construct validity (Carmines & Zeller, 1979).

The researcher analysed how consistent the results were with the other measurements of the same idea and established theories over a period of time. They also considered different observers and various test sections to assess the reliability and validity of the results.

3.9 STATICAL ANALYSIS

The researcher used SPSS version 23 to analysis data. The research questionnaire had 10 questions to ascertain the participants' knowledge, 10 questions to assess their attitudes, and 10 questions to ascertain their practices regarding issues towards occupations safety and health. Each correct response received a score of 1, while incorrect and don't know responses received a score of 0. Each character's average score was determined, and responses were classified as "Good," if the score was above 70% "Fair," if the score was from 51-69% or "Poor" if it was less than 50%. The overall KAP scores were calculated by combining the scores. Tables were used to display the data after analysis. The total KAP score was used to determine the level of knowledge, attitude, and practice, of the contracting company workers towards occupation safety and health.

3.10 RESEARCH ETHICS

Research ethics is the principle of beneficence, which emphasizes the researcher's obligation to maximize benefits and minimize harm to participants (Resnik, 2011). Additionally, the principle of justice underscores the equitable distribution of research burdens and benefits, safeguarding vulnerable populations from exploitation or discrimination (Emanuel et al., 2004). Compliance with ethical standards is crucial not only to uphold the rights and welfare of participants but also to maintain the integrity and credibility of scientific research. In this research on the knowledge, attitudes, and practices among contracting company workers towards OHS in the mining industry, ethical considerations were carefully addressed.

All participants gave their informed consent after being fully told about the study's goals, methods, potential hazards, and rewards. Participants received guarantees on their voluntary involvement, the privacy of their answers, and their freedom to leave at any time without facing repercussions. Additionally, the study complied with data protection and anonymity guidelines, guaranteeing that participant personal information was kept private and utilized exclusively for study. The questionnaire was created and administered in accordance with ethical standards, guaranteeing that its content was impartial and truthful.

Additionally, the study obtained necessary approvals from relevant research ethics committees or institutional review boards to ensure compliance with ethical standards. By upholding these ethical principles, this research aimed to maintain the trust and integrity of the scientific process while prioritizing the rights and welfare of the participating contracting company workers in the mining industry.

CHAPTER 4: RESULTS

4.1 INTODUCTIONS

Chapter 4 presented, analyzed, and discussed findings. The researcher used tables to present data. 80 questionnaires were administered to ORAC System workers at ZIMPLATS Ngezi and SMC plant. All of them were fully completed and returned back. The respondents' rate was 100%.

4.2 SECTION A: DEMOGRAPHY

Table 2 Summary of demographic characteristics

Demographic Variable	Category	n=80	%=100
1. Age Group	16 – 25	22	27.5
	26 – 35	50	62.5
	36 – 45	8	10
	Above 45	0	0
2. Gender	Male	54	67.5
	Female	26	32.5
3. Level of education	Cannot read and write	7	8.75
	Read and write	5	6.25
	Primary education	3	3.75
	Secondary education	18	2.25
	Graduate education	47	58.75
4. Normal shift duration	8 hours	13	16.25
	More than 8 hours	17	21.25
	Less than 8 hours	50	62.5
5. Marital status	Single	34	42.5
	Married	28	35
	Divorced	18	22.5

6. Period of being employed	Less than 1	16	20
	1-5	48	60
	6-10	9	11.25
	Greater than 10	7	8.75

The study had 67.5% male participants and 32.5% female participants. 27.5% of the participants were accounted for by the 16-25 age group. The remaining age groups (26-35 and 36-45) each accounted for 62.5%, 10% respectively and they no participants above 45 years. 58.75% were graduates (artisans) occupying most of the population. Only 2.25% of the participants had a secondary education level, 3.75%, 6.25% could read and write while 8.75% couldn't read and write. Most of the population in study was employed to the company between 1-5 years with a percentage of 60. 16.25%, 21.25% and 62.5% of the population represented 8 hours, more than 8 hour and less than 8 hours duration of working hours respectively. Majority of the population were single.

4.3 SECTION B: KNOWLEDGES OF WORKERS TOWARDS OSH ISSUES

Numbers 1,2,3,4 and 5 represent the responses strongly disagree, disagree, neither agree nor disagree, agree and strongly agree respectively.

Table 3 knowledges of workers towards OSH issues

Demographic Variable	1	2	3	4	5	Preferred response	Score %
1. pre-task risk assessment at my work place comes first before any work?	8	11	5	12	44	5	55
2. I am aware of the top 20 hazards at my work place	20	5	10	9	36	5	45
3. The hierarchy of controls is important for the Organisation?	3	12	2	16	47	5	59
4. Reporting a near-miss ensures future workplace safety?	12	5	1	15	47	5	59
5. Workers mental health does not add much to accident reduction?	41	23	1	9	6	1	51
6. In the event of a fire emergence, we run to the assembly points.	16	9	3	13	39	5	48
7. Safety policy must be only known by the SHE department	36	18	1	8	14	1	45
8. Attending safety talks before any work promotes worker's safety	3	11	0	12	54	5	67.5
9.	3	10	10	25	32	5	40
10.	11	9	2	9	49	5	61
MEAN SCORE %							**53.05**

The mean score across all the survey questions is 53.05%, which provides an overall assessment of the respondents' knowledge and perceptions towards OHS-related topics which is a fair score. The data provided is a survey questionnaire that assesses knowledge towards Occupational Health and Safety (OHS) among contracting company workers respondents. The "Score %" column represents the preferred response for each survey question, which indicates the level of agreement or disagreement with the given statements. The highest score is 67.5% on safety talks promoting worker's safety. The lowest score is 40% for the question on team work reducing accidents, indicating a relatively lower preference for this response compared to the other survey items. There is a need for occupational safety and health training and campaign to improve the workers' knowledge towards occupational safety and health issues.

4.4 SECTION C: ATTITUDE OF WORKERS TOWARDS OSH ISSUES

Numbers 1,2,3,4 and 5 represent the responses strongly disagree, disagree, neither agree nor disagree, agree and strongly agree respectively

Table 4 attitudes of workers towards OSH issues

Demographic Variable	1	2	3	4	5	Preferred response	Score
1. 1. toolbox meetings should be held every day.	4	10	6	6	54	5	67.5
2. Hiring SHEQ staff is a waste of money.	49	16	1	6	6	1	61.3
3. Wearing gloves reduces my working accuracy	52	10	5	11	2	1	65
4. I am not accountable for the security of another individual	56	10	1	5	8	1	70
5. Working time is wasted on mock drills	57	13	1	4	5	1	71.3
6. Shortcuts safely finish tasks more quickly than SOPs	54	9	3	4	10	1	67
7. Work permits are great tools for lowering the number of incidents	4	11	2	7	56	5	70
8. Pre-task risk assessment is a time-waster on a daily basis.	53	13	1	7	6	1	66
9. I feel reporting a near-miss is a time-waster.	12	57	3	3	5	1	15
10. It is everyone's duty to maintain a clean environment.	8	7	0	12	53	5	66

MEAN SCORE %		**61.91**

The mean score across all the survey items was also fair with a mean score of 61.91%, providing an overall assessment of the respondents' attitudes and perceptions towards occupational health and safety. The highest score is 71.3%, in response to the question on mock drills wasting work time. This suggests that the respondents strongly disagree with the notion that mock drills waste working time. The lowest score is 15%, which corresponds to the statement "I feel reporting a near miss is a waste of time". This indicates that the respondents strongly disagree with the idea that reporting near-misses is a waste of time.

4.5 PRACTICES OF WORKERS TOWARDS OSH ISSUES

Numbers 1,2,3,4 and 5 represent the responses strongly disagree, disagree, neither agree nor disagree, agree and strongly agree respectively

Table 5 practices of workers towards OSH issues

Demographic Variable	**1**	**2**	**3**	**4**	**5**	**Preferred response**	**Score**
1. I consistently wear the necessary protection equipment as needed.	4	6	4	9	57	5	71.3
2. I am aware of where the fire extinguishers are located at my place of employment.	6	6	5	4	59	5	73.8
3. I don't use any equipment that could potentially be dangerous.	6	2	1	12	59	5	73.8
4. I always use sidewalks	3	4	0	12	61	5	76.3
5. I always deal with safety hazards by following the procedures.	1	5	0	15	59	5	73.8
6. I refrain from engaging in any activities that could endanger myself or any of my coworkers.	2	7	1	14	56	5	70
7. Whenever there is an accident at work, no matter how small, I always report it to my superiors.	2	3	2	15	58	5	72.5
8. I always ensure effective communication when working in teams.	3	10	0	13	62	5	77.5
9. I at times take risks so that i can finish work on time	56	11	1	11	1	1	70
10. I never miss my health check ups	1	3	3	13	60	5	75
MEAN SCORE %							**73.4**

The mean score across all the survey items is 73.4% and was a good score providing an overall assessment of the respondents' practices and adherence to occupational health and safety protocols. The highest score is 77.5%, which corresponds to effective communication within team work. This suggests that the respondents strongly agree with the importance of effective communication when working in teams. The lowest score is 70%, which corresponds to not engaging in any activity that can put me or any of my colleagues in danger and not taking risks so that work can be done on time. This indicates that the respondents have a relatively lower preference for these statements compared to the other survey items.

CHAPTER 5: DISCUSSION OF RESULTS

5.1 KNOWLEDGES OF WORKERS TOWARDS OSH ISSUES

The ORAC System contracting company workers' understanding of occupational safety and health (OSH) issues was scored fairly at 53.05%. The findings also indicated that in order to guarantee a better working environment, worker knowledge needs to be improved. When asked if teamwork decreased accidents, the majority of the workers expressed a lack of confidence. With a percentage score of 67.5%, the majority of employees were aware that safety lectures are crucial to ensuring workplace safety.

The results of the study were consistent with findings from a cross-sectional study was conducted in Democratic Republic of the Congo with a target of 546 workers investigated knowledge and practices of artisans at a mine which demonstrated fair levels of workers towards knowledge towards occupational safety and health amongst workers.

If workers are enrolled in courses offered by reputable organizations or institutions that cover topics such as hazard identification, risk assessment, emergency preparedness, and safety protocols specific to your industry. These courses often provide certifications that can boost your credentials and knowledge base. Learning from past experiences and continuously improving safety protocols and procedures is essential for preventing future incidents. Implementation of continuous Improvement can actively seek feedback from colleagues, conduct regular safety audits, and participate in incident investigations. This is essential to improve worker’s knowledge.

5.2 ATTITUDES OF WORKERS TOWARDS OSH ISSUES

The assertion that mock drills are a waste of work time received the highest score (71.3%) among the items designed to gauge occupational attitude. This implies that the respondents are vehemently opposed to the idea that practice exercises are a waste of time. The question on whether employees believe it is a waste of time to report a near miss had the lowest score, 15%. With a mean score of 61.91% for all survey items, it is possible to measure respondents' attitudes and opinions regarding occupational health and safety overall.

The results were consistent with findings from in a study conducted in Kolwezi, Democratic Republic of the Congo, Lufuluabo Ebenezer Maweja assessed the knowledge, attitudes, and behaviours of artisanal miners on occupational health and safety which showed positive attitude towards desired occupational safety and health management systems.

Encouraging employees to take ownership of safety by involving them in safety committees, hazard identification processes, and safety inspections. Empower them to speak up about safety concerns without fear of reprisal and actively engage them in developing solutions to improve safety measures hence attitudes towards safety are positively altered. From previous studies, leadership plays a pivotal role in setting the tone for safety. Executives and managers should demonstrate a visible commitment to OSH by prioritizing safety in decision-making, allocating resources for safety initiatives, and actively participating in safety programs. When employees see that leadership values safety, they are more likely to adopt positive attitudes towards it.

5.3 PRACTICES OF WORKERS TOWARDS OSH ISSUES

An overall evaluation of the respondents' behaviors and adherence to occupational health and safety procedures is provided by the mean score of 73.4% obtained across all survey items regarding the practices towards OSH concerns among contracting company workers of the ORAC System. The outcomes aligned with previous research findings evaluating the awareness and protocols related to occupational safety and health in the artisanal and small-scale gold mining industry in Obuasi, Ghana. The practice of miners in the ASGM was evaluated by an evaluation of PPE usage and OSH compliance. The majority of respondents, or 62% of them, have positive behaviors regarding workplace health and safety.

CHAPTER 6

6.1 CONCLUSION

In conclusion, the workers and staff of ORAC Systems showed fair knowledge, positive attitude and positive practices towards occupational health and safety issues. Despite fair knowledge and good attitude and practices, the respondents showed interest in the topic and where keen on knowing more about how effective safety and health manage systems can be promoted by their input. The study also showed that Knowledge, attitude and practices proposes that occupational safety and health knowledge and information are the foundation for establishing active and correct beliefs and attitudes towards OSH issues. It also demonstrated that attitudes are the driving forces for modifying workers' behaviour.

6.2 RECOMMENDATION

To improve the attitude and practices of the workers and staff of ORAC Systems towards OSH issues, the company can:

1. Conduct regular training sessions for all staff members. These programs should focus on creating awareness about OSH principles, safe work practices, and the importance of compliance.

2. Foster a positive safety culture within the company. Employees should understand that safety is everyone's responsibility. Encourage reporting of hazards, near misses, and incidents without fear of reprisal.

3. Regularly assess workplace risks and identify hazards. Implement preventive measures to mitigate risks.

4. Involve employees in hazard identification. They are often the best source of information about potential risks in their work areas and it improves compliance.

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APPENDIX

Questionnaire was adopted from Y.M. Goh & S. Chua (2015), T. Mwangangi (2018), I. Hedjuk et al (2019).

Research Questionnaire: Knowledge, Attitude and Practice among contracting company workers towards Occupational Health and Safety issues.

My name is Tanaka M Sithole (B201613b) from the Faculty of Agriculture and Environmental Science at Bindura University of Science Education. I would like to do survey at ZIMPLATZ on ORAC Systems workers for the fulfillment of my final year dissertation.

Please complete the following questionnaire. This is to help the project to investigate the knowledge, attitude and practice of stakeholders with respect to data collection and sharing systems on Occupational Health and Safety practices at ZIMPLATZ by contracting companies.

Department: _____ Date_____

Instructions to Respondents

1. Provide the appropriate number on the boxes provided to respond to the questions

Part A: Demography Information

1. Age group (years): ☐
   1. 16 - 25 **2**. 26 - 35 years **3.** 36 - 45 **4**. Above 45
2. Gender: ☐
   1. Male **2.** Female
3. What is your level of education? ☐
   1. Cannot read and write (1) **2.** Read and write **3.** Primary education
   4. Secondary education **5.** Graduate education
4. What is the duration of a normal work day or shift (hours)? ☐
   1. 8 **2.** Less than 8 **3.** More than 8
5. What is your marital status? ☐

1. Single **2.** Married **3.** Divorced

6. How long have you been employed with the organization (years)? ☐

1. Less than 1 **2**. 1 - 5 **3**. 6 – 10 **4**. greater than 10

B: Knowledge of OHS

1. Use the Likert scale to answer questions in parts B, C and D: Strongly disagree, Disagree, neither agree nor disagree, Agree and Strongly agree
2. **Tick** in the column of the correct response.

Questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. pre-task risk assessment at my work place comes first before any work?					
2. I am aware of the top 20 hazards at my work place					
3. The hierarchy of controls is important for the Organisation?					
4. Reporting a near-miss ensures future workplace safety?					
5. Workers mental health does not add much to accident reduction?					
6. In the event of a fire emergence, we run to the assembly points.					
7. Safety policy must be only known by the SHE department					
8. Attending safety talks before any work promotes worker's safety					
9.					
10.					

Part C: Attitude towards OHS

Questions	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. 1. toolbox meetings should be held every day.					
2. Hiring SHEQ staff is a waste of money.					
3. Wearing gloves reduces my working accuracy					
4. I am not accountable for the security of another individual					
5. Working time is wasted on mock drills					
6. Shortcuts safely finish tasks more quickly than SOPs					
7. Work permits are great tools for lowering the number of incidents					
8. Pre-task risk assessment is a time-waster on a daily basis.					
9. I feel reporting a near-miss is a time-waster.					
10. It is everyone's duty to maintain a clean environment.					

Part D: Practice of OHS

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I consistently wear the necessary protection equipment as needed.					
2. I am aware of where the fire extinguishers are located at my place of employment.					
3. I don't use any equipment that could potentially be dangerous.					
4. I always use sidewalks					
5. I always deal with safety hazards by following the procedures.					
6. I refrain from engaging in any activities that could endanger myself or any of my coworkers.					
7. Whenever there is an accident at work, no matter how small, I always report it to my superiors.					
8. I always ensure effective communication when working in teams.					
9. I at times take risks so that i can finish work on time					
10. I never miss my health check					

ups					