

**LUSAKA APEX
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FACULTY OF HEALTH SCIENCES

DEPARTMENT OF PHYSIOTHERAPY

**Knowledge, attitude and perceptions of students at Lusaka Apex Medical
University on the role of Physiotherapy in COVID-19 Management**

Research submitted to Lusaka Apex Medical University As partial fulfillment for the
Bachelor of Science Degree in Physiotherapy

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ABSTRACT

TITLE: Knowledge, attitude and perceptions of Lusaka Apex Medical University students on the role of Physiotherapy in COVID-19 management

Background: COVID-19 is a great threat to the world population; patients require a very strong immune system to fight against the disease. To improve the functional immune system response, they are required to be exposed to not only medications but also physical exercises. Physical exercises, according to XU et al. (2020) reduces the incidence, duration, and severity of COVID-19 infection. Therefore, a physiotherapist is needed in the prescription of these moderate-intensity exercises depending on the severity of the disease.

Objective: The main objective of this study was to evaluate the knowledge, attitude, and perceptions of students at Lusaka Apex Medical University regarding the role of physiotherapy in COVID-19 management.

Method: This was a descriptive cross-sectional study utilizing a quantitative research method. After ethical approval, data collection was conducted between 6 May 2021 and 31 July 2021 using an online questionnaire through Google forms. The study was conducted on 374 students at Lusaka Apex Medical University using a validated, structured, self-administered, online questionnaire.

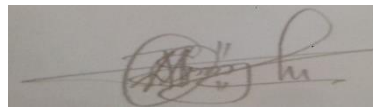
Results: In this study, 364 students answered the questions thoroughly. A total of 51% (n=185) of the participants were female, the majority of the study participants (97.8%, n=358) agreed that COVID-19 is contagious. Likewise, a positive attitude was also observed in following guidelines from the Ministry of Health as 83% (n=302) of participants agreed to avoid traveling when they are presenting with COVID-19 symptoms. A negative perception of the inclusion of physiotherapy in the management of COVID-19 was evident as the majority of study participants 30.5% (n=111) disagreed of physiotherapy been relevant in the management of COVID-19. A positive perception however was evident among physiotherapy students (n=10) that agreed that physiotherapy is relevant in the management of COVID-19

Conclusion: Students at this institution revealed an acceptable level of knowledge and attitude on COVID-19 and following guidelines. However, with a poor level of perception on the inclusion of physiotherapy in COVID-19 management, it is therefore recommended that students have to sensitize on the importance of physiotherapy in the management of COVID-19.

DECLARATION

I, ***Chembe Saviour***, do hereby declare that the research project entitled, **‘Knowledge, attitude and perceptions of Lusaka Apex Medical University students on the role of Physiotherapy in COVID-19 management’** submitted to the Lusaka Apex Medical University, as part of the fulfillment of the requirements for the award of the bachelor’s degree in physiotherapy. All sources used in this study have been acknowledged through adequate referencing. This research project is a record of my work under the supervision and guidance of Sister Marjorie R. Mwansa and Mrs. Faith, B. Malambo.

Saviour Chembe



29th September 2021

Sister Marjorie R. Mwansa (Sign) (Date)

Signature of supervisor

Mrs. F. Banda Malambo (Sign) (Date)

Signature of Co-supervisor

DEDICATION

Without the help of my parents and many who thus gave a hand, I would not have been able to complete my 5 years at school later on even to complete this project. I, therefore, dedicate this thesis to the two greatest heroes in my life my mother Mrs. Alice Chabu Mafuta, and Mr. John Mafuta my father for their emotional and support in my entire life. They have been there to give me guidelines of life and

ACKNOWLEDGMENT

All glory goes to Jehovah my creator who enabled me to undertake this research. I am overwhelmed in all humbleness and gratefulness to acknowledge my deepest gratitude to all those who have helped me to put these ideas well above the level of simplicity and into something concrete.

My completion of this project and my five (5) years of study could not have been accomplished without the support of the three musketeers, Mr. John Mafuta, Mr. Elias Chembe, Mr. Prince Chembe that sponsored me tirelessly throughout my stay and study at Lusaka Apex Medical University.

I would like to express my deep and sincere gratitude to my research supervisor Sr. Marjorie Rebecca Mwansa for allowing me to do research and providing me valuable guidance throughout this research. She is a focused woman of great vision that inspired me. It was a great privileged to work and study under her guidance.

I acknowledge with thanks the kind of loving inspiration and timely support which I received from Mrs. Faith Banda Malambo my co-supervisor, my mentor, my lecturer, and a great friend who provided all the support I needed in this project and my study.

Any attempt at any level cannot be completed without the support of friends and families. I am extremely grateful to all my family members, cousins, sisters, and brothers for the unconditional and affectionate love and support they rendered throughout this journey.

Finally, my sincere gratitude to the entire Lusaka Apex Medical University management board who provided lecturers and classmates whose criticism have contributed immensely to the evolution of my ideas on the project. I have no valuable words to express my thanks, but my heart is still full of the favours received from every person.

KEYWORDS

Attitudes

COVID-19

COVID-19 management

Ethics

Knowledge

Perception

Physiotherapy

Student

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ABBREVIATIONS

ACE – 2:	Angiotensin Converting Enzyme – 2
ARDS:	Acute Respiratory Distress Syndrome
CDC:	Center of Disease Control
COVID – 19:	Coronavirus disease discovered in 2019.
ICU:	Intensive Care Unit
LAMU:	Lusaka Apex Medical University
LAMUREC:	Lusaka Apex Medical University Research Ethics Committee
MERS:	Middle East Respiratory Syndrome
MOH:	Ministry of Health
NIH:	National Institute of Health
NIID:	National Institute of Infectious Disease
PHEIC:	Public Health Emergency of International Concern.
RNA:	Ribonucleic Acid
SADC:	Southern Africa Development Community
SARS:	Severe Acute Respiratory Syndrome
UNZA:	University of Zambia
VOC:	Variant of Concern
VSR:	Viral Suppressor protein of RNA
WHO:	World Health Organisation.
ZNPHI:	Zambia National Public Health Institute
ZSP:	Zambia Society of Physiotherapy

DEFINITION OF TERMS

Attitude – a mental position about a fact or state, the way someone thinks and feels about something (Somesh, 2017).

COVID-19 - a new severe acute respiratory syndrome (SARS-nCOv2), which is caused by a novel virus belonging to the virus family known as a coronavirus (WHO, 2020)

Ethics – the discipline of moral principles in making decisions (Singer, 2021).

Knowledge – the gained information about a particular subject (Oxford University Press, 2021)

Perception- a belief or opinion, often held by many people and based on how things seem (Mumba, 2020). It is also defined as the ability to see, hear or become aware of something through the senses (Oxford University Press, 2021).

Student- a person who is studying at a school, college, or university (Mumba, 2020).

CHAPTER ONE

1.1 Background

The World Health Organisation (2020), defines coronavirus disease 2019 (COVID-19) as a new severe acute respiratory syndrome (SARS-nCOv2), which is caused by a novel virus belonging to the virus family known as coronavirus. On 30th January 2020, the COVID-19 outbreak was declared a Public Health Emergency of International Concern (PHEIC) (WHO, 2020). The virus was first identified in China, when a cluster of patients with unexplained respiratory infection was reported in Wuhan and later on spread to other countries (Carlos and Preeti, 2020). In Zambia, the first COVID-19 case was reported on the 18th of March 2020 (ZNPHI, 2020).

COVID-19 is a great threat to the world population, patients present with symptoms that vary from asymptomatic to clinical conditions that are characterized by respiratory failure (WHO, 2020). Furthermore, several COVID-19 patients are said to require mechanical ventilation support in an intensive care unit (ICU), because of the debilitating conditions the patients require a very strong immune system to fight against the disease. According to XU et al. (2020), moderate-intensity, physical exercises can reduce the incidence, duration, and severity of COVID-19 infection. Also, physical exercises are closely related to the immune system response of the body against infections, exercises significantly improve the functional ability of the adaptive immune system of the patient.

Considering, a situation reports from Nepal by Santosh and Surendra (2020), the first cases of COVID-19 in Nepal reviewed that, the level of knowledge and the attitudes of individuals towards infectious diseases are closely associated with the levels of panic emotions among the population, which can further complicate attempts to prevent the spread of the disease. As of March 9th, 2021, COVID-19 cases have reached over 100 million worldwide, and over 2 million people have died because of COVID-19 (WHO, 2020). The Zambia National Public Health Institute (ZNPHI) reports that the total number of cases in Zambia has reached 82,897 with a death toll of 1,137 and 79,162 recovered cases (ZNPHI, 2021).

1.2 Problem statement

The increased number of COVID-19 cases in the world leaves a question ‘what role does the physiotherapy profession play in helping COVID-19 patients?’ Because of limited resources and information, physiotherapy is seen to be irrelevant in the management of COVID-19 patients. The general public in Zambia relates physiotherapy to mostly massaging and has a profession that only deals with broken bones (such as fractures) (Chinyemba et al., 2019). These misconceptions bring a negative view of the profession among students. In addition to the misconceptions, the response and support from the government are not sufficient enough especially in advocating for the profession. After COVID-19 was declared a public health emergency of international concern (PHEIC), the researcher noticed that the government of Zambia, through the ministry of health employed 3,400 health practitioners as first-line workers, to be screening and managing patients for COVID-19, among these first-line workers no physiotherapist was employed (MOH, 2020). The image painted shows that the physiotherapy profession is not relevant in helping COVID-19 patients.

The researcher also noticed that over 81,000 literature and reviews that have been published globally, information on the role of physiotherapy in the treatment plans for COVID-19 especially in acute-care settings are scarcely available in Zambia (Simulundu et al., 2020). All these factors question the relevance of physiotherapy in COVID-19 treatment plans.

1.3 Research question

What is the knowledge, attitude, and perceptions of the students at Lusaka Apex Medical University on the role of physiotherapy in COVID-19 management?

1.4 General objective

To evaluate the knowledge, attitude, and perceptions of students at Lusaka Apex Medical University regarding the role of physiotherapy in COVID-19 management

1.5 Specific objectives

1. To determine the knowledge of students on COVID-19
2. To establish the attitude of students toward guidelines on COVID-19 stipulated by the Ministry of Health
3. To evaluate the perceptions of students on the role of physiotherapy in COVID-19 management

1.6 Significance of the study

Results from this study will highlight the knowledge, attitude, and perceptions of students at LAMU regarding the role of physiotherapy in COVID-19 management. This study will provide resourceful information to students regarding the role of physiotherapy in COVID-19 management. This information will be used by lobbying policymakers, the Zambia Society of physiotherapy (ZSP), and the ministry of health to re-enforce and increase physiotherapy personnel in health institutions especially COVID-19 centers. The study will provide a better understanding of their role as prospective physiotherapy practitioners, it will add to the body of knowledge on COVID-19 and the role of physiotherapy management.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews relevant literature on this topic, it includes subtitles such as; the prevalence of COVID-19, knowledge on COVID-19, attitudes on COVID-19 guidelines, and perceptions on the role of physiotherapy management.

2.2 Prevalence of COVID-19

In the past 20 years, several viral epidemics have continued to present a serious health problem to the public (Marco et al., 2020). According to the center for disease control and prevention (CDC) and World Health Organization (WHO) situation reports reviews five major viral epidemics that include: severe acute respiratory syndrome (SARS-CoV) from 2002 – 2003 H1N1 influenza in 2009, the middle east respiratory syndrome coronavirus (MERS-CoV) that was found in Saudi Arabia in 2012, Ebola virus in the Democratic Republic of Congo from 2014 – 2016 and the current COVID-19 pandemic (CDC, 2017; CDC, 2019; WHO, 2019; WHO, 2020).

According to the World Health Organisation (2021), situation reports from the first outbreak of COVID-19, a total number of 117,164,167 laboratories confirmed cases associated with 2,600,504 deaths have been reported globally. The disease has also quickly spread in Southern Africa Development Community (SADC) countries, as of March 09, 2021, the number of confirmed cases of COVID-19 in different SADC countries are as follows: Angola (21,086), Botswana (21,746), Comoros (3,596), Democratic Republic of Congo (26,469), Eswatini (17,184), Lesotho (10,523), Madagascar (19,831), Malawi (32,442), Mauritius (639), Mozambique (62,131), Namibia (40,030), Seychelles (2,979), South Africa (1,520,206), Tanzania (509), Zambia (82,897), and (36,271) for Zimbabwe (SADC, 2021).

2.3 Morphology

The β -coronaviruses have been identified as the family causing the new coronavirus causing coronavirus disease 2019, these viruses are known to spread through respiratory droplets. β -coronaviruses are enveloped pleomorphic viruses associated with positive-strand ribonucleic acids (Swatantra et al., 2020).

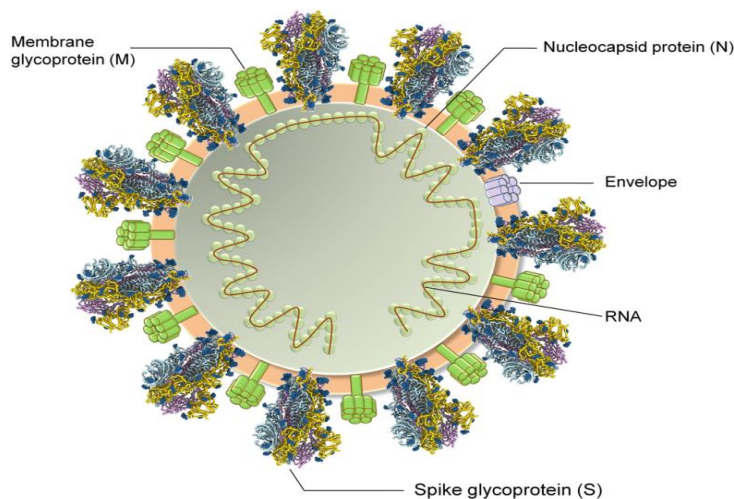


Figure 2.1: nCov-2 genome

According to Perlman (2020), the spike proteins (S), nucleocapsid protein (N), and membrane glycoprotein (M) are the most important viral proteins in the coronavirus genome. Fan et al. (2020), explain that COVID-19 differs from other coronaviruses by encoding an additional glycoprotein that has acetyl esterase and hemagglutinin properties. The nucleocapsid (N) proteins of COVID-19 are the major receptors used in the diagnosis of the disease and they are said to have the ability to counter host immune response as a viral suppressor protein of RNAi (VSR) (Cui et al., 2015). The VSR's suppress the RNAi at the pre-dicer or post-dicer level to overcome the host defense mechanism to establish the COVID-19 infection (Kannan et al., 2020).

2.3.1 COVID-19 variants of concern

Following the parent lineage for the COVID-19 genome, there has been various variants have been discovered. The CDC (2020), identifies B.1.1.7, B.1.385, and P.1 lineage as new major variants of concern:

B.1.1.7 is also known as 20I/501Y.V1 Variant of Concern (VOC) 202012/01 (CDC, 2021). This variant differs from the parent variant (A lineage) because of a mutation in the receptor-binding domain of the spike protein at position 501, asparagine acid (N) has been replaced with tyrosine acid (Y) where the amino acid asparagine (N) has been replaced with tyrosine (Y). The shorthand for this mutation is N501Y. This variant also has several other mutations, including:

- 69/70 deletion: occurred spontaneously many times and likely leads to a conformational change in the spike protein

- P681H: near the S1/S2 furin cleavage site, a site with high variability in coronaviruses.

The B.1.351 also known as 20H/501Y.V2 lineage has multiple mutations in the spike protein. Compared to the B.1.1.7 lineage, B.1.351 does not contain a deletion at 69/70. According to the morbidity and mortality weekly report by Mulenga et al. (2021), B.1.351 variant is associated with higher viral loads and contains another spike protein mutation (E484K) that hinders antibody binding, which could blunt naturally developed immunity or reduce vaccine efficacy. Other mutations include K417 and N501Y (WHO, 2020).

The other variant of concern is the P.1 lineage which is also known as 20J/501Y.V3, this lineage is mentioned to contain three mutations in the spike protein receptor-binding domain: K417T, E484K, and N501Y (CDC, 2021). There is evidence to suggest that some of the mutations in the P.1 variant may affect its transmissibility and antigenic profile, which may affect the ability of antibodies generated through previous natural infection or through vaccination to recognize and neutralize the virus (Paola et al., 2021).

2.4 COVID-19 clinical presentation

According to Pengfei et al. (2020), COVID-19 is associated with angiotensin-converting enzyme 2 (ACE2) receptors expressed in type I and type II of alveolar cells in the lungs. The major damage to the lungs in the patients is a result of the binding of the viral spike proteins to the ACE2 receptors on the lungs. Alveolar cells in the lungs are therefore unable to carry on their main normal function of secreting and synthesis of surfactant, this will result in respiratory failure and eventually death.

Chaolin et al. (2020), identify the general symptoms of COVID-19 to include fever, dry cough, complicated dyspnea, and fatigue. In the second week of COVID-19 infection, patients progressively develop hypoxemia and difficulty in breathing as well as acute respiratory distress syndrome (ARDS). COVID-19 in elderly patients especially infects the lower respiratory tract with the potential of leading to fatal pneumonia (Kannan et al., 2020).

2.5 COVID-19 guidelines

Considering the severity and geographic spread of COVID-19, MOH advises members of the public to follow many preventative measures to contain the spread of COVID-19 (MOH, 2020):

- Frequently washing hands with soap and water or use an alcohol-based hand sanitizer
- Avoid close contact with people who have symptoms of COVID-19
- Avoid touching your eyes, nose, and mouth with unwashed hands
- When coughing or sneezing cover mouth and nose with flexed elbow or tissue paper
- Avoid unprotected contact with live wild or domesticated animals
- Avoid spitting in public
- Health Care Workers must practice standard Infection Prevention measures
- Avoid non-essential travel to areas where there is a transmission of the disease

The Zambia Society of Physiotherapists (ZSP) in June 2020 established working guidelines in the response to offer quality treatment as well as preventing the spread of COVID-19. The guidelines are divided into eight possible cases of COVID-19 patients requiring physiotherapy attention. The following **Table 2.1** adopted from ZSP (2020), shows the established guidelines.

Table 2.1: Outline of physiotherapy intervention in patients with COVID-19

Service Category	COVID-19 patient presentation (Confirmed or Suspected)	Physiotherapy Intervention
A	Asymptomatic cases	i. Assess for Physical fitness ii. Low – moderate-intensity aerobic exercises recommended
B	Mild respiratory symptoms without significant respiratory compromise (e.g., fever, dry cough, no chest x-ray changes).	i. Assess for fatigue and Physical fitness ii. Teach breathing exercises, relaxation techniques iii. Low – moderate-intensity aerobic exercises recommended
C	Pneumonia presenting with: a. Low-level oxygen requirement (e.g., Oxygen flow ≤ 5 l/min for SPO ₂ $\geq 90\%$) Non-productive cough or patient coughing and able to clear secretions independently	i. Teach effective cough techniques. ii. Active Cycle of Breathing Technique (ACBT) iii. Include others as outlined for category „B“
D	Mild symptoms and/or pneumonia co-existing with: a. Respiratory or neuromuscular comorbidity b. Current or anticipated difficulties with secretion clearance	i. Airway clearance. ii. Mobilization as tolerable iii. Plan care in line with present comorbidity e.g., Neuro-rehabilitation
E	Moderate symptoms and/or pneumonia	i. Teach effective cough techniques ii. Stimulate effective cough
F	Severe symptoms suggestive of pneumonia/lower respiratory tract infection (e.g.: increasing oxygen requirements, fever, difficulty breathing, frequent, severe, or productive coughing episodes; chest x-ray, CT or lung ultrasound changes consistent with consolidation)	i. Airway clearance ii. Teach Effective Cough techniques if cough is weak iii. Mobilization
G	Any patient at significant risk of developing or with evidence of significant functional limitations e.g., patients who are frail or have multiple comorbidities impacting their independence, ICU patients with significant functional decline and/or (at risk for) ICU acquired weakness	i. Chest Physiotherapy technique ii. Airway clearance techniques iii. Mobilization iv. Rehabilitation
H	All COVID-19 patients, seroconverting to negative on two consecutive tests but with reduced cardiopulmonary function at the point of discharge	Follow-up Pulmonary Rehabilitation shall be recommended

2.6 COVID-19 management

Since there is no precise treatment for COVID-19, prevention, management, and supporting healthcare provide relief in the outbreak of COVID-19. Likewise, health institutions have established approaches that may be used in the management of COVID-19. Among these approaches include pharmacological that may be categorized in Allopathic, Unani and Homeopathic treatments (Imran and Omar, 2020).

2.6.1 Pharmacological COVID-19 management

Ivermectin and dexamethasone drugs are been used to treat patients with COVID-19 under the guidelines provided by the National Institute of Health (2021). Ivermectin mechanism of action is done by inhibiting the host importin alpha/beta-1 nuclear transport proteins, which are part of a key intracellular transport process that viruses hijack to enhance infection by suppressing the host's antiviral response (Yang et al., 2020). Caly et al. (2020), reported that ivermectin inhibits the replication of COVID-19 in cell cultures. Lehrer and Rheinstein (2020), believe that ivermectin docking may interfere with the attachment of the COVID-19 spike protein to the human cell membrane.

In a randomized controlled study conducted by RECOVERY Collaborative Group et al. (2020), consisting of 2,104 COVID-19 patients, dexamethasone treatment was found to have a high survival benefit among patients who required supplemental oxygen without invasive mechanical ventilation, within 28 days of enrolment a 2.9% difference in mortality was evident between participants on dexamethasone group and those on standard care group. The dexamethasone group had a 23.3% mortality rate, while the standard care group reached a 26.2% mortality rate. In the absence of Dexamethasone, other corticosteroids with equivalent doses to dexamethasone like prednisone, methylprednisolone, or hydrocortisone as well as the combination of Remdesivir and Dexamethasone are advised by the National Institute of Health (NIH) to be used (NIH, 2020).

2.6.2 Physiotherapy COVID-19 management

Researchers have identified pneumonia and respiratory failure as the most common cause of morbidity and death in COVID-19 patients (Auwal, 2020). Patients will require artificial ventilation and other techniques to improve their respiratory function, as proposed by Lisa (2020), these techniques include diaphragmatic breathing and other deep breathing exercises to allow increased lung expansion, and postural drainage for secretion management.

With an increased number of acute and post-COVID-19 patients, it is wise to think of physiotherapy possible means of managing the patients. Auwal, (2020), from Nigeria, reports chest physiotherapy to be the most effective post-COVID-19 physiotherapy management plan. Notably, the physiotherapy treatment plan of COVID-19 patients involves respiratory muscle training, teaching patients effective coughing exercises, as well as incorporating diaphragmatic breathing and stretching exercises with all-purpose of lung expansion.

Matheus et al. (2021), identify physical exercise as an important tool, to boost the immune system, and fight against COVID-19. The immune response to the virus is dependent on factors such as genetics, age, and physical state, and its main input receptor is the angiotensin-converting enzyme 2. The practice of physical exercises acts as a modulator and provides strength to the immune system. Also, Renato et al. (2020), indicate that patients experience a debilitating physical condition that reduces their exercise capacity. This could be from prolonged mechanical ventilation and immobilization, and long hospitalization that leads to reduced muscle strength and cardiorespiratory capacity.

According to the study conducted by David et al. (2020), on geriatric COVID-19 patients, a comparison in improvement was made between the physical fitness of the patient and the physiological functions of the body. The results of the study showed that improving patients' physical fitness components are directly related to the efficiency of physiological functions of the main organ system, which includes the respiratory, circulatory, muscular, nervous, and skeletal systems. Furthermore, this study revealed that increased physical activity indirectly stimulates the appropriate functioning of other systems, such as the endocrine, digestive, immune, or renal systems.

Thomas et al. (2020), acknowledged that physiotherapy intervention is cardinal in the acute care setting and rehabilitation of COVID-19 patients. Therefore, COVID-19 patients should be encouraged to perform light-intensity exercises to maintain minimal functional capacity. No wonder, David et al. (2020), recommends physical activities as essential for older people during quarantine because maintaining physiological function and reserve of most of the organ systems could contribute to the fight against the physical consequences of immobility and severity of COVID-19. This is because cardiorespiratory physiotherapy focuses on the management of acute and chronic respiratory conditions and improving physical recovery following an acute illness. Therefore, physiotherapy is beneficial in the respiratory treatment and physical rehabilitation of patients with COVID-19 (Thomas et al., 2020).

2.6.2.1 Acute-COVID-19 physiotherapy techniques

Alexandre and Diego, (2020), discovered that in the early days of COVID -19 infection usually after 8 to 12 days, acute respiratory distress syndrome (ARDS) begins, this is characterized by a dry cough because most respiratory epithelial cells are affected compared to endothelial cells. COVID-19 patients will usually present with mild symptoms of cough and dyspnoea with no exudation which is inconsistent with laboratory and imaging findings including the presence of ground-glass opacities and basilar opacities and lymphocytopenia (Li and Ma, 2020).

A case report by Takuya et al. (2020), mentions that during the acute stage of COVID-19 positioning and postural drainage should be in the initial rehabilitation program, after seeing the results of the program it was assumed that mobilization should be performed as soon as possible. In a clinical practice review by Thomas et al. (2020) respiratory airway clearance and mobilization have been recommended as physiotherapy management procedures for COVID-19 in an acute care setting.

2.6.2.2 Post-COVID-19 physiotherapy techniques

According to Thille et al. (2013), as cited in Auwal (2020), many patients develop secondary respiratory failure post extubating. Rehabilitation of these patients after discharge should include training of respiratory muscles, deep breathing exercises as well as stretching exercises. These forms of training and exercise result in the building of endurance and improved quality of life (Kai et al., 2020).

2.7 The knowledge of students on COVID-19

The world media today is flooded with regular and continuous information from the WHO, CDC as well as MOH in Zambia, on the impact of COVID-19 and the safety measures that are to be taken to prevent the spread of the disease (WHO, 2020). Studies conducted in developed and developing countries have shown an increased level of knowledge about COVID-19 among students.

For example, in a cross-sectional descriptive study conducted in Jordan, involving 1,404 participants, the results showed that 83.4% and 84.8% of medical students used social media and online search engines respectively as their preferred source of information on COVID-19, and only 64.1% opted to medical search engines. Also, most students in that study, believed that handshaking (93.7%), kissing (94.7%), exposure to contaminated surfaces (97.4%), and droplet inhalation (91.0%) are the primary COVID-19 mode of transmission. Furthermore,

95.0% of participants in the study reported that the elderly with chronic illnesses are the most susceptible group to COVID-19 (Ashraf et al., 2020).

In another study conducted on 2,083 University students in the Hashemite Kingdom of Jordan, the overall results showed that 56.5% had adequate knowledge, 40.5% had a moderate level of knowledge and 3.0% had poor knowledge of COVID-19 (Amin et al., 2020). This study revealed an average scale of 80.1% students had adequate knowledge, although Medical Science students had a higher level of knowledge of about 82.8% compared to other students. Equally, postgraduate students had significantly higher knowledge scores compared to undergraduate students.

On the contrary, a study carried out on 531 Dental students across Iran in 32 different universities by Mohammad et al. (2020), revealed that there is an inadequate level of knowledge on COVID-19 among Dental students with a mean knowledge score of 9.55 ± 1.94 (59.7%). This included knowledge on how to protect themselves as well as their patients at various health centers. On the other hand, the study conducted by Roham et al. (2020), on 240 Medical students found that there was a high level of COVID-19 related knowledge on many medical students, the average percentage of correct answers was 79%.

In Africa, a study conducted by Kehinde et al. (2020), from Nigeria on 102 undergraduate dental students, concluded that only half of the students had adequate general knowledge about COVID-19. More than half of final-year students (58.1%) demonstrated more knowledge on COVID-19 than 28.6% of penultimate-year students. Also, Senior 238 pharmacy students in Egypt who participated in a study by Marwa et al. (2020), displayed a good level of knowledge about COVID-19 with a mean score of 72.5%, 23% of the participants displayed low levels of knowledge on COVID-19.

2.8 The attitude of students on COVID-19 guidelines

A study in Brazil by Mohammad et al. (2020), discovered that the attitude of students on COVID-19 is significantly and highly associated with their level of education. In this study, senior students were seen to have a better attitude compared to junior students. Additionally, a cross-sectional study by Muhammad et al. (2020), on two Universities in Pakistani, 79.8% and 94.0% of the 417 participants involved, agreed that COVID-19 is a serious disease and favored the wearing of masks as a preventative strategy respectively. The mean score of participants having a positive attitude was 5.74 ± 1.28 (Muhammad et al., 2020). The Attitude scores, however, did not significantly differ between the levels of education compared to the results of

the study from Brazil by Mohammad, et al. (2020), which reviewed 0.13 ± 0.31 difference in the attitude score between female and male students, female's had a higher attitude score of 5.43 ± 1.43 , while males had 5.96 ± 1.12 .

A cross-sectional study by Ahmed et al. (2020), from Libya in north Africa, showed that 59% of 3,348 participants from a total of 13 different medical universities had a positive attitude toward volunteering in main hospitals in the COVID-19 patients' management. Similarly, a different cross-sectional study by Kehinde et al. (2020), from Nigeria showed 95.1% of 102 participants to have a positive attitude to infection control practices in preventing the spread of COVID-19 in their clinics and training schools. However, from the published literature information is scarcely available on the attitude of students toward COVID-19 in Zambia.

2.9 Perceptions of students on the role of physiotherapy in COVID-19 management

According to Ambrosino and Makhabab (2013), early physiotherapy is an important therapeutic tool in the management of patients that are taken to the Intensive Care Unit (ICU). In severe cases of COVID-19, patients are often taken to ICU in an instance that they require mechanical ventilation (Lisa, 2020). In a commentary report on physiotherapy preparedness during the COVID-19 pandemic in Mauritius and South Africa, Urvashy et al. (2020), reviewed that in Africa the lack of cardiorespiratory physiotherapists and an insufficient number of physiotherapists gives a negative impact on their involvement in COVID-19, especially in an acute care setting.

A study that involved 240 medical students in Iranian, by Borazjani et al. (2020), showed a significant average difference of risk perception toward COVID-19, between students that were trained in the emergency departments and others been trained in non-emergency departments. Similarly, the study by Elhadi et al. (2020), showed a significant negative correlation between risk perceptions and preventative behaviors of the students. With very little literature published on the role of physiotherapy in the management of COVID-19 globally, little is mentioned on the views of students regarding the inclusion of physiotherapy in the main treatment plan for COVID-19, in Zambia, this information is scarcely available.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the methods that were used in view of data collection. It elaborates the study design, study settings, study population, sampling method, sample size inclusion and exclusion criteria used, sampling methods and sample size, data collection method, data analysis, ethical consideration.

3.2 Study design

This study was a descriptive cross-sectional study utilizing a quantitative research method to evaluate the knowledge, attitude, and perceptions of students at LAMU on the role of physiotherapy treatment in the ongoing COVID19 treatment protocol. According to Pritha (2020), quantitative research is defined as a process of collecting and analyzing numerical data, it focuses on the quantification of data thereby simplifying the input of participants. A cross-sectional study involves looking at data from a population at one specific point in time (Kendra, 2019).

3.3 Study setting

This study was conducted at Lusaka Apex Medical University. This university has five (5) different campuses occupying different Faculties. Two campuses are located in Chalala along Kasama road (that is the main Chalala campus and Tick campus) on these campuses are found Faculty of Pre-Medical Sciences, Faculty of Nursing, and Faculty of Pharmacy and dietetics respectively. The Olympia campus is located in Olympia Township along Chainama road representing the Faculty of Radiology. The Roma campus is located in the neighborhood of Roma Township along Mutandwa road representing the Faculty of Medicine and Surgery, and the Foxdale campus located in Foxdale, along Zambezi Road representing the Faculty of Health Sciences which comprises of Public Health, Physiotherapy, and Environmental Health departments.

3.4 Study population

The study population included all students at Lusaka Apex Medical University from the faculties of Medicine and Surgery, Pharmacy and Dietetics, Health Sciences (Physiotherapy, Environmental Health, and Public Health departments), Radiology, Nursing and Pre-Medical Sciences. According to the 2019/2020 academic year, the total number of students at LAMU adds up to 5,730 as indicated in **Table 3.1**.

Table 3. 1: Population distribution of students

Program	No. of students
LAMU	
Physiotherapy	273
Public Health	18
Environmental Health	216
Nursing	1993
Medicine	1700
Radiology	130
Pharmacy	800
Pre-Medical Sciences	600
Total	5,730

3.5 Sampling method

This research utilized a stratified random sampling method to capture the target population. According to Hayes (2020), stratified random sampling is a type of sampling in which the population is divided into smaller sub-groups known as strata. Stratification involves the formation of strata based on shared characteristics such as the program of study.

3.5.1 Sample technique and size

The sample size is a fraction of a target population that has been drawn or selected based on the standardized procedure (Omnicore, 2019). In the case of this study, stratification was based on shared or different five faculties of the university. Students were grouped into six (6) stratum representing faculties (i.e., A= Health Sciences, B= Medicine and Surgery, C= Pharmacy and Dietetics, D= Radiology, E= Nursing, and F = Pre-Medical Sciences). Stratification was used to identify the number of participants in each faculty using the formula ($n_h = (N_h / N) * n$). [n_h = Sample size for h^{th} stratum, N_h = Population size for h^{th} stratum, N = Size of the entire population, n = Size of the entire sample.]

Before defining the number required in each stratum Slovin formula was used to calculate the size of the entire sample based on the entire population, the formula is as follows $n = N / 1 + N(e^2)$ [n = sample size, N = Population, e = margin of error] (Weebly, 2019).

3.5.2 Sample size calculations

Table 3.2 shows sample size calculation using the Slovincs formula to determine the total number of participants to be included in the study.

Table 3. 2: Sample Size of the entire sample

N = sample size	$n = \frac{N}{1 + N(e^2)}$
N = 5,730	$n = \frac{5,730}{1+5,730(0.05^2)}$
e = margin of error = 95% (0.05)	$n = \frac{5,730}{15.325} \quad n = 374$

Table 3.3 shows the sample size calculation for the stratum: nh= Sample size for the Stratum (A – F), using the formula $nh = \left(\frac{Nh}{N}\right) * n$

Table 3. 3: Stratum sample size calculations

(Stratum) Faculty	Calculation	
A (Health Science)	$nh = \left(\frac{507}{5730}\right) * 374$	<u>nh = 33.09</u>
B (Medicine and Surgery)	$nh = \left(\frac{1700}{5730}\right) * 374$	<u>nh = 110.96</u>
C (Pharmacy and Dietetics)	$nh = \left(\frac{800}{5730}\right) * 374$	<u>nh = 52.22</u>
D (Radiology)	$nh = \left(\frac{130}{5730}\right) * 374$	<u>nh = 8.49</u>
E (Nursing)	$nh = \left(\frac{1993}{5730}\right) * 374$	<u>nh = 130.08</u>
F (Pre-Medical Sciences)	$nh = \left(\frac{600}{5730}\right) * 374$	<u>nh = 39.16</u>
Total= nT	$nT = 33 + 111 + 52 + 9 + 130 + 39$	$nT = 374$

A percentage equivalent to the number of students in each faculty and department was used for easy statistical comparison and to avoid analytical bias. Each faculty's total population percentage was used to determine the total number of students from each stratum (faculty), the number of students required in each faculty was as shown in **Table 3.4 and Table 3.5**. For faculties that had a degree and diploma or more than two programs, like Faculty of Nursing and Health Sciences respectively, further calculations were done as shown in **Table 3.5**.

Table 3.4 and **3.5** below shows the number of participants to participate in the study from each faculty:

Table 3. 4: Stratum population distribution

Stratum	A	B	C	D	E		Total
Faculties	Health Science	Medicine and Surgery	Pharmacy and Dietetics	Radiology	Nursing	Pre-Medical Science	
Population size	507	1700	800	130	1993	600	5730
Sampling fraction (%)	8.85%	29.67%	13.96%	2.27%	34.78%	10.47%	100%
Final Sampling size results	33	111	52	9	130	39	374

Table 3. 5: Distribution of participants by Faculties and department/programs

NO.	FACULTY	SAMPLE SIZE SAMPLE * SAMPLING %	PROGRAM % * FACULTY SAMPLE SIZE	NO. OF PARTICIPANTS IN EACH FACULTY / PROGRAM
1	HEALTH SCIENCES PUBLIC HEALTH ENV. HEALTH PHYSIOTHERAPY 1. BSc. PHYS 2. DIP. PHYS	33 Ratio 4:3 (based on the number of semesters) • 57% • 43%	100% * 33 3.65% * 33 42.6% * 33 53.85% * 33 • 57*18 • 43*18	33 1.2 = 1 14.1 = 14 17.8 = 18 • 10 • 8
2	MEDICINE and SURGERY	111	100% * 111	111
3	PHARMACY	52	100% * 52	52
4	RADIOLOGY	9	100% * 9	9
5	NURSING 1. DIP. NURS 2. BSc. NURS	130 Ratio 4:3 (based on the number of semesters) • 43% • 57%	100% * 130 • 43% * 130 • 57% * 130	56 74
5	PRE-MEDICAL SCIENCE	39	100% * 39	39

3.5.3 Inclusion criteria

The following was considered when recruiting participants:

- All students enrolled at LAMU
- Participants who were willing to participate in the study

3.5.4 Exclusion criteria

The following students were not included in the study:

- Eligible participants who did consent to take part in the study
- Students from other learning institutions

3.6 Data collection

3.6.1 Data collection tool

An Electronic questionnaire was made based on the guidelines made by WHO, NIH, CDC, MOH, as well as ZSP to evaluate the knowledge, attitude, and perceptions of participants. The questionnaire included closed-ended questions that took take approximately 5-10 minutes to complete. The parts of the questionnaire included the participants' information sheet, informed consent form, and demographic information, knowledge of COVID-19, attitude, and perception of students. The questionnaire was be divided into four (4) sections (A – D):

Section A: This section obtained demographic data of the participants, which included gender, age, the program of study, year of study, as well as participants' residence.

Section B: This was used to obtain the level of knowledge on COVID-19 among students (participants). It included questions regarding the source of information about COVID-19 and general knowledge of the guidelines of COVID-19.

Section C: This section gathered information about participant's attitudes on the guidelines.

Section D: The last section obtained the perception of participants. It used a 4-point Likert scale ranging from 0 to 4. The scores were zero for strongly disagree (SD), 1 for Disagree (D), 2 for Uncertain (U), 3 for Agree (A), and 4 for Strongly Agree (SA).

3.6.2 Validity

According to Fiona (2019), validity refers to how accurate a method measures what it is purposed to measure and it is subdivided into three (3) types, criterion, content, and constructs. To ensure the validity of the questionnaire, the researcher developed the tool with the guidance of the supervisor. The researcher also consulted specialists in the COVID-19 management at the University Teaching Hospital and Levy Mwanawasa Hospital.

3.6.3 Reliability

The consistency of a method used to measure variables in a quantitative study depends on the reliability of the too (Fiona, 2019). The researcher ensured the reliability of the questionnaire by conducting a pilot study on students from the University of Zambia to evaluate the responses and ensure that the questionnaire is user-friendly and was able to give the expected data.

3.6.4 Pilot study

A pilot study on 10 UNZA students was conducted to ensure the validity and reliability of the tool. Following the responses were given by the participants in the pilot study corrections were made to ensure the effectiveness of the questionnaire.

3.6.5 Data collection procedure

The data collection process began after approval and ethical clearance was obtained from relevant authorities as indicated in 3.8. An online data collection was done through Google forms. Identification and distribution of the questionnaire was done through class coordinators and class representatives, who were given a link to the form to send to their class WhatsApp groups. Participants were assured of their freedom to withdraw from the study at any time without any penalty. Anonymity and confidentiality were ensured by the use of timestamps instead of names or emails. Completed questionnaires were kept locked using the password known only by the researcher to access at any point.

3.6.6 Variables

The dependent variable of this study level of perceptions of Medical, Pharmacy, Physiotherapy Nursing, Environmental Health, Radiology, and Pre-Medical students. The independent variables were the age of the student, gender, level of study, and program of study. The scale of measurements of the variables is demonstrated in **Table 3.6** below.

Table 3.1: Distribution of variables

Type of Variable	Indicator	Scale of Measurement
Dependent	Level of perception	A 4-point Likert-type scale ranging from strongly agree to strongly disagree
Independent	Knowledge Attitude Age of student Gender Year of study Program of study	18 – 40 and above – continuous Binary data - Male, Female (Binary) Categorical data - [1 st , 2 nd , 3 rd , 4 th , 5 th , 6 th , 7 th] Categorical data - Medical, Pharmacy, Physiotherapy, Nursing, Environmental health, Radiograph and Premedical Science.

3.7 Data analysis

The researcher entered the raw data that was collected into Microsoft excel after been downloaded from the google drive servers. Data were then coded and analyzed using Statistical Package for Social Sciences (SPSS) version 26. Chi-Square was used to investigate the level of associations among study variables. The Chi-Square formula is as follows $\chi^2 = \sum (O-E)^2 / E$ (Pandis, 2016; Hayes, 2020). A p-value of less than 0.01 (statistical significance = $p < 0.05$) will be considered in the calculations. The researcher will summarize the findings and present them using tables, histograms, and pie charts.

3.8 Ethical consideration

Permission to conduct the study was obtained from LAMU the study site of this research. Approval was sought from the LAMU Research Ethics Committee (LAMUREC). Permission was also sought from various Faculty Deans of students. The Participants were given full information concerning the aim and objectives of the study through the online information sheet. The participants were informed that the exercise was fully voluntary and that they were at liberty to withdraw at any point during the exercise. Written and informed consent was obtained from participants. Confidentiality and anonymity were assured by using codes instead of names.

3.9 Dissemination of findings

The findings of this study were made available to the LAMU academic management board, all faculties of the University and Zambia Society of Physiotherapy as well as any institution that might need them.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents all the data that was obtained through this study. The findings are presented in tables, histograms, and pie charts. The results sought to answer the aim of the study which was to evaluate the knowledge of students about COVID-19 and finding out their perceptions on the inclusion of physiotherapy in the management of COVID-19 patients. In this chapter the results are presented under the following subtitles; demographics characteristics, level of knowledge, the attitude of students to the COVID-19 guidelines, and their perception of including physiotherapy management when treating a COVID-19 patient.

4.2 Response Rate

Out of 374 participants selected for this study, a total number of 364 successfully filled in the questionnaires and returned them, giving rise to a 97.3% response rate.

4.3 Demographic Characteristics

4.3.1 Gender distribution

Out of the 364 participants that took part in this study, the majority of students that took part were females with a 51% (n=185) participation rate compared to a 49% (n=179) participation rate of males as shown in **Figure 4.1**.

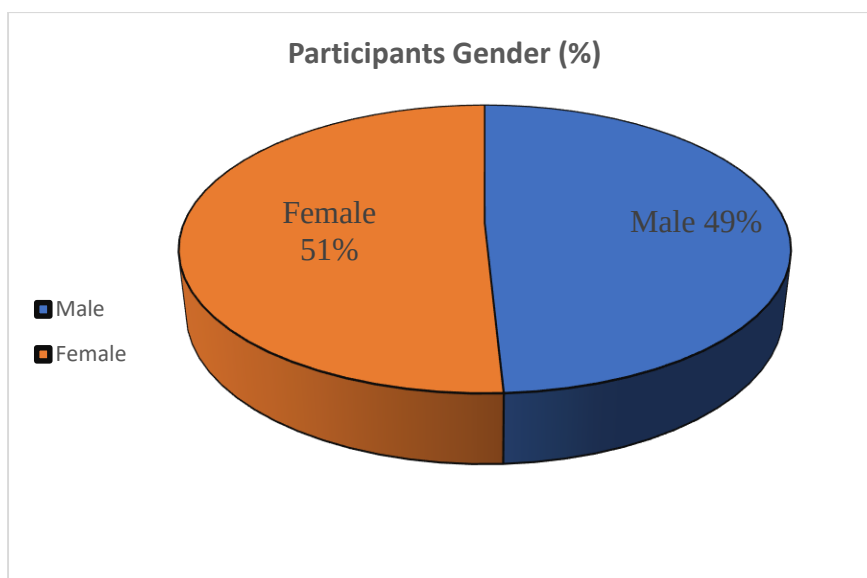


Figure 4.1: Distribution by gender

4.3.2 Age distribution

A majority number of students in this study were 25 years old (17.3%, n=63) and the least (0.3%, n=1) were 29, 32, and 39 years old, as shown in **Figure 4.2**

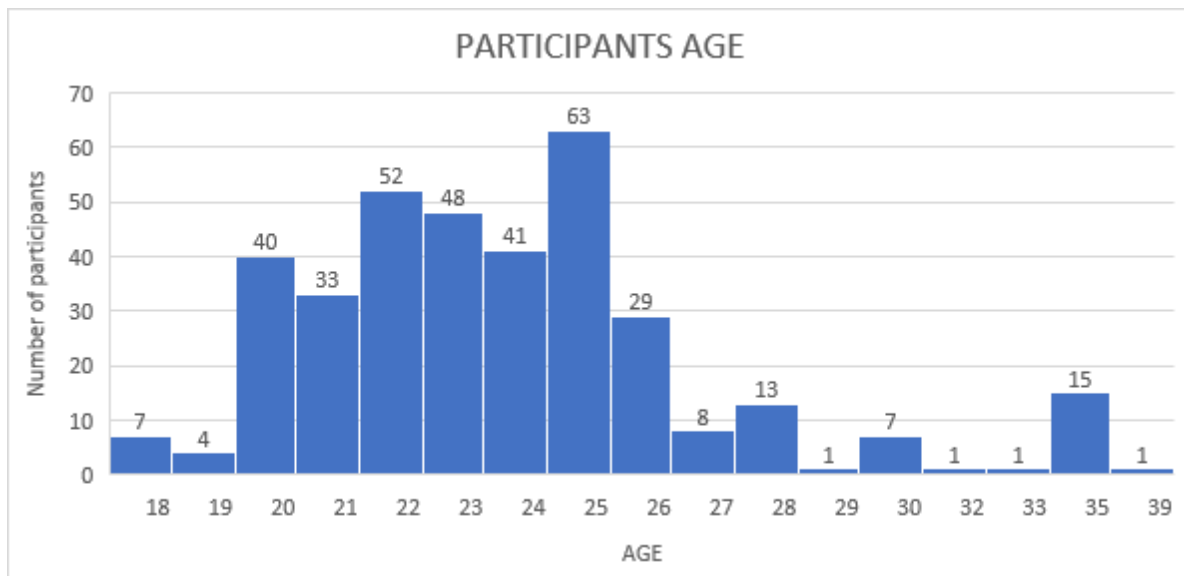


Figure 4.2: Distribution by age

4.3.3 Age/gender cross-tabulation

Figure 4.3 below shows a cross-tabulation between gender and age. Of the 51% (n=185) of female participants, the age range was 22 years old (87%, n=47), and of 49% (n=179) male participants, the age range was 25 years old (80.1%, n=44).

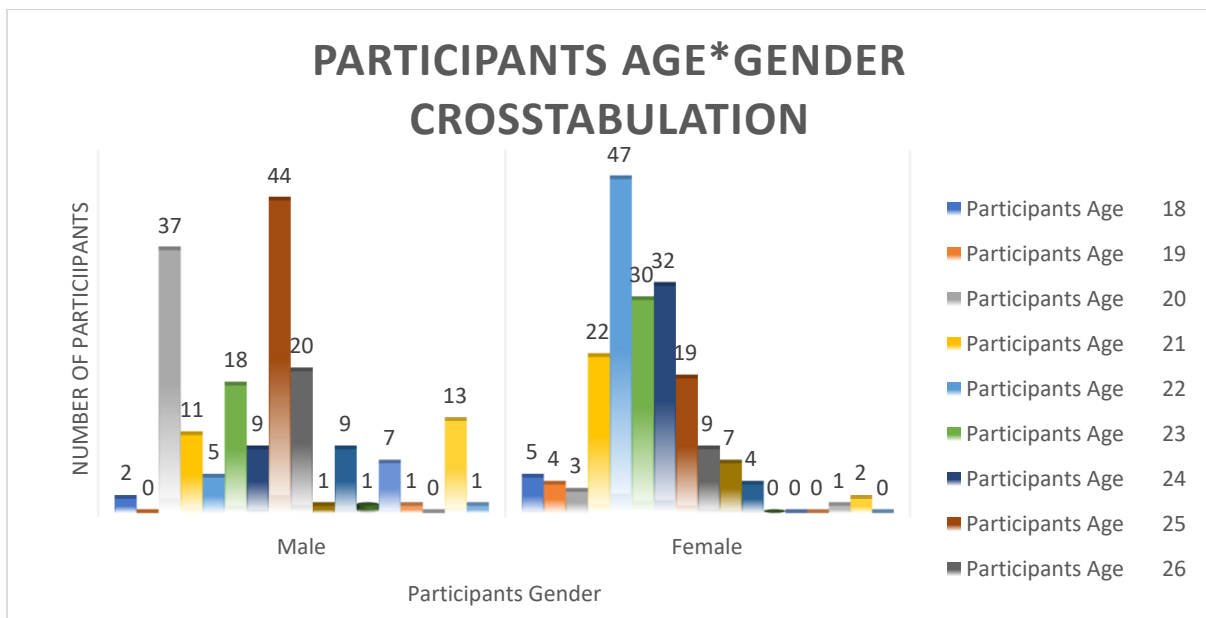


Figure 4.3: Age and gender

4.3.4 Distribution according to the program of study

A 97.7% (n=364) response rate was reached from the 374 target population. The majority 30% of participants were from the faculty of Medicine and Surgery, and the least number of participants were from the faculty of Radiography with the response rate of 3%. The faculty of Health sciences recorded 9% participant rate with Public Health program having the least participation rate of 0%, as shown in **figure 4.4**

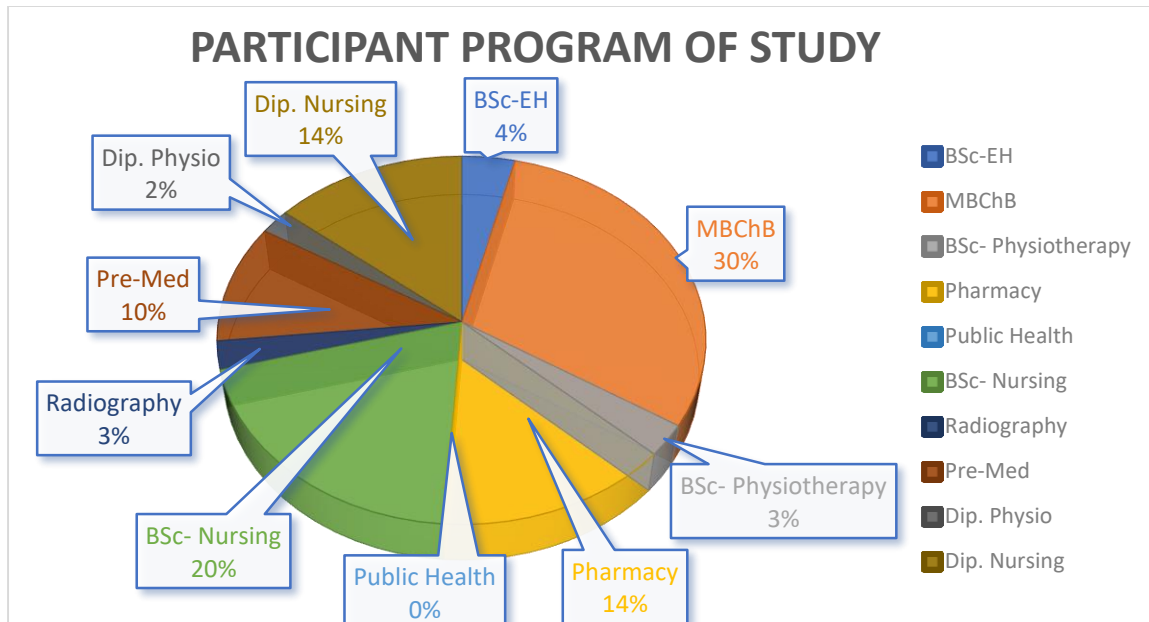


Figure 4.4: Participants Program of Study

4.4 Knowledge of students on COVID-19

Table 4.1 below illustrates the distribution of students according to their level of knowledge on COVID-19. The significant highest score of 5 (3.21 ± 1.370) was obtained from “**what is the main clinical presentation of COVID-19?**” and the least was 1 (1.03 ± 0.232) was obtained from the question “**Is COVID-19 contagious?**”

Table 4.1: Distribution of participants according to their level of Knowledge on COVID-19

	N	Minimum	Maximum	Mean		Std. Deviation
		Statistic	Statistic	Statistic	Std. Error	Statistic
Which is the Current pandemic?	364	1	4	3.03	.013	.245
Is COVID-19 contagious?	364	1	3	1.03	.012	.232
What type of Infectious disease is COVID-19?	364	2	2	2.00	.000	.000
The main transmission route of COVID-19 is via respiratory droplets	358	1	3	1.17	.029	.543
What is the main Clinical presentation of COVID-19?	364	1	5	3.21	.072	1.370
Sars-Cov-2 is the virus that Causes of COVID-19	363	1	3	1.62	.046	.885
How many meters are you supposed to give from one another?	359	1	2	1.13	.018	.338
What is your main source of knowledge on COVID-19?	364	1	4	2.01	.038	.725
Can washing hands with soap and water, and using face masks help in the prevention of disease transmission?	364	1	3	1.09	.018	.337

4.4.1 Knowledge on COVID-19: “Is COVID-19 contagious?”

The subsequent **Table 4.2** illustrates the knowledge on the contagious of COVID-19. The majority of the study participants (97.8%, n=358) agreed that COVID-19 is contagious and only 1.1% (n=4) of participants had no idea or refused that it is not contagious.

Table 4.2: Cross-tabulation on the program of study with ‘Is COVID-19 contagious’

		Is COVID-19 contagious?			Total
		Yes	No	No Idea	
Participants Program of Study	MBChB	102	4	4	110
	BSc-Physiotherapy	10	0	0	10
	Diploma Physio	8	0	0	8
	BPharm	52	0	0	52
	BSc-Nursing	72	0	0	72
	Diploma Nursing	51	0	0	51
	Radiography	9	0	0	9
	BSc-EH	14	0	0	14
	Pre-Med	38	0	0	38
Total		97.8% (n=358)	1.1% (n=4)	1.1% (n=4)	100% (n=364)

4.4.2 Knowledge of the ‘main clinical presentation’

The majority of the study participants showed higher levels of knowledge on identifying the main clinical presentation of COVID-19, 54.7% (n=199) mentioned that dry cough is the main clinical presentation of COVID-19, more males however displayed a greater level of knowledge (n=105) compared to females (n=94) as shown in **Table 4.3**.

Table 4.3: Cross-tabulation: Gender with ‘main clinical presentation of COVID-19’

		What is the main Clinical presentation of COVID-19?				Total
		Sore throat	Running nose	Dry cough	I don't know	
Participants Gender	Male	27	18	105	29	179
	Female	46	36	94	9	185
Total		20.2% (n=73)	14.8% (n=54)	54.7% (n=199)	10.4% (n=28)	100% (n=364)

4.5 Attitude towards COVID-19 guidelines

Table 4.4 shows the responses of participants on their attitude toward the guidelines of COVID-19. There was a statistical significance on the frequent use of hand sanitizer with the highest mean score and standard deviation of $2.92 \pm .0823$. Avoiding travel when I have flue like symptom is a protective measure scored the least with a mean score and standard deviation of 1.21 ± 0.493 .

Table 4.4: Respondent attitude toward COVID-19 guidelines

	N	Minimum	Maximum	Mean		Std. Deviation
		Statistic	Statistic	Statistic	Std. Error	Statistic
Fabric masks are not very effective in preventing the contagion of the virus	364	1	3	1.47	.035	.674
How often do you wear, Personal Protective Equipment (PPE-masks)?	362	1	4	1.57	.042	.793
Contact with COVID-19 patients is not a problem	360	1	3	1.92	.020	.373
Avoiding travel when I have flue like symptom is a protective measure	364	1	3	1.21	.026	.493
It is important to cover the mouth and nose when coughing and sneezing?	364	1	3	1.07	.015	.294
How often do you use Hand sanitizer?	364	1	4	2.92	.043	.823
Have you ever taken a COVID-19 test?	364	1	3	1.81	.026	.502
Have you taken the Vaccine?	364	1	3	2.04	.021	.402

4.5.1. Attitude ‘avoiding travel when presenting with flu-like symptoms.’

As shown in **Table 4.5** the majority of participants in our study presented a positive attitude to following guidelines for COVID-19. The majority (83%, n=302) of participants agreed to avoid traveling when presenting with COVID-19 symptoms.

Table 4.5: Cross-tabulation on gender and flu-like symptoms

		Avoiding travel when I have flue like symptom is a protective measure			Total
		True	False	I don't know	
Participants Gender	Male	128	45	6	179
	Female	174	3	8	185
Total		83% (n=302)	13.2% (n=48)	3.8% (n=14)	100% (n=364)

4.6 Perception of students on the inclusion physiotherapy in COVID-19 management

Table 4.6 shows the responses of participants on their perceptions on the inclusion of physiotherapy management in the treatment of COVID-19. A statistical significance was identified in the responses to the question is physiotherapy relevant in COVID-19 management with a mean score and standard deviation of 2.70 ± 1.005 . At what point should a physiotherapist be called in the management of COVID-19 scored the highest with mean score and standard deviation 5.27 ± 1.768 .

Table 4.6: Respondent perception on the inclusion of physiotherapy in COVID-19 management

	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Std. Error	Statistic
When is a Physiotherapist needed in the management of COVID-19 patients?	1	4	2.91	.056	1.074
Are Physiotherapists required to treat COVID-19 patients?	1	3	1.76	.042	.792
Is Physiotherapy relevant in COVID-19 Management?	1	4	2.70	.053	1.005
Physiotherapy is needed in the Acute phase of COVID-19	1	4	2.54	.054	1.029
Physiotherapy is not Needed when a COVID-19 patient is admitted	1	4	2.14	.052	.991
Physiotherapy is only important after a patient is discharged	1	4	2.28	.058	1.116
At what point should Physiotherapists be called in the management of COVID-19?	1	7	5.27	.093	1.768

4.6.1 Perception of students on the relevance of physiotherapy in COVID-19 management

Table 4.7 shows the level of perception on the inclusion of physiotherapy management in COVID-19 treatment. The majority of participants disagreed that physiotherapy is relevant in the management of COVID-19 (30.5%, n=111). A positive perception was seen with physiotherapy students (n=10) that agreed that physiotherapy is relevant in the management of COVID-19.

Table 4.7: Cross-tabulation between the program of study and relevance of physiotherapy in COVID-19 management

		Is Physiotherapy relevant in COVID-19 Management?				Total
		Strongly disagree	Disagree	Agree	Strongly Agree	
Participant s Program of Study	MBChB	16	32	43	19	110
	BSc-Physiotherapy	1	0	1	8	10
	Diploma Physio	0	3	1	4	8
	BPharm	10	14	8	20	52
	BSc-Nursing	0	29	28	15	72
	Diploma Nursing	4	16	18	13	51
	Radiography	0	0	4	5	9
	BSc-EH	2	9	0	3	14
	Pre-Med	15	8	5	10	38
Total		13.2% (n=48)	30.5% (n=111)	29.7% (n=108)	26.6% (n=97)	100% (n=364)

CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter presents a revealing discussion of research results in the preceding chapter (Chapter Four). The results will be discussed in the light of other studies from available published literature. The outline starts with demographic characteristics, participants' level of knowledge on COVID-19, attitude towards COVID-19 guidelines, and then it outlines the perception on the inclusion of physiotherapy management in the treatment of COVID-19 patients.

5.2 Demographic Characteristics

The results from this study yielded a 97.7% response rate out of 364. This response rate was far much higher compared to 59.8% (Ferdous et al., 2020). Females were slightly more (51%) than males (49%). This is contrary to what was found in a study conducted in Nigeria by Kehinde et al. (2020), where the majority of participants were males (54.9%) compared to females (43.1%). Equally, a study conducted in Bangladesh, revealed that males were a 59.8% response rate (Ferdous et al., 2020). The average age of female and male participants was 22 and 25 years respectively. Kehinde et al. (2020), found the mean age of 25.3 ± 2.4 years and age range of 21–31 years, while Ferdous et al. (2020), reported an average age of 24 years.

5.3 Knowledge of students on COVID-19

The majority of participants in this study had an acceptable level of knowledge related to COVID-19. Regarding the question of whether COVID-19 is contagious, 97.8% (n=358) knowledge level was evident in their response. This coincides with Çalışkan et al. (2020) who conducted a study on Medical Students at the Turkish university and found a moderate level of knowledge (69 %). Compared to our study Heshman et al. (2021) found a 81% Covid-19 knowledge level.

Among the participants in this study, males displayed a higher level of knowledge regarding the main clinical presentation of COVID-19 infection. This is contrary to the Egyptian study by Heshman et al. (2021) who found females to be more knowledgeable about COVID-19 infection than males in the study. Similarly, Gao et al. (2020) who conducted a Web-based cross-sectional study among 588 medical and nonmedical students in China, found that female students had greater knowledge about COVID-19 than males.

Therefore, all medical students must continue to be updated with medical information about COVID-19 from various sources especially researched and published documents.

5.4 Attitude towards COVID-19 guidelines

A positive attitude toward the guidelines given by the Ministry of Health was evident in our study. A statistical significance on the frequent use of hand sanitizer with the highest mean score and standard deviation of 2.92 ± 0.823 . Avoiding travel when I have flu like symptom is a protective measure scored the least with a mean score and standard deviation of 1.21 ± 0.493 .

The study also showed that females were more positive toward following the guidelines by the Ministry of Health. Compared to males within the study only 5.9% (n=11) from the total number of participants either did not agree or did not have an idea if avoiding travel when a person is presenting with flu-like symptoms is a preventive measure of COVID-19. Kehindle et al. (2020) discovered both males and females to have a similar attitude toward following preventative measures of COVID-19.

5.5 Perception of students on the inclusion of physiotherapy

Researchers have identified physical activities as an important tool to boost the immune system and fight against COVID-19 (Matheus et al., 2021). Physiotherapy management is, therefore, an integral part of the treatment of COVID-19 patients both acute and chronic. It is then important for medical students to know the importance of including physiotherapy in the management of COVID-19 patients.

This study focused on evaluating the perception of participants on the inclusion of physiotherapy in the management of COVID-19, a statistically significant was evident in the study, as many students agreed that physiotherapy is relevant in the management of COVID-19. Likewise, a study conducted in Austria, though it only included physiotherapy students and physiotherapists showed a positive perception on the inclusion of physiotherapy treatment in the treatment plans of COVID-19 patients especially post-COVID-19 patients (Barbara et al., 2021).

This study also reviewed physiotherapy students have more positive perception toward including physiotherapy in the management of COVID-19, compared to medicine and surgery students, even though a considerable percentage was evident to show that they also have

knowledge as most of them agreed that is relevant to include physiotherapy. Literature to outline the perception of physiotherapy in the management of COVID-19 is scarcely available. Compared to COVID-19 physiotherapy treatment guidelines recommended by Thomas et al. (2020), participants of this study showed positive perception in how they can follow treatment guidelines and accept the involvement of physiotherapy in the management of COVID-19. With the results from this study, it is therefore recommended to continue educating all medical students to know that physiotherapy plays an important role in the management of COVID-19 patients.

CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

6.1 Introduction

This chapter consists of the conclusion, recommendations, and limitations on the students' knowledge, attitude, and perceptions regarding the educational environment at LAMU.

6.2 Conclusion

This study provides valuable insight regarding the level of knowledge and attitude toward, students at this institution revealed a moderate level of knowledge about COVID-19 and also had a positive attitude toward following guidelines provided by the ministry of health. However, there is a great need to continue sensitizing other medical professions on the involvement of physiotherapy management in the treatment of COVID-19 patients. Research has shown that physiotherapy plays an important role in the fast recovery of COVID-19 patients in both acute and chronic. For a positive view about the inclusion of physiotherapy management, students need to frequently be taught the importance of physiotherapy.

6.3 Recommendations

- Higher Education Authority (HEA) to consider including COVID-19 in the curriculum of higher learning institutions as a way of increasing the knowledge base of students on COVID-19.
- We recommend future studies on this topic be conducted using qualitative methods to have an in-depth understanding of the findings and highlight the strengths/weaknesses of the particular learning environment.
- The study was conducted in a single institution among limited participants. Therefore, it would be important to conduct similar studies in other learning institutions across the country for establishing the generalizability of the findings.
- In addition, further research is needed to comparing our findings with other non-government and government institutions to assess the educational environment prevailing in universities and colleges in the country.

6.4 Limitations

1. Literature is scarcely on the involvement of physiotherapy in COVID-19 management, hence proved to be difficult to discuss the literature provided.
2. Due to the coronavirus pandemic, it was hard to access students as all learning institutions were closed during data collection

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APPENDICES

Appendix 1: Study timeline

		December 2020	January – February 2021	March - July 2021	July - October 2021
Task	Personnel				
Presentation of the research topic	Researcher				
Research proposal writing	Researcher				
Research mobilization and proposal submission	Researcher				
Pilot study	Researcher				
Data collection	Researcher				
Data analysis	Researcher				
Final report writing	Researcher				
Submission of a final report	Researcher				

Appendix 2: Budget

SN	SERVICES	QUALITY	UNIT (K)	AMOUNT(K)
1	Printing and Binding of a draft proposal	3	K150.00	K550.00
2	Internet Usage			K800.00
3	Transport	1	K350.00	K1,500.00
4	Stationary			K500.00
5	Payment to LAMUREC	1	K250.00	K250.00
6	Printing and Binding Final Report	3	K250.00	K750.00
7	Research Assistant			K500.00
	Sub Total			K4,850.00
	Contingency 10%			K485.00
	GRAND TOTAL			K5,335.00



Appendix 3: Introductory letter (To the Institution)

3rd March 2021

The Registrar
Lusaka Apex Medical University
Chalala Campus
P O Box 31909
LUSAKA

Dear Sir/Madam,

**REQUEST TO CARRY OUT A RESEARCH: MR SAVIOUR CHEMBE
WITH COMPUTER N° PHYSIO/16/02/001109**

The above named is a bonafide Student of Lusaka Apex Medical University. He is in his final year of study pursuing a degree in Bachelor of Science in Physiotherapy.

As a requirement for the award of a Bachelor of Science in Physiotherapy, he is required to carry out research. The topic is **“Knowledge, attitude and perception of students at Lusaka Apex Medical University on the role of physiotherapy in COVID-19 management”**. The student will be required to present an identification card during the research.

Your assistance will be greatly appreciated.

Yours faithfully,

Dr. Oswell Khondowe *Ph.D., MSc PT, MSc APA, BSc PT, Dip PT*
Dean – Faculty of Health Sciences

Plot N^o. 12531, Zambezi Road Lusaka, P.O. Box 31909, Lusaka - Zambia
Mobile: +260 963 667610, +260 969 691654, +260 966 762273, +260 976 051832, +260 977 480460
E-mail: lamu@coppernet.zm

Appendix 4: Letter of Permission (Introductory Letter to the Faculty)



**LUSAKA APEX
MEDICAL UNIVERSITY**

Plot No. 228/22/12, Hillside Park,
Along Kasanka Road,
Lilongwe South,
P.O. Box 31909,
Lusaka - Zambia

Cell: +260 977 799 544
+260 950 710 244
+260 974 876 716
Email: registrar@luma.edu.zm
Website: www.luma.edu.zm

6th May, 2021

TO ALL STUDENTS

**Re: REQUEST TO CARRY OUT A RESEARCH: MR. SAVOUR CHEMBE
WITH COMPUTER NO. PHYSIO/16/02/001109**

The above named is a bonafide Student of Lusaka Apex Medical University. He is in his final year of study pursuing a degree in Bachelor of Science in Physiotherapy.

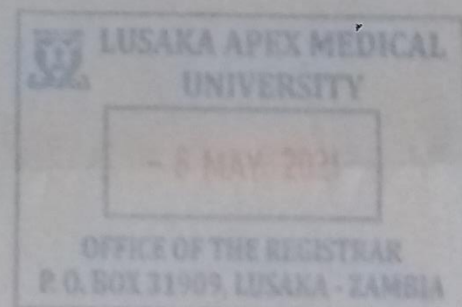
As a requirement for the award of a Bachelor of Science on Physiotherapy, he is required to carry out a research. The topic is **"Knowledge, attitude and perception of students at Lusaka Apex Medical University on the role of Physiotherapy in Covid-19 Management"**. The student will be required to present an identification card during the research.

Your assistance will be greatly appreciated.

Yours faithfully,

**Tangu M. Mazaba (Mrs.)
REGISTRAR**

c.c. Dean, Faculty of Health Sciences



Appendix 5: Approval Letter

LUSAKA APEX
MEDICAL UNIVERSITY



**LUSAKA APEX MEDICAL UNIVERSITY BIO-MEDICAL
RESEARCH ETHICS COMMITTEE
(LAMUBREC)**

Telephone: +260 976051832/0977480460

Foxdale Campus
Plot N° 3073
P O Box 31909
LUSAKA, ZAMBIA

Email: lamubrec@lamu.edu.zm

FWA 00029892

IRB 00001131

Ref: 00094-21

12th April 2021



To:
The Principal Investigator
Mr Savoir Chembe
C/O Lusaka Apex Medical University
Faculty of Health Sciences
LUSAKA

Dear Mr Saviour Chembe,

**RE: KNOWLEDGE, ATTITUDE AND PERCEPTION OF LUSAKA APEX
MEDICAL UNIVERSITY STUDENTS ON THE ROLE OF PHYSIOTHERAPY IN
COVID 19 MANAGEMENT**

The above mentioned research proposal was resubmitted to Lusaka Apex Medical University Bio-Medical Ethics Committee (LAMUBREC) on 24th March 2021. The review was based on the following documents that were submitted.

- a. Study Proposal
- b. Questionnaires
- c. Participant's Consent Form

We are pleased to inform you that your research proposal has been approved with minor corrections as shown on the feedback report. Kindly make the corrections to the satisfaction of your Supervisor.

APPROVAL NUMBER

Ref: 00094-21

The number should be used on all correspondence, consent forms and documents as appropriate.

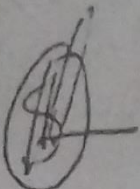
- **APPROVAL DATE:**
- **TYPE OF APPROVAL:**
- **EXPIRATION DATE OF APPROVAL**

8th April 2021
Expedited
7th April 2022

After this date, this project may only continue upon renewal. For purposes of renewal a submitted report on a standard form obtained from the LAMUBREC offices should be submitted one month before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING (SAE):** All SAEs and any other serious challenges/problems having to do with participant welfare and participant safety and study must be reported to LAMUBREC offices.
- **MODIFICATIONS:** Prior to LAMUBREC approval using standard forms obtainable from LAMUBREC offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY:** On termination of study, a report has to be submitted to LAMUBREC using standard forms obtained from the LAMUBREC Offices.
- **QUESTIONS:** Please contact the LAMUBREC Secretariat on Telephone Numbers: +260976051832/0977480460/0966480460 or by email on lamubrec@lamu.edu.zm.
- **OTHER**
Please be reminded to send copies of your research for our records. You are also required to submit electronic copies of your publications in peer-review journals that may emanate from this study.

Yours sincerely,



Dr Oswell Khondowe *PhD, MSc PT, MSc APA, BSc PT, Dip PT*
Chairperson



Appendix 6: Information sheet

Dear participant, you are invited to participate in a study on the knowledge, attitude, and perceptions of students at LAMU regarding the role of physiotherapy in COVID-19 management. This study will be done by Saviour Chembe, a 5th-year bachelor of science in physiotherapy student at the Lusaka Apex Medical University and my supervisor is Sr. Rebecca Marjorie Mwansa, and co-supervisor Mrs. Faith Banda Malambo.

What is this study all about?

The study aims to evaluate the knowledge, attitude, and perceptions of students on the inclusion of physiotherapy in COVID-19 management.

What are the study procedures? What will I be asked?

You have been selected to participate in this study and I wish to inform you that your participation is voluntary. Your name will not be required as your participation will remain anonymous. The answers you give will be confidential and no one will know how you answer.

Make sure you understand every question and answer the questions based on what you think.

What are the risks or inconveniences of this study?

There are no perceived risks, the study is self-administered. Therefore, you may withdraw at any time of the study if you wish.

What are the benefits?

There will be no direct benefits that will be given in exchange for information obtained. However, your participation in this study will enable the researcher to get relevant information about the above topic as well as help the university as a community to continue following the provided guidelines on the prevention of COVID-19.

For clarifications and access to results: kindly contact

1. Saviour Chembe |Cell: +260971061533/+260964347933 |Email: saviourjason@outlook.com | saviourjason@gmail.com
2. Marjorie R. Mwansa | Cell: +260969691654 |Email: daisyndashe@gmail.com



Appendix 7: Informed consent

I confirm that I have read the information about the study and all questions and queries have been addressed. I am also aware of my rights of either or not to take part in this study without any negative impacts.

I hereby declare that am participating in this study voluntarily and will try to answer all questions to the best of my knowledge.

Mark only one oval [as Researcher Signature].

☐ Yes

☐ No

Mark only one oval [as Participant Signature].

☐ Yes

☐ No



Appendix 8: Questionnaire

TOPIC: Knowledge, attitude, and perception of Student's at Lusaka Apex Medical University on the role of physiotherapy in COVID-19 management

This survey is about the knowledge, attitude, and perceptions of students at Lusaka Apex Medical University on the role of physiotherapy in COVID-19 management. It has been designed for you so that you can tell us what you know about physiotherapy inclusion in COVID-19 management. The information obtained will be used to determine the level of knowledge, attitude, and perception of students from all five faculty at LAMU on the role of physiotherapy in COVID-19 management.

Read the instructions for each question carefully and give the appropriate responses. **Do not write your name anywhere** in this questionnaire. (The information provided will be treated **confidentially**).

SECTION A: DEMOGRAPHIC INFORMATION

1. What is your sex?
Mark only one oval.
☐ Male
☐ Female
2. What is your age?.....
3. Program of Study
Mark only one oval.
☐ MBChB
☐ BSc-Physiotherapy
☐ Diploma Physio
☐ BPharm
☐ BSc-Nursing
☐ Diploma Nursing
☐ BSc-Radiography
☐ Pre-Medical Science

4. Year of Study

Mark only one oval.

- ☐ Year One
- ☐ Year Two
- ☐ Year Three
- ☐ Year Four
- ☐ Year Five
- ☐ Year Six
- ☐ Year Seven

5. Place of Residence

Mark only one oval.

- ☐ Chalala
- ☐ Olympia
- ☐ Foxdale
- ☐ Roma
- ☐ Other: _____

SECTION B: KNOWLEDGE

6. Which is the Current pandemic?

Mark only one oval.

- ☐ Middle East Respiratory syndrome-CoV
- ☐ Severe Acute Respiratory Syndrome-CoV
- ☐ COVID-19
- ☐ All of the above

7. Is COVID-19 contagious?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ No idea

8. What is the origin of COVID-19?

Mark only one oval.

- ☐ Civet Bats
- ☐ Dromedary Camels
- ☐ Domestic animals/ Pets
- ☐ Yet not known
- ☐ I Don't Know

9. What type of infectious disease is COVID-19?

Mark only one oval.

- ☐ Gastroenteritis
- ☐ Respiratory
- ☐ Fungi
- ☐ Other:

10. The main transmission route of COVID-19 is via respiratory droplets?

Mark only one oval.

- ☐ True
- ☐ False
- ☐ I don't Know

11. What is the incubation period of COVID-19?

Mark only one oval.

- ☐ 3-7 days
- ☐ 1-14 days
- ☐ 2-14 days
- ☐ 90 days
- ☐ 30 days
- ☐ I don't Know

12. Who is more prone to COVID-19?

Check all that apply.

- ☐ The old and Children
- ☐ Young Adults
- ☐ Young/Adults
- ☐ People with underlying conditions
- ☐ Everyone is susceptible
- ☐ Older/ Geriatrics or person
- ☐ I don't know

13. What is the main clinical presentation of COVID-19?

Check all that apply.

- ☐ Sore Throat and Myalgia
- ☐ Stuffy and running nose
- ☐ Diarrhea
- ☐ Dry cough
- ☐ I Don't Know

14. Sars-Cov-2 is the virus that causes COVID-19?

Mark only one oval.

- ☐ True
- ☐ False
- ☐ I don't know

15. How many meters are you supposed to give from one another?

Mark only one oval.

- ☐ 1 Meter
- ☐ 2 Meters
- ☐ 5 Meters
- ☐ Other:

16. The reason the government is quarantining anyone who comes into the country for 14 days is to prevent the spread of COVID-19?

Mark only one oval.

- ☐ True
- ☐ False
- ☐ I don't know

17. What is your main source of knowledge on COVID-19?

Check all that apply.

- ☐ TV
- ☐ Internet
- ☐ Community
- ☐ School
- ☐ Other

18. Is the COVID-19 vaccine available?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Maybe

19. Can washing hands with soap and water, and using face masks help in the prevention of disease transmission?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ I don't know

SECTION C: ATTITUDE

20. Fabric masks are not very effective in preventing the contagion of the virus

Mark only one oval.

- ☐ True
- ☐ False
- ☐ I don't Know

21. How often do you wear, Personal Protective Equipment (PPE-masks)?

Mark only one oval.

- ☐ Always
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

22. Contact with COVID-19 patients is not a problem

Mark only one oval.

- ☐ True
☐ False
☐ I don't know

23. Avoiding travel when I have flue like symptom is a protective measure

Mark only one oval.

- ☐ True
☐ False
☐ I don't Know

24. It is important to cover the mouth and nose when coughing and sneezing

Mark only one oval.

- ☐ True
☐ False
☐ I don't know

25. How often do you use Hand sanitizer?

Mark only one oval.

	1	2	3	4	5	
Never	☐	☐	☐	☐	☐	Always

26. Have you ever taken a COVID-19 test?

Mark only one oval.

- ☐ Yes
☐ No
☐ I prefer not to mention

27. Will take the Vaccine if it is made available?

Mark only one oval.

- ☐ Yes
☐ No
☐ Maybe

SECTION D: PERCEPTIONS

28. When is a Physiotherapist needed in the management of COVID-19 patients?

Mark only one oval.

- ☐ Acute
☐ When Admitted to ICU
☐ After being discharged
☐ Other.....

29. Are Physiotherapists required to treat COVID-19 patients?

Mark only one oval.

- ☐ Yes
☐ No
☐ I don't know

30. Is Physiotherapy relevant in COVID-19 Management?

Mark only one oval.

	1	2	3	4	
Strongly disagree	☐	☐	☐	☐	Strongly Agree

31. Physiotherapy is needed in the Acute phase of COVID-19

Mark only one oval.

	1	2	3	4	
Strongly disagree	☐	☐	☐	☐	Strongly agree

32. Physiotherapy is not Needed when a COVID-19 patient is admitted

Mark only one oval.

	1	2	3	4	
Strongly disagree	☐	☐	☐	☐	Strongly agree

33. Physiotherapy is only important after a patient is discharged

Mark only one oval.

	1	2	3	4	
Strongly disagree	☐	☐	☐	☐	Strongly agree

34. At what point should Physiotherapists be called in the management of COVID-19

Check all that apply.

- ☐ The first week of infection
- ☐ When complications develop
- ☐ They are not needed
- ☐ After the patient is cleared off COVID-19
- ☐ After the patient is discharged
- ☐ In the ICU
- ☐ Other: _____

Appendix 9: Curriculum Vitae (Mwansa R. Marjorie)

CURRICULUM VITAE

Personal Data

SURNAME	-	Mwansa
FIRST NAME	-	Rabecca Marjorie
GENDER	-	Female
PLACE OF BIRTH	-	Luanshya Copper belt, Zambia
NRC NUMBER	-	195644/68/1
MARITAL STATUS	-	Single (Catholic nun)
E-MAIL	-	daisyndashe@gmail.com
CELLPHONE NUMBER	-	+260 969 691 654
CURRENT ADDRESS	-	Kabulonga Cheshire Homes Plot No. 25 Twin Palm Road Lusaka

Professional Skills Summary

Have had 20 years' experience of hospital, school and community-based practice, clinical supervision, program management, Gender and HIV/AIDS workplace policies development and lecturing

Education

2008 – 2009:	Masters of Science in Physiotherapy University of the Western Cape, South Africa Coursework: Mini-Thesis Introduction to research Methodology, Applied Statistics, Literature review (Research project), Rehabilitaion, Exercises Physiology/Applied Exercise Science, Health Promotion.
2006:	Certificate in Paralegal University of Zambia, Zambia
2005:	Certificate in Project Management for Programme/Project Co-ordinators CORAT AFRICA, Kenya

Coursework: Accounting, Project evaluation, Capacity building and Staff appraisal, Community development, Proposal Writing, Leadership Skills.

Certificate in Clinical Supervision

University of Zambia, Zambia

1993:

Diploma in Physiotherapy, Zambia

Evelyn Hone College of Applied Arts and Sciences

Coursework: Basic principles of exercise therapy, Professional

Orientation, Ethics and administration, Communication Skills,

Psychology, Mathematics, Exercise Therapy, Electrotherapy,

Massage therapy, pathology, Physical Examination, Rehabilitation, Anatomy, Physiology, Medical Conditions, Surgical Conditions. **Work Experience Summary**

2015

Lusaka Apex Medical University

HOD Physiotherapy Department / lecturer.

2014

Lusaka Apex Medical University

Lecturer

2013 – 2014

Ndola Central Hospital

Acting Head of Department

Senior Physiotherapist/Clinical Instructor

2012 – 2013

Kabulonga Cheshire Homes

Administrator

Physiotherapist

2010 – 2011

St. Clare Mission Clinic – Lusaka

Administrator

Physiotherapist

2004 – 2007

Catholic Diocese of Ndola – Copperbelt

Community Based Rehabilitation Program (CRB)

Programme Co-ordinator

Clinical Supervisor

Ndola Central Hospital

Physiotherapist

2001 – 2003

Luanshya Thompson Hospital

Physiotherapists

Da-gama School for the physically disabled children

School physiotherapist

Head of Department

Luanshya CBR Programme

CBR Co-ordinator

1997 – 2000

Ndola Central Hospital

Physiotherapist

1996

University Teaching Hospital

Physiotherapist

Zambia-Italian Orthopedic
Hospital

Head of Department

1995

Ndola Central Hospital

Physiotherapist

Languages

English

Bemba

Referees

Dr. Oswell Khondowe

Dean of the Faculty of Health Sciences

Lusaka Apex Medical University

P.O Box

Lusaka

Prof. Jose Frantz

Acting Vice-Chancellor

University of the Western Cape

Private Bag X17

Bellville 7535

Dr. Nondwe Mlenzana

Head of Physiotherapy Department

University of the Western Cape

Private Bag X17

Bellville 7535

Appendix 10: Curriculum Vitae (Faith B. Malambo)

Curriculum Vitae

Personal Details

Forename : Faith
Surname : Banda Malambo
Date of Birth : 1989.08.19
Marital Status : Married
No. Children : One
NRC No. : 408576/61/1
Passport : ZN 360615
Email Address : bandafaithdoc@yahoo.com, 3416407@myuwc.ac.za
Contact Numbers : +260979878521, +260955355247
Current Physical Address : Kazizi Close, Makeni Bonaventure
Postal Address : Lusaka Apex Medical University,
Health Sciences faculty, Physiotherapy Department
Foxdale Campus P.O Box 31909
LUSAKA, ZAMBIA

EDUCATION

2019 – 2019	Lusaka Apex Medical University	Certificate in Teaching Methodology
2015 – 2015	University of Western Cape	MSc in Physiotherapy
2014 – 2014	University of Western Cape	BSc Honors in Physiotherapy
2009 – 2011	Evelyn Hone College	Diploma in Physiotherapy Technology
2008 – 2008	Northern Technical College	Certificate in Information Technology
2004 – 2006	Dominican Convent High School	GCE Certificate
1995 – 2003	Dominican Convent High School	Junior secondary school certificate
1995 – 2001	Ndola Modern Primary School	Primary School Certificate

WORK EXPERIENCE

July 2020- To date

JOB TITLE: FACULTY FACILITATOR FOR CPD'S

ORGANISATION: Lusaka Apex Medical University

DUTIES:

- Facilitating faculty-specific CPDs
- Curriculum design/development; implementation; assessments and evaluation.
- Teaching and teaching methodology

July 2017 – To date

JOB TITLE: Full time lecturer

ORGANISATION: Lusaka Apex Medical University

DUTIES:

- Development and designing of course curriculum and study modules, covering areas of study in physiotherapy.
- Preparing teaching materials and lesson plans for subjects taught that meets the level of study, in physiotherapy and course objectives.
- Delivering lectures to Diploma and Degree students and counselling students academically to help them achieve their highest potential.
- Course evaluation, reviewing and modification to suit students training and learning needs.
- Exam, test and assignment preparation. Marking of written exams in taught modules.
- Conducting experiments and demonstration as part of instruction of students, supervising students' practical work in order to ensure accuracy of work.
- Field training such as clinical work, evening classes and in-service supervision to sharpen the skills of students.
- Planning of assigned research programs and projects, making estimates of time, staff and equipment needed and financial costs for approval by the Head of Department.
- Undertaking assigned research activities, making recommendations on practical methods of applying research results to supervisor.
- Writing scholarly materials/papers at seminars, workshops, conferences and participates in conferences both locally and internationally.
- Writing scholarly materials/papers arising out of research and other studies for publication and/or dissemination through various fora.

- Attending and participating in departmental meetings and meetings assigned and/or appointed to.

May, 2014 – December, 2014

JOB TITLE: Tutor (Part time)

ORGANISATION: University of Western Cape

DUTIES:

- Guide, Supervise and examine students in clinical practice.

September, 2012 - December, 2013

JOB TITLE: Rehabilitation Supervisor

ORGANISATION: Leonard Cheshire Homes Society of Zambia (CBR)

DUTIES:

- Plan and monitor assessment and screening clinics for children with physical disabilities and orthopedic impairments; ensure regular follow up of people assessed and/or operated
- Ensure quality of assessment before referrals to partner organisations are made; ensure fit of assistive and mobility devices to client characteristics
- Ensure appropriate individual treatment plans and interventions are in place
- Provide appropriate Counselling and advice for all clients in need
- Ensure patient files are maintained and updated; keep records of clinical assessments and follow ups; prepare monthly activity reports
- Provide supervision and onsite support for Community Rehabilitation Workers and Patient Identification Workers during home visits and rehab sessions
- Ensure trials and fittings for appliances and assistive devices are conducted as per assessment, and lists are up dated to reflect collected and outstanding.
- Disburse and account for petty cash (transport and subsidies)
- Monitor sensitisation and mobilisation campaigns;
- Liaise and manage appointments with partner organisations; manage logistics (i.e. transportation of clients); monitor quality of assessment before referrals to partner organisations are made
- Contribute to preparation of quarterly activity reports
- Plan and co-chair monthly and chair mid monthly staff meetings

June 2012 – August 2012

JOB TITLE: Physiotherapy Technologist

ORGANISATION: Leonard Cheshire Homes Society of Zambia CBR)

DUTIES:

- Organise and carry out assessment and screening clinics for children with physical disabilities and orthopedic impairments; ensure regular follow up of people assessed and/or operated
- Ensure quality of assessment before referrals to partner organisations are made; ensure fit of assistive and mobility devices to client characteristics
- Ensure appropriate individual treatment plans and interventions are in place
- Provide appropriate Counselling and advice for all clients in need
- Maintain and update patient files; keep records of clinical assessments and follow ups; prepare monthly activity reports
- Provide supervision and on-site support for CRWs during home visits and rehab sessions
- Ensure trials and fittings for appliances and assistive devices are conducted as per assessment.
- Facilitate sports and leisure activities for children on the programme in collaboration with S.E.C
- Contribute to preparation of quarterly activity reports

VOLUNTARY EXPERIENCE

DATES: January, 2012– June 2012

TITLE: Physiotherapy technologist

ORGANISATION: Kabwe General Hospital

DUTIES:

- Assess, plan interventions, rehabilitate and reassess patients with Medical, Surgical, Respiratory Orthopedic, and neurological conditions in both adults and children.
- Management and rehabilitation of burns.
- Measurements for appliances and assistive devices.

Publications

- An assessment of role of physiotherapy in the management of children with Spina Bifida in Lusaka, Zambia. **(in progress)**
- An evaluation of the management of children with Spina Bifida in Lusaka, Zambia. **(In progress).**
- Effects of prescribed aerobic exercise on type 2 diabetes patients at the outpatient physiotherapy department, University of Zambia- A cohort study case. **(in progress)**

Research Supervision

- **THE KNOWLEDGE OF PREGNANT WOMEN REGARDING BIRTH DEFECTS AND ASSOCIATED RISK FACTORS AT NCHANGA NORTH GENERAL HOSPITAL AND CHAWAMA URBAN CLINIC IN CHINGOLA-** Ms G. Michelo
- **INVOLVEMENT OF PHYSIOTHERAPY PERSONNEL IN HEALTH PROMOTION IN THE NORTHERN PROVINCE OF ZAMBIA: A CASE OF THREE SELECTED HOSPITALS-**Mr E. Phiri
- **TRAUMATIC SPINAL CORD INJURY PATIENTS SATISFACTION WITH PHYSIOTHERAPY MANAGEMENT AT UTH IN LUSAK, ZAMBIA-** Mr A. Simataa
- **THE ROLE OF PHYSIOTHERAPY IN THE MANAGEMENT OF TYPE 2 DIABETIS MELLITUS AT UTH IN LUSAKA, ZAMBIA-** Mr P. Mubanga
- **PRACTICES AND ATTITUDES OF PHYSIOTHERAPY STUDENTS TOWARDS EXERCISE AT LAMU-** Ms C. Mulela
- **CTEV: PROFILE, KNOWLEDGE AND RISK FACTORS AT 3 MAJOR HOSPITALS IN NORTHERN PROVINCE-** Mr C. Langazye
- **ASSESSMENT OF REFERRAL SYSTEM ATRUNDU REFERRAL INTERMEDIATE HOSPITAL, KAVANGO, NAMIBIA-** Ms. I. Likando **(In progress)**
- **KNOWLEDGE AND ATTITUDES OF AMATEUR FOOTBALL COACHES IN THE ROLE OF PHYSIOTHERAPY IN THE PREVENTION AND MANAGEMENT OF FOOTBALL INJURIES IN**

LUSAKA, ZAMBIA- Mr C. Chilakola

- **EXPLORING ADULT POST BURNS PATIENT SATISFACTION WITH PHYSIOTHERAPY MANAGEMENT AT UTH, LUSAKA, ZAMBIA- Ms. M. Hajaya**
- **KNOWLEDGE AMONG NURSES ON PHYSIOTHERAPY MANAGEMENT OF NEURAL TUBE DEFECTS AT UTH, LUSAKA, ZAMBIA-Mr D. Chifwesa**
- **THE EFFECTS OF COMPETITIVE SPORTS ON ACADEMIC PERFORMANCE AMONG HIGH SCHOOLS IN LUSAKA- Mr M. Mubita**
- **FATHERS PARTICIPATION AND EXPERIENCES WITH PHYSIOTHERAPY MANAGEMENT OF CEREBRAL PALSY AT RONALD ROSS GENERAL HOSPITAL, MUFURILA, ZAMBIA- Ms N.E. Choongo**
- **STUDENTS PERCEPTIONS REGARDING THE EDUCATION ENVIRONMENT AT LUSAKA APEX MEDICAL UNIVERSITY BASED ON DREEM - Ms P. Mumba**
- **KNOWLEDGE, ATTITUDES AND PRACTICES OF PHYSIOTHERAPY STUDENTS TOWARDS HEALTHY LIFESTYLES AT LUSAKA APEX MEDICAL UNIVERSITY – Ms R. Yasholongo**
- **INVOLVEMENT OF PHYSIOTHERAPY PRACTITIONERS IN PROMOTING PHYSICAL ACTIVITY AMONG THE ELDERLY IN OLD PEOPLE’S HOMES OF CHAWAMA AND MATERO, LUSAKA, ZAMBIA- Ms J.C. Nkhoma (In progress)**
- **RISK FACTORS OF MUSCULOSKELETAL DISORDERS AMONG CAMERA OPERATORS IN LUSAKA, ZAMBIA- Ms M. Chisenga (In progress)**
- **PREPAREDNESS OF ACADEMIC AND SUPPORT STAFF AT LUSAKA APEX MEDICAL UNIVERSITY TOWARDS EDUCATIONAL AND SOCIAL INCLUSIONS OF STUDENTS WITH DISABILITIES- Ms L.C. Gwanu (In progress)**
- **AWARENESS OF PHYSIOTHERAPY INTERVENTIONS AMONG PREGNANT FEMALES IN ANTENATAL CLINICS, MATERO LEVEL 1 HOSPITAL, LUSAKA, ZAMBIA- Mr M. Chanda (In progress)**
- **KNOWLEDGE, ATTITUDES AND PRACTICES OF MEDICAL DOCTORS IN THE ROLE OF PHYSIOTHERAPY MANAGEMENT OF SPINA BIFIDA- Ms N. Chikwililwa (In progress)**

- **KNOWLEDGE, ATTITUDE AND PERCEPTION ON THE ROLE OF PHYSIOTHERAPY IN COVID-19 MANAGEMENT AMONGST STUDENTS AT LUSAKA APEX MEDICAL UNIVERSITY, LUSAKA, ZAMBIA-** Mr S. Chembe **(In progress)**
- **UTILIZATION OF INTERNATIONAL CLASSIFICATION OF FUNCTION DISABILITY AND HEALTH (ICF) FRAMEWORK AS AN ASSESSMENT TOOL IN PAEDIATRICS BY PHYSIOTHERAPISTS IN LUSAKA, ZAMBIA-** Ms S. Masaiti **(In progress)**

BOARDS

- **Physiotherapy Co-operative-** Director Finance

COMMITTEES

- **Committee of experts-** Higher Education Authority
- **Curriculum review committee-** Lusaka Apex Medical University (Secretary)
- **Staffing levels committee-** Lusaka Apex Medical University (Faculty representative)
- **Research committee (Department)-** Lusaka Apex Medical University

LICENSES

- Practicing license with Health Professions Council of Zambia.
(HPCZ/101/2/8/00302)

AFFILIATIONS

- Zambia Society for Physiotherapy (ZSP)
- Sports Physiotherapy Association of Zambia (SPAZ)

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