



UNIVERSITY
of **LUSAKA**

Passion for Quality Education: Our Driving Force

SCHOOL OF MEDICINE AND HEALTH SCIENCES

**ASSESSMENT OF FIRST AID KNOWLEDGE AND SKILLS AMONG MEDICAL
STUDENTS AT THE UNIVERSITY OF LUSAKA**

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**A research dissertation submitted to the University of Lusaka in fulfillment of the requirements
for the award, Bachelor of Science in Medical Sciences.**

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Declaration

I, Nancy Muchima, hereby declare that this research is my original work and has not been submitted for the award of a degree or diploma at any other institution of learning. Every source used in this study has been acknowledged and referenced appropriately. This work represents my genuine effort, guided by the ethical and academic standards expected in scholarly research.

I undertook this study with honesty, curiosity, and a commitment to improving healthcare education. Any assistance or contributions from others have been duly recognized. I take full responsibility for the content of this report.

Nancy Muchima



Acknowledgment

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Lastly, I appreciate the University of Lusaka as an institution for allowing me to conduct this study within its academic environment. Your openness and cooperation made data collection a smooth and respectful process. Thank you for being part of this important effort to strengthen first aid education.

Nancy Muchima

DEDICATION

I dedicate this work to my parents, whose love, encouragement, prayers, support, patience, and sacrifices have shaped every step of my journey. Your faith in me has been my greatest motivation.

To my siblings, nephew and close friends, thank you for cheering me on, even during the long nights and moments of doubt.

This dissertation is also for every student who has ever felt overwhelmed but chose to keep going. May this serve as a reminder that persistence pays off.

And finally, to the future healthcare professionals may we never stop learning, caring, and striving to make a difference.

Abstract

Background: First aid is a critical skill that all medical professionals must possess to respond effectively in emergency situations. Despite its importance, gaps in practical proficiency and long-term retention of first aid knowledge among medical students have been observed in many contexts, including Zambia.

Objective: To assess the first aid knowledge and skills among medical students at the University of Lusaka.

Methodology: This study employed a cross-sectional descriptive design and targeted medical students enrolled in the MBChB program at the University of Lusaka. A stratified random sampling method was used to ensure representation from all academic years. Data were collected through a structured questionnaire and analyzed using descriptive and inferential statistical methods with the aid of SPSS software.

Results: Findings revealed that most students demonstrated strong theoretical knowledge, with 98.8% correctly identifying the purpose of first aid and 93.3% accurately reporting the primary survey sequence. However, practical exposure was limited—only 31.7% had administered first aid, and just 27.4% had practiced using simulation tools. Confidence in key procedures such as CPR was low, with 48.8% reporting they were not confident. Students overwhelmingly preferred hands-on learning (93.3%) and cited lack of practice and training equipment as barriers to skill retention. There was also strong support (92.7%) for peer-led clubs and integration of first aid into the core curriculum.

Conclusion: All objectives of the study were successfully achieved, providing a clear picture of current knowledge levels, practical gaps, and actionable areas for improving first aid training among medical students at the University of Lusaka.

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List of Abbreviations

Abbreviation	Meaning
ABC	Airway, Breathing, Circulation
ANOVA	Analysis of Variance
CPR	Cardiopulmonary Resuscitation
DRC	Democratic Republic of Congo
MBChB	Bachelor of Medicine and Bachelor of Surgery
SPSS	Statistical Package for the Social Sciences
UNILUS	University of Lusaka
WHO	World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Background

First aid is a critical life-saving skill that involves the immediate care provided to an injured or ill person until full medical treatment is available. It encompasses a range of simple yet essential interventions that can significantly impact the outcome of an emergency situation. The ability to administer first aid not only enhances the immediate care provided to patients but also contributes to the overall preparedness and confidence of future healthcare professionals. This aims to assess the first aid knowledge and skills among medical students at the University of Lusaka, providing insights into their readiness to handle emergency situations and identifying areas for improvement in their training programs.

Despite its importance, studies have shown that the level of first aid knowledge among medical students varies significantly, often depending on the quality and extent of their training (Alanazi et al., 2022). For example, in Syria, only about 10% of medical students had a solid grasp of first-aid principles, and the rest showed worrying gaps in their understanding (Aljarad et al., 2020). In Saudi Arabia, while other half of medical students demonstrated good theoretical knowledge, many lacked the hands-on skills needed in real emergencies (AlQahtani et al., 2020). These numbers tell a story: there is a global need to not only teach first aid, but to teach it better. This variability underscores the need for comprehensive and standardized first aid training programs within medical curricula.

The importance of first aid training cannot be overstated. According to the World Health Organization (WHO), first aid is a fundamental component of emergency care and disaster preparedness, playing a crucial role in reducing morbidity and mortality rates in various settings (WHO, 2020). Effective first aid can prevent minor injuries from becoming major ones and can be the difference between life and death.

Here in Zambia, the urgency is even greater. Emergencies are common, and sometimes, access to professional help is delayed. Medical students at the University of Lusaka are training to become leaders in healthcare. But how ready are they to respond in critical moments? This seeks to explore their level of first-aid knowledge and practical skills, shinning a light on where improvements can be made. By doing so, it hopes to ensure that tomorrow's doctors are better prepared to save lives when it matters most.

As one of the country's leading institutions, the University of Lusaka (UNILUS) has a role in ensuring its students are not just competent but confident in providing first aid. But how well are these future doctors prepared? Data from the University of Zambia (UNZA), the country's largest public university, could offer a useful benchmark, but unfortunately, there is little published research on the state of first aid training among UNZA students. This lack of information makes the current study at UNILUS critical not only for its students but also for shaping broader conversations about first aid education in Zambia.

The central theme of this research revolves around the assessment of first aid knowledge and skills, which includes evaluating students' theoretical understanding and practical abilities. Theoretical knowledge encompasses the principles and guidelines of first aid, such as the steps to take in case of bleeding, fractures, burns, and cardiac arrest. Practical skills involve the application of this knowledge in real-life scenarios, such as performing cardiopulmonary resuscitation (CPR), managing wounds, and stabilizing fractures. Both aspects are crucial for effective first aid, and this study will explore the extent to which medical students at the University of Lusaka possess these competencies.

The assessment of first aid knowledge and skills among medical students at the University of Lusaka is a critical step towards enhancing their preparedness for emergency situations. By identifying gaps in their training and providing recommendations for improvement, this study aims to contribute to the development of more effective first aid training programs. The findings will not only benefit the students but also have broader implications for the quality of healthcare provided in Zambia. Ensuring that medical students are well-equipped with first aid skills is essential for building a resilient and responsive healthcare system capable of addressing the diverse needs of the population.

Ultimately, this study is about more than just statistics; it's about ensuring that when someone collapses in a market, when a child falls at school, or when a family member struggles to breathe at home, there is someone ready to help. By identifying where training falls short and recommending ways to improve, this study aims to build a stronger, more prepared healthcare workforce. It's not just about preparing students; it's about saving lives, one skill at a time.

1.2. Problem Statement

Despite the critical importance of first aid in emergency medical care, there is limited data on the proficiency of first aid knowledge and skills among medical students at the University of Lusaka. Preliminary observations suggest that there may be significant gaps in both

theoretical understanding and practical application of first aid techniques. This lack of proficiency could potentially compromise the quality of immediate care provided in emergency situations, thereby affecting patient outcomes. Therefore, it is essential to systematically assess the current level of first aid knowledge and skills among medical students at the University of Lusaka to identify deficiencies and inform the development of targeted educational interventions. This study aims to address this gap by evaluating the preparedness of medical students to effectively respond to emergencies, ultimately contributing to improved healthcare delivery in Zambia.

1.3. Objectives

1.3.1. General Objective

To assess the level of first aid knowledge and practical skills among medical students at the University of Lusaka, with the aim of identifying gaps and areas for improvement in their training programs.

1.3.2. Specific Objectives

1. To evaluate the theoretical knowledge of first aid principles and procedures among medical students at the University of Lusaka.
2. To assess the practical first aid skills of medical students at the University of Lusaka.
3. To identify the factors influencing the acquisition and retention of first aid knowledge and skills among medical students at the University of Lusaka.
4. To provide recommendations for enhancing first aid training programs at the University of Lusaka based on the findings of the study.

1.3.3. Research Questions

1. What is the level of theoretical knowledge of first aid principles and procedures among medical students at the University of Lusaka?
2. How proficient are medical students at the University of Lusaka in performing practical first aid skills?
3. What factors influence the acquisition and retention of first aid knowledge and skills among medical students at the University of Lusaka?

4. What are the gaps in first aid training programs at the University of Lusaka, and how can they be addressed to improve student proficiency?

1.4. Justification

First aid is a critical skill that every medical professional should possess. It can mean the difference between life and death in an emergency. For medical students, having a solid foundation in first aid is not just an academic requirement—it is a vital preparation for real-world situations where quick thinking and action are essential. Assessing the first aid knowledge and skills of medical students at the University of Lusaka is an important step in ensuring that they are ready to respond effectively when emergencies arise.

This assessment is essential for several reasons. First, it ensures that tomorrow's healthcare providers are equipped to handle crises, improving outcomes for patients in critical moments. Second, identifying areas where students struggle can guide the improvement of training programs, making medical education more practical and impactful. Finally, this focus on first aid training supports global health priorities, highlighting the need for strong emergency preparedness and response systems.

By addressing these needs, the study aims to strengthen the foundation of medical education and healthcare delivery in Zambia, helping to build a more capable and confident healthcare workforce that can rise to the challenges of any situation.

1.5. Scope Of The Study

This study focuses on understanding how well medical students at the University of Lusaka are prepared to handle emergencies through their first aid knowledge and skills. It will include students from all academic levels in the medical program to get a full picture of their readiness. The research will look at both theoretical knowledge such as understanding how to manage injuries like fractures, burns, bleeding, and cardiac arrest and practical skills, including performing CPR and stabilizing wounds. These aspects are vital for ensuring that students are equipped to respond to real-life emergencies effectively.

To achieve this, the study will use questionnaires to assess theoretical knowledge and simulated practical scenarios to evaluate hands-on skills. It will involve students from diverse backgrounds, ensuring that the sample reflects the broad student body in terms of gender, academic year, and prior exposure to first aid training. This approach is designed to highlight

specific areas where students may need more support or improvement, offering valuable insights to strengthen the university's training programs.

Beyond assessing skills, the research will also explore what influences students' ability to learn and retain first aid knowledge. This includes factors like how often they practice, the quality of training sessions, and whether resources like mannequins are available. By addressing these elements, the study hopes to suggest practical ways to improve first aid education, both at the University of Lusaka and in other institutions across Zambia.

1.6. Limitations Of the Study

This study is not without its challenges, and some factors might affect the reliability of the results. One limitation is the use of self-reported data from questionnaires, as participants might overstate or understate their actual knowledge and abilities. Similarly, while simulated scenarios will be used to test practical skills, these exercises can't fully recreate the stress and unpredictability of real emergencies, which may affect how well the results apply to real-world situations.

Another issue could arise from sampling. Although the study aims to include a wide range of students, factors like availability or willingness to participate could lead to a sample that doesn't fully represent the student population. Additionally, since this is a cross-sectional study, it only captures a snapshot of knowledge and skills at one point in time. This means it can't show how students' understanding evolves over time or how well they retain what they learn.

Finally, resource constraints, like limited access to advanced training tools or mannequins, could restrict how deeply practical skills are assessed. These limitations might impact how comprehensive the findings are and could affect the broader application of the study's conclusions to other contexts.

1.7. Definition Of Key Terms/Concepts

1. **First Aid:** The immediate help given to someone who is injured or unwell before professional medical assistance arrives. It's meant to save lives, prevent further harm, and aid recovery.

2. **Theoretical Knowledge:** The understanding of first aid concepts and principles, like knowing the steps to control bleeding, treat burns, or respond to cardiac emergencies.
3. **Practical Skills:** The ability to apply theoretical knowledge in real-life situations, such as performing CPR, dressing wounds, or managing fractures.
4. **Medical Students:** Students enrolled in a medical program who are training to become healthcare professionals and are expected to gain both knowledge and practical skills.
5. **Cross-Sectional Study:** A type of research that examines a group of people at one point in time to gather information about specific outcomes or characteristics.
6. **Simulation Tools:** Training equipment, like mannequins, that allow students to practice first aid in a controlled, hands-on way to mimic real-life emergencies.
7. **Response Bias:** A form of inaccuracy in data that occurs when participants give answers they think are expected rather than what truly reflects their knowledge or skills.
8. **Emergency Preparedness:** The ability to respond quickly and effectively to sudden medical situations, ensuring the best outcome for those in need.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This chapter takes a closer look at what previous research says about first aid knowledge and skills among medical students. It examines how this critical training is approached globally, regionally across Africa, and here in Zambia. By exploring existing studies and understanding their findings, this chapter highlights what's working, what's not, and where the gaps are. These insights provide the foundation for this study, helping to shape the focus on improving first aid training and better preparing future healthcare professionals for real-world emergencies.

2.2. Theoretical Framework

This study is guided by Kolb's Experimental Learning Theory, which emphasizes the importance of learning through direct experience. Kolb's model suggests that students gain a deeper understanding and retain more knowledge when they actively participate in hands-on activities, reflect on their experiences, and apply their learning to new situations. This approach is particularly relevant for first aid training, where practical skills and real-time decision-making are critical.

Additionally, Andragogy Theory by Malcolm Knowles provides another foundation for this study. This theory focuses on adult learning, stressing that learners are motivated when they see the relevance of material to real-life problems. First aid training aligns with the future roles of medical students as healthcare providers, making practical, problem based learning particularly effective.

Both theories reinforce the need for a curriculum that balances theoretical knowledge with frequent, realistic practice sessions, ensuring that students are well-equipped for emergencies.

2.3. Conceptual Framework

The conceptual framework for this study centers on the primary dependent variable: first aid competency. It explores how training inputs and processes influence this single key outcome, which encompasses both knowledge and skills required for effective emergency response.

Key Variables:

1. Independent Variables:

- Quality of theoretical instruction
- Frequency and quality of practical sessions
- Availability of training resources (e.g., mannequins, simulation tools)
- Prior exposure to first aid training (e.g., workshops, community-based programs)

2. Dependent Variable:

- **First Aid Competency:** This is the primary focus of the study, representing students' ability to apply both theoretical knowledge and practical skills effectively in emergency situations.

3. Moderating Variables:

- Student engagement and motivation
- Institutional support (e.g., emphasis on first aid in the curriculum, faculty commitment)
- Access to resources (e.g., training equipment and tools)

Expected Relationships:

- High-quality theoretical instruction provides a foundation for knowledge acquisition.
- Frequent, hands-on practical sessions reinforce knowledge and enhance skill retention.
- The availability of adequate training resources (e.g., simulation tools) directly improves practical skills.
- Factors like student engagement and institutional support moderate the impact of these inputs on competency.

Visual Representation:

This streamlined conceptual framework ensures that the study focuses on how key inputs and processes directly contribute to building first aid competency among medical students. It provides a clear structure for investigating the factors that influence training outcomes at the University of Lusaka.

Here is how the framework logically connects the variables:

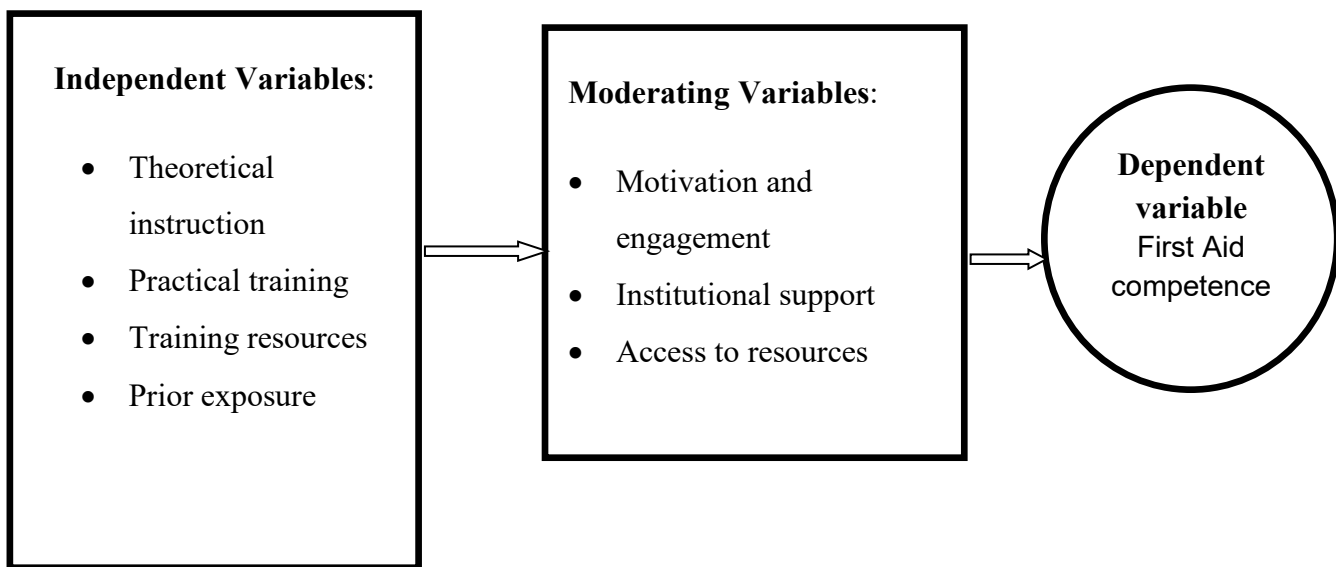


Figure 2.1: Conceptual framework

2.4. GAP ANALYSIS

Although first aid training is recognized as essential for medical students, a persistent gap exists between theoretical knowledge and practical skills. Globally, studies such as those by AlQahtani et al (2020) and Pande et al (2019) reveal that while students often demonstrate theoretical understanding, they lack confidence and ability to apply these skills in real-life emergencies. The lack of frequent, hands-on training and simulation tools is a major contributing factor to this gap.

Regionally, African medical schools face similar challenges. Limited resources and inconsistent first aid curricula result in students who are less prepared to handle emergencies practically (Eke et al., 2020; Waweru et al., 2020). This issue is compounded by resource shortages, such as mannequins and simulation-based learning environments, which are critical for skill acquisition.

Locally, studies in Zambia by Mwansa et al (2022) and Phiri et al (2021) highlight significant gaps in first aid readiness among medical students. These studies also point to the lack of structured practical training programs and inadequate access to modern teaching tools as key barriers.

2.5. Empirical Review

2.5.1. Global Perspective

Around the world, first aid education for medical students has been a critical area of focus, with researchers highlighting significant gaps and opportunities for improvement. For instance, a study conducted in Saudi Arabia found that while many medical students had a solid understanding of first aid principles, they struggled with practical application, such as performing CPR or managing airway obstructions (AlQahtani et al., 2020). This disconnection between theory and practice is a recurring theme in global research and emphasizes the need for practical, hands-on training.

In India, researchers discovered that less than half of medical students felt confident performing CPR despite being taught the technique during their courses (Pande et al., 2019). This suggests that classroom learning alone is insufficient to build the confidence and competence needed in emergency situations. Similarly, in the United States, Madden (2021) found that students who participated in practical workshops and simulations retained knowledge longer and performed better in real-world scenarios than those who only attended lectures.

A global review by Ibrahim et al. (2022) revealed that first aid training often lacks consistency across institutions. Factors like cultural differences, access to resources, and varying curriculum priorities create disparities in the quality of training. The review suggested implementing a standardized global framework for first aid education to ensure all students receive adequate preparation for emergencies.

These studies collectively demonstrate the importance of balancing theoretical education with practical experiences. By addressing these gaps, institutions worldwide can better prepare future healthcare professionals to respond effectively to emergencies.

2.5.2. Regional Perspective

In Africa, first aid education faces unique challenges, but recent research is shedding light on both progress and persistent gaps. In Nigeria, Eke et al. (2020) found that while nearly 70% of medical students understood the basics of first aid, less than one-third could effectively apply their skills in simulated emergencies. This gap was largely attributed to limited resources like mannequins and inconsistent practical training sessions.

In South Africa, van der Merwe and Moyo (2021) explored the impact of community-based first aid programs and found that students who participated in these initiatives showed greater retention of both theoretical knowledge and practical skills compared to their peers who only attended classroom-based training. These findings underscore the value of experiential learning through community engagement.

A study in Kenya by Waweru et al. (2020) highlighted similar challenges. While most students were familiar with first aid principles, only a minority could confidently perform life-saving techniques such as CPR or manage trauma cases. The researchers emphasized the need for African institutions to prioritize frequent, practical training sessions to bridge the gap between knowledge and application.

Collectively, these studies highlight the need for African medical schools to embrace practical, resource-intensive training programs to ensure students are well-prepared to handle emergencies.

2.5.3. Local Perspective

In Zambia, studies on first aid preparedness among medical students are limited, but available research provides valuable insights. Mwansa et al. (2022) examined first aid readiness at the University of Zambia (UNZA) and found that while more than half of the students had theoretical knowledge, only 25% felt confident applying these skills in real-life situations. The study attributed this gap to the lack of practical training resources and inconsistent delivery of the curriculum.

Similarly, research at Levy Mwanawasa Medical University revealed that although 60% of students were familiar with basic first aid concepts, only 15% could perform CPR effectively

(Phiri et al., 2021). The findings highlighted the need for simulation-based training and access to modern equipment to enhance practical competencies.

Preliminary observations at the University of Lusaka suggest similar challenges, with an overreliance on theoretical instruction and insufficient emphasis on practical application. This study aims to provide a more comprehensive understanding of these issues and offer actionable recommendations to improve first aid education locally.

CHAPTER THREE: METHODOLOGY

3.1. Study Design

This study employed a cross-sectional descriptive research design to assess first aid knowledge and skills among medical students at the University of Lusaka. The cross-sectional design was appropriate for this study as it allowed for the collection of data at a single point in time, providing a snapshot of the current level of first aid proficiency among the students.

The study population consisted of medical students enrolled in various years of study at the University of Lusaka. A stratified random sampling method was used to ensure representation from each year of study, allowing for comparisons across different levels of training.

3.2. Study Site

The selection of the University of Lusaka provided valuable insights into the effectiveness of existing first aid training programs and identified areas for improvement to enhance the preparedness of future healthcare providers.

3.3. Study Population And Sample Size

The study population for this research consists of medical students enrolled in the Bachelor of Medicine and Bachelor of Surgery (MBChB) program at the University of Lusaka. This includes students from first to sixth year of study. The sample size was calculated using the Cochran's method:

$$n_0 = \frac{Z^2 \times p \times (1 - p)}{e^2}$$

Data set

- Z (Z- value) = 1.96
- P (Proportion of population) = 0.5
- e (Margin of error) = 7%

$$n_0 = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.07^2} = 196$$

Adjusted Sample Size for a Finite Population (n)

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$
$$n = \frac{196}{1 + \frac{196 - 1}{1000}} = 164$$

Thus, the final adjusted sample size for this study is approximately **164 participants**.

3.4. Data Collection

Data for this study were collected using a structured questionnaire designed to assess both theoretical knowledge and practical skills in first aid among medical students at the University of Lusaka.

3.5. Data Analysis

The data collected were analysed using both descriptive and inferential statistical methods. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the levels of first aid knowledge and skills among the medical students. These statistics provided an overview of the distribution of responses and highlighted key areas of strength and weakness in first aid proficiency.

Inferential statistics were employed to identify significant differences and relationships within the data. Chi-square tests were used to examine associations between categorical variables, such as the year of study and the level of first aid knowledge. Independent t-tests and ANOVA were conducted to compare the mean scores of first aid knowledge and skills across different groups, such as gender and academic year. Additionally, regression analysis was used to explore predictors of first aid proficiency, considering factors such as prior training, frequency of practice, and confidence levels.

All statistical analyses were performed using statistical software such as SPSS (Statistical Package for the Social Sciences). The results were presented in tables and graphs to facilitate interpretation and discussion.

3.6. Ethical Considerations

Confidentiality and anonymity of the participants were strictly maintained. Personal identifiers were removed from the data, and unique codes were used to ensure that individual responses could not be traced back to specific participants. Data were securely stored and were accessible only to the research team.

Prior to the commencement of the study, ethical approval was obtained from the University of Lusaka Ethics Committee. Informed consent was obtained from all participants, ensuring they were fully aware of the study's purpose, procedures, potential risks, and benefits. Participation was entirely voluntary, and students had the right to withdraw from the study at any time without any consequences.

Feedback was provided to participants on their performance, serving as an educational benefit.

CHAPTER FOUR: RESULTS

4.2 Introduction

This chapter presents the findings of the study through a combination of tables and figures, illustrating the responses provided by participants. The results are analysed using descriptive statistical methods to provide a clear interpretation of the data in relation to the research objectives.

4.2 Demographics

Table 4. 1: Social demographic data

Year of Study	Frequency (n=164)	Percentage (%)
Year 1	1	0.6%
Year 2	9	5.5%
Year 3	58	35.4%
Year 4	34	20.7%
Year 5	62	37.8%
Gender	Frequency (n=164)	Percentage (%)
Female	113	68.9%
Male	51	31.1%
Age Group	Frequency (n=164)	Percentage (%)
18–20 years	2	1.2%
21–23 years	56	34.1%
24–26 years	70	42.7%
27 years and above	35	21.3%
Missing/Invalid	1	0.6%

Among the respondents, 1 student (0.6%) was in Year 1, 9 students (5.5%) were in Year 2, 58 students (35.4%) were in Year 3, 34 students (20.7%) were in Year 4, and 62 students (37.8%) were in Year 5.

The gender distribution showed that 113 participants (68.9%) were female, while 51 participants (31.1%) were male.

Regarding age, 2 participants (1.2%) were between 18-20 years, 56 participants (34.1%) were between 21-23 years, 70 participants (42.7%) were between 24-26 years, and 35 participants

(21.3%) were 27 years and above. There was 1 participant (0.6%) with missing or invalid age data.

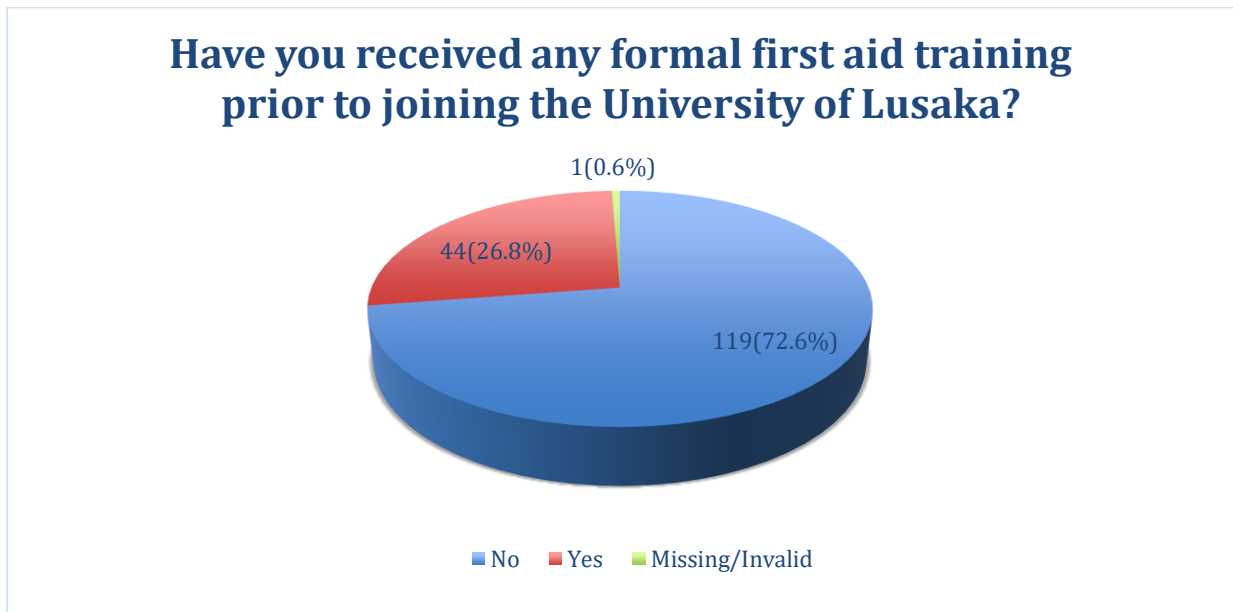


Figure 4. 1: Prior Formal First Aid Training

When asked about receiving any formal first aid training prior to joining the University of Lusaka, 119 participants (72.6%) responded 'No', 44 participants (26.8%) responded 'Yes', and 1 participant (0.6%) had missing or invalid data.

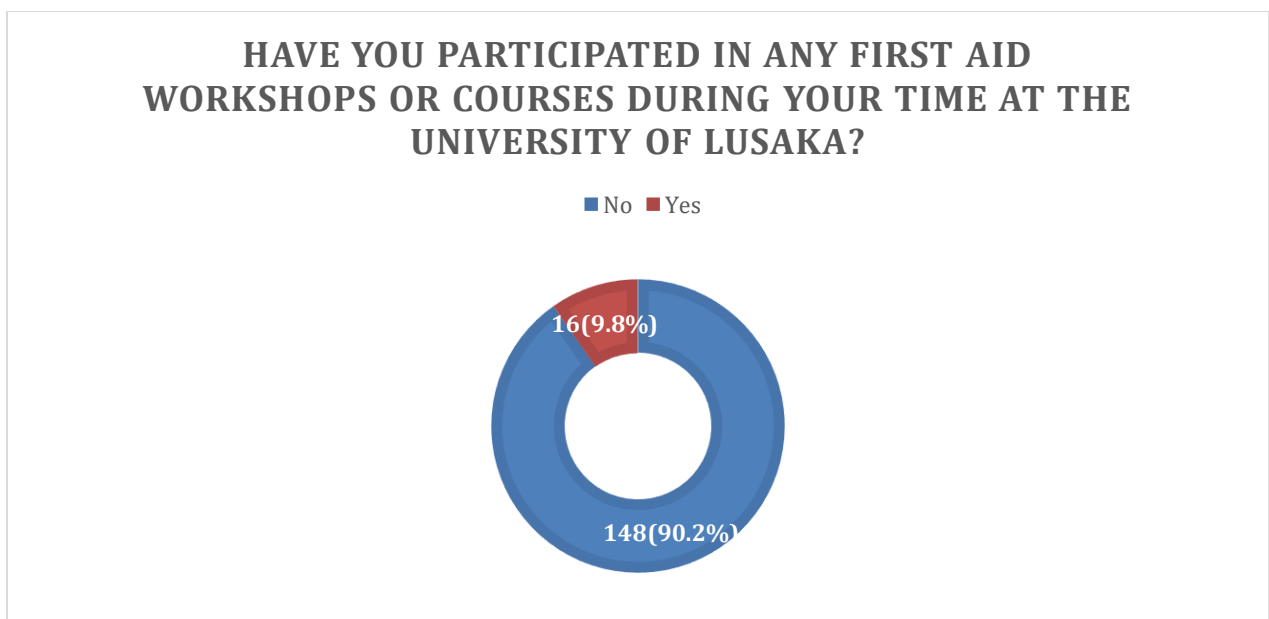


Figure 4. 2: Participation in First Aid Workshops or Courses at the University

Regarding participation in first aid workshops or courses during their time at the University of Lusaka, 148 participants (90.2%) indicated 'No', while 16 participants (9.8%) indicated 'Yes'.

4.3 Theoretical Knowledge of First Aid Principles and Procedures

Table 4. 2: Primary Purpose of First Aid

What is the primary purpose of first aid?		
Response	Frequency (n=164)	Percentage (%)
To diagnose medical conditions	1	0.6%
To offer long-term care	1	0.6%
To provide immediate care to prevent worsening	162	98.8%

When asked about the primary purpose of first aid, 162 participants (98.8%) indicated that it is to provide immediate care to prevent worsening of a condition. One participant (0.6%) responded that the purpose is to diagnose medical conditions, while another (0.6%) believed it is to offer long-term care.

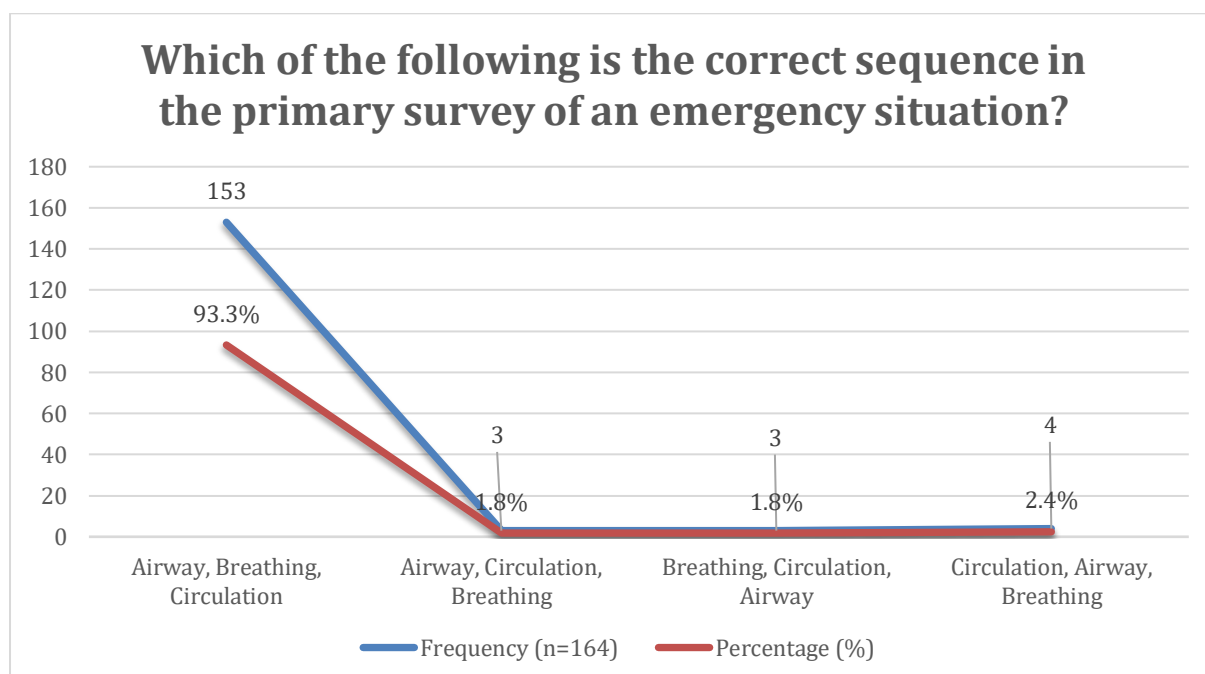


Figure 4. 3: Correct Sequence in the Primary Survey of an Emergency Situation

Regarding the correct sequence in the primary survey of an emergency situation, 153 participants (93.3%) selected "Airway, Breathing, Circulation" as the appropriate sequence. Three participants (1.8%) chose "Airway, Circulation, Breathing," and another three (1.8%) selected "Breathing, Circulation, Airway." Four participants (2.4%) responded with "Circulation, Airway, Breathing," and one response (0.6%) was either missing or invalid.

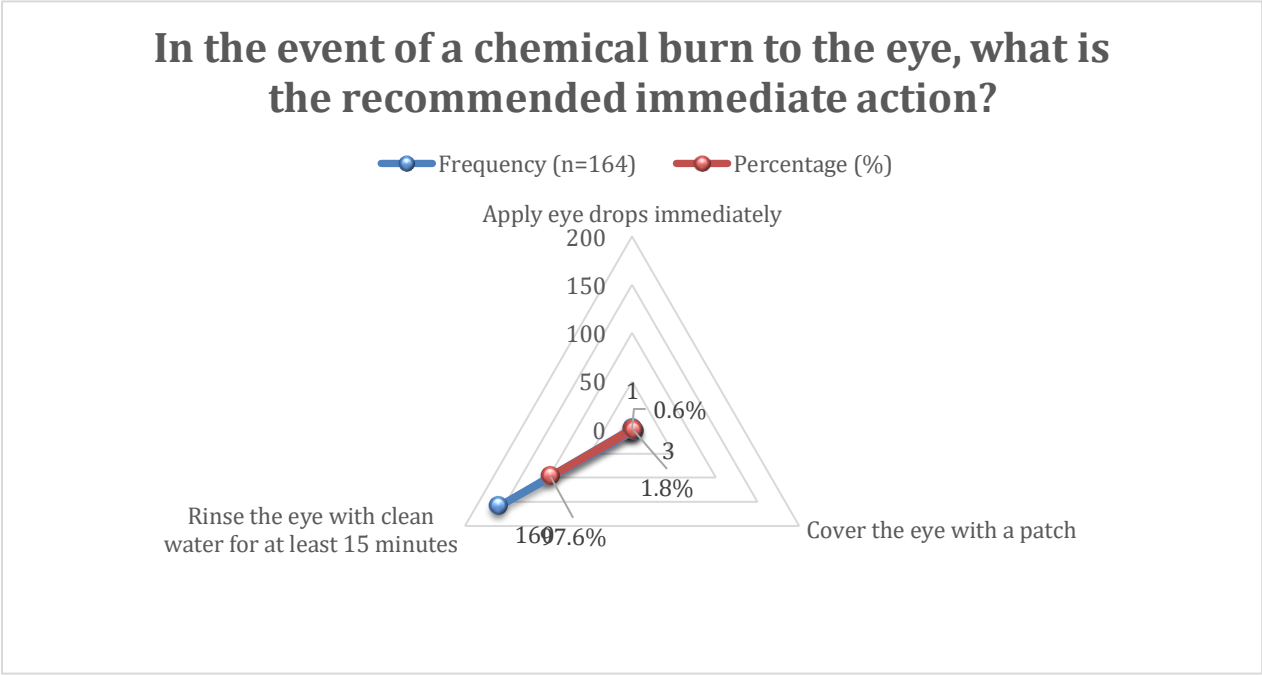


Figure 4. 4: Immediate Action for a Chemical Burn to the Eye

In response to the recommended immediate action in the event of a chemical burn to the eye, 160 participants (97.6%) stated that the eye should be rinsed with clean water for at least 15 minutes. Three participants (1.8%) suggested covering the eye with a patch, while one participant (0.6%) indicated that applying eye drops immediately was appropriate.

Table 4. 3: First Aid Responses for Fractures and Seizures

How should a suspected fracture be initially managed?		
Response	Frequency (n=164)	Percentage (%)
Encourage movement to assess pain	13	7.9%
Immobilize the affected area	142	86.6%
Massage the area to avoid swelling	9	5.5%
What is the recommended first aid response for someone experiencing a seizure?		
Response	Frequency (n=164)	Percentage (%)
Clear the area of hazards and cushion their head	101	61.6%
Perform CPR immediately	3	1.8%

Place an object in their mouth to avoid tongue biting	36	22.0%
Restrain the person to avoid injury	23	14.0%
Missing/Invalid	1	0.6%

When asked how a suspected fracture should be initially managed, 142 participants (86.6%) responded that the affected area should be immobilized. Thirteen participants (7.9%) chose to encourage movement to assess pain, while nine participants (5.5%) selected massaging the area to avoid swelling.

In response to the recommended first aid for someone experiencing a seizure, 101 participants (61.6%) indicated that the area should be cleared of hazards and the person's head cushioned. Thirty-six participants (22.0%) suggested placing an object in the person's mouth to avoid tongue biting. Twenty-three participants (14.0%) chose restraining the person to avoid injury, while three participants (1.8%) stated CPR should be performed immediately. One response (0.6%) was either missing or invalid.

4.4 Practical First Aid Skills

Table 4. 4: Experience in Administering First Aid Among Medical Students

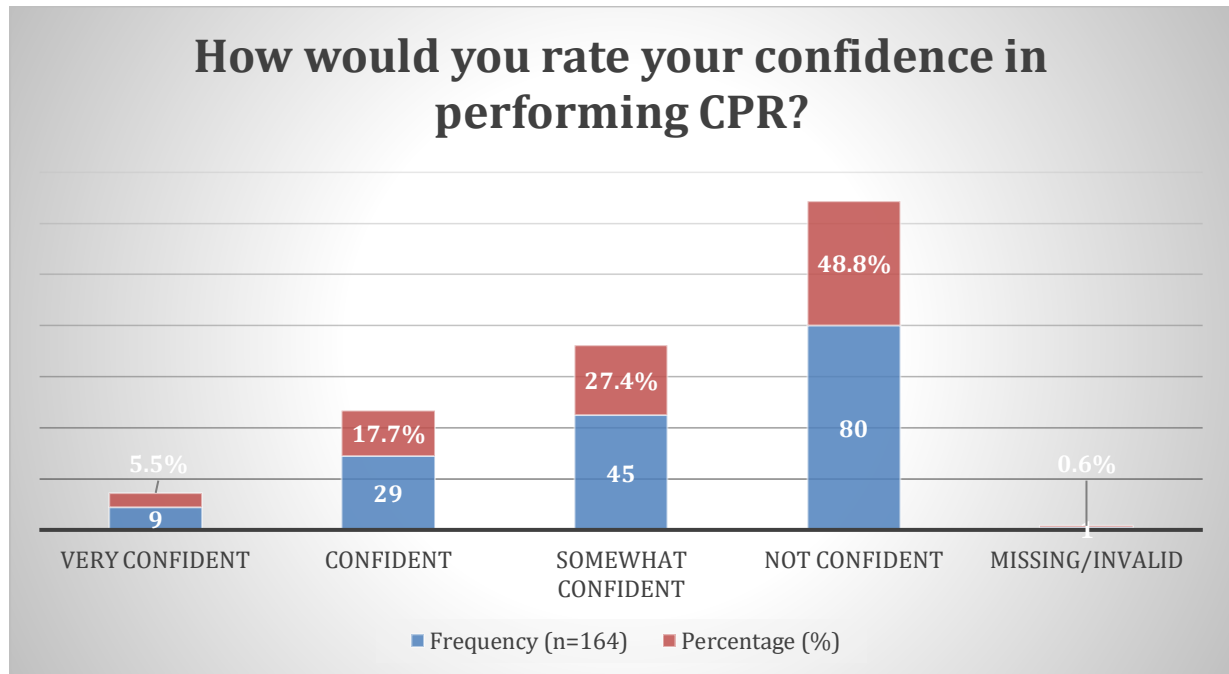
Have you ever administered first aid in a real-life situation?		
Response	Frequency (n=164)	Percentage (%)
No	112	68.3%
Yes	52	31.7%
If yes, how many times have you administered first aid in a real-life situation?		
Response	Frequency (n=164)	Percentage (%)
Once	21	12.8%
2–3 times	15	9.1%
More than 3 times	17	10.4%
Not applicable	100	61.0%
Missing/Invalid	11	6.7%

When asked whether they had ever administered first aid in a real-life situation, 112 participants (68.3%) responded "No," while 52 participants (31.7%) indicated that they had done so.

In response to how many times participants had administered first aid in real-life situations, 21 participants (12.8%) reported having done so once. Fifteen participants (9.1%) stated they

had administered first aid 2–3 times, and 17 participants (10.4%) indicated more than 3 times. One hundred participants (61.0%) marked the response as not applicable, and 11 responses (6.7%) were either missing or invalid.

Figure 4. 5: Confidence in Performing CPR



When asked to rate their confidence in performing CPR, 9 participants (5.5%) reported feeling very confident, while 29 participants (17.7%) stated they were confident. Forty-five participants (27.4%) considered themselves somewhat confident, and 80 participants (48.8%) responded that they were not confident. One response (0.6%) was either missing or invalid.

Table 4. 5: CPR Knowledge and Simulation Practice Among Medical Students

Can you identify the correct landmarks for chest compressions during CPR?		
Response	Frequency (n=164)	Percentage (%)
Yes	96	58.5%
No	65	39.6%
Missing/Invalid	3	1.8%
Have you practiced first aid procedures using simulation tools (e.g., mannequins)?		
Response	Frequency (n=164)	Percentage (%)
Yes	45	27.4%
No	118	72.0%
Missing/Invalid	1	0.6%

In response to whether participants could identify the correct landmarks for chest compressions during CPR, 96 participants (58.5%) answered "Yes" and 65 participants (39.6%) answered "No." Three responses (1.8%) were either missing or invalid.

When asked if they had practiced first aid procedures using simulation tools such as mannequins, 45 participants (27.4%) responded affirmatively, while 118 participants (72.0%) indicated they had not. One response (0.6%) was either missing or invalid.

4.5 Factors Influencing Acquisition and Retention of First Aid Knowledge and Skills

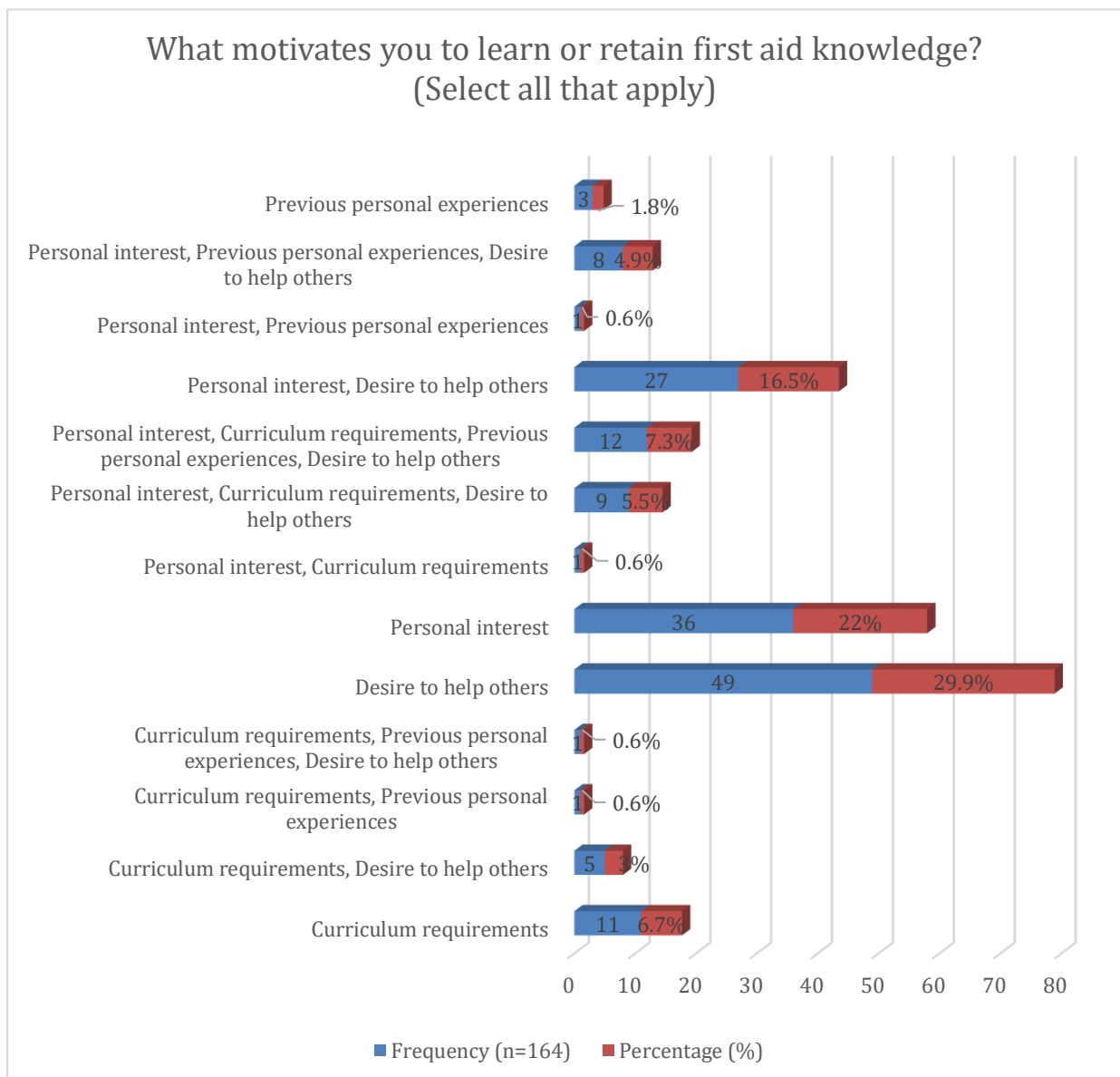


Figure 4. 6: Motivation to Learn or Retain First Aid Knowledge

When asked about their motivation to learn or retain first aid knowledge, 49 participants (29.9%) indicated a desire to help others. Thirty-six participants (22.0%) selected personal interest, and 27 participants (16.5%) cited both personal interest and a desire to help others.

Twelve participants (7.3%) mentioned personal interest, curriculum requirements, previous personal experiences, and a desire to help others. Nine participants (5.5%) chose personal interest, curriculum requirements, and a desire to help others, while 11 participants (6.7%) selected only curriculum requirements. Five participants (3.0%) reported curriculum requirements and a desire to help others, and one participant (0.6%) each selected the following combinations: curriculum requirements and previous personal experiences; curriculum requirements, previous personal experiences, and a desire to help others; personal interest and curriculum requirements; personal interest and previous personal experiences; and personal interest, previous personal experiences, and a desire to help others. Three participants (1.8%) identified previous personal experiences as their sole motivation.

Table 4. 6: Preferred Learning Methods and Challenges in Retaining First Aid Knowledge

How do you prefer to learn first aid skills?		
Response	Frequency (n=164)	Percentage (%)
Practical hands-on sessions	153	93.3%
Group discussions	8	4.9%
Theoretical lectures	2	1.2%
Online tutorials	1	0.6%
What challenges do you face in retaining first aid knowledge?		
Response	Frequency (n=164)	Percentage (%)
Lack of practical application	98	59.8%
Insufficient training resources	44	26.8%
Time constraints	12	7.3%
Limited access to refresher courses	10	6.1%

In response to how they prefer to learn first aid skills, 153 participants (93.3%) selected practical hands-on sessions. Eight participants (4.9%) indicated a preference for group discussions, two participants (1.2%) chose theoretical lectures, and one participant (0.6%) preferred online tutorials.

When asked about the challenges they face in retaining first aid knowledge, 98 participants (59.8%) identified a lack of practical application. Forty-four participants (26.8%) mentioned insufficient training resources, 12 participants (7.3%) reported time constraints, and 10 participants (6.1%) cited limited access to refresher courses.

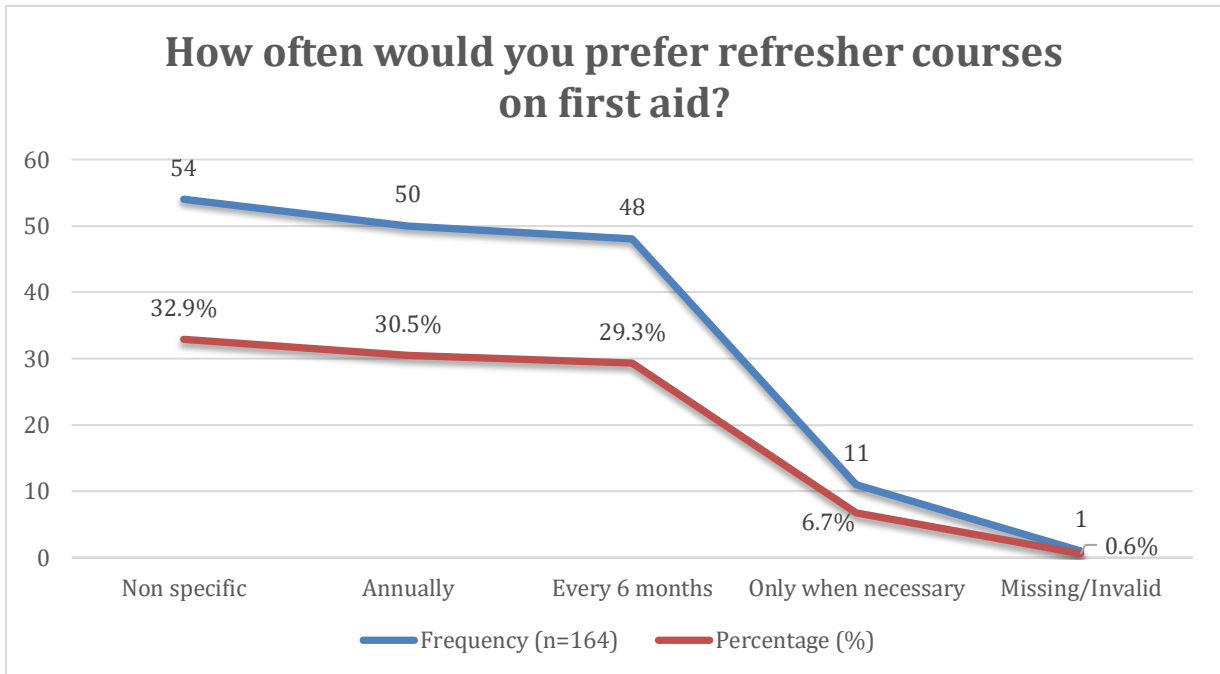


Figure 4. 7: Preferred Frequency for Refresher Courses on First Aid

In regard to how often they would prefer refresher courses on first aid, 54 participants (32.9%) did not specify a labeled frequency. Fifty participants (30.5%) preferred annual refreshers, while 48 participants (29.3%) chose every six months. Eleven participants (6.7%) responded that refresher courses should be taken only when necessary, and one response (0.6%) was either missing or invalid.

Table 4. 7: Perception of First Aid Integration into Regular Curriculum

Do you believe that integrating first aid into the regular curriculum would enhance your proficiency?		
Response	Frequency (n=164)	Percentage (%)
Strongly Agree	104	63.4%
Agree	45	27.4%
Neutral	11	6.7%
Strongly Disagree	2	1.2%
Disagree	2	1.2%

When asked whether they believe that integrating first aid into the regular curriculum would enhance their proficiency, 104 participants (63.4%) strongly agreed, and 45 participants (27.4%) agreed. Eleven participants (6.7%) responded neutrally, while two participants (1.2%) each disagreed or strongly disagreed.

4.6 Recommendations for Enhancing First Aid Training Programs

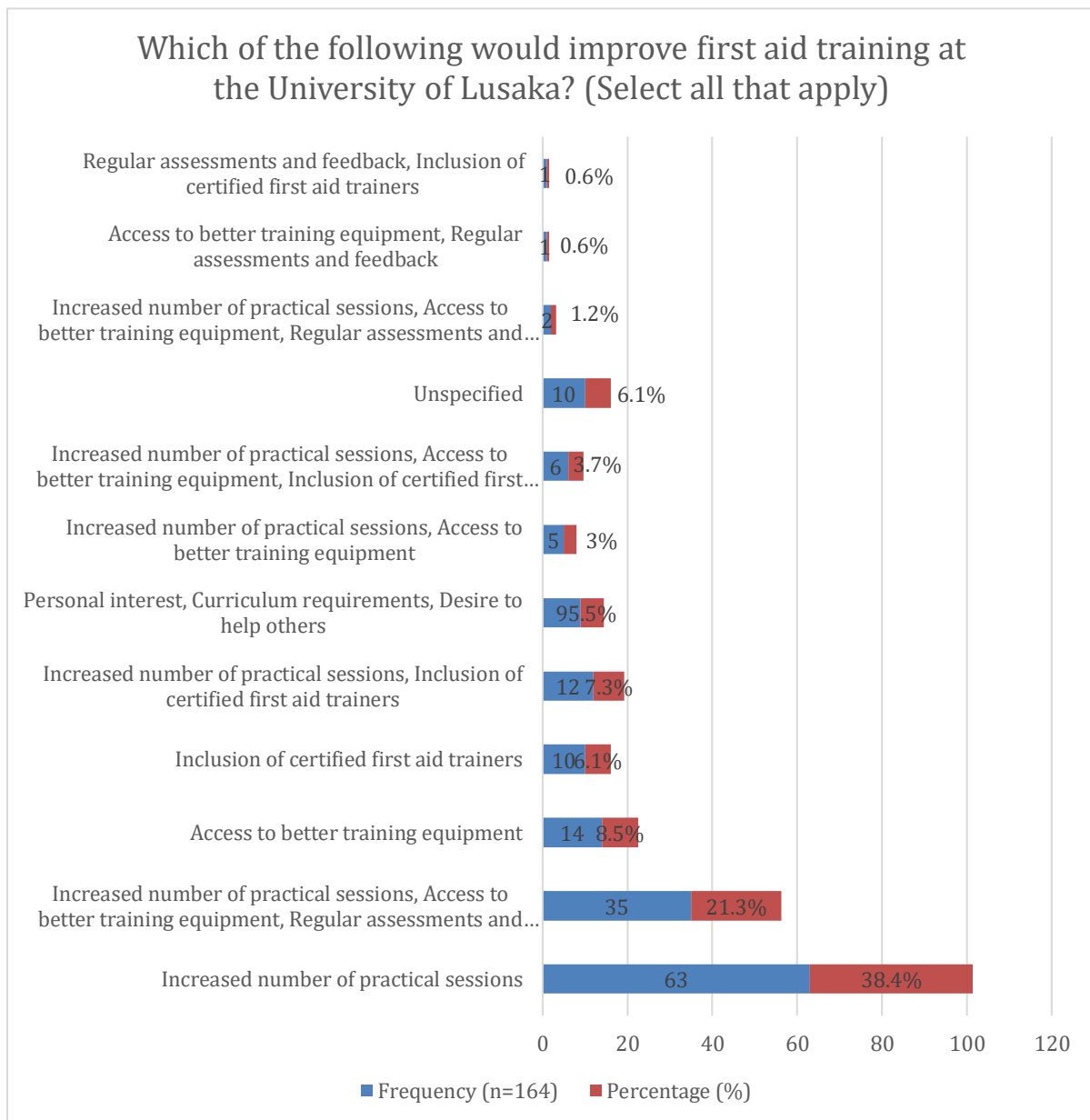


Figure 4. 8: *Suggestions to Improve First Aid Training at the University of Lusaka*

When asked which measures would improve first aid training at the University of Lusaka, 63 participants (38.4%) selected an increased number of practical sessions. Thirty-five participants (21.3%) chose a combination of increased practical sessions, access to better training equipment, regular assessments and feedback, and inclusion of certified first aid trainers. Fourteen participants (8.5%) identified access to better training equipment, and 10 participants (6.1%) responded with inclusion of certified first aid trainers. Twelve participants (7.3%) chose both increased practical sessions and inclusion of certified trainers,

while nine participants (5.5%) indicated personal interest, curriculum requirements, and a desire to help others. Five participants (3.0%) selected increased practical sessions and access to better training equipment. Six participants (3.7%) marked increased practical sessions, better equipment, and certified trainers, while another six (3.7%) provided unspecified responses. Four participants (2.4%) also gave unspecified selections. Two participants (1.2%) indicated increased practical sessions, access to better training equipment, and regular assessments and feedback. One participant (0.6%) each selected access to better training equipment with regular assessments and feedback, and regular assessments and feedback with inclusion of certified trainers.

Table 4. 8: Student Attitudes Toward Peer Learning, Assessment, and Engagement in First Aid Training

Would you participate in an extracurricular first aid club or organisation if available?		
Response	Frequency (n=164)	Percentage (%)
Yes	152	92.7%
No	10	6.1%
Missing/Invalid	2	1.2%
Do you think peer-led first aid sessions would be beneficial?		
Response	Frequency (n=164)	Percentage (%)
Yes	148	90.2%
No	15	9.1%
Missing/Invalid	1	0.6%
How likely are you to recommend first aid training to your peers?		
Response	Frequency (n=164)	Percentage (%)
Very likely	104	63.4%
Likely	45	27.4%
Neutral	13	7.9%
Unlikely	1	0.6%
Missing/Invalid	1	0.6%
In your opinion, what is the most effective method for assessing first aid competency?		
Response	Frequency (n=164)	Percentage (%)
Practical Demonstrations	156	95.1%
Written examinations	4	2.4%
Group assessments	3	1.8%

When asked whether they would participate in an extracurricular first aid club or organization if available, 152 participants (92.7%) responded "Yes," while 10 participants (6.1%) responded "No." Two responses (1.2%) were either missing or invalid.

In response to whether peer-led first aid sessions would be beneficial, 148 participants (90.2%) agreed, while 15 participants (9.1%) did not. One response (0.6%) was missing or invalid.

When asked how likely they were to recommend first aid training to their peers, 104 participants (63.4%) indicated they were very likely, and 45 participants (27.4%) said they were likely. Thirteen participants (7.9%) responded neutrally, while one participant (0.6%) marked unlikely. One response (0.6%) was either missing or invalid.

In response to the most effective method for assessing first aid competency, 156 participants (95.1%) selected practical demonstrations. Four participants (2.4%) preferred written examinations, three participants (1.8%) chose group assessments, and one participant (0.6%) selected online quizzes.

CHAPTER FIVE: DISCUSSIONS

5.1 Introduction

This chapter presents a detailed discussion of the study's findings, guided by the specific research questions and objectives outlined earlier. The analysis integrates both descriptive and inferential statistics to assess first aid knowledge and skills among medical students at the University of Lusaka. Furthermore, the results are critically compared with findings from other national, regional, and global studies to highlight similarities, differences, and broader implications for medical education and emergency preparedness.

5.2 Theme 1: Theoretical Knowledge of First Aid Among Medical Students

The assessment of theoretical knowledge among medical students at the University of Lusaka revealed generally strong performance in core first aid principles, yet also exposed a few critical gaps that echo global and regional trends. As can be seen in figure 4.2, 98.8% of students correctly stated that it is to provide immediate care to prevent a condition from worsening. Only 0.6% mistakenly believed it was for diagnosing medical conditions or for offering long-term care. Similarly, the question regarding the correct sequence in the primary survey an essential part of initial emergency response was answered correctly by 93.3% students who identified the Airway, Breathing, Circulation (ABC) order as seen in figure 4.3. This foundational knowledge was reassuring, though 6.7% students chose incorrect sequences, which signals a need for reinforcement.

Comparable findings have been documented in other parts of Africa. In a study conducted in the Democratic Republic of Congo, Katsioto et al. (2022) found that over 70% of medical students had a solid understanding of first aid theory, particularly in basic emergency steps, but struggled with certain scenario-specific applications such as trauma response and seizure management (Katsioto et al., 2022). Likewise, in Uganda, a survey by Opiro et al. (2024) noted that while 68% of first-responder trainees, including medical students, could recall basic first aid protocols, less than half could apply them confidently under pressure (Opiro et al., 2024).

In our study, knowledge of specific emergency scenarios revealed mixed understanding. When presented with a situation involving a chemical burn to the eye, 97.6% correctly indicated that the eye should be rinsed with clean water for at least 15 minutes. However, 1.8% suggested covering the eye with a patch, and 0.6% believed that applying eye drops was the correct response. This aligns closely with findings from Minani and Soh (2023), who

observed that over 90% of learners retained theoretical knowledge post-training but that missteps were common when asked about responses to burns and eye injuries in their multi-country review of emergency education programs (Minani & Soh, 2023).

The understanding of fracture management further illustrated a knowledge gap. While 86.6% knew to immobilize the affected area, 7.9% incorrectly thought that movement to assess pain was appropriate 5.5% chose massage to avoid swelling. This pattern strong baseline knowledge but confusion in specific application—mirrors global findings. For instance, Cornell (2021) reported that many East African trainees scored well on general knowledge but faltered on nuanced or less-discussed injuries like fractures and dislocations, indicating a need for deeper training modules (Cornell, 2021).

Seizure management was an especially revealing area. Only 61.6% chose the correct action clearing hazards and cushioning the head. Alarming, 22.0% believed an object should be placed in the person's mouth to prevent tongue biting, 14.0% opted to restrain the individual, and 1.8% incorrectly suggested performing CPR. These results are consistent with research from Pean et al. (2015) in Haiti, where despite comprehensive theoretical training, nearly one-third of medical students still held harmful misconceptions about seizure response.

5.3 Theme 2: Proficiency in Practical First Aid Skills

The practical readiness of medical students at the University of Lusaka to deliver first aid was considerably less robust than their theoretical knowledge, revealing a concerning disconnect between knowing and doing. Of the students surveyed, only 31.7% reported having ever administered first aid in a real-life situation, while a significant majority 112 students 68.3% had never done so. Among those with experience, 12.8% had done it once, 9.1% had done so 2 to 3 times, and 10.4% had administered first aid more than three times. This limited practical exposure mirrors findings from a study in the Democratic Republic of Congo, where although theoretical knowledge was relatively high, only a small percentage of students felt confident delivering care in real-world emergencies, pointing to a lack of experiential learning opportunities (Katsioto et al., 2022).

Confidence in performing critical procedures like cardiopulmonary resuscitation (CPR) was notably low. Only 5.5% described themselves as “very confident,” while 17.7% felt “confident.” The majority of students fell into lower confidence categories, with 27.4% identifying as “somewhat confident” and 48.8% stating they were “not confident” at all. This pattern closely aligns with a study by Pean et al. (2015) in Haiti, where despite exposure to

emergency training, over half of the medical students lacked confidence in performing CPR due to inadequate simulation practice.

When asked if they could identify the correct landmarks for chest compressions during CPR, 58.5% answered yes, while 39.6% said no and 1.8% gave invalid or missing responses. This statistic reflects a worrying reality more than one-third of future doctors might hesitate or falter during one of the most vital emergency interventions. This is echoed in findings from a multi-country review by Minani and Soh (2023), which showed that while many trainees recalled general CPR steps, fewer than 60% could consistently identify anatomical landmarks or maintain effective compression depth and rhythm in practice settings (Minani & Soh, 2023).

In terms of actual practice using simulation tools such as mannequins, only 27.4% had done so, while 72.0% had not, and 0.6% of the responses were missing. This lack of hands-on training is significant because practical simulation is known to reinforce knowledge and boost skill retention. A scoping review by Cornell (2021) on first-responder training in East Africa confirmed that simulation-based instruction dramatically increased both competency and confidence in first aid delivery, yet many institutions lacked the resources to implement it consistently (Cornell, 2021). Similarly, a study in Northern Uganda by Opiro et al. (2024) revealed that only 32% of trainees had ever engaged in any simulation-based practice, and most reported feeling unprepared to act in actual emergencies (Opiro et al., 2024).

5.4 Theme 3: Factors Influencing Acquisition and Retention of First Aid Knowledge and Skills

Understanding what drives medical students to acquire and retain first aid knowledge is essential for designing more effective training programs. In this study, the largest group (29.9%) cited a desire to help others, followed by 22.0% who were motivated by personal interest (figure 4.6). A combination of personal interest and a desire to help others was selected by 16.5%, while only 6.7% pointed to curriculum requirements as their main driver. These findings reflect a broader trend observed in global research, such as the study by Cornell (2021), which reported that intrinsic motivations like altruism and the desire to be helpful in emergencies were strong predictors of first aid knowledge retention among East African trainee responders.

When it came to preferred learning methods, the data was even more striking. An overwhelming 93.3% preferred practical, hands-on sessions over other formats (table 4.6). Only 4.9% chose group discussions, 1.2% opted for theoretical lectures, and 0.6% selected

online tutorials. This overwhelming preference aligns with a study by Minani and Soh (2023), which found that over 85% of learners in their multi-country sample retained first aid skills more effectively when taught through hands-on, scenario-based approaches compared to traditional lecture formats.

Despite these preferences, students reported several challenges in retaining what they learned. The most frequently cited issue was a lack of practical application (59.8%), followed by insufficient training resources (26.8%), time constraints (7.3%), and limited access to refresher courses (6.1%) (Table 4.6). Similar challenges were reported in a study from the Democratic Republic of Congo, where Katsioto et al. (2022) found that even students who received initial first aid training struggled to retain skills due to infrequent practice and inadequate access to practice tools like mannequins and simulation kits.

Preferences for refresher training varied. About 30.5% preferred annual refresher courses, 29.3% wanted them every six months, and 6.7% said only when necessary. However, 32.9% were not clearly categorized due to either incomplete or ambiguous entries (Figure 4.7). This aligns with findings by Opiro et al. (2024) in Uganda, where trainees who participated in semi-annual first aid refreshers retained CPR steps and trauma response techniques more consistently than those who only trained once.

Students overwhelmingly agreed that integrating first aid into the regular medical curriculum would enhance proficiency. Exactly 63.4% strongly agreed, and 27.4% agreed (Table 4.7). Only 6.7% were neutral, and 2.4% disagreed or strongly disagreed. This level of support reflects similar sentiments found in a global review by Pean et al. (2015), who reported that embedding first aid into formal training not as an optional or extracurricular module improved engagement and skill retention in medical schools in low-resource countries like Haiti.

5.5 Theme 4: Gaps in First Aid Training Programs and Recommendations for Improvement

The findings of this study highlight several key deficiencies in the structure and delivery of first aid training programs at the University of Lusaka, as perceived by the students themselves. When asked what changes would most improve their learning experience, 38.4% pointed to the need for more practical sessions as the top priority (Figure 4.8). Another 21.3% recommended a combination of enhancements—including better equipment, certified trainers, more hands-on learning, and regular feedback—while 8.5% specifically emphasized the lack of adequate training equipment. Additionally, 7.3% highlighted the importance of

certified trainers, 6.1% suggested regular feedback sessions, and several others proposed combinations of these improvements.

When asked whether they would participate in extracurricular first aid clubs or organizations, a remarkable 152 out of 164 students (92.7%) said yes, 6.1% declined, and 1.2% did not respond (Table 4.8). Similarly, 90.2% believed that peer-led training sessions would be helpful, while only 9.1% disagreed. This high interest in collaborative and community-based learning aligns with findings from Haiti, where a near-peer emergency medicine program dramatically improved both engagement and practical skills among students, particularly in resource-limited environments (Pean et al., 2015).

In terms of how students felt first aid competency should be assessed, the preference was overwhelmingly in favor of practical evaluations. About 95.1% preferred practical demonstrations over theoretical exams. Only 2.4% supported written tests, 1.8% preferred group assessments, and 0.6% selected online quizzes (Table 4.8). These numbers indicate a clear demand for real-world, performance-based assessment models, a need also emphasized in the work of Minani and Soh (2023), who found that retention and proficiency were highest in programs that used continuous practical evaluations over single-point theory tests.

When students were asked about recommending first aid training to their peers, 63.4% reported they were “very likely” to do so, and another 27.4% said they were “likely,” while only 7.9% were neutral and 0.6% were unlikely to recommend it. This positive outlook mirrors the findings by Katsioto et al. (2022), where students expressed a strong appreciation for first aid education despite programmatic shortcomings, and actively advocated for its enhancement and broader implementation within the curriculum.

CHAPTER SIX: CONCLUSION & RECOMMENDATIONS

6.1 Conclusion

This study set out to explore the state of first aid knowledge and skills among medical students at the University of Lusaka, focusing not only on what students know, but also on how well they can apply that knowledge in real-life situations. The research aimed to evaluate theoretical understanding, assess practical abilities, explore what factors affect learning and retention, and finally, suggest ways to improve the overall training experience. After analyzing both statistical data and student feedback, it's clear that the study successfully met all its objectives.

To begin with, the objective to evaluate the theoretical knowledge of first aid principles and procedures among medical students was achieved by asking participants structured questions covering foundational concepts. The responses showed that most students had a solid understanding of key principles such as the goals of first aid and emergency priorities like the ABC sequence. This strong theoretical base is an encouraging sign.

However, the objective to assess the practical first aid skills of medical students revealed a more complicated picture. Although some students had administered first aid before, most had not. Confidence levels in performing life-saving techniques like CPR were low, and access to practice tools like mannequins was limited. This objective was achieved by measuring students' self-reported experiences, confidence, and exposure to practical learning. The findings highlighted a noticeable gap between what students know and what they feel ready to do.

The objective to identify the factors influencing the acquisition and retention of first aid knowledge and skills was also met through targeted survey questions. It became clear that motivation plays a big role—many students said they were inspired by a desire to help others or a personal interest in emergency care. Still, major obstacles remained: limited hands-on training, scarce resources, and the absence of regular refresher sessions all made it harder for students to retain what they learned.

Lastly, the objective to provide recommendations for enhancing first aid training programs was achieved by analyzing both student feedback and patterns in the data. Students proposed thoughtful and realistic ideas such as increasing practical sessions, bringing in certified trainers, creating peer-led groups, and integrating first aid training into the formal curriculum. These ideas, grounded in their own learning experiences, give a clear roadmap for improvement.

In short, the study achieved all four of its objectives by using a blend of data analysis and student input. The findings underline the importance of not only teaching first aid theory but also creating more opportunities for students to practice and build confidence. If addressed properly, these gaps can be turned into strengths, allowing future medical professionals to respond effectively when it matters most.

6.2 Recommendations

Based on what students shared and what the data revealed, the following recommendations are offered to improve first aid education at the University of Lusaka:

- 1. Make training more hands-on**

Students need more time practicing real-life scenarios using simulations and role-plays. Regular practical sessions will help bridge the gap between knowledge and action.

- 2. Improve access to equipment**

The university should invest in mannequins, CPR kits, and other first aid tools so students can learn and practice properly.

- 3. Include first aid in the main curriculum**

First aid should not be treated as an optional topic. It should be built into the coursework from early on and taught throughout the program.

- 4. Bring in trained professionals**

Certified first aid instructors with real-world experience should be invited to lead sessions. This will ensure that students get accurate and practical instruction.

- 5. Support peer-led clubs and workshops**

Encouraging students to form first aid groups or clubs can give them regular opportunities to review and apply their skills with peers.

- 6. Hold refresher courses regularly**

First aid knowledge fades if not used. Refresher sessions every 6 to 12 months will help students stay sharp and ready.

- 7. Use practical exams**

Testing should go beyond written questions. Students should demonstrate their skills in simulations to prove they can respond effectively under pressure.

- 8. Create awareness and encourage participation**

Posters, seminars, and short campaigns on campus can motivate more students to take first aid seriously and get involved in training.

By following these recommendations, the University of Lusaka can give its medical students the tools and confidence they need to act quickly and correctly when emergencies happen, skills that can ultimately save lives.

References

1. World Health Organization. (2020). WHO handbook for guideline development. Geneva: World Health Organization
2. Alshammari, J. M., et al. (2017). Knowledge and assessment of first aid skills among medical students in Saudi Arabia. *Journal of Family and Community Medicine*, 24(2), pp. 130-134.
3. Ataya, Jessica, Aljarad, Ziad, and Hanna, Rania. (2024). Bridging the first-aid knowledge gap: A cross-sectional study of medical scope students in Syria. *Primary Health Care Research & Development*, 25, e8.
4. Muller, Richard, Schmidt, Clara, and Fischer, Karl. (2019). First aid knowledge and skills retention among medical students in Germany. *BMC Medical Education*, 19(1), 123–130
5. Mutale, Benjamin. (2021). First aid knowledge among secondary pupils at three selected schools in Ndola, Zambia. *Journal of Clinical Research*, 5(6), pp. 31121
6. Muthoni, Rebecca Njeri, Wanjiku, Grace, and Kamau, Peter. (2018). Assessment of first aid knowledge and skills among undergraduate medical students in Kenya. *East African Medical Journal*, 95(4), 123–129.
7. Mwakyoma, Haruni A., Mbogo, Richard, and Komba, Jacqueline. (2020). Evaluation of first aid training effectiveness among medical students in Tanzania. *African Journal of Emergency Medicine*, 10(3), 150–156.
8. Nabiryo, Mary, Okech, Sarah, and Mulongo, Edwin. (2022). First aid knowledge and practices among medical students in Uganda. *International Journal of Emergency Medicine*, 15(1), 45–52.
9. AlQahtani, Moath A., Alfadhel, Shoog F., Aljehani, Rawan H., Bakri, Khalid A., Ahmed, Zaina F., and Elemem, Maryam O. (2020). Knowledge of first aid skills among medical and nonmedical students in Saudi Arabia. *Journal of Family Medicine and Primary Care*, 9(1), 202–205. Retrieved from <http://journals.lww.com/jfmprc>.
10. Pande, Tanuja, Patil, Sunita, Desai, Snehal, and Kumar, Ramesh. (2019). The preparedness of Indian medical students in performing basic life support. *Indian Journal of Emergency Medicine*, 7(3), 120–127.
11. Madden, Mark. (2021). Experiential learning in first aid education. *American Medical Education Review*, 45(6), 789–802.

12. Ibrahim, Ahmed, Hussain, Fatima, and Khan, Bilal. (2022). A global review of first aid preparedness in medical education. *International Journal of Medical Training*, 11(2), 234–245.
13. Eke, Onyinyechi A., Chukwu, Ifeanyi, and Akpan, Theresa. (2020). First aid training in Nigerian medical schools: A critical assessment. *Nigerian Journal of Medical Education*, 15(2), 112–123.
14. Van der Merwe, Thandi, and Moyo, Siphon. (2021). Community-based first aid training: A South African perspective. *African Medical Journal*, 34(5), 456–472.
15. Waweru, Martha, Ngugi, Samson, and Kamau, Josephine. (2020). Assessing first aid preparedness in Kenyan medical schools. *East African Medical Review*, 27(3), 123–130.
16. Mwansa, Patricia, Banda, Chileshe, and Tembo, Mukuka. (2022). First aid training gaps in Zambian medical schools. *Zambia Medical Journal*, 12(3), 145–153.
17. Phiri, James, Chibwe, Abraham, and Mulenga, Grace. (2021). CPR readiness among Zambian medical students. *Zambian Health Sciences Review*, 10(4), 234–240.
18. Kimani, Leah, Wanjiru, Ruth, and Gathoni, Peter. (2019). Impact of simulation-based first aid training on knowledge retention among Kenyan medical students. *African Journal of Medical Practice*, 11(2), 56–64.
19. Ali, Sameera A., Hassan, Jamal, and Omar, Fatima. (2021). First aid preparedness and its importance in undergraduate medical education: A review. *Global Medical Education Research*, 8(3), 91–98.
20. Mohammed, Faiza, and Omar, Rashid. (2020). Evaluating the efficacy of community-based first aid programs in Sudan. *Journal of African Emergency Medicine*, 6(4), 210–218.
21. Hassan, Tariq, Juma, Zainab, and Ngoma, David. (2022). Retention of first aid knowledge following curriculum changes: A study in South Africa. *Journal of Clinical Education*, 14(5), 178–183.
22. Cornell, S. (2021). Prehospital Lay First-Responder Medical Training in East Africa: A Scoping Review. Retrieved from <https://search.proquest.com/openview/8665ac8a6c3a27dccad380802c7f1b62/1?pq-origsite=gscholar&cbl=18750&diss=y>.
23. Katsioto, A. K., Sikakulya, F. K., & Mustafa, S. M. (2022). Theoretical knowledge assessment of medical students on first aid in the Democratic Republic of Congo. Retrieved from

<https://www.sciencedirect.com/science/article/pii/S2211419X22000969>

24. Minani, C. U., & Soh, K. L. (2023). Effectiveness of first-aid education in road traffic crashes on non-healthcare professionals' knowledge, attitude, and skills: A systematic review. *International Journal of Health Promotion and Education*.
<https://www.tandfonline.com/doi/abs/10.1080/17457300.2023.2210554>

25. Opiro, K., Amone, D., Sikoti, M., & Wokorach, A. (2024). Prehospital Emergency Care: A Cross-Sectional Survey of First-Aid Preparedness Among Layperson First Responders in Northern Uganda. *Open Access Emergency Medicine*, 16, 143–152.
<https://www.tandfonline.com/doi/abs/10.2147/OAEM.S464793>

26. Pean, C. A., Davis, K., Merrill, R., & Marinelli, B. (2015). Near-peer emergency medicine for medical students in Port-au-Prince, Haiti: An example of rethinking global health interventions in developing countries. *International Journal of Emergency Medicine*. Retrieved from
<https://www.sciencedirect.com/science/article/pii/S2214999615011522>

APPENDICES

Appendix 1: Research time-frame

Chart 1: Study Gantt Chart

Activity	Nov 2024	Dec 2024	Jan 2025	Feb 2025	Mar 2025	Apr 2025	May 2025	Jun 2025
Literature study and research proposal writing								
Submission of proposal for ethical clearance								
Data collection and entry								
Data analysis and interpretation								
Report writing								
Submission								
Research presentation								

Appendix 2: Research Budget

Table 2: Study Budget

Items	Amount (ZMK)	Sponsor
Ethical approval	K500	Self
Printing/stationary	K500	Self
Internet/airtime	K250	Self
Fuel/Transport	K300	Self
Miscellaneous	K1,000	Self
Total	K2,550	Self

Appendix 3: Questionnaire

Section A: Demographic Information

1. Year of Study:

- First Year
- Second Year
- Third Year
- Fourth Year
- Fifth Year

2. Gender:

- Male
- Female

3. Age Group:

- 18-20 years
- 21-23 years
- 24-26 years
- 27 years and above

4. Have you received any formal first aid training prior to joining the University of Lusaka?

- Yes
- No

5. Have you participated in any first aid workshops or courses during your time at the University of Lusaka?

- Yes
- No

Section B: Theoretical Knowledge of First Aid Principles and Procedures

1. What is the primary purpose of first aid?

- To diagnose medical conditions
- To provide immediate care to prevent worsening of the condition
- To replace professional medical treatment
- To offer long-term care

2. Which of the following is the correct sequence in the Primary Survey of an emergency situation?

- Airway, Breathing, Circulation
- Breathing, Circulation, Airway
- Circulation, Airway, Breathing
- Airway, Circulation, Breathing

3. In the event of a chemical burn to the eye, what is the recommended immediate action?

- Apply eye drops
- Cover the eye with a patch
- Rinse the eye with clean water for at least 15 minutes
- Rub the eye to remove the chemical

4. How should a suspected fracture be initially managed?

- Apply heat to the area
 - Encourage movement to assess pain
 - Immobilize the affected area
 - Massage the area to reduce swelling
5. What is the recommended first aid response for someone experiencing a seizure?
- Restrain the person to prevent injury
 - Place an object in their mouth to prevent tongue biting
 - Clear the area of hazards and cushion their head
 - Perform CPR immediately

Section C: Practical First Aid Skills

1. Have you ever administered first aid in a real-life situation?
- Yes
 - No
2. If yes, how many times have you administered first aid in real-life situations?
- Once
 - 2-3 times
 - More than 3 times
 - Not applicable
3. How would you rate your confidence in performing CPR?
- Very confident
 - Confident
 - Somewhat confident
 - Not confident
4. Can you identify the correct landmarks for chest compressions during CPR?
- Yes
 - No
5. Have you practiced first aid procedures using simulation tools (e.g., mannequins)?
- Yes
 - No

Section D: Factors Influencing Acquisition and Retention of First Aid Knowledge and Skills

1. What motivates you to learn and retain first aid knowledge? (Select all that apply)
- Personal interest
 - Curriculum requirements
 - Previous personal experiences
 - Desire to help others
2. How do you prefer to learn first aid skills?
- Theoretical lectures
 - Practical hands-on sessions
 - Online tutorials
 - Group discussions
3. What challenges do you face in retaining first aid knowledge?

- Lack of practical application
 - Insufficient training resources
 - Time constraints
 - Limited access to refresher courses
4. How often would you prefer refresher courses on first aid?
- Every 3 months
 - Every 6 months
 - Annually
 - Only when necessary
5. Do you believe that integrating first aid training into the regular curriculum would enhance your proficiency?
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly disagree

Section E: Recommendations for Enhancing First Aid Training Programs

1. Which of the following would improve first aid training at the University of Lusaka?
(Select all that apply)
- Increased number of practical sessions
 - Access to better training equipment
 - Regular assessments and feedback
 - Inclusion of certified first aid trainers
2. Would you participate in an extracurricular first aid club or organization if available?
- Yes
 - No
3. Do you think peer-led first aid training sessions would be beneficial?
- Yes
 - No
4. How likely are you to recommend first aid training to your peers?
- Very likely
 - Likely
 - Neutral
 - Unlikely
 - Very unlikely
5. In your opinion, what is the most effective method for assessing first aid competency?
- Written examinations
 - Practical demonstrations
 - Group assessments
 - Online quizzes

Thank you for your participation. Your responses are crucial in enhancing the first aid training programs at the University of Lusaka.

Appendix 4: Letters of Approval



UNIVERSITY of LUSAKA

Passion for Quality Education: Our Driving Force

**UNIVERSITY OF LUSAKA RESEARCH ETHICS COMMITTEE
(UNILUS-REC)**

Plot No. 37413, Off Alick Nkhata Mass Media. P. O Box 36711, Lusaka.
Phone: +260211258505, 258409 Fax +260211233409; Cell +260976075850,961917862,
E-mail: unilus@zamnet.zm, ictar@zamnet.zm

UNILUS-RESEARCH ETHICS COMMITTEE

Ref no: FWA00033228-580(08)/(08)/{2024}

Date: 18 March 2025

STUDENT NAME: **Ms. NANCY MUCHIMA**

**ASSESSMENT OF FIRST AID KNOWLEDGE AND SKILLS AMONG MEDICAL STUDENTS AT
THE UNIVERSITY OF LUSAKA**

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS research ethics committee.
2. Approval from the necessary authority should be sought.

1 of 2



Professor Kasonde Bowa

MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)

Chairman- UNILUS REC

Professor of Urology and Consultant Urologist

Deputy Vice-Chancellor – Research and Innovation

Executive Dean - School of Medicine and Health Sciences



NATIONAL HEALTH RESEARCH AUTHORITY

Lot No. 18961/M, off Kasama Road, Chalala, P.O. Box 30075, LUSAKA

Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

NHRA8330/15/02/2025

19th March 2025

The Principal Investigator,
NANCY MUCHIMA,
UNILUS,
Lusaka

Dear NANCY MUCHIMA,

Re: Request for Authority to Conduct Research


The National Health Research Authority Is in Receipt of Your Request for Authority to Conduct Research Titled “**ASSESSMENT OF FIRST AID KNOWLEDGE AND SKILLS AMONG MEDICAL STUDENTS AT THE UNIVERSITY OF LUSAKA**”

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised.
2. Progress updates are provided to NHRA bi-annually from the date of commencement of the study.
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country.
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

National Health Research Authority


Prof Victor Chalwe,
Director and Chief Executive Officer



NATIONAL HEALTH RESEARCH AUTHORITY

Lot No. 18961/M, off Kasama Road, Chalala, P.O. Box 30075, LUSAKA

Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

NHRA8330/25/02/2025

25th March 2025

The Principal Investigator,
NANCY MUCHIMA,
UNILUS,
Lusaka

Dear NANCY MUCHIMA,

Re: Request for Authority to Conduct Research

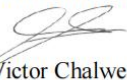
The National Health Research Authority Is in Receipt of Your Request for Authority to Conduct Research Titled “**ASSESSMENT OF FIRST AID KNOWLEDGE AND SKILLS AMONG MEDICAL STUDENTS AT THE UNIVERSITY OF LUSAKA**”

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **approved** on condition that:

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Yours sincerely,

National Health Research Authority


Prof Victor Chalwe,
Director and Chief Executive Officer