

**ADHERENCE TO COVID-19 PREVENTIVE MEASURES IN TRADITIONAL
AUTHORITY MWAKABOKO IN KARONGA DISTRICT**

MSc THESIS TRANSFORMATIVE COMMUNITY DEVELOPMENT

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MZUZU UNIVERSITY

NOVEMBER 2025

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TRADITIONAL AUTHORITY MWAKABOKO IN KARONGA DISTRICT**

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MSCTD3321

BSc PUBLIC HEALTH OPTION ENVIRONMENTAL HEALTH

**A THESIS SUBMITTED TO THE FACULTY OF ENVIRONMENTAL
SCIENCES, DEPARTMENT OF AGRI-SCIENCES, IN FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE
DEGREE IN TRANSFORMATIVE COMMUNITY DEVELOPMENT.**

MZUZU UNIVERSITY

NOVEMBER 2025

DECLARATION

I hereby declare that this thesis titled, “**Adherence to COVID-19 preventive measures in Traditional Authority Mwakaboko in Karonga District**” has been written by me and is a record of my research work. All citations, references, and borrowed ideas have been duly acknowledged. It is being submitted in fulfilment of the requirements for the award of the degree of Master of Science (MSc) in Transformative Community Development of Mzuzu University. None of the present work has been submitted previously for any degree or examination in any other University.

Parts of the materials presented in this thesis have been submitted for publication.



Annie Nyabweka Mwafulirwa

Date

CERTIFICATE OF APPROVAL

This thesis, ‘adherence to Covid-19 preventive measures in Traditional Authority Mwakaboko in Karonga District ‘by Annie Nyabweka Mwafulirwa is submitted with our approval as university supervisors for MSC in Transformative Community Development.



Sign.

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DEDICATION

This thesis is dedicated to the memory of all the individuals who lost their lives to COVID-19 in Malawi. Each name represents a story, a family, and a community forever altered by this devastating pandemic. This work stands as a testament to your struggles and sacrifices.

ACKNOWLEDGEMENTS

First and foremost, I would like to express my deepest gratitude to Almighty God for the gift of life and guiding me through this amazing journey.

I would also like to express my sincere gratitude to my main supervisor, Associate Professor, Dr Mavuto Tembo, for his invaluable guidance, constructive criticism, and insights throughout my research. Your expertise has been a critical component in shaping this thesis. Additionally, I am grateful to Mr. Nyumbani Moyo and Dr. Ulemu Msiska, the co-supervisor supervisor and the coordinator, respectively, for the support and encouragement. Your input and thoughtful suggestions have greatly enriched my work.

I extend my heartfelt appreciation to my husband, Leonard Kazembe, whose unwavering love, encouragement, and belief in my abilities have been instrumental in my success. Your patience and understanding throughout this process made all the difference, and I am truly grateful to have you by my side.

To my family, thank you for your endless support and encouragement. Your belief in me has powered my determination and has provided the foundation upon which I built this work. I treasure you all.

Finally, I would like to acknowledge my friends and colleagues who stood by me during this journey. Your company and support made the challenging moments more manageable. Thank you for being there every step of the way.

This thesis would not have been possible without all your support and encouragement. Thank you all for being an integral part of this achievement.

LIST OF ABBREVIATIONS AND ACRONYMS

COVID-19	Corona Virus Disease 2019
FGDs	Focus Group Discussions
HBM	Health Belief Model
KIs	Key Informants
MZUNIREC	Mzuzu University Research Ethical Committee
NSO	Malawi National Statistical Office
SPSS	Statistical Package for Social Sciences
T/A	Traditional Authority
WHO	World Health Organisation

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ABSTRACT

The COVID-19 pandemic triggered a global health crisis with far-reaching economic, social and psychological consequences. In response, governments and health organisations worldwide implemented preventive measures to curb the spread of the virus. However, adherence to these measures varied across populations due to factors such as individual perceptions, religious beliefs, and occupational commitments. This study specifically aimed to (i) assess individual perceptions of COVID-19 preventive measures, (ii) analyse the influence of religion on adherence, and (iii) examine the effects of occupation on adherence. A mixed-methods approach was employed, combining quantitative data from 338 survey respondents with qualitative insights gathered through eight focus group discussions and ten key informant interviews. Data was analysed using descriptive statistics, principal component analysis, and linear regression in Stata and SPSS. Findings revealed that overall adherence to COVID-19 preventive measures was moderate ($M = 1.85$, $SD = 0.54$), with 41.9% of respondents expressing neutral perceptions. Perceived susceptibility was negatively associated with adherence ($P < 0.001$), while cues to action and self-efficacy significantly enhanced compliance. Religious affiliation influenced adherence, with structured religious groups showing higher compliance than less organised groups. Occupation also played a role, as farmers demonstrated greater adherence than casual labourers, the self-employed and the unemployed. The study concludes that structured beliefs and work environments promote better adherence. It recommends enhancing risk communication to address neutral perceptions, leveraging religious structures to encourage compliance and strengthening cues to action through local leaders. Further, promoting self-efficacy, implementing occupation-specific interventions and investing in resilient community health systems are essential to improving adherence in future pandemics.

Keywords: COVID-19, adherence, perception, religion, occupation, Malawi

CHAPTER ONE: INTRODUCTION

1.1 Background

The COVID-19 pandemic, a highly contagious disease caused by the SARS-CoV-2 virus, has triggered a global health crisis with profound economic, social and psychological ramifications (Yoosefi-Lebni et al. 2021). Since its emergence in late 2019, the pandemic has presented unprecedented challenges worldwide, leading to severe human casualties and disruptions to normal life. As of early April 2023, the World Health Organization (WHO) reported 762,201,169 confirmed COVID-19 cases, and 6,893,190 deaths globally. In Africa, the numbers stood at 5,382,790 confirmed cases, and 140,682 deaths (World Health Organisation 2023). Like many other nations, these statistics reflect not only the scale of the crisis but also the varied responses and health outcomes across different regions and countries. Malawi has faced significant health and socioeconomic challenges due to the pandemic.

To mitigate the spread of the virus, WHO recommended several non-pharmaceutical interventions, including wearing face masks, frequent hand washing, maintaining physical distance, and movement restrictions to curb transmission (World Health Organisation 2020). Despite these recommendations, many populations demonstrated low or inconsistent adherence, particularly in low-resource settings. Studies across different contexts attribute this variation to a range of individual, social, and structural factors, including misinformation, financial constraints, education levels, and housing conditions (Plohl & Musil 2021). Compliance with COVID-19 guidelines is influenced by various factors at individual, societal, and institutional levels (Duplaga 2020). A critical issue in this context is understanding how social and cultural factors contribute to disparities in adherence to these measures.

Previous studies have established that socioeconomic factors such as gender, education, family size, and income level influence adherence to preventive measures (Ahmadi et al. 2022). Similarly, the quality of housing has been found to have an impact on physical distancing

behaviours and the ability to remain at home during lockdowns. Research in Iran indicates that individual factors, including personality traits, self-efficacy, knowledge levels, and misconceptions about health, significantly affect compliance with COVID-19 guidelines (Ahmadi et al. 2022). Additionally, structural and economic constraints, such as financial instability, inadequate governmental support, and socio-cultural limitations, hinder effective adherence to preventive measures (Duplaga 2020).

In Malawi, the situation is not different, the country has experienced considerable public health and socioeconomic strain due to COVID-19. However, there is limited empirical understanding of how culturally rooted factors especially religious beliefs, individual perceptions, and occupational roles shape people's willingness and ability to follow preventive measures. These dimensions are especially relevant in Malawi, where religious institutions are influential, occupational structures are largely informal, and health beliefs often intersect with traditional and spiritual worldviews. This study therefore aimed to address this knowledge gap by examining how these three sociocultural variables religion, perception and occupation influence adherence to COVID-19 preventive measures. Given the rising importance of sociocultural compliance in public health, this study fills a critical gap by exploring under-researched behavioral factors influencing pandemic response in a rural Malawian context.

1.2 Problem statement

On March 11, 2020, WHO declared COVID-19 a global pandemic (WHO 2020). Since then, Malawi has recorded 88,620 confirmed COVID-19 cases and 2,686 deaths (Ministry of Health 2023). In Karonga district, 1,552 confirmed cases and 48 deaths have been reported to date (Ministry of Health 2023). The extent to which communities adhere to COVID-19 preventive measures is influenced by political, economic, social, and cultural contexts (Ahmadi et al. 2022). Scholars have demonstrated that cultural and social values significantly impact adherence to public health guidelines during infectious disease outbreaks (Chan 2009). In

Malawi, (Mnyanga, Chirwa & Munthali 2022) emphasise the role of culture in shaping health behaviours, including adherence to disease prevention measures.

Despite the existing literature on COVID-19 compliance factors, little research has been conducted in Malawi to determine the extent to which religion, individual perception, and occupation influence adherence to preventive measures. Understanding these factors is crucial for developing effective public health strategies tailored to local contexts. Therefore, this study aims to bridge this research gap by assessing the impact of perception, religion, and occupation on adherence to COVID-19 preventive measures in Traditional Authority (T/A) Mwakaboko, Karonga district.

1.3 Study objectives

1.3.1 Main Objective

The main objective of this study is to analyse the impact of individual perception, religion, and occupation on the adoption of COVID-19 preventive measures in T/A Mwakaboko, Karonga district.

1.3.2 Specific objectives

In order to achieve the main objective, the study was guided by the following specific objectives:

1. To assess individual perceptions of COVID-19 preventive measures.
2. To analyse the influence of religion on adherence to COVID-19 preventive measures.
3. To examine the effects of individual occupation on adherence to COVID-19 preventive measures.

1.4 Research questions

1. What are individual perceptions of COVID-19 preventive measures in the area?
2. How does religion influence adherence to COVID-19 preventive measures in the area?

3. What are the effects of individual occupation on adherence to COVID-19 preventive measures?

1.5 Significance of the study

Although COVID-19 is no longer a global crisis, the findings of this study remain relevant for scientific, practical, and policy applications. The study contributes to scientific knowledge by deepening our understanding of how sociocultural factors specifically perception, religion, and occupation—affect public health compliance. These insights can be applied to other infectious diseases and future public health crises, ensuring better preparedness and response strategies.

From a practical perspective, the study offers valuable information for health professionals, community leaders, and public health educators seeking to improve adherence to health interventions. Understanding the role of individual perception and cultural factors can help tailor more effective public awareness campaigns and interventions that align with local beliefs and practices.

On a policy level, the findings can inform policymakers in designing health policies that integrate sociocultural dimensions to improve public health compliance. Lessons from COVID-19 can guide the development of frameworks for managing future pandemics, enhancing resilience in health systems, and ensuring better public cooperation with preventive health measures.

1.6 Conclusion

This chapter has provided the general introduction of the study by giving the background and problem statement. The chapter has presented the research objectives and questions, justification of the study, and research ethics followed by the researcher. The following chapter provides a synthesis of the related literature which was reviewed with regard to the study objectives.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on adherence to COVID-19 preventive measures, emphasising the role of social attributes. It critically examines how individual perceptions, religious influences, and occupational roles interpreted through the Health Belief Model (HBM) shape behavioural responses, with an emphasis on Malawi

2.2 COVID-19 pandemic

The world has been witnessing a major global humanitarian crisis due to the spread of Coronavirus Disease 2019 (COVID-19), disrupting health systems, economics and social life which has affected all aspects of life across the planet. In response, countries worldwide implemented stringent precautions and control measures to contain the outbreak. These measures included social distancing and the mandatory use of face coverings (Qattan et al. 2021; Sherman et al. 2020). However, these preventive measures alone were often insufficient to halt the spread of COVID-19. Consequently, the development and deployment of vaccines emerged as one of the most promising health intervention strategies to mitigate the spread of the virus (Yang et al. 2020).

In many low and middle-income countries, including Malawi, adherence was inconsistent, partly due to informal labour structures, densely populated settlements, and misinformation. For instance, Banda et al. (2021) found that in Malawi, people in rural and peri-urban areas often interpreted COVID-19 messages through religious or traditional lens, affecting compliance. Despite widespread global attention, few empirical studies have critically analysed how sociocultural factors shape individual adherence behaviours in African settings particularly those rooted in religious beliefs, occupation types, and subjective perceptions of risk.

2.3 The Health Belief Model (HBM)

The Health Belief Model (HBM) underpins this study as it provides a theoretical framework for understanding why individuals choose to adopt or reject preventive health measures. Developed in the 1950s by social scientists at the U.S. Public Health Service, the HBM was originally designed to examine why people fail to adopt disease prevention strategies (Marazioti et al. 2022). In the context of COVID-19, the HBM is particularly relevant as it helps explain public responses to health interventions, such as mask-wearing, social distancing, and vaccination. By analysing how individuals perceive their susceptibility to COVID-19, the severity of its impact, and the benefits and barriers associated with preventive measures, the model offers valuable insights into compliance behaviours and resistance to health recommendations. The HBM was designed to understand why people fail to adopt disease prevention strategies. (Marazioti et al. 2022)

The model comprises five key constructs. Perceived susceptibility, which refers to an individual's belief about the likelihood of contracting a disease. Those who perceive a higher risk are more likely to adopt preventive behaviours. Perceived severity describes the extent to which an individual believes that a disease will have serious health consequences. The more severe the perceived impact, the greater the motivation to take preventive action. Perceived benefits relate to the individual's belief in the effectiveness of recommended health behaviours in reducing risk or severity of illness. Perceived barriers include factors that hinder the adoption of a behaviour, such as cost, inconvenience, or scepticism. Cues to action are external prompts, such as public health campaigns or personal experiences that encourage individuals to take preventive action. Finally, self-efficacy refers to an individual's confidence in their ability to successfully adopt and maintain health behaviours. These constructs help researchers understand the factors that influence individuals' willingness to adopt preventive health measures (Marazioti et al. 2022)

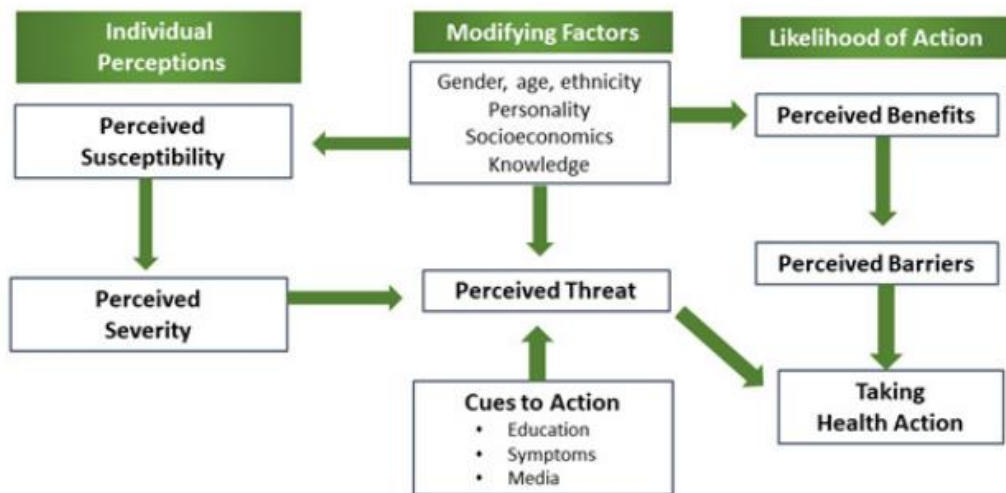


Figure 1: Health Belief Model

The HBM (Washburn 2020) in Figure 2 is a psychological framework that explains and predicts health-related behaviours by focusing on individual beliefs and perceptions. This model is structured around several key components that influence a person's decision to engage in health-promoting behaviours. The first component, Individual Perceptions, consists of two elements: perceived susceptibility and perceived severity. Together, these two perceptions contribute to the overall perceived threat of a disease, which is a key determinant of whether a person will take preventive action.

Modifying Factors influence how an individual perceives health risks and their likelihood of taking action. These factors include demographic and psychosocial variables such as gender, age, ethnicity, personality, socioeconomic status, and knowledge. These characteristics shape an individual's health beliefs and behaviours, indirectly affecting their perceived threat and influencing whether they decide to adopt preventive measures. Another important element of the model is Cues to Action, which act as triggers that encourage individuals to take health-related measures. These cues may come in different forms, such as education programs, symptoms of illness, or media campaigns. By reinforcing the perceived threat, cues to action

play a crucial role in motivating individuals to change their behaviour and adopt protective health measures.

The final component, Likelihood of Action, determines whether an individual will take a specific health-related action. This decision is influenced by the perceived benefits of taking the action, such as reducing the risk or severity of illness, as well as the perceived barriers, which may include factors like cost, inconvenience, fear, or misinformation. If an individual perceives that the benefits outweigh the barriers, they are more likely to take preventive action, such as vaccination, wearing masks, or practicing hand hygiene. (Champion & Skinner, 2008). In the context of COVID-19 preventive measures, the Health Belief Model provides a valuable framework for understanding why some individuals adhere to recommended guidelines while others do not. On one hand, those who perceive themselves as highly susceptible to the virus and believe that COVID-19 poses serious health risks are more likely to take preventive measures. Additionally, external cues such as government policies, public health campaigns, and personal experiences with illness can further reinforce adherence to these measures. On the other hand, individuals who perceive more barriers such as vaccine hesitancy, misinformation, or distrust in health authorities may be less likely to comply with preventive recommendations. (Wong et al. 2020) Overall, the Health Belief Model highlights the importance of addressing both individual perceptions and external influences to improve public health outcomes. Effective interventions should focus on enhancing perceived susceptibility and severity, reducing barriers to action, and providing strong cues to action through education and media campaigns.

2.4 The concept of culture

A review of different definitions and perspectives of culture, including its role in shaping beliefs, values, and behaviours related to health and illness, is essential. Culture can be defined

as the shared beliefs, values, customs, behaviours, and artifacts that characterise a group or society (Manrai & Manrai 2011). It is a dynamic and evolving construct that shapes not only individual and collective identities but also social structures and institutions. Cultural norms and traditions influence decision-making processes, ethical considerations, and interpersonal relationships.

As a fundamental aspect of human societies, culture determines worldviews and societal expectations, thereby playing a crucial role in shaping human behaviour across various domains, including health-related behaviour (Kagawa Singer, Dressler & George 2016). Cultural influences can be observed in dietary habits, hygiene practices, healthcare-seeking behaviour, and adherence to medical advice. Furthermore, cultural determinants impact how individuals perceive and respond to health threats, seek and utilise health information, and engage with healthcare providers and health systems (Abraído-Lanza et al. 2006). Differences in cultural perspectives may lead to variations in health behaviours and healthcare access, affecting overall health outcomes within diverse populations.

In the context of COVID-19, cultural factors significantly impact adherence to preventive measures, including mask-wearing, physical distancing, hand hygiene, and vaccination (Harper et al. 2021). Cultural beliefs, values, and practices influence perceptions of risk, attitudes toward preventive measures, and willingness to comply with public health guidelines (Jaiswal, LoSchiavo & Perlman 2020). Studies assessing the uptake of seasonal and pandemic influenza vaccines among healthcare workers found that vaccine acceptance as a preventive measure among this population is low. Various factors contribute to this behaviour, including low perceived benefits, low perceived risk of infection, fear of side effects, and concerns surrounding safety and efficacy (Rubin, Potts & Michie 2011; Arda et al. 2011). Additionally,

individualism, libertarianism, and collectivist cultures were found to influence the adoption of COVID-19 preventive guidelines (Anderson et al. 2020; Ma et al. 2020).

Culture is "the collective programming of the mind that distinguishes the members of one group or category of people from another" (Soares, Farhangmehr & Shoham 2007). In the context of health behaviour, culture influences beliefs, attitudes, and practices related to health and illness (Lonner 2018). For example, Stone (2005) highlighted that cultural beliefs about the causes of illness and the effectiveness of different treatments affect decisions about seeking medical care. Stone (2005) observation was supported by Olatunde, Ogunode and Eyiolorunse (2021) who found that cultural beliefs significantly influence the adoption of COVID-19 preventive guidelines.

In Pakistan, religious beliefs and practices affected compliance with wearing face masks and observing social distancing (Anwar, Nasrullah & Hosen 2020). Similarly, a study by Zhao et al. (2020) in Hong Kong revealed that adherence to COVID-19 preventive measures was influenced by cultural beliefs and norms. The study found that compliance with COVID-19 preventive guidelines was facilitated by cultural practices such as wearing masks in public spaces, which was already a norm before the pandemic (Anwar, Nasrullah & Hosen 2020). Contrary to these findings, Al-Hanawi et al. (2020) discovered that some people in the Kingdom of Saudi Arabia believed that COVID-19 was a punishment from God, and therefore, they saw no need to follow preventive guidelines as long as they had strong faith. Similarly, (Chiao & Blizinsky 2010) found that individualism, a cultural trait in the United States, was negatively associated with compliance with preventive measures. Furthermore, the belief in traditional healing was perceived to have a greater impact on people's health than conventional medicine, hindering the adoption rate of government COVID-19 preventive guidelines in Nigeria (Olapegba et al. 2020).

Additionally, a study conducted by Adhikari et al. (2020) in Nepal found that cultural beliefs in fatalism and a lack of trust in government authorities significantly influenced adherence to preventive measures. The study showed that individuals who believed in fatalism were less likely to take preventive measures, while those who trusted government authorities were more likely to comply with health guidelines.

In Malawi, few studies have been conducted to assess the adoption of government COVID-19 preventive guidelines. For instance, Mwakapasa et al. (2021) highlighted that cultural beliefs and practices, such as communal burial ceremonies, were barriers to adherence to COVID-19 preventive measures in some parts of the country. However, none of the studies have specifically examined the relationship between religious beliefs, individual perceptions, and occupation in adopting COVID-19 preventive guidelines. Hence, this study intends to fill this gap in the literature.

2.5 Cultural Influences on COVID-19 Preventive Measures

A comprehensive overview of the preventive measures recommended by health authorities to control the spread of COVID-19 included wearing masks, physical distancing, hand hygiene, and vaccination (WHO 2023). Studies have shown that face masks significantly reduce respiratory droplet transmission, with research indicating a 65% reduction in virus transmission when masks are consistently worn (Adhikari et al. 2020). Physical distancing has been found to lower infection rates, as demonstrated in a meta-analysis that showed a reduction of up to 85% in transmission when individuals maintain at least a one-meter distance (Chu et al. 2020). Hand hygiene, particularly frequent hand washing with soap, has been linked to a decrease in infection rates by up to 50% (Gupta et al. 2020). Vaccination remains one of the most effective tools in controlling the pandemic, reducing severe illness and hospitalisation rates by over 80%

in vaccinated populations (Polack et al. 2020). Adherence to these preventive measures is crucial in reducing virus transmission and mitigating its impact on public health.

Global health organizations, including the World Health Organization (WHO 2021), have emphasized the importance of adhering to COVID-19 preventive measures to control the spread of the virus and minimise its public health consequences. The WHO and other health agencies recommend several preventive strategies, such as wearing face masks, practicing physical distancing, frequent hand washing, and vaccination, to curb COVID-19 transmission (WHO 2021). However, adherence to these measures varies across different cultural groups due to cultural beliefs, values, and practices that shape attitudes towards health interventions (Jaiswal, LoSchiavo & Perlman 2020). A literature review on the cultural impact on adherence to COVID-19 preventive measures can draw on multiple studies, including those conducted by Smith et al. (2022) and Jaiswal, LoSchiavo and Perlman (2020).

Research in Malaysia has shown that cultural beliefs, such as "face-saving" practices and the desire to maintain social dignity, influence individuals' willingness to wear face masks (Cheng et al. 2020). Similarly, a study in Nigeria found that traditional beliefs about cleanliness and hygiene, such as the practice of bathing with hot water and using herbal remedies, affect attitudes toward hand hygiene (Anyanwu et al. 2020). The effectiveness of COVID-19 preventive measures is therefore shaped by cultural beliefs, traditions, and perceptions of health and illness (Le & Nguyen 2020). Certain cultural norms, including communal living arrangements and distrust in vaccines, may act as barriers to compliance with COVID-19 preventive measures (Le & Nguyen 2020). For example, in some societies, collective gatherings are deeply ingrained in daily life, making it challenging to enforce physical distancing guidelines. Additionally, vaccine hesitancy, often driven by misinformation, historical distrust in medical institutions, or religious beliefs, further complicates efforts to achieve widespread adherence to vaccination campaigns.

2.6 Culture and health behaviour

Culture plays a crucial role in shaping health behaviours and attitudes towards COVID-19 preventive measures. Cultural beliefs, values, and practices influence how individuals perceive health and illness and may shape their willingness to adopt preventive measures to mitigate the spread of the virus. For example, cultural norms surrounding collectivism and communal living may lead individuals to prioritise social connections and gatherings over physical distancing, while beliefs in traditional medicine may affect attitudes towards vaccination (Lau et al. 2021).

Literature review on culture and health behaviour related to COVID-19 preventive measures draws on various studies. Lau et al. (2021) discuss the impact of cultural beliefs and practices on COVID-19 prevention in Asian communities. Their study found that beliefs about the effectiveness of traditional medicine and cultural norms around socialising and mask-wearing were influential factors in adherence to COVID-19 preventive measures.

Another study by Sallam et al. (2021) examined the influence of cultural and social factors on COVID-19 vaccine acceptance in the Middle East. They found that cultural beliefs and values around the safety and efficacy of the vaccine, as well as trust in the healthcare system, played a significant role in vaccine acceptance. Literature review on culture and health behaviour in relation to COVID-19 preventive measures highlights the importance of considering cultural beliefs, values, and practices when designing and implementing public health interventions. The studies by Lau et al. (2021) and Sallam et al. (2021) provide useful insights into how culture influences health behaviour regarding COVID-19 and should be included in further research on this topic. Culture significantly influences health behaviours, including adherence to COVID-19 preventive measures. The beliefs, values, and practices of a community shape attitudes and behaviours towards health-related issues, including their willingness to follow recommended COVID-19 preventive measures. For instance, cultural beliefs about the causes of disease, its severity, and treatment options can impact adherence to preventive measures

such as wearing masks, maintaining physical distancing, and practising hand hygiene. Several studies have explored the role of culture in shaping health behaviours related to COVID-19. For example, a study by Hagger et al. (2020) found that cultural beliefs about individualism and collectivism were associated with differences in attitudes towards COVID-19 preventive measures. Similarly, research by Yang et al. (2022), demonstrated that cultural values, such as trust in the government and collectivism, were associated with higher levels of adherence to preventive measures.

Culture plays an essential role in shaping health behaviours and attitudes towards health issues, including adherence to COVID-19 preventive measures. Health behaviours are often influenced by cultural beliefs, values, and practices that vary across different communities and regions. Therefore, understanding the cultural context of a community is critical for designing effective health interventions and promoting behaviour change (Alvarado-Ramy et al. 2015).

In the context of COVID-19, several studies have highlighted the impact of culture on health behaviour and adherence to preventive measures. For example, a study by Yang et al. (2022) found that cultural beliefs and values influenced the adoption of COVID-19 preventive measures among Chinese immigrants in the United States. The study revealed that collectivist cultural values, such as prioritising the well-being of the group over the individual, promoted adherence to preventive measures. Similarly, a study by Moccia et al. (2021), found that cultural beliefs and values influenced adherence to COVID-19 preventive measures among Italians. The study determined that cultural practices, such as socialising and family gatherings, were significant barriers to adherence to physical distancing guidelines and other preventive measures.

A literature review on culture and health behaviour in the context of COVID-19 preventive measures can also incorporate studies that examine the broader impact of cultural values and

practices on health behaviours. For example, research by Hodge et al. (2020) highlights the role of cultural values and beliefs in shaping attitudes towards vaccinations.

Culture plays a significant role in shaping health behaviours, including adherence to COVID-19 preventive measures. The beliefs, values, and practices of a culture impact attitudes and behaviours towards health and illness, as well as the willingness to adopt recommended preventive measures. For instance, a study by Alsan et al. (2021) found that individuals from collectivistic cultures were more likely to wear masks in public and engage in physical distancing compared to those from individualistic cultures. Similarly, research by Aboraya et al. (2021) suggests that cultural beliefs about illness causation and treatment impact adherence to COVID-19 preventive measures, particularly in marginalised communities. Moreover, cultural practices such as communal living, religious gatherings, and food-sharing may pose challenges to the adoption of preventive measures such as physical distancing and wearing masks (Khubchandani, Saiki & Kandiah 2020). Addressing these cultural factors through targeted public health interventions and culturally sensitive communication strategies is essential to improving adherence to COVID-19 preventive measures and ensuring the effectiveness of health policies in diverse communities. Despite the extensive research on the role of culture in shaping health behaviours and attitudes towards COVID-19 preventive measures, there remains a gap in understanding how specific cultural subgroups respond differently to public health interventions. Most existing studies focus on broad cultural categories, neglecting intra-cultural variations in adherence to preventive measures. Additionally, limited research has examined how cultural influences interact with socio-economic factors to determine compliance with COVID-19 guidelines. Future studies should explore how tailored interventions that respect cultural diversity can enhance adherence and mitigate disparities in public health outcomes.

2.7 Interventions to promote adherence to COVID-19 preventive measures

A review of various interventions has been conducted to assess their effectiveness in promoting adherence to COVID-19 preventive measures. These interventions include educational campaigns, social marketing, and community engagement strategies, which have been implemented worldwide with varying levels of success.

Educational campaigns aim to enhance public knowledge and awareness of COVID-19 and its preventive measures through multiple communication channels, including mass media, social media, and community outreach programmes. By providing clear, evidence-based information, these campaigns seek to encourage individuals to adopt protective behaviours (Hossain 2021)

Social marketing strategies apply commercial marketing techniques to influence health behaviours, often targeting specific demographics, such as young people or high-risk populations. These strategies utilise tools such as digital advertisements, social media platforms, and endorsements by public figures to enhance engagement and promote adherence to preventive measures (Goh et al. 2020). Community engagement strategies focus on collaborative efforts with community members to ensure interventions are culturally appropriate and aligned with local contexts. Such strategies may involve community-led education programmes, peer support groups, and community-based monitoring and enforcement of preventive measures. Engaging trusted local figures, such as religious and community leaders, has proven to be effective in fostering compliance with public health measures (Lau et al. 2021).

A literature review on interventions to promote adherence to COVID-19 preventive measures includes studies by Hossain (2021), Goh et al. (2020) and Lau et al. (2021), which highlight the diverse approaches taken to encourage preventive behaviours. These studies demonstrate that a combination of educational campaigns, social marketing, and community engagement

strategies can effectively promote adherence. For instance, Lau et al. (2021) found that educational campaigns played a crucial role in disseminating information about COVID-19 preventive measures and influencing behavioural change. Similarly, Lau et al. (2021) observed that social marketing efforts, including the use of social media influencers and celebrity endorsements, were instrumental in increasing compliance with health guidelines. Additionally, Du et al. (2020) reported that engaging community leaders in designing and implementing health interventions significantly improved adherence to preventive measures.

While numerous interventions have been implemented to promote adherence to COVID-19 preventive measures, there is limited research on the long-term effectiveness of these strategies across different cultural and socio-economic contexts. Most studies focus on short-term behavioural changes, with little emphasis on sustained adherence over time. Additionally, there is a need for more research on how integrating multiple intervention strategies such as combining educational campaigns with community engagement can enhance their overall impact. Future studies should explore how interventions can be tailored to specific cultural contexts to maximise their effectiveness and ensure equitable access to preventive measures.

(Yıldırım & Güler 2022)

2.8 Implications for policy and practice:

Mwendera et al. (2025) highlight the crucial role of culture in shaping attitudes and behaviours related to COVID-19 preventive measures. Cultural beliefs, values, and practices significantly influence how individuals perceive and respond to these measures. Therefore, interventions and strategies should be designed to account for the cultural context in which they are implemented. Another important implication is the role of community engagement in promoting adherence to COVID-19 preventive measures. Community-based interventions involving community leaders and organisations can be effective in increasing awareness and

encouraging the adoption of these measures (Mwendera et al. 2025). Ensuring local ownership of interventions enhances their effectiveness and sustainability.

The literature review also informs policy and practice by highlighting the need for targeted interventions for specific populations. Certain cultural or ethnic groups may have unique beliefs and practices that affect their adherence to COVID-19 preventive measures. Interventions should be tailored to address these differences and meet the needs of diverse populations (Hossain 2021). Based on the findings of the literature review, policymakers and practitioners should develop culturally sensitive interventions. For example, educational campaigns should be designed to consider language, literacy levels, and preferred communication channels (WHO 2020). Social marketing interventions should integrate culturally relevant messaging and imagery that resonates with target populations (Rundle, Husayn & Dellavalle 2020). Community engagement strategies should include trusted community leaders and organisations to overcome cultural barriers and increase the perceived importance and relevance of preventive measures (Reuben et al. 2021). Establishing partnerships with religious institutions, local influencers, and community-based organisations can further enhance trust and cooperation.

The literature review also has implications for policies related to the implementation of COVID-19 preventive measures. Specific cultural practices, such as large family gatherings or religious ceremonies, may challenge adherence to preventive guidelines. Policymakers must balance the need to respect cultural traditions with the imperative to prevent virus transmission (Khubchandani, Saiki & Kandiah 2020).

Despite existing research on the role of culture in shaping attitudes and behaviours towards COVID-19 preventive measures, gaps remain in understanding the effectiveness of culturally tailored interventions. Many studies focus on broad cultural categories, often overlooking

variations within communities. Additionally, there is limited research on the long-term impact of cultural adaptation strategies on sustained behavioural change.

2.9 Interventions and strategies to promote adherence to COVID-19 preventive measures

Various strategies have been employed to promote adherence to COVID-19 preventive measures. The literature identifies several key approaches, including educational campaigns, social marketing, and community engagement strategies. Educational campaigns, social marketing, and community engagement strategies have been widely used to increase awareness and encourage compliance with COVID-19 preventive measures (Lau et al. 2020; Wong et al. 2020). A study conducted in India found that social marketing strategies, such as celebrity endorsements and messaging via social media platforms, were effective in promoting adherence to COVID-19 preventive measures (Bhagat et al. 2020).

Another strategy involves tailoring interventions to specific cultural contexts. Cultural beliefs, values, and practices influence attitudes and behaviours related to COVID-19 preventive measures; therefore, interventions must be adapted accordingly (Sharifian-Dorche et al. 2021; Nguyen et al. 2020).

Culturally sensitive communication is critical. Communication strategies should align with the cultural beliefs, values, and practices of the target population. This can be achieved by involving community leaders, cultural brokers, and other stakeholders who understand the cultural context and can facilitate better engagement between healthcare providers and the community (Sarkar *et al.* 2020). Educational campaigns aimed at improving knowledge about COVID-19 and preventive measures should be tailored to the cultural context of the target population. These campaigns can be disseminated through community-based educational programmes, radio and television broadcasts, and other outreach activities (Mukhtar et al. 2020).

Educational campaigns have been effective in promoting adherence to COVID-19 preventive measures through various communication channels, including mass media, social media, and community-based initiatives. These campaigns highlight the importance of wearing masks, maintaining social distancing, and practising hand hygiene (Bin Nafisah et al. 2021; Hagger et al. 2020). In Nigeria, a study found that educational campaigns using mass media, such as radio and television, as well as community health workers, improved knowledge and adherence to COVID-19 preventive measures (Okereke et al. 2021).

Community engagement strategies have also played a crucial role in promoting adherence to COVID-19 preventive measures. These strategies involve working with community leaders and members to promote behaviour change. Community engagement may include community-based educational campaigns, social support programmes, and mobilisation efforts (Abdullah 2020). Such strategies have been particularly effective in underserved communities (Abdullah 2020; Okereke et al. 2021). Additionally engaging community leaders and organisations in disseminating information and implementing prevention measures has proven to be an effective approach (Asante & Mills 2020). Strengthening community engagement is essential. Community-based organisations, faith-based groups, and other local stakeholders can be instrumental in promoting adherence to COVID-19 preventive measures (Islam et al. 2020).

Social media platforms, such as Facebook, Twitter, and WhatsApp, have also been effective in disseminating information and promoting adherence to COVID-19 preventive measures. Health authorities can leverage these platforms to provide real-time updates, respond to public inquiries, and address misinformation (Fung et al. 2020). Social marketing is another widely used strategy to promote adherence to COVID-19 preventive measures. Social marketing employs commercial marketing techniques to encourage behavioural change and has been used to promote a wide range of health behaviours (Das et al. 2020). Campaigns often use relatable messages and imagery to engage the target audience effectively. For instance, a social

marketing campaign aimed at young adults may use social media influencers to encourage adherence to preventive measures (Nguyen et al. 2020). Ensuring access to preventive measures is crucial. Governments and other stakeholders must guarantee the availability and affordability of essential items such as face masks, hand sanitiser, and soap, particularly in low-income communities (Nagata et al. 2022).

Finally, policy and practice can benefit from identifying and implementing the most effective interventions and strategies for promoting adherence to COVID-19 preventive measures. Educational campaigns, social marketing, and community engagement strategies have demonstrated their efficacy in encouraging compliance. Therefore, policies and interventions should be designed to integrate these strategies to maximise adherence. Additional strategies include providing affordable personal protective equipment, ensuring that preventive measures are practical and acceptable, and offering incentives to encourage adherence (Htun et al. 2021; Gollwitzer et al. 2020; Lunn et al. 2020).

Despite the broad implementation of interventions to promote adherence to COVID-19 preventive measures, there remain significant gaps in understanding their long-term effectiveness. Most studies focus on short-term behavioural change, with limited research on sustained adherence over time. Additionally, while many interventions account for cultural differences at a macro level, there is a lack of research examining how interventions can be further localised to address specific community-level variations in beliefs and practices. Future studies should explore the integration of tailored interventions that address both cultural and socio-economic barriers to adherence, ensuring sustained compliance with public health measures.

2.10 Conceptual framework of the study

The conceptual framework shown in Figure 3 illustrates the interaction between independent and dependent variables in shaping individuals' responses to COVID-19. The independent variables perceived susceptibility, religious belief, and individual occupation directly influence the perceived threat to COVID-19, which acts as a mediating variable. Perceived susceptibility, shaped by faith in curative medicine and the belief that others are more vulnerable, affects how personally at-risk individuals feel. Religious beliefs, influenced by different teachings, may either reinforce or undermine the perceived threat, impacting willingness to adopt preventive behaviours. Additionally, individual occupation determines exposure risk, with high-contact jobs likely increasing the perceived threat. These factors collectively shape the perceived threat to COVID-19, which in turn influences the dependent variable the adoption of COVID-19 preventive measures such as mask-wearing, hand washing, and social distancing. A higher perceived threat leads to greater adherence to preventive measures, while a lower perceived threat may result in reduced compliance. This framework highlights the complex relationship between social, psychological, and occupational factors in determining health-related behaviours.

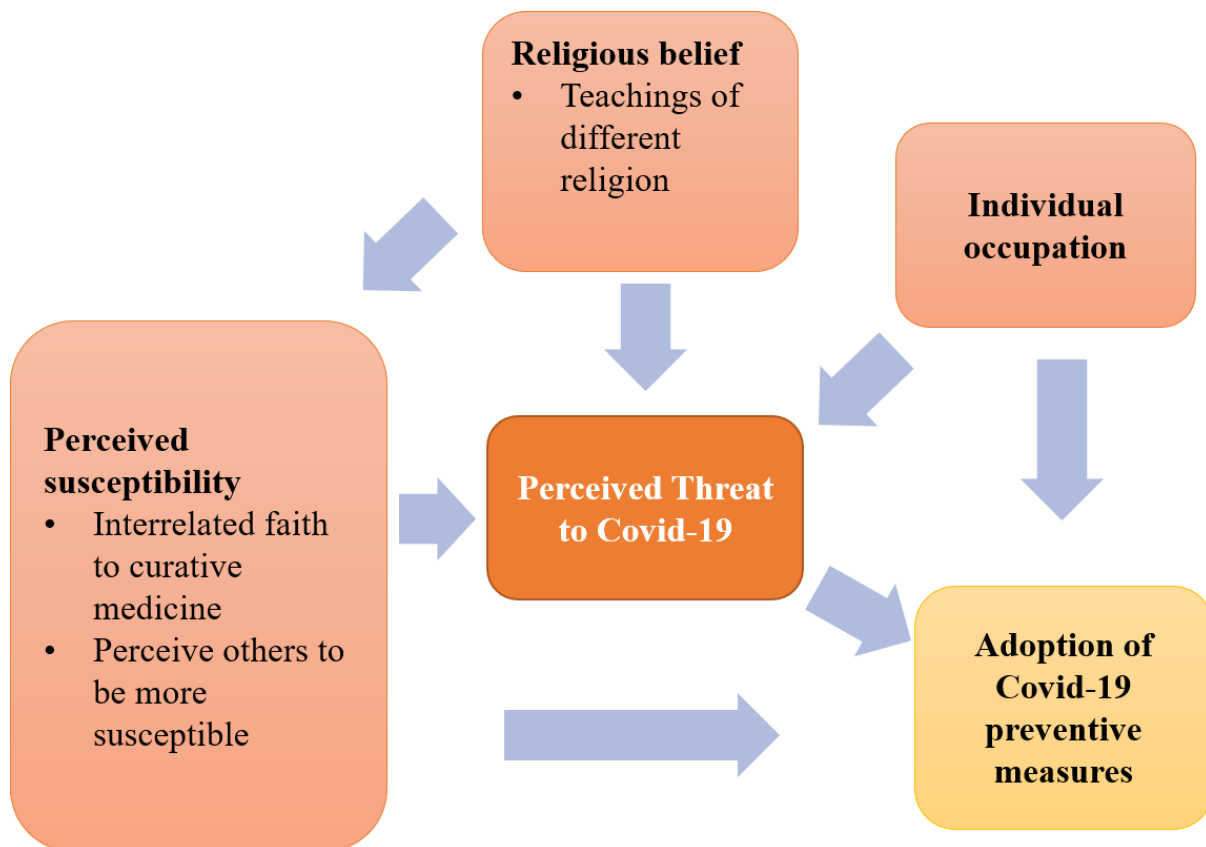


Figure 2:The Conceptual Framework

2.11 Conclusion

This chapter has discussed the review of related literature of landmark studies on the interface between adherence to COVID-19 measures and social attributes or dictates. The chapter also discussed the theories and conceptual framework anchoring this study. The following chapter presents the study methodology followed to come up with the findings of this study.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter presents the study site, research design, sampling techniques, data collection techniques and data analysis methods.

3.1 Research approach and design

The pragmatism research paradigm is a philosophical approach that emphasises practical solutions, problem-solving, and real-world applicability rather than adhering to a single methodological perspective. It recognises the value of both qualitative and quantitative methods, prioritising the most effective tools for addressing research questions. This study was anchored in the pragmatism research paradigm, which emphasises practical, outcome-oriented inquiry and supports the use of methods best suited to answering the research questions (Morgan & Morgan 2014). Pragmatism was applied to examine real-world challenges related to adherence to COVID-19 preventive measures, aiming to generate actionable insights and policy recommendations based on empirical data. By focusing on factors such as perceived susceptibility, religious beliefs, and occupational risks, the study sought to understand how these elements influence individuals' perceptions of COVID-19 threats and their willingness to adopt preventive behaviours. To operationalise this approach, the study employed a quantitative research method, enabling the collection and analysis of measurable data on public adherence to health protocols. This facilitated evidence-based conclusions and informed policy recommendations for real-world implementation. Ultimately, the pragmatism paradigm provided the flexibility and practicality needed to address the research problem effectively, ensuring that findings were not only theoretically relevant but also practically applicable in guiding health interventions and policymaking.

This study adopted a mixed methods research design of both quantitative and qualitative approaches to provide a comprehensive understanding of adherence to COVID-19 preventive

measures. Quantitative data were collected through a cross-sectional survey to capture measurable patterns and prevalence of behaviours. To complement and triangulate these findings, qualitative data were gathered through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). The integration of these methods allowed the study not only to measure adherence levels statistically but also to explore the underlying social, cultural, and psychological factors influencing behaviour. This triangulation strengthened the validity and depth of the findings, ensuring that policy recommendations are grounded in both empirical evidence and contextual understanding.

3.2 Study area

Traditional Authority (TA) Mwakaboko is located in Karonga District, in the northern region of Malawi, bordering Tanzania. The area is known for its diverse cultural and ethnic composition, primarily consisting of the Tumbuka and Ngonde people. The district has a total population of 365,028, with Mwakaboko being one of the least populated areas, having 24,889 residents (NSO 2018). The community follows a predominantly patrilineal system, with traditional customs including music, dance, folklore, and indigenous food practices. Christianity is the dominant religion (87.2%), followed by Islam (1.4%) and other traditional beliefs. Economically, Mwakaboko is dependent on small-scale agriculture, fishing, and cross-border trade with Tanzania (Munthali et al. 2017). The local economy also includes informal economic activities such as small businesses, village savings and loan groups, and cooperatives, particularly in agriculture and trade. Gender disparities persist in the region, with 60% of households being male-headed and women facing challenges in accessing financial resources and decision-making roles.

During the COVID-19 pandemic, adherence to preventive measures in Karonga, including Mwakaboko, was influenced by socio-economic and cultural factors. Being a border area, the district faced increased risk due to cross-border movements. Challenges included

misinformation, limited healthcare access, and economic hardships that made compliance with lockdowns and other restrictions difficult. Community-based organisations and health officials played a role in awareness campaigns and interventions to promote preventive measures. Despite these efforts, economic constraints and cultural beliefs about disease and medicine influenced public perceptions and behaviours toward COVID-19 management.

The COVID-19 management dynamics in Tanzania further complicated the situation at the Malawi-Tanzania border, including in Mwakaboko. Unlike Malawi, Tanzania initially adopted a controversial approach, with minimal restrictions and an emphasis on maintaining economic activities without lockdowns. The lack of stringent preventive measures in Tanzania, including limited testing and reporting, resulted in discrepancies in cross-border public health strategies. This led to challenges in enforcing COVID-19 protocols at border posts, with frequent movement of traders, truck drivers, and residents who often bypassed official entry points. Differences in health messaging and risk perception between the two countries created confusion and inconsistencies in COVID-19 response efforts. Additionally, economic dependency on cross-border trade made it difficult for residents to comply with preventive measures, as livelihoods were tied to daily movements across the border. These complexities hindered effective containment of the virus in Mwakaboko, demonstrating the impact of regional policy differences on pandemic management in border communities.

In terms of COVID-19 cases, Karonga District recorded a significant number of infections due to its status as a transit and border region, with over 1,200 confirmed cases reported during the peak of the pandemic (WHO 2021). The district experienced outbreaks related to cross-border movements, market interactions, and communal gatherings. While official records for T/A Mwakaboko are limited, its location near the border made it vulnerable to COVID-19 transmissions from Tanzania. Health facilities in the district struggled with limited resources, including testing kits, medical personnel, and isolation centres (Ministry of Health Malawi

2021). The district hospital and health centres, including those in Mwakaboko, played a critical role in providing testing and treatment, though challenges such as misinformation, vaccine hesitancy, and economic constraints persisted throughout the pandemic response.

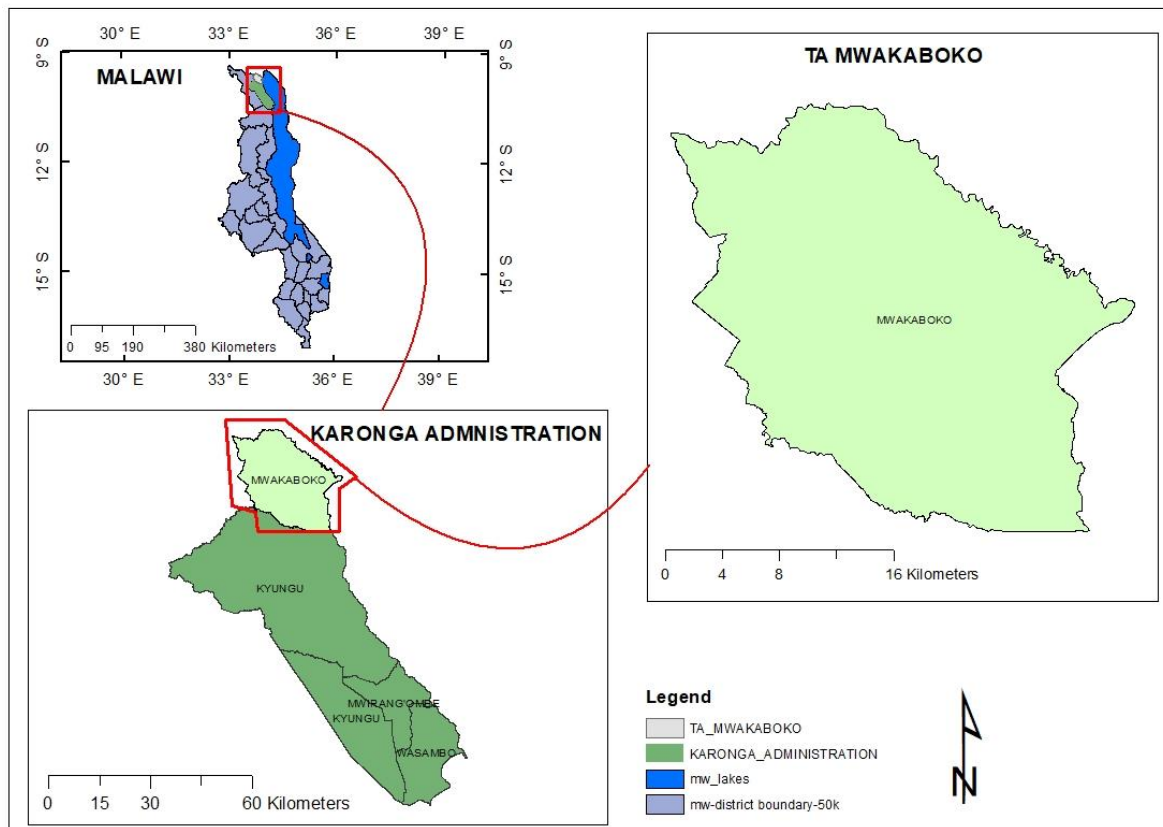


Figure 3:Map of the Traditional Authority Mwakaboko in Karonga District

3.3 Study population

The study population according to the National Statistical Office (NSO 2018) is that the total population of T/A Mwakaboko was 24,889 during the collection of 2018's census data.

For this study, the target population consists of individuals aged 15 years and above. This age criterion was established based on the assumption that individuals below 15 years of age may lack the cognitive capacity to fully comprehend and engage with COVID-19-related

information. By focusing on this age group, the study aims to obtain more reliable insights into perceptions, knowledge, and behavioural responses to COVID-19 preventive measures within the community.

3.4 Sampling methods and sample size

To calculate the sample size of the study respondents, the sampling formula provided by Yamene (1969) was used since the population size in the study area was known. According to NSO (2018), T/A Mwakaboko had a population of 24,889 people.

$$n = \frac{N}{1+N(e)^2} = \frac{24889}{1+(24889 \times (0.05)^2)} = 394$$

Where: n = sample size, p = population size, and e = precision level of $\pm 5\%$. Punching the figures into the formula, the sample size was 394. However, 338 individuals participated in the survey representing 85.8 % response rate. The study used simple random sampling to select the study respondents in the study area.

3.5. Data collection methods

The study employed three primary data collection methods to gather information from respondents, a survey, Key Informant Interviews (KIIs), and Focus Group Discussions (FGDs) (Gill et al. 2008). These methods were chosen to ensure a comprehensive understanding of COVID-19 perceptions and adherence to preventive measures in T/A Mwakaboko, Karonga.

3.5.1 Survey

The personal interviews using a semi-structured questionnaire served as the primary method for collecting quantitative data. These interviews were conducted face-to-face with individuals aged 15 and above to ensure clarity in responses and minimise errors. The questionnaire was digitised using Kobo Toolbox and administered via computer tablets, improving efficiency and accuracy in data collection. Pilot study was done before the commencement of data collection

process with 15 respondents. Key variables measured included demographic characteristics such as age, gender, marital status, education level, occupation, and religious affiliation. Additionally, the questionnaire assessed perceptions of COVID-19 preventive measures using the Health Belief Model (HBM), evaluating perceived susceptibility, severity, barriers, benefits, and self-efficacy. Another key aspect of the questionnaire was adherence to COVID-19 preventive measures, focusing on behaviours such as mask-wearing, handwashing, and social distancing. Other variables measured included the perceived cost versus benefit of preventive measures, awareness and knowledge of COVID-19, and sources of information influencing public perception.

3.5.2 Key Informant Interviews (KIIs)

The Key Informant Interviews (KIIs) were conducted with 10 selected individuals holding expertise or leadership roles in the community, such as health officials, religious leaders, and local authorities. These interviews aimed to collect qualitative data on community-level challenges, policy implementation, and the effectiveness of COVID-19 response measures. The variables assessed included community perceptions of COVID-19, challenges faced by health officials and government agencies in enforcing preventive measures, and the influence of religious beliefs and cultural practices on compliance. Additionally, key informants provided insights into the economic impact of COVID-19 restrictions and the effectiveness of government and NGOs interventions in raising awareness and promoting adherence to preventive measures.

3.5.3 Focus Group Discussions (FGDs)

The Focus Group Discussions (FGDs) involved three groups of 6-10 participants each, providing an interactive platform for discussing COVID-19 perceptions, preventive behaviours, and social influences. These discussions allowed for a deeper exploration of topics beyond the scope of structured interviews. The variables measured included community

knowledge and misconceptions about COVID-19, social influences affecting compliance with preventive measures, and economic and practical barriers to adherence, such as the affordability of masks and access to sanitation facilities. The discussions also explored the role of religious and cultural beliefs in shaping COVID-19 responses and the perceived effectiveness of government health campaigns in reaching different segments of the community.

3.6 Data analysis

The study employed descriptive statistics, Principal Component Analysis (PCA), multiple linear regression, and thematic analysis to examine factors influencing adherence to COVID-19 preventive measures. Descriptive statistics summarised demographic characteristics and key study variables through frequencies, percentages, and cross-tabulations, while PCA was applied to extract key factors influencing perceptions using the Health Belief Model (HBM). Multiple linear regression analysed the relationship between adherence and six HBM components, identifying significant predictors of compliance. Thematic analysis of Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs) provided qualitative insights into community perceptions and challenges, complementing the quantitative findings for a holistic interpretation.

3.6.1 Descriptive Analysis

Descriptive statistics were used to summarise the demographic characteristics and key study variables. Measures such as frequencies, percentages, and cross-tabulations were conducted to identify patterns and trends in respondents' perceptions and behaviours related to COVID-19 preventive measures. The results were presented in tables and charts to provide a clear and visual representation of the data. This step was crucial in understanding the general distribution and relationships between different variables before applying advanced statistical models.

3.6.2 Principal Component Analysis (PCA)

Principal Component Analysis (PCA) was applied using the six components of the Health Belief Model (HBM) to assess individual perceptions of COVID-19 preventive measures. PCA is a dimensionality reduction technique that simplifies complex datasets by transforming original variables into uncorrelated principal components while retaining the majority of the data's variance (Jackson 1991; Jolliffe 2011; Hastie et al. 2013). This method was used to extract key factors that contribute to how individuals perceive the risk, severity, and effectiveness of COVID-19 preventive measures. By applying PCA in Stata 17, the study was able to identify patterns in perceptions and group respondents based on their attitudes towards COVID-19 prevention.

3.6.3 Multiple Linear Regression Analysis

To determine the factors influencing adherence to COVID-19 preventive measures, a Multiple Linear Regression Model was applied. Multiple regression is a statistical technique that predicts the value of a dependent variable (Y) based on multiple independent variables (Keith 2015). In this study, adherence to COVID-19 preventive measures (mean scores) was modelled as a function of the six Health Belief Model components, as represented in Equation (1):

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e$$

Y=adherence to COVID-19 preventive measures, X_1 =perceived susceptibility, X_2 =perceived severity, X_3 =perceived barriers, X_4 =perceived benefits, X_5 =cues to action, X_6 =perceived self-efficacy, e = Error term; β_0 = Intercept (Constant term); $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, and β_6 are coefficients of variables.

3.6.4 Qualitative data analysis

All qualitative data from Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), was thematically analysed. Responses were transcribed, coded, and analysed to

identify recurring themes related to perceptions of COVID-19, challenges in adherence, and social and cultural influences. The findings from the qualitative analysis were used to complement and contextualise the quantitative results, ensuring a holistic interpretation of the data.

3.7 Method matrix

Table 1: Methodology matrix

Specific objectives	Variables	Data collection tools	Data Analysis
1. To assess individual perception on COVID-19 preventive measures.	• Perceived threat to sickness • Perceived severity • Perceived benefit • Self-efficacy • Poor family health • Media exposure • Knowledge • Personal health status	• Semi-structured questionnaire	Descriptive statistics • Frequencies • Likert scale
2. To assess the influence of religion on Covid 19 preventive measures adherence.	• Muslims • Christians • Vaccination • Wearing mask • Handwashing with soap	• Structured questionnaire	• Logistic regression

	• Social distancing		
3. To determine the effects of individual occupation on adherence to Covid-19 preventive measures	• Occupation • Vaccination • Non-adherence to Covid-19 regulations • Wearing mask • Handwashing with soap • Social distancing	• Structured questionnaire • Key informant interviews	• Descriptive statistics • Thematic analysis

3.8 Study limitation

This study used a small sample which the researcher feels is a limitation as it might limit generalisation of the findings to the whole country of Malawi. Finances as well are envisaged as a limitation as the researcher does not have any funding for the study. Another limitation was lack of prior research studies on the topic in Malawi as the topic on COVID-19 is recent. This had an effect on the study.

3.9 Ethical considerations

The study was approved by the Mzuzu University Research Ethical Committee (MZUNIREC) before commencement of the data collection process. Permission to conduct the study in the study area was sought from the Traditional Authority (T/A) and respective village heads. Informed consent was also obtained from all respondents. The respondents were informed of their rights and that participation in the study was voluntary and that the proceedings including the findings are confidential.

Participants' agreement to participate in this study was obtained only after a thorough explanation of the research process. On the same note, as regards voluntary participation, informed consent, and harmlessness, the researcher explained to study participants that their participation in the study was voluntary and that they had the freedom to withdraw from the study at any time without any unfavorable consequences, and that they would not be harmed as a result of their participation or non-participation in the study.

The anonymity and confidentiality of the participants was preserved by not revealing their names and identities in the data collection, analysis, and reporting of the study findings. Privacy and confidentiality of the interview environment were managed carefully during interview sessions, data analysis, and dissemination of the findings.

3.10 Conclusion

This chapter has presented the study area, research design and paradigm, sampling procedures and sample size. The chapter has presented the data collection methods and tools, and data analysis techniques used to analyse the data. The subsequent chapter presents the findings of the study.

CHAPTER FOUR: RESULTS

4.0 Introduction

This chapter presents the findings of this study. It begins by presenting the characteristics of the study respondents, followed by the findings for each objective.

4.1 Socio-demographic characteristics of the respondents

The results in Table 4.1 show that the study participants consisted of 55.6% females and 44.4% males. The majority (71.6%) were married, indicating a population largely within family unity. In terms of education, most respondents, 63.9% had attained primary school education, while a small proportion, 2.7%, had tertiary education. The predominant occupation in the study area was farming, with 76.6% of respondents engaged in agricultural activities

Table 2 : Socio-demographic characteristics of the respondents

	Frequency	Percentage
Sex		
Female	188	55.6
Male	150	44.4
Marital status		
Married	242	71.6
Divorced/Separated	33	9.8
Widowed	36	10.7
Single	27	8.0
Education level		

Never Attended	23	6.8
Primary	216	63.9
Secondary	90	26.6
Tertiary	9	2.7
Occupation		
Farmer	259	76.6
Business Operator	19	5.6
Casual Labour	18	5.3
Self-employed	10	3.0
Formal Employment	8	2.4
Skilled Employment	8	2.4
School-going	5	1.5
Not Employed	11	3.3
Total	338	100

The results in Figure 4 present the religious affiliation, the study findings showed that 22.5% of respondents were affiliated with the Catholic Church, followed by 10.1% Seventh-day Adventists, while 9.5% were affiliated with Pentecostal churches. The mean age of respondents was 38.8 year. The average monthly income of the respondents was MK 68,646.47, with a minimum of MK 5,000 and a maximum of MK 2,000,000.

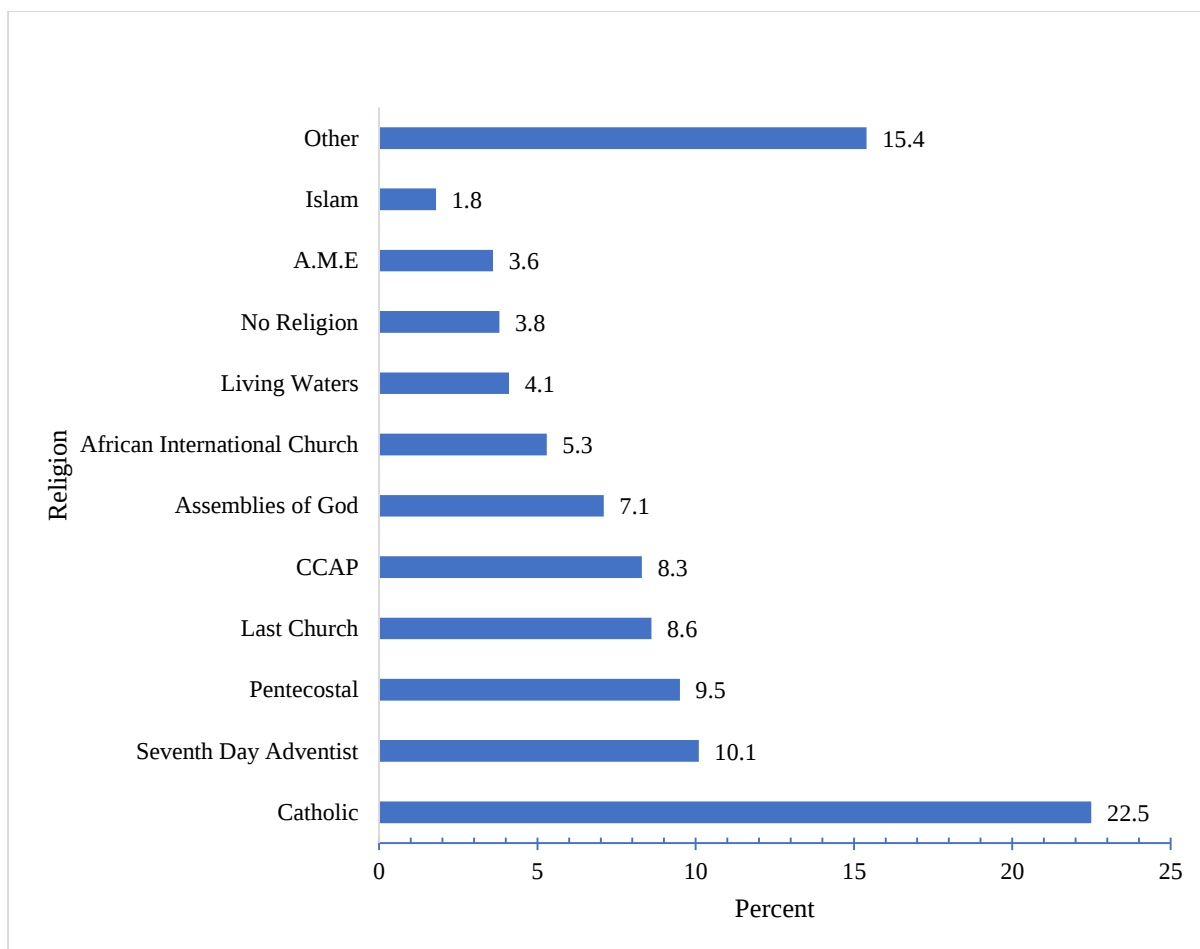


Figure 4: Respondents' Religion

4.2 Perception on COVID 19 preventive measures

4.2.1 Individual perception of COVID-19 preventive measures

The study findings indicate that the majority of respondents had a neutral perception towards COVID-19 preventive measures with a mean perception score of 41.9%. and a 95 % confidence interval ranging from 39.74 % to 44.13%. this score, based on the Health Belief Model (HBM) reflects moderate towards practices such as wearing masks, handwashing, social distancing, and vaccination.

Table 3: Overall perception on COVID 19 preventive measures

	Mean	Std. err.	[95% conf. interval]
Overall perception	41.93787	1.116898	(39.7409 , 44.13484)

The results presented in Table 4.3 provide insights into individual perceptions of COVID-19 preventive measures based on responses to 22 specific items. The findings indicate that respondents generally recognised the importance of preventive measures, as reflected in their agreement with statements that support protective behaviours and their disagreement with misconceptions regarding COVID-19 transmission and severity.

Agreement with Preventive Measures

A strong consensus was observed among respondents regarding the effectiveness of preventive measures. For instance, respondents agreed that avoiding crowded places can prevent COVID-19 (M=4.11, S.D.=0.694), suggesting that they understood the role of social distancing in reducing the transmission of the virus. Additionally, respondents acknowledged the serious consequences of COVID-19 infection (M=3.98, S.D.=0.594) and its major impact on life (M=3.93, S.D.=0.565). However, perception of personal risk was more varied. The item "I live in an environment where I can be exposed to COVID-19" had a moderate mean of **3.15 (SD = 1.03)**, while self-perceived susceptibility was relatively low, e.g., "I am in good health... I cannot get infected" (M = 2.34, SD = 0.86

Disagreement with COVID-19 Misconceptions

Respondents strongly disagreed with misconceptions that undermine preventive efforts. For example, the statement that "COVID-19 is not a deadly disease, and there is no need for preventive measures" received the lowest mean score (M=1.75, S.D.=0.697), indicating that respondents understood the necessity of preventive actions. Additionally, there was

disagreement with statements claiming that covering the nose and mouth while coughing (M=2.19, S.D.=0.843), avoiding touching the face (M=2.18, S.D.=0.809), and wearing face masks (M=2.22, S.D.=0.704) do not prevent COVID-19.

Perception of Personal Risk and Knowledge Gaps

While respondents acknowledged the risks associated with COVID-19, some findings indicate potential gaps in knowledge or personal risk assessment. For instance, when asked whether they live in an environment where they could be exposed to COVID-19, the mean response was moderate (M=3.15, S.D.=1.025), suggesting variability in perceived susceptibility. Additionally, self-reported knowledge about COVID-19 showed mixed results, with responses indicating moderate familiarity (M=3.00, S.D.=1.096) but lower confidence in knowing more than others (M=2.33, S.D.=0.832).

A notable misconception was that "Asymptomatic persons with COVID-19 cannot transmit the virus" (M=2.28, S.D.=0.933), which suggests that some respondents may not fully understand the role of asymptomatic carriers in spreading the disease. Similarly, the belief that "I am in good health compared to other people; therefore, I cannot get infected with COVID-19" (M=2.34, S.D.=0.858) highlights a potential false sense of immunity among some individuals.

Table 4: Individual perception on COVID 19 preventive measures

No	Question	Mean	Std. Deviation
1	Covering the nose and mouth while coughing cannot prevent COVID-19.	2.19	.843
2	Avoiding touching of the eyes, nose, and mouth cannot prevent COVID-19.	2.18	.809
3	Avoiding crowdedness in public places can prevent COVID-19.	4.11	.694
4	COVID-19 can be transmitted among adolescents and young adults.	3.51	1.146
5	Asymptomatic person with COVID-19 cannot transmit the virus.	2.28	.933
6	COVID-19 cannot be transmitted by touching droplets on surface or objects.	3.46	.974
7	COVID-19 cannot be transmitted via droplets from the nose or mouth	2.07	.744
8	Wearing of face marks cannot prevent COVID-19.	2.22	.704
9	Washing hand with soap or alcohol-based hand sanitiser cannot prevent COVID-19.	2.21	.724
10	Observing social distance cannot prevent COVID-19.	2.12	.674
11	No need for preventive measures; COVID-19 is not deadly	1.75	.697

12	I live in an environment where I can be exposed to the COVID-19 infection	3.15	1.025
13	Diseases caused by the COVID-19 infection have very serious consequences.	3.98	.594
14	Diseases caused by the COVID-19 infection will have a major impact on my life.	3.93	.565
15	Excessive efforts are being made to comply with actions for COVID-19 prevention.	3.62	.774
16	There are many obstacles to complying with actions for COVID-19 prevention.	3.75	.802
17	The benefits outweigh the costs of complying with actions for COVID-19 prevention.	3.47	.848
18	The benefits outweigh the inconvenience of following actions for COVID-19 prevention.	3.47	.827
19	I have enough ability to take actions for COVID-19 prevention.	3.08	1.180
10	I am familiar with the COVID-19 infection.	3.00	1.096
21	I know more about COVID-19 than others.	2.33	.832
22	I am in good health compared to other people; therefore, I cannot get infected with COVID-19.	2.34	.858

4.2.2 Adherence to COVID 19 preventive measures

The findings presented in Table 5 indicate that overall adherence to COVID-19 preventive measures among respondents was moderate, with a mean adherence score of $M=1.85$ and a standard deviation of $S.D.=0.54$. The minimum adherence score of 1.00 suggests that some individuals completely ignored COVID-19 guidelines, while the maximum score of 3.00 shows that others fully complied.

Table 5: Adherence to COVID 19 preventive measures

	N	Minimum	Maximum	Mean	Std. Deviation
Adherence	338	1.00	3.00	1.8509	.53965

Notes 1= Do not comply, 2= Comply moderately and 3= Comply

Table 6 presents findings on the level of adherence to COVID-19 preventive measures among respondents.

Respondents reported high compliance with wearing masks ($M=2.72$, $S.D.=0.529$), with 75.7% fully complying with this guideline. Similarly, covering one's mouth when coughing was moderately adhered to ($M=2.27$, $S.D.=0.626$), indicating that while some respondents followed proper hygiene etiquette, others did not. While washing hands for at least 30 seconds was another measure that showed moderate adherence ($M=2.11$, $S.D.=0.730$),

preventive measures such as social distancing ($M=1.99$, $S.D.=0.779$) and avoiding crowded places ($M=1.84$, $S.D.=0.803$) received moderate compliance. Measures like avoiding public meetings ($M=1.88$, $S.D.=0.809$) and not using public transport ($M=1.83$, $S.D.=0.788$) showed partial compliance, likely due to economic and social obligations that made full adherence difficult.

Several preventive actions had low compliance levels. These included disinfecting frequently touched objects (M=1.66, S.D.=0.789) and keeping a two-meter distance from others in daily life (M=1.62, S.D.=0.744). The lowest compliance was observed for disinfecting cell phones (M=1.43, S.D.=0.688),

Table 6: Distribution of responses on adherence to COVID 19 preventive measures

No		Level of Compliance			Mean	S.D.
		1	2	3		
1	Wearing a mask	3.8	20.4	75.7	2.72	0.529
2	Covering one's mouth with one's sleeve when coughing	9.8	53.8	36.4	2.27	0.626
3	Washing hands at least 30 seconds	21.6	45.6	32.8	2.11	0.730
4	Refraining from travelling or going out	34.9	44.5	20.6	1.86	0.732
5	Ventilating a room at least twice a day	60.4	28.2	11.5	1.51	0.693
6	Performing social distancing	30.9	39.5	29.7	1.99	0.779
7	Staying home for three to four days if sick	54.6	23.2	22.2	1.68	0.816
8	Not going where there are many people	41.5	33.1	25.4	1.84	0.803
9	Using hand sanitiser to clean hands	48.0	32.6	19.4	1.71	0.771
10	Refraining from visiting hospitals	29.1	56.0	15.0	1.86	0.650
11	Avoiding visiting public places	48.8	32.1	19.0	1.70	0.769
12	Not holding meeting between people	39.5	33.2	27.2	1.88	0.809
13	Keeping a distance of two arm's length from people	41.1	34.5	24.3	1.83	0.793
14	Refraining from using public transport	40.5	35.4	24.0	1.83	0.788

No		Level of Compliance			Mean	S.D.
		1	2	3		
15	Keeping a two-meter distance from people in daily life	54.0	30.1	15.8	1.62	0.744
16	Consuming health food such as vitamins	38.9	39.8	21.4	1.83	0.757
17	Periodically disinfecting things that are touched	53.5	26.6	19.9	1.66	0.789
18	Disinfecting cell phones	68.2	20.5	11.3	1.43	0.688

Notes 1= Do not comply, 2= Comply moderately and 3= Comply.

4.2.2 The influence of individual perception on adherence to COVID 19 preventive measures

Table 7 presents the statistical analysis of how six predefined domains of individual perception influenced adherence to COVID-19 preventive measures. The study found that perceived susceptibility had a significant negative influence on adherence ($P < 0.001$).

On the other hand, cues to action and perceived self-efficacy had a significant positive influence on adherence ($P < 0.05$ and $P < 0.001$, respectively). Similarly, perceived self-efficacy—the belief in one's ability to follow prevention guidelines effectively—had the strongest positive impact ($P < 0.001$, coefficient = 0.090). This means that individuals who felt capable of taking preventive actions were more likely to adhere to health guidelines, reinforcing the importance of empowerment in public health strategies.

Other factors, such as perceived severity, perceived barriers, and perceived benefits, did not show statistically significant influence on adherence ($P > 0.05$).

Table 7: The influence of individual perception on adherence to COVID 19 preventive measures

adherence	OIM std.					
	Coefficient	err.	z	P>z	[95% conf. interval]	
b	-0.0449049	0.009633	-4.66	0.000	-0.06378	-0.02603
c	-0.009925	0.026959	-0.37	0.713	-0.06276	0.042913
d	-0.0047008	0.006586	-0.71	0.475	-0.01761	0.008207
e	0.0124492	0.01025	1.21	0.225	-0.00764	0.032538
f	0.0578986	0.017078	3.39	0.001	0.024427	0.09137
g	0.0901681	0.010423	8.65	0.000	0.06974	0.110596
_cons	0.5956811	0.236295	2.52	0.012	0.132551	1.058811

Notes: *b*=perceived susceptibility, *c*=perceived severity, *d*=perceived barriers, *e*=perceived benefits, *f*=cues to action, and *g*=perceived self-efficacy.

4.3 Influence of religion on adherence to COVID 19 Preventive measures

The study findings indicate that religious affiliation significantly influenced adherence to COVID-19 preventive measures ($F = 4.143$, $P < 0.001$). This suggests that different religious groups held varying perceptions and levels of compliance with recommended health guidelines during the pandemic.

4.3.1 Influence of Religion on adherence to COVID-19 preventive measures

From Table 8, African Methodist Church adherents showed the highest mean score ($M = 2.4265$, $SD = 0.61927$), indicating stronger adherence to COVID-19 preventive measures compared to other groups. Catholics ($M = 2.0188$, $SD = 0.54967$) and Assemblies of God ($M = 2.0107$, $SD = 0.53645$) also reported relatively higher compliance,

On the other hand, Seventh Day Adventists ($M = 1.6052$, $SD = 0.44287$), those with no religious affiliation ($M = 1.5421$, $SD = 0.41962$), and members of "Last Church" ($M = 1.6271$, $SD = 0.42866$) exhibited lower adherence levels.

Table 8: The influence of religion on adherence to COVID 19 preventive measures

	N	Mean	Std. Deviation	95% Confidence Interval for Mean	
				Lower Bound	Upper Bound
Catholic	76	2.0188	0.54967	1.8932	2.1444
Church of Central Africa Presbyterian (CCAP)	28	1.7739	0.42659	1.6085	1.9393
Last Church	29	1.6271	0.42866	1.4641	1.7902
African Methodist Church	12	2.4265	0.61927	2.0330	2.8200
African International Church	18	1.7663	0.27971	1.6272	1.9054
Pentecostal	32	1.8572	0.65457	1.6212	2.0932
Living Waters	14	1.9286	0.53970	1.6170	2.2402
Assemblies of God	24	2.0107	0.53645	1.7842	2.2372
Seventh Day Adventist	34	1.6052	0.44287	1.4507	1.7598
No Religion	13	1.5421	0.41962	1.2886	1.7957
Islam	6	1.6944	0.71211	0.9471	2.4418
Other	52	1.8257	0.50546	1.6849	1.9664
Total	338	1.8509	0.53965	1.7932	1.9087
F = 4.143					
P < 0.001					

4.3.2 Mean Differences Between Religious Groups on Adherence to COVID-19 Preventive Measures

Table 9 presents mean differences in adherence to COVID-19 preventive measures across religious groups. The results show statistically significant differences at the 0.05, 0.01, and 0.001 levels. A significant difference was observed between Catholic and Last Church members (M.D. = 0.391, $p < 0.05$), and between CCAP and African Methodist Church (AME) members (M.D. = -0.653, $p < 0.01$). The largest difference was between Last Church and AME members (M.D. = -0.799, $p < 0.001$). Significant differences were also found between AME members and those from African International Church (M.D. = 0.660, $p < 0.05$), Seventh Day Adventist (M.D. = 0.821, $p < 0.001$), and individuals with no religion (M.D. = 0.884, $p < 0.001$).

These results indicate that adherence levels varied significantly among different religious affiliations.

The study findings in Table 4.8 indicate significant variations in adherence to COVID-19 preventive measures among different religious groups. A significant difference (M.D. = 0.391, $P < 0.05$) was observed between Catholic members and Last Church members, indicating that Catholics were more compliant with COVID-19 preventive measures. Another highly significant difference (M.D. = -0.799, $P < 0.001$) was identified between Last Church and AME members, with AME members showing greater adherence. This highlights a major contrast in health behaviours between the two religious groups, potentially due to differences in theological perspectives on illness, faith, and medicine. Additionally, AME members adhered to preventive measures more than African International Church members (M.D. = 0.660, $P < 0.05$). A larger difference was observed between AME and Seventh Day Adventists (M.D. = 0.821, $P < 0.001$), suggesting that Seventh Day Adventist (SDA) members were among the

least compliant groups. This could be due to differing views on health, immunity, or faith-based healing.

Furthermore, a significant difference (M.D. = 0.884, $P < 0.001$) was found between AME members and individuals who did not belong to any religious group. This suggests that people without religious affiliation were among the least likely to adhere to COVID-19 preventive measures. The lack of structured religious guidance or communal encouragement for preventive behaviour may have contributed to their lower compliance.

Table 9: Mean differences between religious groups on adherence to COVID 19 preventive measures

	Mean difference	Std error
1 Catholic – Last Church	0.391*	0.112
2 Church of Central Africa Presbyterian (CCAP) – African Methodist Episcopal	-0.653***	0.177
3 Last Church - African Methodist Episcopal	-0.799***	0.176
4 African Methodist Episcopal – African International Church	0.660*	0.192
5 African Methodist Episcopal – Seventh Day Adventist	0.821***	0.173
6 African Methodist Episcopal – No Religion	0.884***	0.206
*, **, *** mean significant difference to 0.05, 0.01 and 0.001 level, respectively		

4.4 Effects of individual occupation on adherence to COVID 19 preventive measures

The study findings in Table 10 reveal that there was a statistically significant difference in adherence to COVID-19 preventive measures across different occupational groups ($P < 0.001$). Unemployed individuals ($M = 2.14$, $SD = 0.43$) and the self-employed ($M = 2.09$, $SD = 0.33$)

recorded the highest adherence levels. Formal employees also showed relatively high compliance ($M = 1.93$, $SD = 0.44$).

In contrast, the lowest adherence was observed among casual labourers ($M = 1.41$, $SD = 0.47$), followed by skilled workers ($M = 1.50$, $SD = 0.36$). Farmers, who formed the largest group of respondents, showed moderate adherence ($M = 1.89$, $SD = 0.54$). An individual's occupation significantly influences their adherence to COVID-19 preventive measures ($P < 0.001$). This suggests that different professional and economic engagements influenced an individuals' ability and willingness to comply with COVID-19 guidelines. Factors such as exposure risk, financial stability, work environment, and perceived necessity of preventive measures likely contributed to the observed variations among occupational groups.

Among the occupational categories, self-employed individuals ($M = 2.0938$, $SD = 0.32746$) and unemployed individuals ($M = 2.1389$, $SD = 0.42943$) exhibited the highest levels of adherence to COVID-19 preventive measures. This could be attributed to greater control over their working conditions and daily routines, allowing them to prioritise health measures such as social distancing, mask-wearing, and hand hygiene. Formally employed individuals ($M = 1.9269$, $SD = 0.44389$) also showed relatively higher adherence, likely due to workplace-enforced COVID-19 protocols and access to health information in structured professional settings.

On the other hand, casual labourers ($M = 1.4103$, $SD = 0.46615$) and skilled workers ($M = 1.4957$, $SD = 0.35548$) demonstrated lower compliance levels with preventive measures. This could be due to job instability, limited access to health information, and the necessity of engaging in physically demanding jobs that reduce the feasibility of adhering to preventive measures such as frequent handwashing or social distancing. Business operators ($M = 1.6739$, $SD = 0.50690$) and school-going individuals ($M = 1.5883$, $SD = 0.46353$) showed moderate

adherence, which could be influenced by their mixed environments of work, education, and social interactions.

Farmers, who comprised the majority of respondents (N = 259, M = 1.8866, SD = 0.54477), showed moderate adherence levels. This group may have experienced lower exposure risks due to working in open environments, leading to a less urgent need to follow strict preventive measures. However, their moderate compliance suggests that awareness campaigns and enforcement of health regulations played a role in shaping their behaviours.

The findings indicate that occupation plays a crucial role in determining how individuals perceive and implement COVID-19 preventive measures. People in formal and self-managed work environments had greater flexibility and motivation to adhere to safety protocols, while those in manual labour or unstable jobs struggled with compliance due to economic and situational constraints. These results highlight the need for occupation-specific public health interventions that consider the challenges faced by different working groups, ensuring that COVID-19 prevention efforts are inclusive, practical, and effective across diverse economic sectors.

Table 10: The effect of individual occupation on adherence to COVID 19 preventive measures

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Farmer	259	1.8866	0.54477	0.03385	1.8200	1.9533
Business Operator	19	1.6739	0.50690	0.11629	1.4296	1.9182
Casual Labour	18	1.4103	0.46615	0.10987	1.1785	1.6421

Self-employed	10	2.0938	0.32746	0.10355	1.8596	2.3281
Formal Employment	8	1.9269	0.44389	0.15694	1.5558	2.2980
Skilled Employment	8	1.4957	0.35548	0.12568	1.1985	1.7928
School-going	5	1.5883	0.46353	0.20730	1.0128	2.1639
Not Employed	11	2.1389	0.42943	0.12948	1.8504	2.4274
Total	338	1.8509	0.53965	0.02935	1.7932	1.9087

F = 3.801

***P* < 0.001**

4.4.1 Differences in Adherence to COVID-19 Preventive Measures Among Occupational Groups

The findings in Table 11 indicate significant differences in adherence to COVID-19 preventive measures among individuals with different occupations. farmers reported significantly higher adherence than casual labourers (M.D. = 0.476, $P < 0.01$). Casual labourers, in turn, reported significantly higher adherence than both self-employed individuals (M.D. = -0.684, $P < 0.05$) and unemployed individuals (M.D. = -0.729, $P < 0.01$). The results suggest that farmers exhibited significantly higher adherence to preventive measures compared to casual labourers ($P < 0.01$). This difference could be attributed to the fact that farming activities often take place in open environments where preventive measures such as social distancing and hygiene practices can be more easily implemented. Additionally, farmers may have more stable work routines, enabling them to incorporate preventive behaviours into their daily activities.

On the other hand, casual labourers were found to adhere more to COVID-19 preventive measures than self-employed individuals and the unemployed. Specifically, casual labourers adhered more than self-employed individuals ($P < 0.05$) and unemployed individuals ($P < 0.01$). This could be explained by workplace health regulations, as many casual labourers

engage in industries such as construction, manufacturing, and service jobs where adherence to health measures may be mandated by employers. Moreover, casual labourers may have been more exposed to strict enforcement measures in public places, compelling them to follow guidelines to maintain their job security. However, self-employed and unemployed individuals had lower adherence levels compared to casual labourers. This may be due to limited enforcement mechanisms in informal work settings and economic constraints affecting their ability to comply with preventive measures. Self-employed individuals often work independently, meaning they may not feel obligated to follow strict health regulations unless required. Similarly, unemployed individuals may have had limited access to resources such as masks, sanitisers, or reliable health information, leading to lower compliance.

The results highlight significant occupational disparities in COVID-19 preventive behaviour. Individuals in structured or regulated work environments (farmers and casual labourers) demonstrated higher adherence, while those in informal or unstable employment (self-employed and unemployed) exhibited lower compliance. These findings emphasise the need for tailored health communication strategies and targeted interventions that consider the unique challenges different occupational groups face in adhering to COVID-19 preventive measures.

Table 11: Mean differences between individuals with different occupations on adherence to COVID 19 preventive measures

		Mean	Std
		Difference	err
1	Farmer – Casual Labourer	0.476	0.128
2	Casual Labourer – Self employed	-0.684	0.207
3	Casual Labourer – Not employed	-0.729	0.201

4.5 Conclusion

This chapter presented the finding of this study. It started by presenting the socio-economic characteristics of the study respondents followed by the findings on each research objective.

The subsequent chapter presents the discussion of the findings as presented in this chapter.

CHAPTER FIVE: DISCUSSION

This section presents the discussion of the main findings which addresses the three objectives of the study.

5.1 Individual perception on COVID-19 preventive measures.

Overall, the study found that individuals in the study area held a neutral perception of COVID-19 preventive measures. This finding aligns with the moderate adherence to preventive guidelines observed among respondents. A total of 41.9% of respondents neither strongly supported nor strongly opposed COVID-19 preventive measures (Table 4.2). This neutral stance is reflected in the overall perception score of 41.93%, which assessed six components of the Health Belief Model: perceived susceptibility, perceived severity, perceived barriers, perceived benefits, cues to action, and self-efficacy. Similar findings were reported by Hatab et al. (2023), who observed that neutral perceptions were common in populations during the early stages of the pandemic, where uncertainty about the effectiveness of prevention efforts influenced attitudes. Furthermore, Alkhaldi et al. (2021) found that unclear or mixed messages regarding COVID-19 risks contributed to public indifference toward preventive measures, a factor likely at play in the present study.

Results from Table 4.3 indicate that perceived susceptibility had a statistically significant negative influence on adherence to COVID-19 preventive measures ($P < 0.001$). This suggests that individuals who believed they were not at risk were less likely to follow prevention guidelines. Conversely, cues to action ($P < 0.05$) and perceived self-efficacy ($P < 0.001$) significantly influenced adherence positively. These findings align with research by Kuan et al. (2021), who found that while individuals generally recognise the importance of preventive measures, misconceptions and variations in understanding affect adherence. Similarly, Gidado et al. (2024) observed that misinformation and uncertainty regarding COVID-19 prevention

strategies contributed to inconsistent adherence in multiple regions. These results underscore the need for continued public health education and clear communication strategies to improve adherence. Additionally, findings from Table 4.7 show that external motivators, such as health campaigns and trusted information sources, played a crucial role in adherence, reinforcing research by Yan et al. (2021), who emphasised the effectiveness of public health messaging in behaviour change.

5.1.1 Adherence to COVID 19 preventive measures

Findings from Table 4.4 indicate moderate adherence to COVID-19 preventive measures, with a mean score of 1.85 (SD = 0.54). This pattern reflects a partial but inconsistent commitment to public health guidelines, suggesting that while awareness of the pandemic existed, sustained behaviour change was not uniformly done, these results are in line with Clark et al. (2020) who reported similar moderate compliance patterns, where individuals followed certain guidelines but neglected others due to pandemic fatigue or scepticism. Beca-Martínez et al. (2022) also found that adherence levels varied across communities, influenced by perceived severity and accessibility of protective measures. These findings highlight the need for targeted public health messaging to reinforce consistent adherence.

Table 4.5 further details adherence levels for specific preventive behaviours. The highest adherence was observed in mask-wearing ($M = 2.72$, $SD = 0.529$), reflecting global trends where masks became widely accepted due to their visibility in public health campaigns. However, disinfecting cell phones had the lowest adherence ($M = 1.42$, $SD = 0.688$), suggesting that tasks requiring extra effort or tools were deprioritised. These findings are consistent with research by Urbán et al. (2021), which found that individuals were more likely to adhere to simple, visible measures like mask-wearing but struggled with less intuitive practices such as disinfecting personal items. Similar results were reported by Omotoso et al. (2021), who identified barriers such as misinformation and convenience as influencing adherence patterns.

Moreover, Table 4-10 highlights adherence variations by occupation. Farmers demonstrated higher adherence compared to casual labourers ($P < 0.01$), while casual labourers adhered more than self-employed individuals ($P < 0.05$) and the unemployed ($P < 0.01$). According to the HBM, this may reflect differences in perceived benefits and cues to action, with farmers often participating in community-based programs and agricultural extension services that deliver public health information. These social networks may enhance self-efficacy and reinforce adherence behaviour. These findings reinforce research by Marotta et al. (2022), who found that employment status and work environment influence compliance with preventive measures. The necessity for certain occupations to engage in frequent public interactions likely contributed to differences in adherence levels.

5.1.3 The influence of individual perception on adherence to COVID 19 preventive measures

The results of the study (Table 4.3) reveal individual perceptions regarding COVID-19 and its preventive measures were generally positive, though varied across specific behaviours. Respondents strongly agreed that avoiding crowdedness in public places can help prevent the spread of COVID-19 ($M = 4.11$, $SD = 0.694$). This highlights their understanding of the importance of social distancing. Additionally, respondents strongly disagreed with the statement that COVID-19 is not a deadly disease and that preventive measures are unnecessary ($M = 1.75$, $SD = 0.697$), indicating their awareness of the severity of the pandemic and the need for protective measures. On the other hand, respondents showed some uncertainty regarding other preventive actions. For example, they disagreed with the statement that covering the nose and mouth while coughing does not prevent COVID-19 ($M = 2.19$, $SD = 0.843$), but also expressed uncertainty about the effectiveness of actions such as avoiding touching the eyes, nose, and mouth ($M = 2.18$, $SD = 0.809$) or washing hands with soap or alcohol-based sanitisers ($M = 2.21$, $SD = 0.724$). These responses reflect varying levels of

understanding about the different preventive measures. This pattern suggests that while general risk awareness is high, detailed knowledge and beliefs about specific protective behaviours remain inconsistent. The study's findings are consistent with the research by (Msengi et al. 2022), which found that while people generally recognise the importance of certain preventive measures, misconceptions and varying levels of understanding about specific actions, such as mask-wearing or hand hygiene, still exist. Similarly, (Urbán et al. 2021) reported that while the general public in many regions acknowledged the severity of COVID-19, misinformation and lack of clarity regarding specific prevention strategies contributed to inconsistent adherence to guidelines. In this context, respondents in this study appear to have a broad understanding of the risks posed by COVID-19 but demonstrate varying degrees of confidence in specific preventive measures, highlighting the need for continued public health education and clear communication to promote adherence.

The results presented in Table 4.6 further validate the importance of individual perception. The study found that perceived susceptibility had a significant negative effect on adherence (Coefficient = -0.0449, $P < 0.001$). This implies that individuals who believed they were unlikely to contract COVID-19 were less motivated to comply with preventive behaviours, which supports previous research on the Health Belief Model. Studies, such as those by (Garfin et al. 2021), have shown that individuals' perception of their own vulnerability to the disease is a key determinant of their compliance with health guidelines. Conversely, cues to action (Coefficient= 0.0579, $P < 0.001$) and perceived self-efficacy (Coefficient= 0.0902, $P < 0.001$) exhibited significant positive influences on adherence, meaning that individuals who received external prompts and those who felt confident in their ability to follow preventive measures were more likely to comply. These results are consistent with Yan et al. (2021), who found that cues to action significantly improved adherence to health behaviours, and Brewer et al. (2004), whose research on self-efficacy emphasised that people are more likely to adopt preventive

actions when they feel capable of doing so. The findings highlight those interventions aimed at increasing perceived susceptibility, strengthening cues to action, and boosting self-efficacy may be effective strategies for improving public adherence to COVID-19 preventive measures.

5.2 Influence of religion on adherence to COVID 19 preventive measures

The findings of this study highlight the significant role of religion in shaping adherence to COVID-19 preventive measures. A statistically significant difference was observed across religious groups ($F = 4.142$, $p < 0.001$), indicating that religious affiliation influenced compliance behaviour. For instance, members of the African Methodist Church exhibited the highest mean adherence ($M = 2.43$, $SD = 0.62$), while Seventh-Day Adventist members reported the lowest adherence levels ($M = 1.61$, $SD = 0.44$). These discrepancies may stem from differences in religious doctrines, the degree of congregational hierarchy, and the extent to which religious leaders actively promoted public health guidelines.

From a Health Belief Model (HBM) perspective, the construct of “cues to action” is particularly relevant here. In religious contexts, sermons, pastoral letters, or religious gatherings serve as potent cues to action, encouraging believers to adopt preventive behaviours. In denominations where leaders integrated public health advice into religious teachings as likely seen in the African Methodist Church such cues may have amplified adherence. Conversely, in religious groups where such cues were absent or conflicted with doctrinal beliefs, like the Seventh-Day Adventist Church in this context, perceived guidance from faith may have overshadowed scientific advice, weakening compliance. This aligns with findings by Taragin-Zeller et al. (2023), who argued that religious leaders serve as interpretive bridges between science and scripture, thereby shaping health behaviour through both direct messaging and modelled behaviour. In this way, perceived authority of religious leaders influences perceived benefits and perceived barriers, key HBM constructs. For example, when leaders emphasized divine

protection over scientific guidance, they may have inadvertently reduced perceived susceptibility and severity, lowering motivation for preventive action.

Further support comes from DeRossett et al. (2021), who found that religious communities with structured leadership and centralised messaging particularly those aligning with public health guidance demonstrated stronger compliance. This may explain why African Methodist Episcopal (AME) members outperformed Church of Central Africa Presbyterian (CCAP) members and others in adherence, with significant mean differences (e.g., -0.653, $p < 0.01$). Such findings illustrate how organizational structure within faith groups impacts both self-efficacy and perceived control over health behaviours.

Interestingly, individuals without religious affiliation reported significantly higher adherence than some religious groups (mean difference = 0.884, $p < 0.001$). This supports the argument by Yadav et al. (2021) that secular populations tend to rely more heavily on scientific and institutional information sources, possibly experiencing fewer perceived barriers linked to doctrinal or communal norms. In contrast, faith-based interpretations might sometimes downplay the severity of the pandemic or create fatalistic beliefs, undermining preventive behaviour.

The findings also reveal that perceived benefits of adhering to COVID-19 measures may be interpreted differently depending on religious teachings. For example, groups that integrate health preservation as a moral or spiritual duty may view compliance not only as a protective measure but also as a form of obedience to divine will. As El-Montassir et al. (2023) emphasise, embedding health messages within religious discourses such as sermons or scripture studies has been shown to increase uptake of public health directives in various contexts. This points to the critical importance of tailored cues to action that resonate with religious values and language.

The study's findings highlight the significant role of religion in influencing adherence to COVID-19 preventive measures, with different religious groups exhibiting varying levels of compliance. The results indicate a statistically significant difference in adherence across religious groups ($F = 4.142$, $P < 0.001$). For instance, members of the African Methodist Church exhibited the highest mean adherence ($M = 2.4265$, $SD = 0.61927$), indicating strong compliance with preventive measures. In contrast, Seventh-Day Adventist members demonstrated relatively lower adherence ($M = 1.6052$, $SD = 0.44287$), suggesting weaker compliance with COVID-19 protocols. The variability in adherence across religious groups can be attributed to differences in religious doctrines, the influence of religious leaders, and community practices regarding public health measures. These findings align with prior research emphasising the role of religious beliefs and institutions in shaping health behaviours. Taragin-Zeller et al. (2023) noted that religious leaders significantly influence public health compliance, particularly during crises like the COVID-19 pandemic. Religious teachings often guide behaviour, and leaders act as key mediators between science and faith, influencing their followers' perceptions of health interventions. Similarly, DeRossett et al. (2021) observed that religious communities with structured leadership and strong communal values tend to exhibit higher adherence to health directives. This suggests that faith-based organisations can serve as effective partners in health communication campaigns, particularly when messages are tailored to align with the beliefs and values of each religious community. Conversely, religious groups with doctrinal scepticism about modern medicine or those emphasising divine protection over scientific recommendations may exhibit lower compliance with preventive measures (Meo et al. 2022).

The results in Table 4.9 further highlight significant differences in adherence between specific religious groups. Catholic Church members adhered more to preventive measures than those in Last Church, with a mean difference of 0.391 ($P < 0.05$). Similarly, a significant difference

was observed between Church of Central Africa Presbyterian (CCAP) members and African Methodist Episcopal (AME) members, where AME members demonstrated higher adherence to preventive measures (mean difference = -0.653, $P < 0.01$). Additionally, AME members exhibited significantly different adherence levels compared to members of the African International Church and Seventh-Day Adventist Church, with the latter groups demonstrating better compliance ($P < 0.05$ and $P < 0.001$, respectively).

Furthermore, a significant difference was noted between AME members and individuals with no religious affiliation, where non-affiliated individuals adhered more to preventive measures (mean difference = 0.884, $P < 0.001$). This aligns with previous research showing that secular individuals may rely more on scientific information when making health decisions, while religious groups may incorporate faith-based interpretations into their risk assessments (Yadav et al. 2021). The observed variations in adherence suggest that faith-based organisations can serve as crucial partners in public health interventions, particularly by engaging religious leaders to promote scientifically grounded health measures. El-Montassir et al. (2023) emphasise the importance of integrating health messaging into religious sermons and community gatherings, as this strategy has been effective in increasing compliance with health directives in various religious settings.

5.3 Effects of individual occupation on adherence to COVID 19 preventive measures

This study revealed that occupation significantly influences adherence to COVID-19 preventive measures ($p < 0.001$). Among various occupational groups, farmers exhibited the highest compliance ($M = 1.89$, $SD = 0.54$), followed by casual labourers, self-employed individuals, and the unemployed. Casual labourers had the lowest mean adherence ($M = 1.41$,

SD = 0.47), indicating varying levels of risk perception and resource access across occupational categories.

The Health Belief Model (HBM) offers a useful lens for understanding these occupational differences. One key construct perceived susceptibility likely plays a central role. Farmers may perceive themselves at higher risk due to frequent community engagement through cooperatives or extension services, which often serve as cues to action by promoting health messages during group meetings. This structured information flow likely enhances self-efficacy, or the belief in one's ability to act effectively on health information, leading to stronger adherence.

These findings align with Etafa et al. (2021), who reported that agricultural workers in Ethiopia displayed high compliance due to their access to health education and involvement in community-based dissemination structures. Similarly, farmers in this study may have benefited from organised outreach efforts that framed COVID-19 measures as both a personal and communal responsibility. These mechanisms increase both perceived benefits and perceived severity, which are key to motivating protective behaviour under the HBM.

Contrary to conventional assumptions, casual labourers in this study adhered more closely to preventive measures than the self-employed or unemployed. This deviates from the expectation that self-employed individuals — who presumably have more control over their environment — would be more compliant. However, as Sialubanje et al. (2022) observed, casual labourers often operate in more structured environments where compliance is monitored by employers, supervisors, or community leaders. These external pressures may act as cues to action and reduce perceived barriers, especially when adherence is framed as a condition for continued employment.

The lower adherence among self-employed individuals may be linked to their more autonomous, unregulated work settings, where public health messaging is less reinforced and

where economic incentives may compete with health priorities. This supports findings by Krause et al. (2020) that informal workers often navigate competing pressures, resulting in inconsistent adherence despite awareness. Moreover, perceived barriers such as limited access to masks, sanitisers, or reliable health information may be more pronounced among unemployed individuals, who in this study also showed lower adherence. Economic insecurity may reduce self-efficacy and minimise motivation to engage in preventive behaviour, especially if the perceived threat of exposure is seen as low due to staying at home.

The significant difference in adherence between farmers and casual labourers ($p < 0.01$) further underscores the importance of occupational context in shaping behaviour. Farmers may not only be more exposed to structured messaging but also operate within a cultural context that values collective well-being, a factor that enhances perceived benefits and reinforces behaviour through social norms. On the other hand, casual labourers, despite working in structured environments, may experience stressors such as job insecurity or poor working conditions, which can lower their psychological readiness to comply.

The study found that individual occupation significantly influences adherence to COVID-19 preventive measures ($P < 0.001$). The results revealed that different occupational groups exhibited varying levels of compliance with health guidelines, with farmers demonstrating the highest adherence, followed by casual labourers, self-employed individuals, and the unemployed. Table 4-10 indicates that farmers had the highest mean adherence score ($M = 1.8866$, $SD = 0.54477$), while casual labourers had the lowest ($M = 1.4103$, $SD = 0.46615$). Individuals in formal and skilled employment had adherence levels that fell between these two extremes.

These findings align with Etafa et al. (2021), who observed that agricultural workers tend to comply more with public health measures due to their exposure to community-based health education and information dissemination programs. Farmers, who often participate in

cooperative farming systems or government extension programs, are more likely to receive structured guidance on disease prevention, thereby increasing their adherence to COVID-19 preventive measures. Similarly, Krause et al. (2020) found that informal sector workers, including casual labourers, were more likely to follow preventive measures due to the enforcement of health regulations within their workplaces or local communities. This suggests that social norms and structured work environments play a role in shaping health behaviour across different occupational groups.

Interestingly, casual labourers exhibited higher adherence than self-employed individuals and the unemployed. This contradicts conventional expectations, as one might assume that self-employed individuals would have more autonomy in implementing preventive measures. However, Sialubanje et al. (2022) suggest that casual labourers' greater exposure to structured workplaces, community surveillance, and peer influence in enforcing public health protocols may explain their higher adherence levels. In contrast, self-employed individuals, who often work independently or in less regulated environments, may not feel the same level of external pressure to comply with COVID-19 guidelines. Similarly, the unemployed exhibited lower adherence, possibly due to economic hardships limiting their ability to afford protective equipment or a perception that they are at lower risk of exposure compared to those engaged in daily employment activities.

Moreover, the significant difference in adherence between farmers and casual labourers ($P < 0.01$) highlights the role of community interaction and occupational structures in fostering public health compliance. Farmers, despite working in open environments, often participate in cooperative farming societies where public health messages are more effectively disseminated, reinforcing compliance (Etafa et al. 2021). In contrast, casual labourers, despite working in socially structured environments, may face challenges such as job insecurity and economic instability, which can impact their prioritisation of health measures.

5.4 Conclusion

This chapter discussed how various factors influenced adherence to COVID-19 preventive measures. Occupation, individual perceptions, and specific behaviours played a significant role. Farmers showed the highest adherence, and perceptions like self-efficacy and cues to action were key motivators. While general awareness of COVID-19 was high, uncertainty about specific practices affected consistent adherence. The findings suggest that targeted, context-specific interventions are needed to improve compliance, especially through community engagement and clear health communication.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusion of the study and provides recommendations informing programming of intervention in similar future pandemic like COVID-19.

6.1 Conclusion

The study comprehensively analysed the impact of individual perception, religion, and occupation on adherence to COVID-19 preventive measures in T/A Mwakaboko, Karonga District. The findings provide valuable insights into how these factors shape public health behaviours, offering crucial implications for future pandemic preparedness and response strategies.

Individual Perception and Adherence to COVID-19 Preventive Measures

The study found that individual perception significantly influenced adherence to COVID-19 preventive measures. Respondents who believed they were at low risk of contracting the virus exhibited reduced compliance, highlighting the impact of perceived susceptibility. On the other hand, individuals with higher self-efficacy and those exposed to external cues, such as public health campaigns, demonstrated greater adherence. These findings emphasise the need for targeted and context-specific health communication strategies that address misinformation, reinforce perceived risks, and enhance self-efficacy in following preventive measures. Public health efforts should prioritize reinforcing the severity of pandemics and the benefits of compliance to ensure better adherence to health guidelines in future outbreaks.

Religious Influence on Compliance with COVID-19 Preventive Measures

Religious affiliation played a crucial role in shaping adherence to preventive measures. The study revealed significant variations in compliance levels across different religious groups. Members of well-structured religious communities exhibited higher adherence to COVID-19 guidelines, likely due to strong leadership guidance and communal responsibility. In contrast,

groups with less structured religious doctrines or conflicting views on the pandemic demonstrated lower adherence. These findings underscore the importance of involving religious leaders and faith-based institutions in public health campaigns. Given their influence over communities, religious leaders can serve as vital partners in disseminating accurate information and promoting adherence to health measures, particularly in regions where religion strongly shapes social norms and behaviours.

Occupational Impact on Adherence to COVID-19 Preventive Measures

Occupation was found to be another key determinant of adherence. Farmers exhibited the highest compliance with preventive measures, possibly due to their exposure to community-based health information and structured routines that incorporate public health messages. Conversely, casual labourers and self-employed individuals demonstrated lower adherence, potentially due to the informal nature of their work and reduced access to structured health communication channels. The unemployed also showed lower adherence, likely due to economic instability and limited access to resources needed for compliance, such as personal protective equipment. These findings suggest that occupation-specific health interventions are necessary to ensure that all workforce categories receive adequate public health guidance and support. Employers and policymakers should implement workplace-specific preventive measures, ensuring that employees in both formal and informal sectors have access to the necessary resources to follow health guidelines effectively.

6.2 Recommendations

Strengthening Risk Communication to Enhance Perceived Susceptibility. Since low perceived susceptibility significantly reduced adherence, public health campaigns should personalise risk messages to make individuals feel more vulnerable to infection. Use real-life testimonials or

community-based storytelling to illustrate risk and avoid abstract statistics and focus on relatable scenarios.

Public health authorities should partner with religious leaders across denominations to integrate COVID-19 preventive messages into religious teachings, practices and gatherings. Aligning health guidance with religious values and utilizing trusted faith-based communication channels, adherence to preventive measures can be significantly enhanced, especially in communities where religious affiliation strongly shapes behaviours.

Health promotion strategies should be tailored to occupational contexts by leveraging existing structures within farming communities for message dissemination, while simultaneously introducing targeted outreach and resource support for casual labourers, the self-employed and the unemployed. Emphasising workplace-based cues to action, improving access to preventive resources and reinforcing perceived benefits can enhance compliance across all occupational groups.

REFERENCES

- Abdullah, I 2020, 'Psychological Trauma : Theory , Research , Practice , and Policy COVID-19 : Threat and Fear in Indonesia', *American Psychological Association*.
- Abraído-Lanza, AF, Armbrister, AN, Flórez, KR & Aguirre, AN 2006, 'Toward a theory-driven model of acculturation in public health research', *American Journal of Public Health*, vol. 96, no. 8, pp. 1342–1346.
- Adhikari, J, Timsina, J, Raj, S & Ghale, Y 2020, 'Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID- 19 . The COVID-19 resource centre is hosted on Elsevier Connect , the company ' s public news and information ', *Agricultural Systems*, vol. 186, no. January, p. 102990.
- Adhikari, SP, Meng, S, Wu, YJ, Mao, YP, Ye, RX, Wang, QZ, Sun, C, Sylvia, S, Rozelle, S, Raat, H & Zhou, H 2020, 'Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review', *Infectious Diseases of Poverty* 2020 9:1, vol. 9, no. 1, pp. 1–12, viewed November 2, 2025, <<https://link.springer.com/articles/10.1186/s40249-020-00646-x>>.
- Ahmadi, S, Kazemi-Karyani, A, Badiiee, N, Byford, S, Mohammadi, A, Piroozi, B & Rezaei, S 2022, 'The impact of COVID-19 pandemic on hospital admissions for nine diseases in Iran: insight from an interrupted time series analysis', *Cost Effectiveness and Resource Allocation*, vol. 20, no. 1, pp. 1–9.
- Al-Hanawi, MK, Angawi, K, Alshareef, N, Qattan, AMN, Helmy, HZ, Abudawood, Y, Alqurashi, M, Kattan, WM, Kadasah, NA, Chirwa, GC & Alsharqi, O 2020, 'Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study', *Frontiers in Public Health*, vol. 8, no. May, pp. 1–10.
- Alvarado-Ramy, F, Arthur, R, Bass, M, Bell, D, Bell, M, Benenson, G, Bialek, S, Brown, C, Bruce, S, Brunette, G, Burkholder, J, Calio, M, Cetron, M, Charme, J, Chow, C, Cohen, N, Curns, A, Carias, C da S, Mott, CDLH, Delaney, L, Farnon, E, Finelli, L, Fowlkes, A, Gastanaduy, P, Gomez, T, Guh, A, Haber, Y, Hageman, J, Hall, A, Holton, K, Ijaz, K, Jernigan, D, Jernigan, J, Kallen, A, Langley, G, Lebo, E, Leshem, E, Levy, D, Lippold, S, McAdams, D, McKnight, CJ, Meltzer, M, Moore, J, Ohagen, J, Patel, M, Payne, DC, Pham, H, Rha, B, Ryan, K, Pierre, JS, Santibanez, S, Schembri, C, Schneider, E, Schuchat, A, Schultz, M, Schweitzer,

B, Seward, J, Sheedy, K, Smith, L, Sobol, J, Sotir, M, Spahr, J, Talbert, T, Beneden, C Van & Zimmerman, C 2015, 'CDC's early response to a novel viral disease, middle east respiratory syndrome coronavirus (MERS-CoV), September 2012–May 2014', *Public Health Reports*, vol. 130, no. 4, pp. 307–317.

Anderson, RM, Heesterbeek, H, Klinkenberg, D & Hollingsworth, TD 2020, 'How will country-based mitigation measures influence the course of the COVID-19 epidemic?', *The Lancet*, vol. 395, no. 10228, pp. 931–934.

Anwar, S, Nasrullah, M & Hosen, MJ 2020, 'COVID-19 and Bangladesh: Challenges and How to Address Them', *Frontiers in Public Health*, vol. 8, no. April, pp. 1–8.

Anyanwu, MU, Festus, IJ, Nwobi, OC, Jaja, C-JI & Oguttu, JW 2020, 'A Perspective on Nigeria's Preparedness, Response and Challenges to Mitigating the Spread of COVID-19', *Challenges*, vol. 11, no. 2, p. 22.

Arda, B, Durusoy, R, Yamazhan, T, Sipahi, OR, Taşbakan, M, Pullukçu, H, Erdem, E & Ulusoy, S 2011, 'Did the pandemic have an impact on influenza vaccination attitude? A survey among health care workers', *BMC Infectious Diseases*, vol. 11.

Asante, LA & Mills, RO 2020, 'Exploring the Socio-Economic Impact of COVID-19 Pandemic in Marketplaces in Urban Ghana', *Africa Spectrum*, vol. 55, no. 2, pp. 170–181.

Chan, M 2009, 'World now at the start of 2009 influenza pandemic Dr Margaret Chan Director-General of the World Health Organization', *Who*, no. June, pp. 1–3.

Champion, V. L., & Skinner, C. S. (2008). The Health Belief Model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed., pp. 45–65). Jossey-Bass.

Cheng, C, Barceló, J, Hartnett, AS, Kubinec, R & Messerschmidt, L 2020, 'COVID-19 Government Response Event Dataset (CoronaNet v.1.0)', *Nature Human Behaviour*, vol. 4, no. 7, pp. 756–768.

Chiao, JY & Blizinsky, KD 2010, 'Culture-gene coevolution of individualismcollectivism and the serotonin transporter gene', *Proceedings of the Royal Society B: Biological Sciences*, vol. 277, no. 1681, pp. 529–537.

Chu, DK, Akl, EA, Duda, S, Solo, K, Yaacoub, S, Schünemann, HJ, El-harakeh, A, Bognanni, A, Lotfi, T, Loeb, M, Hajizadeh, A, Bak, A, Izcovich, A, Cuello-Garcia, CA, Chen, C, Harris,

DJ, Borowiack, E, Chamseddine, F, Schünemann, F, Morgano, GP, Muti Schünemann, GEU, Chen, G, Zhao, H, Neumann, I, Chan, J, Khabsa, J, Hneiny, L, Harrison, L, Smith, M, Rizk, N, Giorgi Rossi, P, AbiHanna, P, El-khoury, R, Stalteri, R, Baldeh, T, Piggott, T, Zhang, Y, Saad, Z, Khamis, A & Reinap, M 2020, 'Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis', *The Lancet*, vol. 395, no. 10242, pp. 1973–1987.

Duplaga, M 2020, 'The Determinants of Conspiracy Beliefs Related to the COVID-19 Pandemic in a Nationally Representative Sample of Internet Users', *International Journal of Environmental Research and Public Health* 2020, Vol. 17, Page 7818, vol. 17, no. 21, p. 7818, viewed October 31, 2025, <<https://www.mdpi.com/1660-4601/17/21/7818/htm>>.

Gill, P, Stewart, K, Treasure, E & Chadwick, B 2008, 'Methods of data collection in qualitative research: Interviews and focus groups', *British Dental Journal*, vol. 204, no. 6, pp. 291–295.

Goh, Y, Yun, Q, Ow, J, Chen, TH & Cyrus, SH 2020, 'The Impact of COVID-19 on nurses working in a University Health System in Singapore : A qualitative descriptive study', , no. December.

Gupta, D., Bhatt, S., Gupta, M. and Saman, A. 2020. 'The impact of COVID-19 on healthcare systems in Southeast Asia', *International Journal of Healthcare Management*, 13(2), pp. 45-67. doi: 10.1080/20479700.2020.1781234.

Hagger, MS, Smith, SR, Keech, JJ, Moyers, SA & Hamilton, K 2020, 'Predicting Social Distancing Intention and Behavior During the COVID-19 Pandemic: An Integrated Social Cognition Model', *Annals of behavioral medicine : a publication of the Society of Behavioral Medicine*, vol. 54, no. 10, pp. 713–727.

Harper, CA, Satchell, LP, Fido, D & Latzman, RD 2021, 'in the COVID-19 Pandemic', , pp. 1875–1888.

Hossain, M 2021, 'The effect of the Covid-19 on sharing economy activities', *Journal of Cleaner Production*, vol. 280, p. 124782.

Islam, N, Sharp, SJ, Chowell, G, Shabnam, S, Kawachi, I, Lacey, B, Massaro, JM, D'Agostino, RB & White, M 2020, 'Physical distancing interventions and incidence of coronavirus disease 2019: Natural experiment in 149 countries', *The BMJ*, vol. 370, pp. 1–10.

Jaiswal, J, LoSchiavo, C & Perlman, DC 2020, 'Disinformation, Misinformation and

Inequality-Driven Mistrust in the Time of COVID-19: Lessons Unlearned from AIDS Denialism', *AIDS and Behavior*, vol. 24, no. 10, pp. 2776–2780.

Kagawa Singer, M, Dressler, W & George, S 2016, 'Social Science & Medicine Culture : The missing link in health research', *Social Science & Medicine*, vol. 2016, no. 170, pp. 237–246.

Khubchandani, J, Saiki, D & Kandiah, J 2020, 'Masks, Gloves, and the COVID-19 Pandemic: Rapid Assessment of Public Behaviors in the United States', *Epidemiologia*, vol. 1, no. 1, pp. 16–22.

Lau, H, Khosrawipour, V, Kocbach, P, Mikolajczyk, A, Schubert, J, Bania, J & Khosrawipour, T 2021, 'The positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China', *Journal of Travel Medicine*, vol. 27, no. 3, pp. 1–7.

Le, K., & Nguyen, M. (2020). The economic impact of lockdown measures on small businesses: Evidence from Southeast Asia. *Journal of Asian Economics*, 68, 101196. <https://doi.org/10.1016/j.asieco.2020.101196>

Lonner, WJ 2018, *The Continuing Growth of Cross-Cultural Psychology: A First-Person Annotated Chronology*, Cambridge University Press, viewed November 1, 2025, <<https://www.cambridge.org/core/elements/continuing-growth-of-crosscultural-psychology/5EC6CC8FE941A2DF62AD07E684588F4B>>.

Ma, Y, Ph, D, Diao, B, Ph, D, Lv, X, Liang, W, Ph, D, Zhu, J, Ph, D, Liu, L, Ph, D, Zhang, S, Shen, B, Ph, D, Wang, H & Ph, D 2020, 'HD center in Wuhan , China',.

Manrai, LA & Manrai, AK 2011, 'Hofstede's cultural Dimensions and tourist behaviors: A review and conceptual Framework', *Journal of Economics, Finance and Administrative Science*, vol. 16, no. 31, pp. 23–48, viewed November 1, 2025, <http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S2077-18862011000200003&lng=es&nrm=iso&tlng=en>.

Marazioti, A, Krontira, AC, Behrend, SJ, Giotopoulou, GA, Ntaliarda, G, Blanquart, C, Bayram, H, Iliopoulou, M, Vreka, M, Trassl, L, Pepe, MAA, Hackl, CM, Klotz, L V, Weiss, SAI, Koch, I, Lindner, M, Hatz, RA, Behr, J, Wagner, DE, Papadaki, H, Antimisiaris, SG, Jean, D, Deshayes, S, Gr, M, Kayalar, Ö & Mortazavi, D 2022, 'KRAS signaling in malignant pleural mesothelioma', , pp. 1–22.

Ministry of Health 2023, *COVID-19 situation update*, Lilongwe - Malawi.

Mnyanga, M, Chirwa, GC & Munthali, S 2022, 'Impact of Safety Nets on Household Coping Mechanisms for COVID-19 Pandemic in Malawi', *Frontiers in Public Health*, vol. 9, no. February, pp. 1–10.

Moccia, G, Carpinelli, L, Savarese, G, Borrelli, A, Boccia, G, Motta, O, Capunzo, M & De Caro, F 2021, 'Perception of health, mistrust, anxiety, and indecision in a group of italians vaccinated against covid-19', *Vaccines*, vol. 9, no. 6, pp. 1–16.

Morgan, DL & Morgan, DL 2014, 'Qualitative Inquiry',.

Mukhtar, K, Javed, K, Arooj, M & Sethi, A 2020, 'Advantages, limitations and recommendations for online learning during covid-19 pandemic era', *Pakistan Journal of Medical Sciences*, vol. 36, no. COVID19-S4, pp. S27–S31.

Munthali, CK, Kasulo, V, Tembo, M, Biodiversity, U & Tembo, M 2017, 'Assessing adaptive capacity in smallholder farming systems in Karonga , Malawi', , pp. 1–16.

Mwendera, C, , Mackwellings Phiri, RO, Weldegebriel, S, Beatrice, Ongadi³, Beavis¹, C, Fleming⁵, JA, Hungerford¹, D, Cunliffe¹, N, Deborah & ⁶ Nyirenda⁶, ^{7*}, Neil French^{1*}, G-GC 2025, 'Affiliations :Institute of Infection, Veterinary and Ecological Sciences, University of Liverpool, UK',.

Nagata, T, Odagami, K, Nagata, M & Mori, K 2022, 'Corporate health culture promotes infection control measures against COVID-19 in the workplace', *Journal of Occupational Health*, vol. 64, no. 1, pp. 1–10.

Okereke, M, Ukor, NA, Adebisi, YA, Ogunkola, IO, Favour Iyagbaye, E, Adiola Owzor, G & Lucero-Prisno, DE 2021, 'Impact of COVID-19 on access to healthcare in low- and middle-income countries: Current evidence and future recommendations', *International Journal of Health Planning and Management*, vol. 36, no. 1, pp. 13–17.

Olapegba, PO, Iorfa, SK, Kolawole, SO, Oguntayo, R, Gandhi, JC, Ottu, IFA & Ayandele, O 2020, 'Survey data of COVID-19-related Knowledge, Risk Perceptions and Precautionary Behavior among Nigerians', *Data in Brief*, vol. 30, p. 105685, viewed November 2, 2025, <<https://www.sciencedirect.com/science/article/pii/S2352340920305795?via%3Dihub>>.

Olatunde, A, Ogunode, NJ & Eyiolorunse, A 2021, 'Assessment of Virtual Learning During Covid-19 Lockdown in Nigerian Public Universities', *Academia globe:inderscience Research*, vol. 2, no. 5, pp. 159–175.

Plohl, N & Musil, B 2021, 'Modeling compliance with COVID-19 prevention guidelines: the critical role of trust in science', *Psychology, Health and Medicine*, vol. 26, no. 1, pp. 1–12, viewed October 31, 2025, <<https://www.tandfonline.com/doi/pdf/10.1080/13548506.2020.1772988>>.

Polack, FP, Thomas, SJ, Kitchin, N, Absalon, J, Gurtman, A, Lockhart, S, Perez, JL, Pérez Marc, G, Moreira, ED, Zerbini, C, Bailey, R, Swanson, KA, Roychoudhury, S, Koury, K, Li, P, Kalina, W V., Cooper, D, Frenck, RW, Hammitt, LL, Türeci, Ö, Nell, H, Schaefer, A, Ünal, S, Tresnan, DB, Mather, S, Dormitzer, PR, Şahin, U, Jansen, KU & Gruber, WC 2020, 'Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine', *New England Journal of Medicine*, vol. 383, no. 27, pp. 2603–2615.

Qattan, AMN, Alshareef, N, Alsharqi, O, Al Rahahleh, N, Chirwa, GC & Al-Hanawi, MK 2021, 'Acceptability of a COVID-19 Vaccine Among Healthcare Workers in the Kingdom of Saudi Arabia', *Frontiers in Medicine*, vol. 8, no. March, pp. 1–12.

Reuben, RC, Danladi, MMA, Saleh, DA & Ejembi, PE 2021, 'Knowledge, Attitudes and Practices Towards COVID-19: An Epidemiological Survey in North-Central Nigeria', *Journal of Community Health*, vol. 46, no. 3, pp. 457–470.

Rubin, GJ, Potts, HWW & Michie, S 2011, 'Likely uptake of swine and seasonal flu vaccines among healthcare workers. A cross-sectional analysis of UK telephone survey data', *Vaccine*, vol. 29, no. 13, pp. 2421–2428.

Rundle, CW, Husayn, SS & Dellavalle, RP 2020, 'Orchestrating a virtual conference amidst the COVID-19 pandemic', *Dermatology Online Journal*, vol. 26, no. 7, pp. 2019–2021.

Sallam, M, Dababseh, D, Eid, H, Al-Mahzoum, K, Al-Haidar, A, Taim, D, Yaseen, A, Ababneh, NA, Bakri, FG & Mahafzah, A 2021, 'High rates of covid-19 vaccine hesitancy and its association with conspiracy beliefs: A study in jordan and kuwait among other arab countries', *Vaccines*, vol. 9, no. 1, pp. 1–16.

Science, N, Phenomena, C, Sarkar, K, Khajanchi, S & Nieto, JJ 2020, 'Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID- 19 . The COVID-19 resource centre is hosted on Elsevier Connect , the company ' s public news and information ' , , no. January.

Sherman, AC, Williams, ML, Amick, BC, Hudson, TJ & Messias, EL 2020, 'Mental health

outcomes associated with the COVID-19 pandemic: Prevalence and risk factors in a southern US state', *Psychiatry Research*, vol. 293, no. January.

Smith, JAE, Hopkins, S, Turner, C, Dack, K, Trelfa, A, Peh, J & Monks, PS 2022, 'Public health impact of mass sporting and cultural events in a rising COVID-19 prevalence in England', *Epidemiology and Infection*, vol. 150.

Soares, AM, Farhangmehr, M & Shoham, A 2007, 'Hofstede's dimensions of culture in international marketing studies', *Journal of Business Research*, vol. 60, no. 3, pp. 277–284, viewed November 1, 2025, <<https://www.sciencedirect.com/science/article/pii/S0148296306001974>>.

Stone, JH 2005, 'Culture and Disability', in *Culture and Disability: Providing Culturally Competent Services*, Sage Publications, London.

Washburn, L 2020, 'Understanding the Health Belief Model. Tennessee: Department of Family and Consumer Sciences, University of Tennessee', *Internet*, vol. 4, no. 2004, pp. 7–14.

WHO 2020, 'WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020', *WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020*, viewed October 31, 2025, <<https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>>.

Wong, L.P., Alias, H., Wong, P.F., Lee, H.Y. & Abubakar, S. (2020). The use of the Health Belief Model to assess predictors of intent to vaccinate against COVID-19. *International Journal of Environmental Research and Public Health*, 17(17), 6234.

World Health Organization 2020, 'Advice for the public: Coronavirus disease (COVID-19)', *Advice for the public: Coronavirus disease (COVID-19)*, viewed October 31, 2025, <<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>>.

World Health Organization 2023, 'COVID-19 cases | WHO COVID-19 dashboard', *COVID-19 Cases, World*, viewed October 31, 2025, <<https://data.who.int/dashboards/covid19/cases?n=c>>.

Yang, W, Li, P, Huang, Y, Yang, X, Mu, W, Jing, W, Ma, X & Zhang, X 2022, 'Cross-Cultural Adaptation and Validation of the Fear of COVID-19 Scale for Chinese University Students: A Cross-Sectional Study', *International Journal of Environmental Research and Public Health*,

vol. 19, no. 14.

Yang, Y, Yang, M, Yuan, J, Wang, F, Wang, Z, Li, Jinxiu, Zhang, M, Xing, L, Wei, J, Peng, L, Wong, G, Zheng, H, Wu, W, Shen, C, Liao, M, Feng, K, Li, Jianming, Yang, Q, Zhao, J, Liu, L & Liu, Y 2020, 'Laboratory Diagnosis and Monitoring the Viral Shedding of SARS-CoV-2 Infection', *Innovation*, vol. 1, no. 3, p. 100061.

Yıldırım, M., & Güler, A. 2022. Factor analysis of the COVID-19 perceived risk scale: A preliminary study. *Death Studies*, 46(5), 1065
1072. <https://doi.org/10.1080/07481187.2020.1784311>

Yoosefi-Lebni, J, Irandoost, SF, Xosravi, T, Ahmadi, S, Ziapour, A, Soofizad, G & SoleimanvandiAzar, N 2021, 'Explaining the problems faced by Iranian housewives during the COVID-19 quarantine period, and their adaption strategies: A qualitative study', *Women's Health*, vol.17, viewed October 28, 2025, <<https://journals.sagepub.com/doi/full/10.1177/17455065211063291>>.

Zhao, SZ, Wong, JYH, Wu, Y, Choi, EPH, Wang, MP & Lam, TH 2020, 'Social Distancing Compliance under COVID-19 Pandemic and Mental Health Impacts: A Population-Based Study', *International Journal of Environmental Research and Public Health* 2020, Vol. 17, Page 6692, vol. 17, no. 18, p. 6692, viewed November 1, 2025, <<https://www.mdpi.com/1660-4601/17/18/6692/htm>>.

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Appendices A: Mzuzu University Research Ethics Committee Informed Consent Form
(English)



Mzuzu University Research Ethics Committee (MZUNIREC)

Informed Consent Form for Research in Adherence to COVID-19 Preventive Measures.

Introduction

I am **Annie Nyabweka Mwafulirwa** from the Department of Agri-Sciences in the Faculty of Environmental Sciences at Mzuzu University. We are doing research on ***“The Impact of culture, perception and occupation on adherence to COVID-19 Preventive Measures”***. This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask them of me or of another researcher.

Purpose of the research

The study aims to analyse the impact of individual perception, religion and occupation on adoption of COVID 19 preventive measures in of T/A Mwakaboko, in Karonga district.

Type of Research Intervention

This research will involve your participation in answering an individual interview.

Participant Selection

You are being invited to take part in this research because of your capacity as citizen/ community policing forum member/ police officer.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate nothing will change. You may skip any question and move on to the next question.

Duration

The research takes place from the month of May 2023 to October 2023.

Risks

You do not have to answer any question or take part in the discussion/interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Reimbursements

You will not be provided any incentive to take part in the research.

Sharing the Results

The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public. Following, we will publish the results so that other interested people may learn from the research.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact: Associate Prof Mavuto Tembo (0997376822) (supervisors), Mzuzu University, Private Bag 201, Luwinga, Mzuzu 2. Email: tembo.m@mzuni.ac.mw; or you can contact Dr Ulemu Msiska (postgraduate coordinator) 0994954025, ulemumsiska2004@yahoo.com, Department of Agri-Sciences, Mzuzu University, Private Bag 201, Luwinga, Mzuzu 2.

This proposal has been reviewed and approved by Mzuzu University Research Ethics Committee (MZUNIREC) which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the Committee, contact Mr. Gift Mbwele, Mzuzu University Research Ethics (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwinga, Mzuzu 2, Phone: 0999404008/0888641486

Do you have any questions?

Part II: Certificate of Consent

*I have been invited to participate in research about **the impact of Culture, Perception and Occupation on COVID-19 preventive measures.***

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year

If illiterate¹

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given

¹ A literate witness must sign (if possible, this person should be selected by the participant and should have no connection to the research team). Participants who are illiterate should include their thumb print as well.

consent freely.

Print name of witness_____

Thumb print of participant



Signature of witness _____

Date _____

Day/month/year

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands the research project. I confirm the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent_____

Date _____

Day/month/year

Appendices B: Mzuzu University Research Ethics Committee Informed Consent Form
(Chichewa)



Mzuzu University Research Ethics Committee (MZUNIREC)

Informed Consent Form for Research in Adherence to COVID-19 preventive Measures

Mau oyamba

Ine ndine **Annie Nyabweka Mwafulirwa** kuchokera ku gawo la maphunziro la Agri-Sciences mu nthambi ya Environmental Sciences ku Mzuzu University. Tikuchita ***kafukufuku pa zotsatira za chikhalidwe, maganizidwe ndi ntchito pa kutsata ndondomeko zopewera mliri wa COVID-19 mu dela ya mfumu yaikulu Mwakaboko ku karonga***. Kalata ya chilolezoyi itha kukhala ndi mau oti simukutha kuwavetsa bwino. Chonde muzindiuza kuti ndiime ndifotokozele pamene tikuchita kafukufukuyu. Ngati muli ndi mafuso ena, fuseni ineyo kapena azanga omwe ndikuchita nawo kafukufukuyu.

Cholinga cha kafukufuku

Kafukufukuyu akufuna kumvetsa mmene kaganizidwe ka munthu, chipembezo ndi ntchito yomwe amagwira zimakhudzira kagwalitsidwe ntchito ka njira zodzitetezela ku mliri wa COVID-19 mu dela la mfumu yaikulu Mwakaboko ku karonga

Mtundu wa kafukufuku

Kafukufukuyu akudalila kutengapo gawo kwanu poyankha mafuso amene ndikufuseni mkucheza kwathu.

Mchifukwa chani mwasankhidwa?

Mwasankhidwa kuti muchite nawo kafukuyu potengela udindo wanu ngati mzika, wachitetezo wakumudzi/wapolice.

Kutengapo gawo pa kafukufuku mosakakamiza

Kutengapo gawo kwanu pa kafukufukuyu mkosakakamiza. Muli ndi ufulu kutengapo gawo kapena ayi. Mukasankha kusachita nawo kafukufukuyu palibe icho chisintho. Muli ndi ufulu kusiya mafuso ena osayankha mkuyankhako ena.

Kafukufukuyu atenga nthawi yotalika bwanji?

Kafukufukuyu ayamba mwezi wa June 2023 chaka chomwe chino.

Zodzetsa Nkhawa

Simukuyenera kuyankha mafuso kapena kutengapo mbali mkucheza ngati mukuona kuti mafuso ena salibwino kapena simunasangalala nawo.

Cholowa/Kulipidwa

Kutenga nawo gawo pa kafukufukuyu ndi kwa ulere ndipo simudzalandira kalikonse.

Kugawana zotsatila za Kafukufuku

Zotsatila za kafukukuyu zidzagawidwa kwa inu amene mutengepo mbali ndi anthu a mdela lanu zisanagawidwe ku mtundu wose wa aMalawi. Zotsatila za kafukufukuyu zidzasindikizidwa mu m'buku kuti anthu ose ofuna kuva zambiri za kafukufukuyu athe kutero.

Oti mungathe kulumikizana nawo

Ngati muli ndi mafuso, mutha kufusa panopa kapena nthawi ina. Ngati mukufuna kudzapusa nthawi ina chonde alembeleni kalata awa Associate Prof Mavuto Tembo (0997376822) ndi Dr. Chrispin Mphande (0888862403) omwe ndi aphuzitsi ku Mzuzu University pa adilesi iyi: Private Bag 201, Luwinga, Mzuzu, kapena ayimbireni ma thenifolo. Mutha kutumizaso kalata ku imelo adilesi iyi: tembo.m@mzuni.ac.mw. Mutha Kulembelaso Dr Ulemu Msiska (postgraduate coordinator), Department ya Agri-Sciences, Mzuzu University, Private Bag 201, Luwinga, Mzuzu 2. Foni: 0994954025, Imelo adilesi: ulemumsiska2004@yahoo.com.

Kafukufukuyu waunikidwa ndi kuvomerezedwa ndi a Mzuzu University Research Ethics Committee (MZUNIREC) yomwe ndi komiti yoonetsetsa kuti ochita nawo kafukufuku ndi otetezedwa mu njira ina iliyose. Ngati mukufuna kuva zambili za komitiyi lumikizananani ndi a Gift Mbwele pa adilesi iyi: Mzuzu University Research Ethics (MZUNIREC) Administrator, Mzuzu University, P/Bag 201, Luwinga, Mzuzu 2, Ma nambala awo a foni: 0999404008/0888641486

Muli ndi mafuso Lirilonse?

Gawo lachiwiri: Kalata yovomereza

Ndaitanidwa kuti ndichite nawo kafukufuku pa mmene kafukufuku pa anthu kutengako mbali pa chitetezo kudzera mu masamba a mchezo mu chitetezo cha kumudzi ku Muloza ku Malawi.

Ndawelenga komaso andiwelengera zose zoyenera pa kafukufukuyu. Ndinapatsidwa mwayi oti ndifunse mafuso pa kafukufukuyu ndipo mafuso ose ndinafusa andiyankha mogwira mtima. Ndikuvomereza kuchita nawo kafukufuyu mwakufuna kwanga

Dzina la ochita nawo kafukufuku_____

Signature _____

Tsiku_____

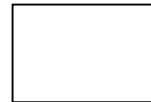
Tsiku/Mwezi/Chaka

Ngati ali osatha kulemba ndi Kuwelenga²

Ndaonelela kuwerenga kolondola kwa kalata ya chivomerezo kwa otenga nawo mbali pa kafukufukuku. Ndipo otenga nawo mbaliyu anapatsidwa mwayi ofusa mafuso. Ndikutsimikizira kuti otenga nawo mbaliyu wavomereza yekha kutenga nawo mbali pa kafukufukuyu.

²Mboni yodziwa kulemba imusainile uyu ochita nawo kafukufuku (ngati mkotheke mboniyi isankhindwe ndi uyu ochita nawo kafukufuku osati awo ochititsa kafukufuku). Ochita nawo kafukufuku omwe sadziwa kulemba adindeso ndi chala.

Dzina la mboni_____Otenga nawo mbali adinde ndi chala apa



Signature ya mboni _____

Tsiku _____

Tsiku/Mwezi/Chaka

Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands the research project. I confirm the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher /person taking the consent_____

Date _____

Day/month/year

OBJECTIVE 1: ASSESS INDIVIDUAL PERCEPTION ON COVID-19 PREVENTIVE MEASURES

Definition	This objective will assess individual perception on COVID-19 preventive measures. Perception is ‘the organisation, identification, and interpretation of sensory information in order to represent and understand the presented information or environment’ (Wikipedia). In this study, perception is defined as the way in which COVID-19 preventive measures are regarded, understood, or interpreted in the study area. In respect to this study, COVID-19 preventive measures are those measures or guidelines set by government to preventing, containing and/or managing COVID-19. These include but not limited to wearing Personal Protective Equipment (PPE), handwashing with soap or alcohol-based hand sanitiser and social distancing.
Respondents/Data source	Individuals aged 15 and above Key informants
Data type	Perception • Perceived benefits of preventing COVID-19 • Perceived threat of COVID-19 • Perceived cost of COVID-19 preventive measures • Susceptibility to COVID-19

Method of data collection	• Personal interviews using questionnaire • Key informant interview (KII) • Focus group discussion (FGD)
Sampling procedure	• Simple random sampling • Purposive sampling
Sample size	• 350 respondents • 10 KI • 3 FGD
Data collection site	• T/A Mwakaboko, Karonga
Data collection tools	• Semi-structured questionnaire • Interview guide
Question to be included in the tool	<u>Questionnaire</u> Section 1: Demographic characteristics of the respondent 1. Age of the respondent (in years): _____ 2. Sex of the respondent 1) Male 2) Female 3. What is your marital status? 1) Single 2) Married 3) Separated/Divorced 4) Widowed 4. What is highest level of education attended? 1) None 2) Primary 3) Secondary 4) Tertiary 5) Adult literacy 5. What is your religion?

	1) Islam 2) CCAP 3) Catholic 4) SDA 5) Living waters 6) Church of Christ 7) Assemblies of God 8) Other (Specify)_____												
	6. What is your main occupation? 1) Farmer 2) Doctor 3) Nurse 4) Driver 6) Doctor 7) Business operator 8) Artist 9) Other (Specify) _____												
	Instruction <i>Please answer by writing a number corresponding to your choice in the last column.</i>												
	Section 2: Individual perception on COVID-19 preventive measures KEY 1= I do not agree at all, 2= I disagree, 3= It is neutral, 4= I agree, 5= I completely agree												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">#</th> <th style="width: 75%;">Question</th> <th style="width: 20%;">Fill (1-5)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Covering the nose and mouth while coughing cannot prevent COVID-19.</td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td>Avoiding touching of the eyes, nose, and mouth cannot prevent COVID-19.</td> <td></td> </tr> <tr> <td style="text-align: center;">3</td> <td>Avoiding crowdedness in public places can prevent COVID-19.</td> <td></td> </tr> </tbody> </table>	#	Question	Fill (1-5)	1	Covering the nose and mouth while coughing cannot prevent COVID-19.		2	Avoiding touching of the eyes, nose, and mouth cannot prevent COVID-19.		3	Avoiding crowdedness in public places can prevent COVID-19.	
#	Question	Fill (1-5)											
1	Covering the nose and mouth while coughing cannot prevent COVID-19.												
2	Avoiding touching of the eyes, nose, and mouth cannot prevent COVID-19.												
3	Avoiding crowdedness in public places can prevent COVID-19.												

	4	COVID-19 can be transmitted among adolescents and young adults.	
	5	Asymptomatic person with COVID-19 cannot transmit the virus.	
	7	COVID-19 cannot be transmitted by touching droplets on surface or objects	
	8	COVID-19 cannot be transmitted via droplets from the nose or mouth	
	9	Wearing of face masks cannot prevent COVID-19.	
	10	Washing hand with soap or alcohol-based hand sanitiser cannot prevent COVID-19.	
	11	Observing social distance cannot prevent COVID-19.	
	13	No need for preventive measures because COVID-19 is not deadly.	
	14	I live in an environment where I cannot be exposed to the COVID-19 infection.	
	15	Diseases caused by the COVID-19 infection have very serious consequences.	
	16	Diseases caused by the COVID-19 infection will have a major impact on my life.	

	17	Excessive efforts are being made to comply with actions for COVID-19 prevention.	
	18	There are many obstacles to complying with actions for COVID-19 prevention.	
	19	The benefits outweigh the costs of complying with actions for COVID-19 prevention.	
	20	The benefits outweigh the inconvenience of following actions for COVID-19 prevention	
	21	I have enough ability to take actions for COVID-19 prevention.	
	22	I am familiar with the COVID-19 infection.	
	23	I know more about COVID-19 than others.	
	24	I am in good health compared to other people; therefore, I cannot get infected with COVID-19.	
<u>Interview guide</u> 1. What do you know about COVID-19? Please explain 2. When you hear about COVID-19, how do you understand it? 3. How were you protecting yourself from COVID-19? Please explain 4. How does your community regard and understand COVID-19? 5. Do you think COVID-19 pandemic has impacted your community and how? Please explain 6. Do you think COVID-19 is a deadly disease? Please explain? 7. Do you think COVID-19 disease is preventable? Please explain			

	8. Do you think there is a close relationship between your daily work and COVID-19 prevention? 9. Do you think that there is close relationship between religious affiliation and COVID-19 prevention in this community? 10. What has your religion done in relation to COVID-19 prevention?
Enumerators	3 Enumerators
Denominator	Number of respondents
Data analysis	• Descriptive statistics (means, standard deviation, frequencies and percentages) • Likert scale • Thematic analysis

OBJECTIVE 2: DETERMINE THE INFLUENCE OF RELIGION ON ADHERENCE TO COVID-19 PREVENTIVE MEASURES

Definition	This objective will determine the influence of religious groups on adherence of COVID-19 preventing measures set by government to prevent, contain and/or manage the pandemic. Religion is a range of social-cultural practices, morals, beliefs, worldviews, texts, sanctified places, prophecies, ethics, or organisations, that generally relate humanity to supernatural, transcendental, and spiritual elements (Wikipedia). Different religions may or may not contain various elements ranging from the divine, sacredness, faith, and a supernatural being or beings. In simple term, Oxford dictionary defined religion as
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	the belief in and worship of a superhuman power or powers, especially a God or gods. In this study, religion will include all religious affiliations that are practiced in Malawi such as CCAP, Catholic, Seventh day Adventist, Malawi assemblies of God and Islam, among others. In respect to this study, influence is defined as the capacity of the religion to have an effect on the character, development, or behaviour of an individual on adherence of COVID-19 preventive measures. COVID-19 preventive measures include wearing personal protective equipment (PPE), handwashing with soap or alcohol-based hand sanitiser and social distancing. In this study, adherence is the act of practising COVID-19 preventive measures and following the guidelines set forth by government to prevent, contain and or manage of COVID-19 pandemic. Adherence and adoption will be used interchangeably throughout this study.
Respondents/Data source	Individuals aged 15 and above
Data type	Religion • Islam • CCAP • Catholic • Assemblies of God • Church of Christ • Living waters • Seventh day Adventist COVID-19 Preventive measures • Wearing of mask

	• Social distancing • Handwashing with soap or alcohol-based hand sanitiser
Method of data collection	Personal interviews
Sampling procedure	Simple random sampling
Data collection site	T/A Mwakaboko, Karonga
Sample size	350 respondents
Data collection tools	Semi-structured questionnaire
Question to be included in the tool	<u>Questionnaire</u> 1. What is your religion? 1) Islam 2) CCAP 3) Catholic 4) Seventh Day 5) Living waters 6) Church of Christ 7) Assemblies of God 9) Other (Specify)_____ 2. Were you practicing the following COVID-19 preventive measures during the pandemic? (<i>Answer appropriately in the last column by indication the number using the key provided below.</i>) 1= Do not comply, 2= Comply moderately and 3= Comply

	#	Question	Fill (1-3)
	1	Wearing a mask	
	2	Covering one's mouth with one's sleeve when coughing	
	3	Washing hands at least 30 seconds	
	4	Refraining from travelling or going out	
	5	Ventilating a room at least twice a day	
	6	Performing social distancing	
	7	Staying home for three to four days if sick	
	8	Not going where there are many people	
	9	Using hand sanitiser to clean hands	
	10	Refraining from visiting a hospital	
	11	Avoiding visiting public places	
	12	Not holding meeting between people	
	13	Keeping a distance of two arm's length from people	
	14	Refraining from using public transport	
	15	Keeping a two-meter distance from people in daily life	
	16	Consuming a health food such as vitamins	

	17	Periodically disinfecting things that are touched	
	18	Disinfecting cell phones	
Enumerators	3 Enumerators		
Denominator	Number of study respondents		
Data analysis	Logistic regression analysis The logistic Regression model formula is stated as follows: $\text{Logit}(P_i) = \ln(P_i / 1 - P_i) = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + U_t$ Where: $\ln(P_i / 1 - P_i)$ = logit for adopting COVID 19 preventive measures P_i = Adoption of COVID 19 preventive measures $1 - P_i$ = Non-adoption of COVID 19 preventive measure β_0 = intercept β_1, β_n = coefficient X = independent variables (in this case religion such as Christianity, Islam, etc) U_t = error term		

OBJECTIVE 3: ANALYSE EFFECTS OF THE INDIVIDUAL OCCUPATION ON ADHERENCE TO COVID-19 PREVENTIVE MEASURES

Definition	This objective will analyse the effects of individual occupation on adherence to COVID-19 preventive measures. In this study, occupation means a person's usual or principal work or business, especially as a means of earning a living. Individual occupation may include but not limited to: farmer, teacher, doctor, nurse, business person, engineer, plumber, electrician, and artist. according to Oxford dictionary, effect is a change which is a result or consequence of an action or other cause. In respect to this study, effect shall mean a change which is a result or consequence of individual occupation in relation to adherence of COVID-19 preventive measures.
Respondents/Data source	• Individuals aged 15 and above
Data type	Occupation • Farmer • Driver • Nurse • Doctor • Artist • Plumber, etc. COVID-19 preventive measures • Wearing of mask • Social distancing • Handwashing with soap or alcohol-based hand sanitiser

Method of data collection	• Personal interviews • Key informant interviews • FGD									
Sampling procedure	• Random sampling • Purposive sampling									
Sample size	• 350 respondents • 10 KI • 3 FGD									
Data collection tools	• Semi-structured questionnaire • Interview guide									
Question to be included in the tool	<u>Questionnaire</u> 1. What is your main occupation? 1) Farmer 2) Doctor 3) Nurse 4) Driver 6) Doctor 7) Business operator 8) Artist 9) Other (Specify) _____ 2. Were you practicing the following COVID-19 preventive measures during the pandemic? <i>(Answer appropriately in the last column by indication the number using a key provided below.)</i> 1= Do not comply, 2= Comply moderately and 3= Comply <table><tr><th>#</th><th>Question</th><th>Fill</th></tr><tr><td></td><td></td><td>(1-3)</td></tr><tr><td>1</td><td>Wearing a mask</td><td></td></tr></table>	#	Question	Fill			(1-3)	1	Wearing a mask	
#	Question	Fill								
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1	Wearing a mask									

	2	Covering one's mouth with one's sleeve when coughing	
	3	Washing hands at least 30 seconds	
	4	Refraining from travelling or going out	
	5	Ventilating a room at least twice a day	
	6	Performing social distancing	
	7	Staying home for three to four days if sick	
	8	Not going where there are many people	
	9	Using hand sanitiser to clean hands	
	10	Refraining from visiting a hospital	
	11	Avoiding visiting public places	
	12	Not holding meeting between people	
	13	Keeping a distance of two arm's length from people	
	14	Refraining from using public transport	
	15	Keeping a two-meter distance from people in daily life	
	16	Consuming a health food such as vitamins	
	17	Periodically disinfecting things that are touched	
	18	Disinfecting cell phones	
	<u>Interview guide</u>		

	1. Do think that there is a close relationship between your occupation and COVID-19 prevention?
Enumerators	3
Denominator	Number of study respondents
Data analysis	Descriptive statistics (frequencies and percentages) Thematic analysis

Approval letter



MZUZU UNIVERSITY

DIRECTORATE OF RESEARCH

Mzuzu University
Private Bag 201
L u w i n g a
M z u z u 2
M A L A W I
TEL: 01 320 722
FAX: 01 320 648

MZUZU UNIVERSITY RESEARCH ETHICS COMMITTEE (MZUNIREC)

Ref No: MZUNIREC/DOR/23/104

24/10/2023.

Anne Mwafulirwa,

Mzuzu University,

P/Bag201,

Luwinga,

Mzuzu 2.

annemwafu@gmail.com

Dear Anne,

**RESEARCH ETHICS AND REGULATORY APPROVAL AND PERMIT FOR
PROTOCOL REF NO: MZUNIREC/DOR/23/104: THE IMPACT OF CULTURE,
PERCEPTION AND OCCUPATION ON ADHERENCE TO COVID-19 PREVENTIVE
MEASURES IN TRADITIONAL AUTHORITY MWAKABOKO IN KARONGA
DISTRICT.**

Having satisfied all the relevant ethical and regulatory requirements, I am pleased to inform you that the above referred research protocol has officially been approved. You are now permitted to proceed with its implementation. Should there be any amendments to the approved protocol in the course of implementing it, you shall be required to seek approval of such amendments before implementation of the same.

This approval is valid for one year from the date of issuance of this approval. If the study goes beyond one year, an annual approval for continuation shall be required to be sought from the Mzuzu University Research Ethics Committee (MZUNIREC) in a format that is available at the Secretariat. Once the study is finalised, you are required to furnish the Committee with a final report of the study. The Committee reserves the right to carry out compliance inspection of this approved protocol at any time as may be deemed by it. As such, you are expected to properly maintain all study documents including consent forms.

Committee Address:

***Secretariat, Mzuzu University Research Ethics Committee, P/Bag 201, Luwinga, Mzuzu 2;
Email address: mzunirec@mzuni.ac.mw***

Wishing you a successful implementation of your study.

Yours Sincerely,



Gift Mbwele

SENIOR RESEARCH ETHICS ADMINISTRATOR

For: CHAIRMAN OF MZUNIREC

Committee Address:

***Secretariat, Mzuzu University Research Ethics Committee, P/Bag 201, Luwinga, Mzuzu 2;
Email address: mzunirec@mzuni.ac.mw***