DETERMINANTS OF NON-COMPLIANCE TO HEPATITIS B VACCINATION AMONG STUDENTS OF KENYA MEDICAL TRAINING COLLEGE IN MACHAKOS SUB COUNTY, KENYA

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DECLARATION AND APPROVAL

Declaration by Student

I declare that this is my original work and has not been presented for a degree or other award in any other institution of higher learning.

Signature:  **Date**: 26th June 2023

Nthambi Silla Winfred Nguih

MKU/2017/MPH/68841

Approval by Supervisors

We confirm that the work presented within has been undertaken under our supervision.

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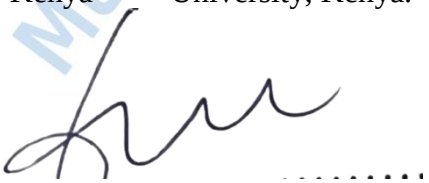
Signature:  **Date:** 29th June 2023

Dr. Esther Muitta

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DEDICATION

To my husband, children, and parents: Your unwavering support and motivation inspired this work. With deepest gratitude, I dedicate this work to you.

ACKNOWLEDGEMENT

I earnestly thank my Lord God for blessing me with the opportunity in the trajectory from the start to completion of my thesis. My most sincere gratitude go to my very supportive superiors Dr. Juma Joseph and Dr. Esther Muitta for their guidance. I wish to express my loving gratitude to my spouse and my sons, the Nguihs, and everyone who assisted and encouraged me to work on this project.

ABSTRACT

In Sub-Saharan Africa, the prevalence of Hepatitis B Virus (HBV) is high, with an estimated 70 to 90% of the population becoming infected before the age of 40. Healthcare workers (HCWs), including healthcare students (HCSs), face an increased risk of HBV infection due to their occupational exposure. HCSs, in particular, are vulnerable to the disease due to their limited experience with infection control measures and insufficient knowledge about the risks associated with treating patients. This study aimed to assess the level of awareness of HBV vaccination among students in KMTC in Machakos Sub County, determine the compliance with the Hepatitis B vaccination schedule among students in Kenya Medical Training Colleges in Machakos County, evaluate attitudes towards Hepatitis B immunization among students in KMTC in Machakos Sub County, and establish the existence of institutional measures to ensure the implementation of HBV vaccination policies for students in KMTC in Machakos County. The research utilized a cross-sectional descriptive study design, employing a mixed approach with both quantitative and qualitative data collection among KMTC students to identify the factors influencing noncompliance with the HBV vaccine. The study was conducted at the Kenya Medical Training Colleges in Machakos County, specifically at the Machakos and Manza campuses. The majority of the respondents in the study reported being aware of Hepatitis B virus infection, with 301 (76.1%) indicating they had heard about it, while 93 (23.6%) had not. Among the KMTC students, the primary mode of Hepatitis B virus transmission identified was contact with the blood of an infected person, as reported by 98 (24.9%) respondents. Contact with body fluids contaminated by the blood of an infected person and sexual transmission were also recognized as significant modes of transmission, with frequencies of 74 (18.8%) and 71 (18.0%) respectively. The findings indicate a high level of awareness of HBV vaccination among students in KMTC in Machakos Sub County, with the majority of students possessing sufficient knowledge on the subject. Needle stick injuries were identified as the most likely route of disease transmission, highlighting the risk that medical students face when attending to patients in hospitals. Therefore, it is crucial for medical students to diligently adhere to the Hepatitis B vaccination schedule. Encouraging a culture of mutual support among medical students to get vaccinated as a preventive measure against acquiring the disease is recommended. Furthermore, KMTC should establish standardized guidelines and policies to ensure the implementation of HBV vaccination measures.

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LIST OF ABBREVIATION AND ACRONYMS

CDCP:	Centers for Disease Control and Prevention
CHBI:	Chronic Hepatitis B Infection
EPI	Expanded Programme on Immunization
EPI:	Expanded Programme on Immunization
FHOH:	Federal Ministry of Health
HB:	Hepatitis B
HBM:	Health Belief Model
HBsAg:	Hepatitis B Surface Antigen
HBV:	Hepatitis B Virus
HCW:	Health Care Workers
KEMRI:	Kenya Medical Research Institute
KEPI:	Kenya Expanded Programme on Immunization
KMTC:	Kenya Medical Training College
MOH:	Ministry of Health
NGO:	Non- Governmental Organization
QMS:	Quality Management Systems
SIGN:	Safe Injection Global Network
SSA:	Sub-Saharan Africa
TFI:	Task Force on Immunization
UNFPA:	United Nations Population Fund
UNICEF:	United Nations Children's Fund WHO World Health Organization

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section encompasses the study background, problem statement, study objectives, broad and enabling objectives, research questions, justification, scope of study, and limitations and delimitations of the study.

1.1 Background

Because of its relationship with alpha-fetoprotein, the Hepadna virus known as hepatitis B virus, more often abbreviated as HBV, is able to remain active in patients with chronic liver disorders. (V Patil et al, 2021). According to estimates made by the HBV Foundation (HBF 2018a; Razavi-Shearer et al. 2018), 3.9% of persons throughout the globe tested positive for HBV in 2016. According to WHO 2019a, there are 887,000 deaths that take place every year as a direct consequence of HBV and the illnesses that are connected with it. The majority of these fatalities were related to an advanced stage of liver fibrosis or cirrhosis. Stanaway et al. (2016) estimate that there are somewhere between 240 and 257 million confirmed cases of HBV infection around the globe. Stanaway et al. (2016) report that the incidence of HBV transmission is 1.3% throughout the globe. However, this percentage shifts significantly depending on geography, going from 0.2% in industrialized countries to 3% in less developed nations. More than two thirds of all cases of infection are discovered in the developing world, where the prevalence is greater than eight percent. This accounts for more than two thirds of all reported cases. (Stanaway et al, 2016). It is estimated that the prevalence of HBsAg in East African regions is 8% of the population. The prevalence of HBV is high in these regions. (Stanaway and colleagues, 2016; V Patil and colleagues, 2021). The current

HBV prevalence rate in Kenya is 2.1%, with certain locations having an incidence as high as 7.5%. (Ly et al, 2016).

Healthcare workers (HCWs) and students of health professions are still at risk of needle prick trauma when they are participating in clinical practicums. This danger is not eliminated. Not only does exposure have an influence on the onset of the disease, but it also has an effect on the likelihood that the sickness will continue. It is well knowledge that the chances of a person being infected with chronic hepatitis B (CHB) grow in direct proportion to the number of times they are presented with the opportunity to come into contact with the virus. This is the case regardless of whether or not they actually do so. Chronic infections are more likely to develop in clinical settings in persons who are not protected against them, despite the fact that acute infections are often cured when they take place in people who have an immune system that is functioning normally. (Jefferies et al. 2018; Terrault et al. 2018; Hyun Kim and Ray Kim 2018; CDC 2020a).

An efficient HBV vaccine that meets safety standards has been made accessible and approved by the World Health Organization (WHO) for the essential control of HBV among all medical professionals and students (WHO, 2017). La Torre et al. and the Centers for Disease Control and Prevention (CDCP) (2016) have proposed that the implementation of mandatory HBV vaccination leads to a reduction in HBV prevalence rates. Immunizing healthcare professionals offers the advantage of ensuring that future healthcare providers are protected from the hepatitis B virus before entering the professional workforce, thus promoting their safety and effective prevention.

The World Health Organization (WHO) 2019a states that being vaccinated against HBV, often known as the hepatitis B vaccine, is the primary and most effective method of preventing infection with the virus. Since it was first employed as a preventive measure in 1982, the HBV vaccination has been credited with helping to bring about a major drop

in the number of people all over the world who are infected with the virus (Van Damme 2016; WHO 2017a). This is due to the fact that the vaccine has helped to bring about a considerable decline in the number of people who are able to pass the virus on to others. Vaccination against HBV is now routinely offered, and it may be given to anyone of any age, even infants.

Nonetheless, factors of compliance are probably diversed and are gradually manifesting periodically concerning usefulness and safety of the vaccine which have stockpiled. Recently, the obviousness that the concerns regarding HCWs' views toward the hepatitis B vaccine are more complicated and extensive.

Psychological, position and behavioral are several determinants that should be regarded when forecasting hepatitis B vaccination adoption and compliance for health workers and medical students. Since medical students being mentored for the future medical work force, it is necessary that they should also be vaccinated with HBV vaccine (CDC, 2016). Campaigns of population-wide vaccination against hepatitis B should be carried out, according to recommendations made by the European Region of the World Health Organization (WHO), in order to prevent the further spread of disease in the future. Participation in these programs is strongly advised for all infants during the first 24 hours after birth, children up to the age of 18, and adults who are members of high-risk groups for HBV infection. In addition, these programs are recommended for infants who were delivered to mothers who tested positive for the HBsAg antigen when they themselves were tested. persons who work in the healthcare industry, persons who are homosexual men, people who use injection drugs, and people who get hemodialysis are all regarded to be high-risk demographics. In May of 2016, the World Health Organization (WHO) published the first Global Health Sector Strategy on viral hepatitis. This strategy spanned the years 2016–2021 and was intended to prevent and control viral hepatitis. According

to the World Health Organization (WHO), the goal of this plan was to reduce the death rate by 65% and put an end to new CHB infections by 90% by the year 2030. Both of these goals were to be accomplished.

The Kenya Medical Training College (KMTC) is the primary government institution in Kenya for midlevel medical training. With multiple satellite campuses spread across the country, this study focuses on investigating the factors that contribute to non-compliance with Hepatitis B Virus (HBV) immunization among students attending the Kenya Medical Training School in Machakos Sub County. The objective is to understand the reasons behind the failure to adhere to HBV immunization protocols among these students.

1.2 Problem Statement

A growing cause for worry is the low rate of hepatitis B vaccine compliance among students attending Kenya Medical Training College (KMTC) in Machakos sub-county. These students should be receiving the HB immunization. The fact that HBV infection may lead to significant liver failure, malignancy, and even death is a major contributing factor to this issue. Because HBV infection might cause these symptoms, it should not be ignored. Even if there is protection against HB in the form of vaccines and medications that are successful, it is still a big problem that has a detrimental influence on the health of individuals all over the world. Those persons may be found in every region of the world. In particular, students at KMTC, along with all other healthcare professionals, are at a greater risk of contracting HBV after having post-exposure contact with potentially hazardous clinical procedures. This is because post-exposure contact increases the likelihood of HBV transmission.

KMTC aims to produce competent health workers for risky clinical areas where non-protection against Hep B infection may act as a significant economic liability, especially in resource-limited third-world countries. Failure to vaccinate medical students can lead to significant economic and social consequences, such as loss of highly skilled and trained future manpower if such infected students/HCWs are barred from carrying out their professional duties. This can lead to difficulties in securing health insurance, loss of income due to non-course completion and unemployment, long-term disability, and premature death.

Hence, the non-compliance to HB vaccination among KMTC students is a significant public health issue that needs urgent attention. Understanding the determinants of non-compliance to HB vaccination can help policymakers and healthcare providers to develop effective strategies to increase HB vaccination rates among KMTC students, thereby reducing the burden of HBV infection and its associated consequences. This study aims to identify the factors influencing non-compliance to HB vaccination among KMTC students in Machakos sub-county, Kenya. The findings of this study will contribute to the development of effective policies and interventions to increase HB vaccination rates among KMTC students and ultimately reduce the burden of HBV infection in the community.

1.3 Study Objectives

1.3.1 Broad objective

To examine determinants of noncompliance to Hepatitis B vaccination among students of the KMTC Machakos Sub County.

1.3.2 Specific Objectives

1. To assess the level of awareness on HBV vaccination amongst students in KMTC in Machakos Sub County, Kenya.

2. To ascertain the level of compliance to Hepatitis B vaccination schedule among students in Kenya Medical Training Colleges in Machakos County, Kenya.

3. To evaluate the attitudes towards Hepatitis B immunization among students in KMTC in Machakos Sub County.

4. To establish the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County.

1.4 Research Questions

1. What is the awareness level on hepatitis B vaccination amongst students in KMTC in Sub Machakos County?

2. What is the level of compliance to Hepatitis B vaccination schedule amongst students in KMTC in Sub Machakos County?

3. What are the attitudes towards Hepatitis B vaccination amongst students in KMTC in Sub Machakos County?

4. What are the existing institutional measures to ensure implementation of policies for vaccination against HBV amongst students in KMTC in Sub Machakos County?

1.5 Study Justification

Studies are yet to be done in counties across Kenya hosting medical training institutions to determine compliance to Hepatitis B vaccination among students. Science is comprehensively changing swiftly currently, illustrating complexity for researcher and sites to combine each and every expertise to develop so no single researcher or single

site can bring all the expertise to create and test medical breakthroughs on hepatitis B infection. Thus the information gotten in this study would be added knowledge necessary in prevention of hepatitis B spread and assisting in planning for closure of related health gaps. Preferably understanding of HBV, attitudes regarding immunization, moreover habits are likely to impact the intervention's success or failure. These ideals can be best instilled in health care students during their training (HCSs). During the placement period, HCSs fully engage in the medical field operations.

1.6 Significance of the Study

The noncompliance to Hepatitis B vaccination among medical trainees in the Kenya Medical Training Colleges (KMTC) in Machakos Sub County is a public health concern. As ChatGPT, a language model, I suggest that this research will provide insight into the factors contributing to this noncompliance and lead stakeholders in developing cognitive, psychomotor, and affective learning domains to close the existing gaps.

The research findings will hold significant value for health administrators, socioeconomic planners, and policymakers at all levels, as they can inform policy development and the formulation of guidelines for the Kenya Expanded Programme of Immunization (KEPI). The findings will also contribute to the monitoring and implementation of policies regarding HBV immunization among medical students. Furthermore, the results will benefit the KMTC community by enhancing protection against HBV transmission, both vertically and horizontally.

The researchers intend to disseminate the crucial findings and information to various stakeholders, including the Government of Kenya, the Machakos sub county, the KMTC community, and other relevant parties. This information will serve as a valuable database

for consultation, enabling improvements in institutional and individual factors that influence compliance with HBV vaccination.

Development partners and other stakeholders will have a basis of reference in improving the factors that lead to compliance to HBV vaccination. In conclusion, this research will provide valuable information and insights to address the problem of noncompliance to hepatitis B vaccine by medical students, which is crucial for the future health workers and the patients they handle.

1.7 Study Scope

Following receipt of approval on an ethical level from Mount Kenya University, NACOSTI, and the KMTC Research and Ethics Committee, the inquiry was carried out at KMTC campuses in Machakos Sub County, Kenya. As a consequence of the COVID-19 pandemic and the shutdown of the institution, the period of the experiment, which had been slated to run from October 2018 through October 2019, has now been pushed back to May 2021. Originally, the trial was supposed to run from October 2018 through October 2019. The aim of this study was to identify the reasons why medical students at KMTC schools in Machakos Sub County did not comply with the prescribed timeline for having their hepatitis B vaccines. This research was carried out in Machakos Sub County. In addition, the researcher looked at the students' levels of knowledge about the hepatitis B vaccine and their opinions on the subject issue. The students who were the focus of the study endeavor were those who were enrolled in diploma and certificate programs in various healthcare professions including as nursing, clinical medicine, and medical laboratory sciences at KMTC Manza and Machakos component colleges. The study used a conceptual framework that concentrated on the determinants of noncompliance to the Hepatitis B vaccine. These elements included the students' knowledge level, institutional requirements, and students' attitudes about vaccination. The only information that was

sought for with regard to compliance with the hepatitis B vaccination requirements was that which was acquired. In the process of designing and putting into action strategies to encourage adherence to the hepatitis B vaccination among future healthcare workers, the results of this study may prove to be useful for policymakers, healthcare administrators, socioeconomic planners, and development partners.

1.8 Limitation of the study

During the data collection process at KMTC Machakos Sub County in Kenya, several challenges were anticipated. However, the investigator and the assisting team made efforts to address these challenges to ensure the validity and reliability of the collected data. These challenges included:

1. Reluctance of study subjects: Some study subjects may have been hesitant to provide the required information. To address this, the investigator employed various motivational strategies such as offering incentives, creating a comfortable environment during discussions, providing transport facilitation, and assuring participants of the genuine purpose of the data collection process. These measures encouraged respondents to be truthful and provide the necessary information.

2. Respondents' doubt and fear: Many respondents may have had doubts or fears regarding the intentions and credibility of the researcher. This could have affected their willingness to participate fully. To overcome this challenge, the presence of administrative officials such as administrators, faculty heads, and student body council members was helpful. Their involvement helped to confirm that the information collected was intended for academic purposes and not for personal or financial gain. This assurance likely alleviated the fears of the respondents and increased their cooperation.

By implementing these strategies, the investigator and the assisting team aimed to minimize any potential biases or hindrances that could have compromised the quality and accuracy of the collected data.

1.9 Delimitations.

The study was motivated by the need to contribute to the literature and address the issue of non-compliance with HBV vaccination among medical students in Kenya, as previous research and government reports have shown. The research instrument used in this study consisted mostly of open and closed-ended questions to gather relevant information from the participants, and this approach was effective in eliciting responses from the participants. The study was based on the premise that factors such as knowledge level, attitudes, and institutional policies may influence the compliance of medical students with the HBV vaccination schedule. By exploring these factors, the study aimed to provide insights that can help policymakers and healthcare providers develop effective interventions to improve compliance with the HBV vaccination schedule among medical students in Kenya.

1.10 Operational Definition of Key Terms

Determinants: In the context of this study, determinants refer to the factors or variables that influence the decision of medical students at KMTC in Machakos sub-county, Kenya, to comply or not comply with the recommended Hepatitis B vaccination.

Hepatitis B: This is a viral infection that affects the liver. It is caused by the hepatitis B virus (HBV), which is transmitted through exposure to infected blood, and body fluids, or from mother to child during childbirth.

Hepatitis B Vaccination: This refers to the administration of a vaccine to protect individuals against the hepatitis B virus. The hepatitis B vaccine is a safe and effective way to prevent HBV infection and is recommended for all healthcare workers, including medical students.

Medical Student: In this study, medical students refer to individuals who are enrolled in Kenya Medical Training College (KMTC) in Machakos sub-county, Kenya, studying to become healthcare professionals.

Noncompliance: Noncompliance refers to the failure of medical students to receive the recommended Hepatitis B vaccination despite being advised to do so. Noncompliance may result from various factors, such as lack of knowledge, fear of side effects, religious or cultural beliefs, and perceived low risk of HBV infection.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction.

This chapter is composed of literature review under the following, theoretical literature review, empirical literature review, critical review, conceptual framework and summary of the conceptual framework and Empirical review of literature.

2.1.0: Theoretical frameworks

In order to gather comprehensive information on past relevant work, a thorough literature review was conducted. Various tools and sources were utilized for this purpose, including PubMed, Google Scholar, and data from reputable organizations such as the World Health Organization (WHO) and the Ministry of Health (MOH). Additionally, comprehensive online searches were performed, and global international journals were consulted.

The literature review section of the study provides detailed information on various aspects related to HBV. This includes an explanation of what HBV is, the recommended vaccination schedules, factors associated with noncompliance to HBV vaccination among students and institutions, as well as the current HBV compliance status among the selected participants at KMTC Machakos Sub County, Kenya.

By utilizing these diverse sources and conducting a comprehensive review of existing literature, the researchers aimed to ensure that the study's background information and theoretical framework were well-informed and based on credible and reliable sources..

2.1.1 Triad Theory

The Triad Theory is a conceptual framework that may be used to identify and comprehend activities that are related to the health of a person. According to Fishbein and Ajzen (2010), the premise that behavior is impacted by three components that are interrelated forms the basis of the theory. The hypothesis is built on the foundation of this supposition. A number of factors, including attitudes, self-efficacy, and social norms, contribute to the formation of this phenomenon. This premise, which serves as the conceptual skeleton for the whole of the argument, is the foundation upon which the theory is constructed. The sum total of a person's thoughts and emotions in respect to a certain activity may be represented as the person's attitude toward the behavior in question. This is referred to as the "attitude toward the behavior in question." The term for this range of possibilities is the "attitude spectrum." According to Bandura (1977), social norms may be defined as the perceived expectations of relevant persons towards the action, while self-efficacy can be defined as an individual's confidence in their own competence to carry out the activity that is at risk. Both of these definitions are based on the idea that social norms and self-efficacy play a role in an individual's willingness to engage in risky behaviors. These two meanings are similar in that they both focus on an individual's perception of what others have an expectation of them in relation to the behavior. Both of these definitions are based on the concept that the view that relevant people have about an activity may have an effect on societal norms as well as one's own sense of self-efficacy about the activity. This fundamental idea serves as the foundation for both of these definitions. Both of these definitions are dependent on the individual's point of view in connection to the social milieu in which they find themselves at the given time. This is the case regardless of which term is being used.

The administration of vaccines is only one of the many different aspects of health care that have been investigated with the assistance of the Triad Theory. This hypothesis has been used to the research of a broad variety of health-related behaviors, such as vaccination uptake, among others. The theory proposes that people's attitudes about vaccination, their perceptions of social norms surrounding vaccination, and their confidence in their abilities to access and receive immunization are all factors that play a role in individuals' choices regarding whether or not they would choose to receive immunizations. Specifically, the theory proposes that people's attitudes about vaccination play a role in whether or not they would choose to receive immunizations. In particular, the theory claims that people's attitudes about vaccination have a role in determining whether or not they would choose to undergo vaccines. This idea is called the "attitude-choice hypothesis." To be more specific, the theory claims that people's understandings of the social norms that surround vaccination are linked to their perspectives on whether or not they feel that vaccination should be required. It is feasible to construct interventions that have the potential to increase the number of people who receive vaccinations if one has knowledge of these three criteria, and then puts that information to use in order to design the treatments. This is the case given that the information is used in some way.

The Triad Theory has the potential to be utilized in the capacity of a tool for the purpose of assisting in the provision of an explanation for the facts surrounding the compliance of medical students with regard to the administration of the hepatitis B vaccination within the context of the current investigation. This would be done in order to offer an explanation for the fact that there is a low prevalence of hepatitis B vaccination among medical students, which would be the incentive for doing this. This would be done in order to give an explanation for the fact that there is a low prevalence of hepatitis B

vaccination among medical students. It is possible that the concept of self-efficacy that is discussed in the Triad Theory might provide an explanation for the fact that several participants expressed concerns about the scheduling of the vaccine around test periods or difficult clinical rotations, for example. Participants expressed their concerns about the situation due to the fact that the vaccination was scheduled to take place during the aforementioned times. This is as a consequence of the fact that many of the participants had the impression that they did not have sufficient control over their abilities to carry out the activity that was being carried out at the time. This was as a result of the fact that the activity was performed at a time when there were many participants. The fact that some of the persons who took part in the study had the sense that they did not have a sufficient level of control over the timing of the vaccination led to the finding of this result. This is the reason why this is the case. It is likely that some children lack confidence in their capacity to acquire and obtain the vaccine during these busy times, which may lead to delays or non-compliance with the vaccination schedule. This may have a negative impact on the number of children who are immunized on time. Because of this lack of trust, there is a possibility that some children may not get their vaccinations on time or at all. It is possible that this will have a negative impact on the percentage of children who get their immunizations at the ages at which they are encouraged to do so. Due to this lack of trust, patients may not comply with the immunization schedule at all, which might result in vaccines being given later than anticipated or possibly not at all. As a consequence of this, it is probable that the school may have a more difficult time controlling the spread of sickness among its student body.

In a similar manner, the fact that some participants voiced anxieties about the harmful consequences of the hepatitis B vaccination is something that is something that is

something that is something that is something that is something that may be defined by making use of the idea of attitude that is provided in the Theory. This is something that may be explained, given that some of the participants were worried about the negative effects that the immunization could have. This is because some of these individuals were previously knowledgeable of the possible adverse effects that may be brought on by the immunization. This is something that may be stated about the individuals who took part in the study and voiced their concerns on the unintended consequences of the vaccine. Because it is quite likely that these children have negative thoughts and emotions about the vaccine, it is conceivable that they will be reluctant or even outright refuse to get the vaccination that is needed of them. This is due to the fact that it is highly likely that these children have negative ideas and feelings about the vaccine. The reason for this is because there is a good chance that these children may have opinions and ideas that are hostile toward the immunization, and this is the reason why. It is quite likely that interventions that target these negative attitudes, such as the presenting of factual information on the safety and effectiveness of vaccinations, might be beneficial in the quest to improve vaccination uptake among medical students. One example of such an intervention is the use of the word "vaccine" in a sentence. An excellent instance of this issue is the way in which the word "safety" is used in relation to immunizations.

It is feasible that the idea of social norms that is presented in the Theory may, in the long run, be able to give an explanation for the fact that some people lacked information about the transmission of hepatitis B and the prevention of its spread. This is because the notion of social norms is supplied as part of the Theory. Because it is very probable that these students are not aware of the hazards connected with hepatitis B, they do not consider vaccination to be an important activity in which they should engage. As a result, they do not feel that they should participate in this activity. As a direct consequence of this, they

do not consider it necessary to be vaccinated. Because of this, they do not believe that it would be suitable for them to take part in the activity because of the direct impact that it would have on the situation. Hepatitis B epidemics are still happening in different parts of the globe as a direct result of this issue. There are a variety of approaches that may be used in order to increase the number of medical students who have had their vaccinations. Peer education campaigns and other interventions that highlight the benefits of vaccination as a social norm are two examples of the types of strategies that fall under this category.

In conclusion, the Triad Theory is a helpful framework for doing research on the elements that impact medical students' desire to comply with the hepatitis B vaccination regimen. This study may be done on the components that influence medical students' motivation. It is feasible to produce therapies that may result in an increase in the number of individuals who are vaccinated and an improvement in the safety of healthcare professionals if one takes into account the interlaced nature of attitude, social norms, and self-efficacy. This is something that can be accomplished if one takes into consideration the interconnected nature of these factors. When one investigates the nature of these three components and the way in which they are connected to one another, the likelihood of this happening becomes more conceivable.

When it comes to applying the Triad Theory to this particular piece of research, there are a few restrictions that need to be taken into consideration in order to ensure that the application of the theory will progress without resulting in any errors. These restrictions are necessary in order to guarantee that the theory will be used correctly. at order to begin things rolling, the inquiry was carried out at a particular hospital that is situated inside the borders of Kenya. Because of this, it may be difficult to generalize the results to contexts other than the one in which they were acquired because of the distinctive

attributes of the environment in which they were performed. This is due to the fact that they were obtained in the context of the environment in which they were conducted. It is probable that the results cannot be generalized to apply to a larger variety of groups than those who were researched since the method that was utilized in this study was qualitative in nature. This is because the technique that was employed was exploratory in nature. In the future, research that takes a quantitative approach, such as surveys, could be able to provide numbers that are more pertinent to the medical student population as a whole in respect to their compliance with the Hepatitis B vaccine. It is possible that this will turn out to be the situation. Additional study is required on this topic before any conclusions can be drawn about it.

In conclusion, the Triad Theory is a helpful framework that has the potential to be used in order to investigate the level of compliance shown by medical students in connection with the delivery of the hepatitis B vaccine. It is possible to do this study in order to find out whether or not medical students are likely to go on to become future healthcare professionals. It is feasible to produce therapies that may result in an increase in the number of individuals who are vaccinated and an improvement in the safety of healthcare professionals if one takes into account the interlaced nature of attitude, social norms, and self-efficacy. This is something that can be accomplished if one takes into consideration the interconnected nature of these factors. When one investigates the nature of these three components and the way in which they are connected to one another, the likelihood of this happening becomes more conceivable. There is a good chance that further studies will be conducted in the not-too-distant future that will demonstrate that the Triad Theory is applicable to the adoption of vaccinations across a wide range of healthcare settings and demographic groupings. This might out to be a really fascinating finding.

2.1.2 Health Belief Model (HBM)

The health belief model is a psychological framework that is widely recognized and used to explore and predict health-related behaviors, in particular those that are associated to the use of healthcare services. Specifically, the model is used to investigate and forecast health-related behaviors that are correlated to the usage of healthcare services. Researchers at the Mayo Clinic in Rochester, Minnesota, were the ones who first created it, and since then, it has received universal popularity. It was first developed by researchers at the University of California, San Francisco, and ever since then, it has garnered the support and interest of a significant number of individuals. To be more specific, the model is used so that research on the health-related behaviors that are connected with the utilization of healthcare services may be undertaken, and predictions can be generated about such behaviors. Since its inception in the 1950s by social psychologists working for the United States Public Health Service, it has developed to become one of the most well-known and often used notions in the field of health behavior research (Janz & Becker, 1984). Its origins may be traced back to the United States Public Health Service. It was first developed by social psychologists who were employed by the Public Health Service in the United States. It is conceivable to trace its origins all the way back to the United States Public Health Service. In the beginning, it was social psychologists working for the Public Health Service in the United States that had the original idea for it and were the ones who first created it.

The health belief model postulates, at its most fundamental level, that individuals' beliefs regarding the health issues affecting their community, the perceived benefits of taking action, the barriers to such action, and their self-efficacy play crucial roles in determining their engagement, or lack thereof, in health-promoting behaviors (Rosenstock, 1974). The health belief model was developed by Rosenstock. Rosenstock is the one who

conceived of and created the health belief model. Rosenstock is the one who was responsible for the conception and development of the health belief model. Rosenstock is the one who is credited with being the brain behind the creation of the health belief model as well as its evolution. Rosenstock is the one who is recognized with being the brain behind the establishment of the health belief model as well as the evolution of its subsequent iterations.

This strategy takes into consideration the fact that individuals' views of the degree to which they are vulnerable to a certain health risk have a major influence on the degree to which they are likely to engage in preventive interventions. This is as a result of the fact that people's views of how sensitive they are to a certain health risk are dependent on their own personal histories and experiences, which are completely unique to them. People are more likely to take precautions to safeguard their health if they feel that they are susceptible to a certain illness or disease and that they are at risk of developing it if they believe that they are at risk of acquiring it. People are more inclined to make an effort to safeguard their health if they feel there is a possibility that they may get the condition in question. This is owing to the fact that people are more inclined to take steps to protect their health if they believe that they are at danger of developing an illness or ailment if they believe that they are at risk of contracting a disease or ailment. For instance, if a person believes that they have a high likelihood of acquiring cardiovascular disease due to a history of the illness in their family, they may be more motivated to make positive adjustments to their lifestyle, such as engaging in regular physical activity and ensuring that their food is well-balanced. Another example is if a person believes that they have a high likelihood of acquiring diabetes due to a history of the illness in their family. One such illustration of this would be the scenario in which a person feels they have a high risk of developing diabetes owing to a history of the disease running in their

family. One example of this would be the situation in which a person believes they are at a high risk of having diabetes due to a history of the illness running in their family. In this case, the person's family has a history of diabetes. An example of this would be the scenario in which a person feels that they have a high likelihood of developing diabetes owing to the presence of the illness in their family's medical history. In this case, the individual is basing their belief on the fact that diabetes runs in their family. This is an illustration of the idea being discussed here.

In addition, according to the health belief model, in order for people to be able to bring about positive changes in the health behaviors they participate in, they must first be aware of the possible advantages that may follow from engaging in health-enhancing activities. This is a requirement for individuals to be able to bring about positive changes in the health behaviors they engage in. This is a necessary condition for individuals to meet before they can successfully bring about good changes in the health behaviors they engage in. People are more likely to participate in certain activities if they feel that participating in such activities, such as being vaccinated or going to regular health screenings, can successfully prevent or control a health condition. Examples of such activities include going to regular health screenings or getting vaccinated. Participating in activities such as obtaining regular health checks or being vaccinated are examples of such pursuits. This category includes a wide range of activities, two examples of which are going to the doctor for checks on a regular basis and being vaccinated against a disease. Some examples of these kinds of actions include being vaccinated against various diseases and going to the doctor for routine checkups on one's health. Other instances of these sorts of behaviour include the following:. In this category, we include activities like scheduling regular checkups at the doctor's office and being vaccinated against illnesses that might be hazardous to one's health. This category includes a wide

range of activities, some examples of which include visiting to the doctor for checks on a regular basis and being vaccinated against diseases. As a result, public health campaigns and healthcare experts need to properly explain to people the advantages of the actions that are prescribed in order to improve people's motivation to follow out the concepts. People's desire to put these ideas into action will increase as a result of this. As a consequence of this, people's drive to put the ideas into action will get a significant boost.

In addition, the model recognizes the presence of perceived obstacles, which are capable of stopping people from adopting behaviors that are in some way good to their health. These behaviors include regular exercise, a healthy diet, quitting smoking, and other similar actions. It is also feasible that a range of other circumstances, such as financial restraints, a lack of access to healthcare facilities, discomfort, and fear of the possibly adverse implications of treatment, might operate as barriers. It is vital, in order to successfully support a change in behavior, to first grasp the hurdles that stand in the way, and then to work toward defeating those barriers. This is because understanding the issues that stand in the way is the first step in effectively facilitating a change in behavior. It is quite necessary for you to have a solid understanding of the challenges that you will face if you want to be successful in your quest. Patients can be encouraged to seek preventative care, and perceived barriers can be removed, by, for example, making screenings available at a cost that is either affordable or even free, ensuring that clinic locations are easily accessible, and providing clear information about the potential harmful effects of not seeking preventative care. [Citation needed] Patients can be encouraged to seek preventative care, and perceived barriers can be removed, by making screenings available at a cost that is either affordable or even free.

Additionally, the health belief model places an emphasis on the significance of self-efficacy. Self-efficacy may be defined as a person's confidence in their ability to carry out a certain action or activity effectively. When it comes to defining a person's conduct about their health, self-efficacy is believed to be a significant element. An example of self-efficacy is when a person believes that they are able to successfully do a certain activity or task despite their lack of prior experience in doing so. Self-efficacy is sometimes seen as one of the most important factors to examine when it comes to determining the activities that a person will do in respect to their own health. There is a correlation between having higher levels of self-efficacy and having a greater likelihood of participating in actions that are beneficial to one's health. This relationship exists because self-efficacy is a construct that can be measured. This connection is valid from both a quantitative and a qualitative standpoint. We can observe that there is a link between self-efficacy and healthy behaviors if we look at the correlation that exists between the two. It has been shown that this correlation still exists even after taking into consideration the influence that the other elements have. Therefore, therapies that are intended to increase an individual's view that they are capable of successfully performing a job on their own may be useful in terms of encouraging behavior change because of the fact that they are intended to increase an individual's view that they are capable of successfully performing a job on their own. People's self-confidence and their capacity to act on their own behalf may both increase if they are given the information, opportunities, and tools that they need to, for instance, carry out the behavior that is expected of them to complete the tasks that they have been tasked with. This may be the case if they are provided with the knowledge, opportunity, and tools that they need to carry out the conduct that is required of them to carry out the behavior that is expected

of them. As a consequence of this, people's odds of achieving their goals may also go up, which is a positive outcome.

There is a strong risk that the health belief model does not fully capture all parts of the behaviors that are associated to a person's health. This is a possibility. This is owing to the fact that the health belief model is not a system that is capable of being used everywhere in the world, nor can it be utilized in a general manner. Consequently, this is the reason why this is the case. Because of this, it is very important to keep this reality in mind, and because of this, it is extremely important to keep in mind that this is the case. It is of the utmost importance to keep in mind that the health belief model is not a technique that can be consistently applied to the conditions that exist in the lives of all individuals. It is not impossible for a wide variety of elements, some of which are beyond the purview of the model, to have an impact on the decisions that people make at the individual level. The use of various social media platforms is an excellent instance of this notion. These include aspirations on a personal level, influences from society as a whole, and the conditions that exist in the local environment. As a direct result of this, the model has to be seen as a practical tool that can be used with a wide range of different conceptualizations and paradigms in order to get an in-depth comprehension of health-related behaviors. This is the only way to do what has to be done. It is necessary to do this in order to get an accurate picture of how different people behave in relation to their health.

The health belief model enlightens us on the decision-making processes that individuals go through in respect to the health-related activities that they engage in by offering information on the beliefs that people have about their own health. This allows us to better understand the decision-making processes that individuals go through in regard to the health-related activities that they participate in. Healthcare providers and public

health professionals are able to develop targeted interventions and communication strategies to effectively promote health-promoting behaviors by first gaining an understanding of people's beliefs regarding community health problems, the perceived benefits and barriers to action, and their own sense of self-efficacy. This is necessary in order to effectively promote healthy behaviors. This makes it possible to build treatments and communication tactics that may successfully encourage habits that are beneficial to one's health and target certain populations. This is very necessary in order to promote healthy behaviors and lifestyle choices in a way that is effective. These treatments and methods are some examples of those that have the potential to be used successfully in order to encourage habits that are beneficial to an individual's health. However, in order to have a deeper and more comprehensive understanding of the behaviors that are related with health, it is essential to be aware of the limits of the model and to combine it with other ideas. Only then will it be possible to achieve the goal of having a deeper and more complete knowledge. This is the only way to get a more in-depth and all-encompassing comprehension of the actions that are related to one's state of health.

2.1.2 (a) History

In addition, the health belief model was developed in the 1950s by social psychologists (Irwin M., S. Stephen Kegeles, and Howard leventhal in the United States (1950)). The United States of America is the origin of this model. This model was the very first one that was shown to the general public for their consideration. It is feasible to trace the roots of the health belief model all the way back to when it was originally conceived of as a notion linked to health behavior. This may be done by going all the way back to the beginning. This is the beginning of the health belief model's long and illustrious history.

According to Becker et al. (1984), it is the role of the public health services to establish the reason why screening attempts for malaria in children have been met with such

extensive failure. Specifically, it is the obligation of the public health services to understand why these efforts have been met with such widespread failure.

The health belief model has been used to the challenge of predicting a broad range of behaviors that are important to the health of a person. Vaccination and participation in screenings for the early detection and diagnosis of asymptomatic diseases are examples of these practices. Vaccination protects against diseases that have no symptoms. Putting an end to one's smoking habit and committing to an exercise plan that they stick to consistently are two further instances of typical conduct of this kind. The most recent iteration of the model has been used in order to gain an understanding of patients' responses to signs and symptoms of disease, patients' compliance with medical regimens, lifestyle behaviors (such as sexual risk behaviors), and behaviors related to chronic diseases, which may require long-term behavior maintenance in addition to the initial behavior changes that were made in order to improve health. The goal of this endeavor is to improve patient care. The quality of treatment provided to patients is intended to be improved as a result of this effort. If this project is successful, there will be a considerable improvement in the quality of medical care that can be provided to patients. This will be an extremely beneficial outcome. These uses of the model have shown that they are helpful in explaining the viewpoints of patients on a number of topics that are related to their health. Even as late as 1988, modifications were made to the model in order to incorporate newly discovered evidence from the area of psychology addressing the function of self-efficacy in relation to both decision-making and health-related behaviors. These modifications were made in order to account for the fact that self-efficacy is connected to both decision-making and health-related behaviors. These changes were made in order to take into consideration the fact that self-efficacy is tied to both the decision-making process as well as behaviors that are relevant to one's health. These

modifications were made in order to take into account the fact that self-efficacy is linked to both decision-making and behaviors that are pertinent to one's health. This was done in order to ensure that the most accurate results were obtained. These modifications were made in order to take into consideration the fact that self-efficacy is connected to both the process of decision-making as well as behaviors that are crucial to an individual's health. The work that Christopher J. Sullivan had produced was published in the year 2010.

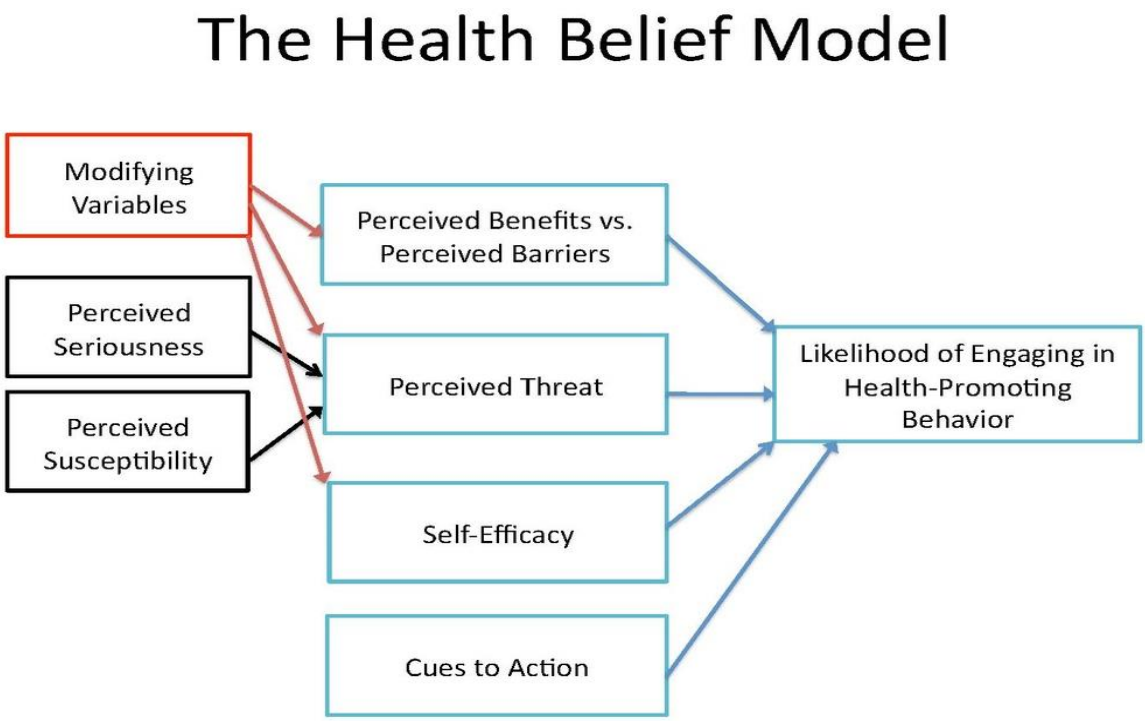

Figure 1: Health Belief Model

Source (Sajjad, ShaimunaFareeha (2016).

2.1.3 Social Cognitive Theory (SCT)

The social cognitive theory (SCT), widely applied in psychology, education, and communication, suggests that elements of an individual's knowledge acquisition can be influenced by observing others in various social interactions, personal experiences, and external media influences. This theory emphasizes that certain aspects of an individual's knowledge development can be directly linked to the process of observing others within

social contexts, personal experiences, and exposure to external media influences. Furthermore, the theory suggests that external media can play a role in shaping an individual's knowledge acquisition. In summary, the social cognitive theory highlights the importance of observing others in social settings, personal experiences, and exposure to media as influential factors in an individual's knowledge attainment. This is one of the key tenets of social constructivism. In addition to this, the idea postulates that certain parts of an individual's knowledge attainment may be impacted by media from the outside world. This theory also postulates that there may be certain parts of a person's knowledge acquisition that are indirectly linked to the act of connecting with other people. This connection with other people might be in the form of shared experiences or conversations. More specifically, the idea behind this notion is that the two are connected in some way. It has been hypothesized that the development of these links may be traced back to the feedback loops that are created as a consequence of individuals having conversations with one another. The decade of the 1950s was the beginning of the development of this paradigm, and the decade of the 1960s was a crucial decade in the progression of that development. The professor known as Albert Bandura is credited with the discovery of this notion, which, depending on how one chooses to interpret it, might appear to be either an extension or a refinement of his theory of social learning. This idea was first presented in the 1960s and has been widely studied and used ever since. (Bandura, A, (2008).

The argument contends that people will remember the sequence of events and use this information to guide following actions if they witness a model indulging in healthy activity and the ramifications of what happens as a result of that behavior. People will also remember the sequence of events and use this knowledge to guide subsequent actions. People are more likely to recall the order of events if they see a model engaging

in a healthy activity and experiencing the results of that behavior. People are more likely to remember what came before if they see a model acting in a specific manner and then see the repercussions of that behavior played out in the real world. This increases the likelihood that people will remember what came before. individuals have the ability to have a positive influence on their own behavior when they watch a model engaging in great behavior and the repercussions that arise as a consequence of that conduct. This is because when individuals observe a model's behavior, they are more likely to emulate that behavior in their own lives. This is a fundamental idea that forms the basis of social cognitive theory and contributes to the process of defining its scope. The act of observing a model may also serve as a stimulus, encouraging the observer to participate in behavior that they have already acquired from previous learning. This can be a useful way for models to be used in education. The observer is then encouraged to engage in the behavior that they have previously learned as a result of this. This may be the case if the viewer is moved to act in a certain manner as a result of being inspired by the model. If the spectator is moved to act in a specific way, then this may be the case. To express this another way, people do not instantly adopt new habits just by attempting them and, as part of the process, either succeeding or failing at them. Instead, the preservation of the human race is contingent on individuals modeling their actions after those of others in order to guarantee the species' continued existence. This shows that individuals do not just take up new behaviors by giving them a try and either becoming proficient at them or failing miserably in the process of doing so as the sole method of doing so. Rather, people pick up new behaviors via a combination of factors. To put it another way, the only method for individuals to acquire new habits is via the process of trying such habits and either succeeding or failing at them during the process of attempting such habits. There is no other way for people to acquire new habits. Depending on whether or not

individuals are praised or reprimanded for their behavior and the consequence of the activity, the observer may choose to join in the behavior that has been modeled for them. This may influence the observer's decision as to whether or not they choose to participate in the activity. The viewer also has the option of not partaking in the behavior that has been modeled for them; this choice is available to them. This is an alternate plan of action that might be taken. For instance, if a person notices that other people are being commended for their acts, then that individual has the option to choose to behave in a manner that is equal to the accolades that have been given on the other persons. This decision may be made regardless of whether or not the individual is aware of the praises that have been placed on the other individuals. (Evans, R.I. & A. Bandura, (1989).

The models that are shown by the media are catered to a wide range of individuals who originate from a diverse assortment of natural settings, and these people are the target audience for these models. As a direct consequence of this, these models are applicable to a diverse collection of people.persons are able to take up new skills and bits of knowledge by seeing the behaviors of other persons, according to the social cognitive theory, which may be thought of as a kind of learning theory. This theory proposes that humans can learn from one another. The idea behind this hypothesis is that people educate themselves via conversation with one another. Because of the effect that these learnt actions have on a person's identity, they have the potential to have a significant amount of influence on the individual's personality. Social psychologists are in agreement that a person's environment in which they were raised has a bearing on their behavior. This is because a person's upbringing has an effect on how they behave. This is because a person's upbringing is a product of the environment in which they are raised. This is because of the fact that upbringing is a product of the environment. This is due to the fact that one's upbringing is influenced by their surroundings, which explains why

this is the case. On the other hand, there are a significant number of people who are of the opinion that the person (and, by implication, the individual's intelligence) bears at least the same amount of weight, if not even more.

Environment, behavior, and cognition are the key factors that have an influence on the degree to which a person grows, and this influence takes place within the framework of a triadic interaction that is reciprocal in character. People are able to improve their skill sets by learning new abilities by studying the behaviors and thoughts of other people in their immediate environment. The environment, an individual's actions, and their level of cognitive are the primary factors that drive this process. individuals have the ability to pick up new abilities just by studying the actions and thoughts of other individuals in their immediate environment.

It is possible for a person's style of thinking, which is frequently referred to as their cognition, to evolve as a result of each new experience or pursuit that they embark in. This is something that is referred to as cognitive development. This is something that is within the realm of possibility. In a similar vein, the environment in which a person was brought up has the potential to have an effect on the conduct that the individual exhibits after they have reached maturity. This impact may be positive or negative. For instance, the frame of mind, which is often referred to as cognition, of a parent or other caregiver makes a contribution to the environment in which their children are fed, which then has an influence on the children themselves. This cycle will continue until the children are no longer affected by the environment in which they were raised. Bandura, A, (2011).

2.2 Emperical literature review.

2.2.1 Hepatitis B vaccination

According to figures that were made available to the public by the globe Health Organization (WHO), there are around 257 million individuals all over the globe who are afflicted with a chronic form of hepatitis B. The health and safety of people in every region of the globe is put in peril as a direct consequence of the situation that has formed as a direct result of this. This is a direct consequence of the situation that has developed as a direct result of this, and it is a direct consequence of the situation that has developed as a direct result of this. Over the course of the last few years, there has been a notable rise in the amount of individuals who are getting vaccinations to protect themselves against hepatitis B. This is because being vaccinated against hepatitis B, which is one of the most effective tactics for maintaining one's general health, is one of the most common preventative measures. This is due to the fact that the vaccination is easily accessible to those who have a need for it, which has resulted in this consequence. This pattern may be explained by the fact that an increasing number of persons are becoming aware of the benefits of obtaining vaccines, which in turn is leading to an increase in the number of individuals who are getting vaccinated against illnesses. When the hepatitis B vaccination was first made available to the general public in the 1980s, significant headway was achieved in the battle against the worldwide spread of the hepatitis B virus, as stated by Ni et al. (2019). This was the decade in which the hepatitis B vaccine was first available. This signified a significant advancement in the fight to bring the illness under control. During this specific occasion, the hepatitis B vaccine was made available to the general public for the very first time. The war against the hepatitis B virus made substantial advance as a direct result of this new information's contribution. This demonstrated that there had been significant progress in the fight against the adversary

in terms of territory conquered and land acquired. The World Health Organization (that) recommends that all babies should get at least one dose of a vaccination, that populations that are at a high risk should receive catch-up vaccines, and that healthcare personnel should undergo immunizations (WHO, 2021). In the year 2021, the planet Health Organization (WHO) presented their recommendation to the people and governments of the whole planet.

People who live in Africa have a greater chance of having a chronic infection as a result of the global dissemination of the hepatitis B virus, which is responsible for the widespread prevalence of the illness in the area. This virus is also the cause of the widespread prevalence of the disease in Africa. This virus is to blame for the very high incidence rate of the disease in Africa. This is because the virus is responsible for the widespread distribution of the hepatitis B virus, which is the reason for this result. The rates of sickness and death that may be directly related with hepatitis B impose a substantial financial cost on society. This burden is compounded by the fact that hepatitis B is an infectious disease. This burden is most obviously borne in the form of expenses spent for medical treatment. This expenditure may be broken down into two distinct categories, which are known as direct costs and indirect expenses. The fact that hepatitis B is an infectious disease makes this burden even more onerous than it would otherwise be. This adds another level of difficulty to the situation. Throughout the course of the last few years, a substantial amount of research has been carried out on the subject of whether or not vaccination is an effective strategy for lowering the number of people living in African nations who are infected with hepatitis B. The main focus of this research has been on determining whether or not vaccination is an effective strategy for decreasing the number of people infected with hepatitis B. The topic of whether or not vaccination is an effective technique for minimizing the number of persons who are infected with

hepatitis B has been the primary focus of the research that has been conducted. This research's major purpose was to determine whether or not vaccination is an effective approach for reducing the number of people who are infected with hepatitis B. The number of people who are afflicted with hepatitis B was the primary aim of this study. This study has placed a significant amount of emphasis on discovering whether or not vaccination is an efficient method for reducing the number of persons who are afflicted with hepatitis B. According to the findings of a research project that was carried out in Uganda by Bwogi et al. (2017), the implementation of universal hepatitis B vaccination resulted in a reduction in the prevalence of chronic hepatitis B infection among children. The research was carried out in Uganda. Uganda was the location where the research was conducted. The research was carried out in Uganda, which was the country's location. The research was conducted in Uganda, which was chosen since it was the location of the site. This conclusion, which was reached by evaluating the data, is a direct consequence of the work that was put into carrying out the research. This conclusion was reached as a direct result of the effort that was put into carrying out the study. This was the only plausible conclusion that could be made after taking into account all of the findings of the research as a whole. It was the only choice that made any sense under the circumstances. In spite of this, it is difficult to get a high level of vaccination coverage in many of the nations that are located in Africa. This is due to the fact that there exist constraints, such as poor healthcare facilities, a lack of knowledge about the need of vaccination, and a shortfall in financial resources, all of which contribute to the problem.

Hepatitis B poses a substantial risk to the health of the general population throughout the whole of East Africa, but particularly in nations such as Kenya, Tanzania, and Uganda, where the disease is particularly prevalent. This is because these nations have comparatively high rates of the virus's prevalence in their population. This potentially

catastrophic circumstance affects the whole of East Africa as a whole. Several studies have been conducted with the goals of evaluating the prevalence of hepatitis B infection as well as the efficiency of a range of vaccine techniques. These studies have been carried out by a number of different researchers. These investigations have been carried out in a range of places all over the world and in a number of different countries. The research have been greatly aided by the time and effort that has been contributed by academics ranging from a wide variety of academic subfields. Msuya et al. (2018), for example, noted that a study that was carried out in Tanzania revealed that there is a considerable prevalence of hepatitis B among pregnant women in that nation. This particular research was carried out in Tanzania. The participants of the study were female residents of Tanzania. The research was carried out in Tanzania, which was the site of the country. This study highlights how crucial it is to put a larger emphasis on the work that is being done on vaccines, bringing to light the significance of doing so and highlighting the importance of doing so. The significance of vaccinating vulnerable populations, such as pregnant women in this specific case, has been brought into clearer light as a direct consequence of these findings. The findings of the study that was carried out have directly led to this outcome. (Kiiru et al., 2018) The results of a second piece of research, which this time was conducted in Kenya, provided light on the significance of vaccination in terms of lowering the risk of hepatitis B transmission among those who are working in the medical field. The findings of these studies not only provide fresh insight into the manner in which the disease burden brought about by hepatitis B is distributed, but they also shed light on the significance of vaccination in general. This is in addition to the fact that the results of these studies shed light on the relevance of vaccination as a tool for the prevention of illness.

According to the findings of a study that was carried out by Were et al. (2017), researchers anticipate that the prevalence of chronic hepatitis B infection in Kenya would vary anywhere from 5 to 10 percent. The results of an investigation that was carried out by Were et al. (2017) serve as the foundation for this forecast's assumptions and inferences. The findings of the study serve as the basis for the development of this prediction. The perspective that was just stated receives support from the outcomes of a research that was carried out by Were et al. (2017). As a direct and immediate consequence of the chain of events that culminated in this disaster, there will be significant ramifications for the general public health of the country. These underlying issues were the primary contributors to the issue. The ramifications of this choice will have a significant influence on the situation. Since quite some time ago, the government of Kenya has been making efforts toward the objective of attaining the purpose of integrating the hepatitis B vaccine in the routine immunization schedule. This goal has been in the works for quite some time now. This objective has been in place for a considerable amount of time. The use of this preventative strategy is part of an attempt to reduce the spread of hepatitis B. Up to this time, the attainment of this goal has been the principal focus of all of the efforts that have been made by the government. Despite this, there are still concerns that need to be rectified, such as inadequate coverage in some places, a lack of resources and information, and other challenges of a similar kind. These and other problems need to be addressed. It is of the utmost importance to find solutions to these queries and worries. Lack of information and awareness is one of the primary barriers that stops individuals from being vaccinated against hepatitis B, as shown by the findings of a research project that was carried out in Nairobi, Kenya (Karoney et al., 2019). The research project was carried out in Kenya. The above conclusion was reached by our team as a direct consequence of the findings that were uncovered during the study

project that was carried out in Nairobi, Kenya. According to the findings of another piece of study (Irungu et al., 2018), personalized vaccination programs are required in order to effectively target those people who are at a larger risk of having the sickness. This is essential in order to prevent the disease from spreading. The findings of the investigation led researchers to arrive at this conclusion. As a result of the investigations that were carried out, it was found out that this is, in fact, the circumstance. People who are currently afflicted with HIV/AIDS and people who are employed in the medical field are both included in these categories.

One of the most essential things that can be done to lessen the severity of the impact that hepatitis B infection has all over the globe is to get vaccinated against hepatitis B. This is one of the most significant things that can be done. This is one of the most significant things that may be done in any given situation. This is one of the most crucial things that may be achieved in any circumstance that one may find themselves in. This is one of the most important things that a person can do in whatever circumstance that they find themselves in, and they should always remember to do it. Given all that has transpired, this is without a doubt one of the most critical things that can be done, and it should be done as soon as possible. In spite of the fact that there has been an increase in the number of people who have been vaccinated as a direct consequence of activities that have been carried out on a global basis, there are still concerns, particularly in countries in Africa and in particular regions such as East Africa and Kenya. It is necessary to overcome challenges such as inadequate resources, poor understanding, and insufficient healthcare infrastructure in order to achieve high vaccine coverage and a decrease in the incidence of hepatitis B infection in these settings. vaccine coverage must be high in order to achieve a reduction in the incidence of hepatitis B infection. When this occurs, and only

when it does, they will be in a position to fully benefit from the vaccination's promise, which is that it will protect them against disease.

2.2.2 Awareness on HBV vaccination

On a worldwide basis, there is still a relatively low level of information about the HBV vaccine, and a significant number of individuals do not understand the relevance of being vaccinated against HBV. Despite the fact that the vaccination has been accessible for some years now, this continues to be the case. Only 57% of the participants had received at least one dose of the HBV vaccine, as stated by the outcomes of a research project that had been carried out in Italy by Faraoni et al. (2019). The research had been carried out by Faraoni et al. Italy was the location where the study project was carried out. The study project was carried out in Italy, which was the site of its headquarters. The results of the study project reveal that this indicates to the presence of a gap, not only in terms of awareness but also in terms of uptake. This is indicated by the fact that this points to the existence of a gap. This inquiry was carried out by a number of different people, including Faraoni and the other members of his team, among other individuals. Ren et al. (2020) carried a research in China and discovered that only 59.7% of the participants had gotten at least one dose of the HBV vaccination. This finding was based on the findings of the study. The results of the investigation led to this conclusion being drawn about the topic. This finding was found by doing an inquiry that was rather comparable to the one that was just mentioned in the previous sentence. This result is in line with the findings of other studies that used a methodology that was conceptually comparable to the one taken in this investigation. This result was arrived at as a direct consequence of the discovery that only 59.7% of the people had got the HBV immunization. These findings provided the foundation upon which this conclusion might be derived. In light of these findings, it would seem that more awareness efforts are necessary in order to

place a greater focus on the necessity of HBV vaccination on a global scale. This emphasis would be beneficial in preventing the spread of the disease. The primary goal of these initiatives should be to increase the number of individuals who are immunized. This is because the HBV virus is the causative agent for hepatitis B, which is a condition that may be prevented with vaccination.

One of the factors that contributes to the high infection rate with this virus that is observed on the continent of Africa is the fact that a significant number of people in Africa do not have access to vaccines or the information that is necessary to understand why it is critical to get vaccinated against HBV. This is one of the factors that contributes to the high infection rate with this virus. This is one of the variables that contributes to the high infection rate with this virus that is found on the continent of Africa, and it is one of the factors that can be attributed to the region's high population density. One of the factors that helps explain why the incidence of infection with this virus is so high is the fact that this is one of the contributing variables. The results of a thorough study on the prevalence of HBV infection in Africa that was carried out by Shimakawa et al. (2017) found that the incidence of chronic HBV infection ranged from 5% to 20% across diverse places on the African continent. This was established by the findings of the research that was conducted by Shimakawa et al. The results of the research conducted by Shimakawa and colleagues provided the basis for this knowledge, which was obtained from those findings. This information was gleaned from the conclusions of a research that was conducted on the prevalence of HBV infection in Africa, which served as the source for such data. The researchers were investigating the frequency of HBV infection in Africa when they came across some extremely interesting discoveries, which led to the gathering of these insights by the researchers as a consequence of their investigation. The frequency of HBV infection in Africa was the primary topic of the inquiry conducted

by the researchers. According to the results of this research project, there is an urgent need to step up efforts to educate more people and vaccinate a greater number of individuals in order to reduce the risk of disease transmission. Only 17.8 percent of the individuals who took part in the study that Houeto et al. (2018) conducted out in Benin had been vaccinated against HBV with at least one dose of the vaccine. The study project was carried out in Benin, which served as its site. This knowledge, which was gleaned from the outcomes of the research that was carried out in Benin, was founded on the findings of the investigation that had been carried out in that country. According to these figures, there seems to be a knowledge gap among the general people, as well as a low adoption rate for the technology in question. According to the findings of this research, it would seem that a bigger number of individuals in Africa have a need for access to vaccinations as well as educational opportunities. This need is especially prevalent in the continent of Africa. This is an issue that has to be dealt with at the earliest possible opportunity.

The fact that a large number of individuals in East Africa are uninformed of the importance of being vaccinated against the illness is one of the causes that contributes to the low level of knowledge about HBV vaccines. This is one of the factors that contributes to the low level of knowledge about HBV vaccines. This is one of the many factors that leads to a lack of understanding and adds to the problem. This is one of the variables that contributes to the widespread information deficiency that exists in the modern world. Ignorance such as the kind that is discussed in this article is one of the causes that leads to the insufficient quantity of information about HBV vaccinations. Only 33.7% of the participants in the research study that was carried out in Tanzania by Rwegerera et al. (2019) had received at least one dose of the HBV vaccine. These results are based on the findings of the research study that was carried out in Tanzania.

Rwegerera and his colleagues were the ones who carried out the study. This research endeavor was carried out in Tanzania, which was the site of the country. This suggests that the participants lacked not just the knowledge that was required of them but also the ability to take in the information that was offered to them. Researchers Rwegerera et al. were responsible for carrying out the investigation and holding themselves accountable for it. Musa et al. (2019) did research in Sudan and discovered that just thirty percent of the population there had gotten at least one dose of an HBV vaccination. This finding was based on the findings of a study that the researchers had undertaken. This information emerged as a direct consequence of the research that these writers carried out. The findings of the inquiry that the researchers had conducted led them to this conclusion, and it was made on the basis of those findings. The results of the research that was carried out allowed for the acquisition of this knowledge as a direct consequence of those findings. It actually shouldn't come as much of a surprise to anybody, given that this finding is in line with what Musa and his colleagues discovered in their earlier experiments. According to these findings, it would seem that East Africa is in need of both an increase in the number of vaccinations that are made accessible as well as a bigger number of programs that aim to raise public awareness of the issue.

Due to the fact that many individuals in Kenya are uninformed of the relevance of being vaccinated, Kenya as a whole has a low level of understanding on the significance of the HBV vaccine. This is because a significant portion of the population in Kenya is uninformed about how important it is to be vaccinated. This is due to the fact that a significant percentage of people in Kenya are uninformed of the need of being immunized against infectious illnesses such as polio and typhoid. This is due, in part, to the fact that a substantial portion of the population in Kenya is uninformed of the need of being vaccinated against illness, which is a contributing element. This ignorance is a

component in the spread of the disease. Only 18.7% of the people who took part in the study that was conducted out in Kenya by Nderitu et al. (2016) had been vaccinated against HBV with at least one dose of the vaccine. The study was carried out in the nation of Kenya, which served as the site. The outcomes of the research that was conducted in Kenya served as the foundation for the development of these results and conclusions. This leads one to conclude that not only is there a lack of knowledge about the vaccine, but also a reluctance to make use of it. This leads one to believe that there is a lack of understanding about the vaccination. Vaccination is not a very widespread medical practice. In a study that was conducted in Kenya by Opio et al. (2016), it was found that just 35% of the participants who took part in the research project had received at least one dose of the HBV vaccine. This was an observation that was made throughout the course of the investigation. Kenya was the location where the research study was carried out. This outcome was achieved despite the fact that only 35% of the people who participated in the experiment had been inoculated against the illness that was being studied. This was the discovery that was analogous to the one that had been made before to it in the chain of discoveries. The people who took part in the research were recruited from all different parts of Kenya, which is the nation that hosted the study and is also the location where the research was carried out. According to the findings of this research, Kenya has a pressing need to increase both the number of educational opportunities that are now available and the number of people who have access to preventative medical care such as immunizations. This is a need that can't be put off any longer.

People in many nations, particularly those in Africa and East Africa, may not have a good knowledge of the need of being vaccinated in order to protect oneself from becoming sick and preventing the transmission of illness to others. This is especially true in countries where vaccination rates are low. It is possible that this might be a problem since

vaccination is one of the most effective ways to protect against illness. This is a problem in many countries all over the world, including a number of those countries, and it affects a lot of people. One of the most significant effects of this is that people have a poor knowledge of the HBV vaccination, which is one of the most important consequences of this as well as a direct result of the problem. The problem also directly causes this. According to the findings of this research project, there is an immediate need for increased access to vaccines as well as improved public awareness campaigns in order to increase the number of individuals who have been immunized against HBV on a global scale. It is possible to achieve this goal through raising awareness about the need of being vaccinated among a greater number of individuals. It is possible that meeting this requirement is a precondition for the achievement of this study's overall aim, but this is not guaranteed. The success of this study's overall goal is contingent on the fulfillment of this prerequisite. Two areas that require further attention in high-risk countries, such as those situated in Africa and East Africa in particular, are broadening access to vaccines and increasing the number of educational opportunities available to the population. It is very necessary that special attention be made to these different countries. It is essential to carry out a sizeable portion of the responsibility that has been assigned to one.

2.2.3 Compliance to Hepatitis B vaccination schedule

Compliance with the vaccination schedule for hepatitis B is a severe obstacle in the way of public health, particularly in low- and middle-income countries, which have a high burden of hepatitis B infection. This is because these countries face a greater risk of hepatitis B infection overall. This is due to the fact that people in these nations have a greater chance of dying from hepatitis B infection. This is because these countries have a less amount of money available to pay for vaccination programs, which contributes to the problem. This is due to the fact that people living in these countries are at a higher

risk of being infected with hepatitis B compared to those living in other countries. This is because these countries have an overall population that is far smaller than the typical population of other countries. As a result, the total population of these countries is substantially lower. This is due to the fact that these nations have limited access to resources that they can utilize to stop the virus's spread, which is the reason why this is the case. The existence of this circumstance is due to the fact that this rationale exists.

The World Health Organization (WHO) advises that the hepatitis B vaccination be given to all newborn infants as part of the routine immunization schedule as soon as possible after birth, preferably within the first twenty-four hours of life. This should be done in order to reduce the risk of the infant developing hepatitis B. This is done in an effort to stop the spread of the illness, which might result in death. This is done in an effort to reduce the risk of hepatitis B infection being passed on to the infant by the mother. This is done to guarantee that no kid is at danger of having the hepatitis B virus, which, if left untreated, may be very damaging and even deadly. This is why this is done: to ensure that no child is at risk. Because of this, this is done: to make sure that no children are put in danger. This hypothesis is currently under discussion for the whole of the visible universe. Despite this, a number of studies have shown that the degree to which vaccination schedules are followed to vary significantly from one nation to the next. This is the case in every region of the world. According to a systematic review and meta-analysis that was conducted by Huang et al. (2018), coverage of the first dose of the hepatitis B vaccine ranged from 11% in low-income countries to 94% in high-income countries. This was shown to be the case when comparing nations of varying economic levels. When we studied nations that had varying degrees of economic growth, we discovered that this was, in fact, the case. This coverage difference was evident in countries that had considerably different levels of wealth from one another than other

countries did. The results of the study showed that the rate of vaccination coverage for the third dose of the vaccine in countries with lower income was considerably lower than the rate of vaccination coverage in nations with higher earnings, which was 87%. This difference was significant when compared to the rate of vaccination coverage in nations with higher earnings. When contrasted with the rate of vaccination coverage for the first dose of the vaccine, this difference was shown to be statistically significant. The findings of this study have shown that this outcome is one of the most essential things that can be gained from it. When compared to the rate of coverage in countries with greater incomes, this disparity was shown to have a level of statistical significance that warrants attention. It would seem from these statistics that countries with a lower average income per person had a higher unemployment rate than those countries with a higher average income per person. Those who seek to immunize themselves against hepatitis B in accordance with the timetable that is advised by the CDC are going to find that they face a big barrier.

It is estimated that sixty million people on the African continent are infected with the hepatitis B virus. This is a reflection of the high incidence rate of hepatitis B infection that takes place on the African continent. The final result is a large increase in the weight that must be absorbed by the economic system of the continent, which is the end result of the chain of events. Mokaya et al. (2020) conducted a study in Sub-Saharan Africa with the purpose of evaluating the degree to which children had been inoculated against hepatitis B and finding the characteristics that were linked with this phenomena. The research was carried out with the objective of determining the extent to which children had been immunized against hepatitis B. The goal of the research was to determine the degree of protection against hepatitis B offered by childhood vaccines among the children who participated in the study as a sample group. This information was sought as the objective of the research, which gives an explanation for why the study was carried

out in the first place. The outcomes of the study that was carried out indicate that it is necessary to get just one dose of the vaccine in order to provide protection against the illness at a level that is 78% effective. On the other hand, after administration, the protection that was offered by the third dose was only effective to a degree of 43 percent. The results of the study indicated that the percentage of the population in urban regions that had been protected by the vaccine was much higher when compared to the percentage of the population in rural areas that had obtained the protection. This was in contrast to the percentage of the population that had obtained the protection in rural areas. This was the case despite the fact that the percentage of persons living in rural regions who had been granted protection remained the same as before. This was the case with both of the different types of geographical places that were covered earlier in the discussion. According to the findings of this research project, the immunization schedule for hepatitis B in Africa does not attain levels of compliance that are considered to be adequate. This finding may be related to a number of distinct factors, one of which is the geographic placement of the continent, which is also one of those considerations. This result might also be attributable to a number of other considerations. It is possible that the very varied landscape that can be seen all throughout Africa is to blame for this phenomena. There is a strong likelihood that this explanation is correct. Africa is a continent that has a wide variety of countries and landscapes. It has a wide range of ecosystems, from arid deserts to lush tropical rainforests.

Ndejjo et al. (2017) conducted a study in Uganda with the objective of identifying the level of vaccination coverage against hepatitis B, in addition to the variables that are linked with non-compliance among healthcare personnel. This research was carried out in Uganda. The purpose of the research was to get a better understanding of the factors that might contribute to non-compliance, and this was the motivation for its execution.

An article that was prepared as a synopsis of this research and published in the scholarly journal Vaccine. The article was evaluated by many academics. It has been agreed that this specific study effort will take place in the region of East Africa that will serve as the location for the facility, thus that is what will be used. According to the results of the study effort, receiving the first vaccine dosage was sufficient to offer 76% of the required protection against the illness. On the other hand, the third vaccination dose could only provide protection that was comparable to thirty percent of the total. According to the results of the study that was carried out, there was a connection between sticking to the prescribed vaccination schedule and a wide range of different characteristics. This was shown to be the case. It was found that there was a substantial link between these two factors. Some of the difficulties that were experienced were a lack of awareness about the vaccination, concern regarding the risk of suffering unpleasant effects, and misunderstanding over the timetable of immunizations. According to these findings, it would be able to make it easier to increase vaccination compliance by strengthening the information that is associated with the vaccine and debunking the popular notions that are held about the vaccine. It's likely that we would have a better understanding of the situation if we had access to more accurate information.

A research that was conducted in Kenya and was given the title "Hepatitis B Vaccination Coverage and Factors Associated with Non-Compliance in Healthcare Workers in Nairobi, Kenya" was carried out by Kimani et al. (2020) with the involvement of healthcare workers in the city of Nairobi. The title of the study was "Hepatitis B Vaccination Coverage and Factors Associated with Non-Compliance in Healthcare Workers in Nairobi, Kenya." Kenya was the location where the study was conducted. The nation of Kenya served as the location for this study's fieldwork. Kenya served as the location for the research that was conducted in the field for this specific study. The

results of the clinical study showed that getting the first dose of the vaccine resulted in a likely of 84% of being protected against the illness. This likelihood increased with subsequent doses of the vaccine. The third dose, on the other hand, only provided 38% protection against the possibly harmful effects of the medicine. According to the results of the study, some of the factors that have an influence on compliance rates include the sequence in which vaccinations are administered, anxiety around the possibility of experiencing adverse side effects, and a general lack of understanding of the vaccine. According to these findings, it would seem that increasing access to educational opportunities and refuting popular beliefs about the vaccination are two feasible ways in which the immunization rate in Kenya might possibly be raised.

Compliance rates with the hepatitis B vaccination schedule have been demonstrated to be lower in countries that have an average household income that is lower than the average income of other countries. This has been proved to be the case. Other countries have compliance rates that have been recorded as being higher. The percentage of people who comply with the recommended vaccination schedule for hepatitis B varies greatly from one part of the world to another, with the section of the world that is located in the Asia-Pacific region having the lowest compliance rates overall. In addition to this, the rate of compliance in Africa is far lower than it should be, particularly in the more rural sections of the continent as a whole. This is the consequence of a variety of distinct factors coming together, some of which include a lack of understanding about the vaccination, worry about the possibly bad repercussions of the vaccine, and the timing of the injection itself, among other things. If these characteristics are addressed by education and targeted treatments, there is a strong possibility that compliance rates will rise and the prevalence of hepatitis B infection will decrease in these geographical areas. In addition to this, there is a strong possibility that the number of people who are infected

with hepatitis C would decrease. It is not out of the question at all that events similar to this will take place.

In a nutshell, ensuring that patients comply with the recommended vaccination schedule for hepatitis B is a vital component of public health, particularly in countries with low and intermediate incomes. This is especially true in countries where the median income is less than $10 000 per year. This is of utmost significance in countries in which the average life expectancy is very low. This is especially true in countries where the average yearly income of the average population is less than $10,000. This is of the highest importance in countries where individuals normally do not have a life expectancy that is very lengthy on average. Although Africa has a very high prevalence of hepatitis B infection, compliance rates throughout the continent vary greatly from one country to the next. This is despite the fact that Africa has a very high rate of hepatitis B infection. In spite of the fact that immunizations are readily available, this continues to be the case. On the other hand, the overall infection rate throughout the whole of the continent as a whole is not very high at all. Education and interventions that are correctly targeted at certain demographics have a strong probability of accomplishing the aim of boosting compliance with the hepatitis B vaccination schedule. The purpose of this project is to increase the number of people who acquire the hepatitis B vaccine. This is due to the fact that specialized education and interventions have a greater chance of being successful in achieving their intended goals. In order to accomplish this goal, it would be essential to address a variety of issues, some of which include a lack of accurate information on the vaccination, fear of the bad effects of the vaccine, and the timing of the immunization, amongst other things.

2.2.4 Attitudes towards Hepatitis B immunization

Hepatitis B is an illness that is caused by a virus that is capable of wreaking havoc on the liver and even has the potential to develop cancer of the liver. Hepatitis B may be transmitted from person to person by blood or sexual contact. Hepatitis B is a disorder that may be brought on by the virus that is accountable for its cause. This specific condition is referred to by its medical designation, hepatitis B. It has been shown that the vaccination against hepatitis B is a method that is highly efficient in preventing the transmission of the virus, while at the same time offering no dangers whatsoever to the health of the receiver of the immunization. Even though vaccines are readily available all over the world, there is still a significant burden of hepatitis B infection. This is the case despite the fact that the disease may be prevented with vaccination. The situation continues to be like way despite the fact that immunizations are not difficult to get at all. This is particularly true in nations that are still in the midst of undergoing the development process.

When it comes to the topic of whether or not individuals should be vaccinated against hepatitis B, various subsets of the human population hold a range of varying points of view, as indicated by an assessment of the research that was carried out in every part of the globe. Some people believe that people should be vaccinated against hepatitis B, while others do not. According to the findings of an in-depth study that was conducted by Shefer et al. (2013), some of the factors that influence attitudes on hepatitis B vaccination include a lack of understanding about the vaccine, fear of the adverse consequences of the vaccine, and cultural perspectives. These factors were shown to have an effect on the opinions of participants. It was shown that each of these elements has a part in the formation of beliefs towards vaccination. Every one of these many facets contributes in some way. The findings of the research reveal that there is a link between

taking steps to promote understanding and awareness of the vaccine and a subsequent rise in the number of people who are getting vaccinated against the sickness as a consequence of those activities. This rise in the number of people who are being vaccinated against the illness is a direct result of the actions that were taken to enhance understanding and awareness of the vaccine. The findings of the investigation that was carried out lead in the direction of this overarching line of action.

There is a great deal of basis for the worries that have been made about the status of public health on the continent of Africa due to the high prevalence of hepatitis B in that region of the world. According to the World Health Organization (WHO), there are more than 60 million people infected with the virus in Africa, and more than 500,000 people die each year as a direct result of the infection from liver-related problems. In addition, the WHO estimates that the number of individuals infected with the virus will continue to rise. In addition to this, the virus is accountable for the propagation of the virus that is liable for AIDS. In addition to this, the forecasts that have been produced by the World Health Organization (WHO) indicate that the overall number of people who are infected with the virus will continue to rise. In addition, the World Health Organization (WHO) estimates that the total number of people living in Africa who are infected with the virus will continue to climb in the future years. This projection is based on the assumption that the number of people living in Africa who are infected with the virus is rising. Researchers Musa et al. (2019), who carried out a recent research on the subject of the coverage of the hepatitis B vaccine in Africa, came to the conclusion that vaccination rates significantly vary from one country to the next, with some nations having high vaccination rates and others falling short of the mark. The study was conducted in Africa. These results may be explained by the findings of a study that was conducted on the topic of the accessibility of the hepatitis B vaccination in Africa. The research was carried out

on the issue of the availability of the vaccine. The findings of the research suggest that awareness about hepatitis B, degree of socioeconomic position, and accessibility to medical care are some of the elements that have a role in the decision-making process regarding vaccination rates. According to the conclusions of the research, education about hepatitis B was shown to have the most significant influence.

Hepatitis B is an infectious illness that is pretty common in a number of the nations that come together to form the area that is known as East Africa. Because of this, the disease is to blame for a considerable number of cases of illness as well as fatalities that have occurred. The findings of a research that was carried out in Uganda by Kiwanuka et al. (2016) indicate that the general community has a poor level of information about hepatitis B, and vaccination rates are equally low. The study was done in Uganda. The purpose of the research was to determine how common the condition is among the population. According to the findings of the study, the percentage of people who have been immunized is not very high. According to the findings of the research, a lack of understanding about the vaccine, worry about the likelihood of having unpleasant reactions, and limited access to medical care are some of the issues that impede individuals from getting vaccinated against diseases. In addition, a lack of understanding about the vaccination is one of the causes that discourages individuals from being vaccinated against infectious diseases. The results of a research that was conducted in Kenya by Jaoko et al. (2016) revealed that the healthcare professionals in that country had a poor level of understanding on hepatitis B, as well as having low vaccination rates. The study was carried out in Kenya. A further finding of the research was that immunization rates in Kenya were rather low. The study was carried out in the nation of Kenya, which served as the site. The results of the research indicate that there are a variety of obstacles that prevent individuals from being vaccinated against infectious

diseases. Because of these obstacles, individuals cannot be protected from infectious illnesses. Some of the obstacles that stand in the way of reaching this goal include a lack of awareness about the immunization, fear of the adverse effects that the vaccine may cause, and insufficient training.

The fact that hepatitis B is so widespread among Kenya's general population, where the prevalence rate is 5.6%, presents a substantial danger to the general public health of the country as a whole as a whole. Were et al. (2018) conducted a study in Kenya with the intention of evaluating the level of knowledge, attitudes, and behaviors about hepatitis B vaccination among medical personnel. This research was done in order to determine the level of knowledge, attitudes, and behaviors regarding the vaccine. The bulk of those who took part in the study were from the country of Kenya. The revelation that just 52 percent of the patients who took part in the trial had been vaccinated against hepatitis B astounded the researchers, who were taken aback by this statistic. The findings of the inquiry offered sufficient evidence to back up the establishment of this particular conclusion about the matter to which they pertain. According to the results of the research, a lack of sufficient training, a lack of knowledge about the vaccination, and fear of the potential side effects of the vaccine are some of the reasons why individuals are hesitant to be vaccinated. Ochola et al. (2019) conducted a research on university students in Kenya and discovered that only 43% of the participants had ever been vaccinated against hepatitis B at any time in their life. This finding was based on the findings of a previous study that Ochola et al. (2019) had conducted. This conclusion was arrived at by Ochola et al. (2019) after reviewing the results of an earlier research that they had conducted. The findings of the inquiry allowed for this particular conclusion to be formed on the matter. This discovery is comparable to one that was discovered in the past at the same time. According to the findings of the research, a lack of awareness about the

vaccination and fear of the potential adverse effects of the vaccine are two of the factors that prevent persons from being vaccinated. Vaccination is not possible for persons who possess any of these two characteristics.

The literature research that was carried out using the funnel approach indicated, in general, that several distinct groups and geographical locations have a diversity of perspectives with respect to the hepatitis B vaccination. A lack of awareness of the vaccine, fear of the vaccine's possibly ill repercussions, cultural assumptions, and access to healthcare are some of the variables that might influence people's attitudes about vaccination. The availability of appropriate medical care is yet another crucial aspect to take into account. Vaccination rates in Africa, a region where hepatitis B is widespread, are influenced by a variety of circumstances. One of these factors is the prevalence of the disease. This is due to the fact that Africa is home to a significant number of independent nations. Some of the factors that play into this equation are the degree to which a population is aware of hepatitis B, their socioeconomic situation, and the accessibility of medical treatment. On the other hand, the rate of vaccination varies greatly from one country to the next over the whole of the African continent. People in East Africa, in general, and those working in healthcare, in particular, have a limited understanding of hepatitis B, which is one of the reasons why vaccination rates in the region are so low. One of the many reasons why the area has such low immunization rates is because of this factor. The sickness has a considerable effect on the local people in this region of the globe. Vaccinations against hepatitis B are not being given to the general public in Kenya for a number of reasons. These reasons include safety concerns and logistical challenges. These reasons include a lack of medical expertise on their part, a fear of the potential damaging implications that the vaccination may have, an inability to effectively

understand the condition and the treatment for it, and a worry of the potential bad effects that the vaccine may have.

2.2.5 Institutional measures to ensure implementation of policies for vaccination against HBV

When it comes to the current condition of people's health all over the world, the Hepatitis B virus, which is more often referred to as HBV, is a serious cause for worry. This is notably the case in a big number of nations situated in sub-Saharan Africa, which has a prevalence rate that is far higher than that of any other location on the whole world. immunization is an efficient method for preventing HBV infection, and several policies have been put into place to encourage immunization among high-risk groups, such as students and healthcare professionals. Immunization is a method that has been established as having a high rate of effectiveness. The practice of immunization is one that has been shown to have a very high rate of effectiveness over the duration of its use. In spite of this, there is still a considerable amount of work to be done in order to ensure that these suggestions are followed to the letter.

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) are the only two of the many international organizations that have published guidelines and recommendations on HBV vaccination. These institutions are known as the WHO and the CDC respectively. This line of action has been adopted by a substantial number of other international organizations in recent years. The World Health Organization (WHO) suggests that the vaccination against HBV should be given to all children during the first 24 hours of their existence, followed by two further doses when the child is 1 month old and 6 months old. These are the ages at which the child should get the vaccine at 1, 4, and 6 years old respectively. After this, the child will get two further doses when they reach the age of 4 years old. At the absolute least, the

immunization has to be given to the child while they are one of these ages. Those individuals who are at an increased risk of contracting a disease, such as those who work in the medical industry or who are students, are advised to get vaccinated by the Centers for Disease Control and Prevention (CDC), which offers its highest recommendation for vaccination to young children. Examples of individuals who are at an increased risk of contracting a disease include those who work in the medical industry or who are students. People who work in the medical field or who are students are two examples of groups of people who have a significantly increased likelihood of being infected with a disease. In spite of these guidelines, vaccination rates among high-risk groups continue to be much lower than what may be deemed to be the optimal level.

Several pieces of research have revealed evidence to support the notion that there are institutional hurdles in Africa that hinder the continent from completely realizing the advantages of an HBV vaccination strategy. These barriers are thought to limit the continent from fully enjoying the benefits of an HBV vaccine strategy. As a result of the findings of these studies, it has been shown without a shadow of a doubt that hurdles of this kind do, in fact, exist. These institutional impediments include a restricted supply of the vaccine as well as an insufficient quantity of funds for a diverse selection of immunization programs and activities. Only 34.3% of healthcare professionals in Nigeria had got the HBV vaccination, according to the results of a study project that had been carried out in that country by Olowookere et al. (2018). The research project had been carried out in Nigeria. This data was gathered from the results of a survey that had been carried out at that location. The location of the research attempt was determined to be the nation of Nigeria. The researchers found that even though the vaccine is readily available, a key barrier to immunization was a fundamental lack of awareness about the disease. This is despite the fact that the vaccine is generally accessible. This knowledge gap is a

significant barrier to the process of immunization. Kramvis et al. (2017) expanded their previous research in South Africa and provided the results of their studies. According to their results, despite the fact that the government had initiated a statewide vaccination campaign for newborns, the coverage among healthcare professionals was still relatively low due to the limited availability and accessibility of the vaccine. This was the case despite the fact that the government had begun the program. This was because there was an insufficient supply of the vaccination among the people working in healthcare. Despite the fact that the government conducted a countrywide immunization program for infants, this was nevertheless the case for the most part. This was because during this time period, the vaccination was not readily accessible to the general population as it is now. As a result, more people fell victim to the disease. Following the completion of the inquiry, this was the inference that could be made based on the information gathered.

The results of a study that was conducted in Uganda by Bwogi et al. (2018) indicated that vaccination rates among healthcare workers were low despite the fact that the vaccine was easily accessible. This was the case despite the fact that the vaccine was freely available. Despite the fact that the vaccination was readily available and free of charge, this was the result. The outcome was the same regardless of the fact that the immunization was easily available and completely free of charge. This discovery was discovered on the continent of East Africa at this specific place in this country. This was due to inadequate training and education on HBV and the vaccination, as well as restricted availability of the vaccine in certain health facilities. Additionally, this was due to the limited availability of the vaccine in some health facilities. In addition to this, this was because there was insufficient training and education about the immunization. In addition to this, access to the immunization was restricted at a number of the country's hospitals and other medical institutions. Inadequate levels of knowledge and training on

HBV, in addition to the vaccine, were another factor that contributed to the crisis that we are currently experiencing. Despite the fact that the vaccination was easily accessible, only a relatively tiny fraction of the individuals who worked in healthcare facilities were immunized against the illness. Musoke et al. (2019), a group of researchers based in Tanzania, recently carried out a study in which they observed that comparable barriers to vaccination among healthcare staff were prevalent. One of the elements that contributed to the issues that have occurred as a consequence of these impediments is a lack of awareness and information about the advantages that may be acquired by vaccination. This is one of the causes that contributed to the difficulties that have arisen.

The HBV vaccination recommendations that were developed and released by the Kenyan Ministry of Health can be found here. You can locate these recommendations in this location. As a consequence of these guidelines, vaccination is strongly suggested for all newborns and adults who are at an increased risk of contracting the disease, in particular those who are students or who are engaged in the healthcare business. Anyone who works in the medical industry is another group of individuals who are strongly recommended to be vaccinated against the flu. This is because the virus may cause serious complications in patients. These suggestions further emphasize how important it is to vaccinate each and every child, particularly infants. In spite of these guidelines, an extremely insignificant percentage of students and those working in healthcare have been inoculated. Those who are actively involved in the practice of pediatrics will be able to attest to the fact that this is particularly true. Wambua et al. (2020) conducted a study in Kenya and found that only 45.7% of the healthcare professionals in that country had got the HBV vaccine. These results were based on the findings of the study that was carried out in Kenya. These results are based on the findings of the study that was carried out in Kenya, which resulted in these outcomes. These conclusions are based on the findings.

According to the conclusions of the research, a general lack of awareness and comprehension of the vaccination is one of the most important hurdles that inhibits individuals from becoming vaccinated. As time went on, it became abundantly evident that this was one of the most basic challenges to conquer.

In an attempt to decrease the impact of the institutional hurdles that stand in the way of HBV vaccination, a variety of techniques, some of which are theoretical and some of which are practical, have been devised and put into practice. These strategies include both theoretical and practical approaches. The goal of these activities is to bring the proportion of people who have not been inoculated against HBV down to an acceptable level. The major objective of these operations is to lower the percentage of individuals who have not been immunized against HBV. A reminder system is an example of this sort of intervention, and it is one form of intervention that may be used to encourage individuals to obtain their vaccines. The spread of infectious illnesses may be prevented, at least in part, by using reminder systems. According to the findings of a study that was carried out in Germany by Hofmann and colleagues (2014), the implementation of a reminder system that includes reminders for vaccination as well as education on HBV resulted in a significant increase in the overall number of vaccinations received by healthcare staff. This was determined by tallying up the total number of vaccinations that were given to healthcare workers. This was shown by an increase in the total number of vaccines received by medical personnel. Vaccine is the name of an academic publication that contains a summary and discussion of the study's findings. The study was carried out in Germany since it was the country that hosted the site that was under investigation. Educational interventions are yet another kind of intervention that may be used to raise people's levels of knowledge and understanding regarding HBV as well as the vaccination. This form of intervention may be used in a variety of settings. Another sort

of intervention that may be used is this one. An educational intervention that combines training on HBV and the vaccination was demonstrated to considerably boost knowledge and awareness of HBV and the vaccine among healthcare workers, as indicated by the results of a study that was carried out in Uganda by Ndejjo et al. (2017). The study was carried out in Uganda. This was shown by the fact that the educational intervention contained both HBV instruction and vaccine information. The study was carried out in Uganda, which was the site of the place. The one who contributed the greatest time and energy to carrying out the research was Ndejjo. Uganda, which played the role of the nation's location throughout the procedure, was where the research was conducted.

In addition, a number of studies have highlighted how vital it is to increase access to the vaccine by making it easier to get it at healthcare facilities such as hospitals and other medical institutions. This is an issue that has been brought up in a number of different contexts. This is something that has been stressed in a variety of different ways during the course of the conversation. The findings of a research that was carried out in Nigeria by Motayo et al. (2019) indicated that the availability of the vaccine inside health facilities was a significant factor in determining the immunization rates of healthcare personnel. Motayo and colleagues were the ones that carried out the research. The study was carried out in the nation of Nigeria, which served as the site. Motayo is the one who wrote up the findings of the study that was carried out. The country of Nigeria served as the location for the research project, which was carried out there.

2.3 Critical review

The Centers for Disease Control and Prevention (CDCP) and the World Health Organization (WHO) recommend that all health care personnel comply with HBV immunization schedules (WHO 2016). This should be done prior to beginning clinical practicums and as early as possible during their professional training at medical schools.

Both organizations have reached the conclusion that this is a proposal that should be followed. This suggestion was made in consideration of the fact that the two groups have the same primary goal, which is to minimize the effect that illness has on a global scale. Only 18–39% of healthcare professionals working in developing nations really put this suggestion into practice, despite the fact that it is easily available.

The EPI HBV vaccination is administered in its whole to around 25 percent of persons who are employed in the health care field. It is of the utmost importance to keep to the vaccination regimens for hepatitis B that have been developed for medical personnel in order to make it easier for persons to get the vaccine. This is done in an effort to lessen the likelihood that the illness may spread to other people. Because of this, a wide range of stakeholders will be connected, which will ultimately result in an improvement in the occupational exposure that health professionals get. (WHO 2016)

Because there is now no therapy or cure available for HBV infection, the vaccination against the sickness has become the only method that has been shown to be both effective and trustworthy in the prevention of the disease. This is due to the fact that there is currently no treatment or cure available for HBV infection. This is subject to the proviso that the recommended immunization schedule be adhered to. According to the findings of a study that was carried out by R. in 2012, the vaccination for HBV provides protection against the illness that is more than ninety percent. Thomas, Frieden, and their other coworkers. The HBV vaccination is one of the requirements that all medical professionals are required to comply with right from the beginning of their medical training course and in continuity with their professional practicum. As one of the ways to work protection that the WHO, CDC, and MOH Kenya infection-prevention protocol confirms (MOH Kenya, 2018 & CDC 2013), the HBV vaccination is one of the requirements that all medical professionals are required to comply with. It is possible to

find evidence of this in the procedures for the prevention of infections that have been developed by the WHO, the CDC, and the Ministry of Health in Kenya. One of the ways in which workers at a firm could be insulated from the potential of developing a disease is raised by the use of this technique, which is why it is important to implement it. According to estimations provided by the World Health Organization (WHO), the percentage of health workers who adhered to the HBV vaccination protocol varied from 18–39% in African nations to 67–79% in European regions. These percentages were found in European locations. All of the areas had the same wide range of compliance levels. This is despite the fact that those who work in health care are now at a larger risk of catching infectious illnesses today than they were in the past. (WHO, 2013)

Anyone who wants a job in the health care profession should be required to complete coursework that focuses on standard operating procedures for control and prevention. This education must be presented in a classroom setting. In order to effectively prevent medical personnel from contracting the HBV virus from the environments in which they work, it is essential for health care delivery units, and most importantly medical training institutions, to maintain a strict eye on the protocol for infection control measures. This is the only way to ensure that the virus is not spread. This is the most effective method for preventing medical workers from being infected with the virus due to their exposure to the environment in which they operate. In order to successfully achieve the objective of preventing the spread of the HBV infection, this is an absolutely necessary component. Those individuals who have not previously received training in infection prevention recommendations have a reduced possibility of complying with HBV vaccination requirements (Ogoina et al., 2014; Janjua, Khan, and Mahmood, 2010). This is in comparison to those persons who have previously received training of this kind.

According to Maltezou et al. 2014 and Galanakis (2013), the incidence rate of hepatitis B immunization is rather low overall among healthcare professionals. This is in spite of the fact that a safe and easily accessible vaccination against HBV was first made available in 1982. This is still the case despite the fact that the vaccine wasn't developed until 1982. According to the results of a number of studies (Morowatishaifabad et al., 2014 & Maltezou et al., 2012), the proportion of health professionals who comply with the HBV vaccination goes from about 15 percent in countries with high levels of poverty to slightly more than 75 percent in the European world. More specifically, the percentage of health workers who comply with the vaccine ranges from approximately 15 percent in countries with high levels of poverty to approximately 75 percent in the European world. Investigations related to these issues can be found referenced in the studies by Morowatishaifabad and colleagues in 2014, as well as Maltezou and others in 2012. It has been found that a substantial 90% of health professionals understand the necessity of hepatitis B vaccination in their professional environments. However, the actual adherence to the vaccination schedules for the hepatitis B virus (HBV) vaccine falls drastically to just 50% (Morowatishaifabad et al., 2015; Maltezou, 2012). In contrast, only a meager 10% of health professionals are aware of the need for hepatitis A vaccination in their workplace. Only 10% of people working in the health care industry are aware of the need of being vaccinated against hepatitis A in their specific fields. Only 10% of persons working in the health care business are aware of the requirement to get vaccinated against hepatitis A in their respective areas. This is a problem since hepatitis A is very contagious and may cause serious illness. Only 10% of people working in the health care industry are aware that they are required to be vaccinated against hepatitis A in their particular regions. This requirement is in place to prevent the spread of the infectious disease. Due to the fact that hepatitis A is highly infectious and has the

potential to cause severe sickness, this presents a dilemma. The fact that vaccination rates for hepatitis B have decreased among health professionals, despite the fact that these people have knowledge about the virus, generates an image that is somewhat worrying, despite the fact that the data does not support this view in any way. According to Morowatishaifabad et al. (2015), some possible responses to this include a lack of information, fears about the accessibility of vaccinations, and the potential for damaging repercussions of immunizations. In addition, there is a possibility that immunizations will have adverse effects. There is a problem with each and every one of them. Despite this, the factors that influence acceptance are likely to be diverse, and they have probably changed over time as new data on the effectiveness and safety of this vaccine has been collected. Despite this, there is a high probability that the variables that impact acceptability have changed. Nobody should be surprised by the fact that the obstacles that are present in connection to the perspectives that healthcare staff have towards the hepatitis B vaccine are both more complex and more widespread. This is not something that should come as a surprise to anybody. According to Morowatishaifabad et al. (2015), in order to carry out an accurate assessment of the degree to which this high-risk group has received the hepatitis B vaccination, it is important to take into consideration a number of mental, professional, and behavioral factors. This is the case in order to carry out an accurate assessment of the degree to which this high-risk group has received the hepatitis B vaccine. Because we want to guarantee that the assessment is as precise as it can be, we have to do it in this manner.

The HBV vaccination schedule was the subject of a research that was carried out by the World Health Organization in 1992. The objective of the investigation was to identify areas of the schedule in which it could be possible to make the schedule more efficient. During this same time period, they also passed a law that required all states to include

hepatitis B EPI regimens into their own vaccination programs as part of their own vaccination policy. This law was passed during the same time period. According to the World Health Organization (2015), as of the end of 2014, 184 countries have included the hepatitis B vaccine into their EPI policy guideline. Additionally, the proportion of persons who had gotten all three doses of the hepatitis B immunization had reached 82% on a worldwide scale. In the most recent few months, there have been several reports of substantial evidence of progress in regards to the compliance with the hepatitis B vaccine. The elimination of HBV infection is a goal that may be achieved in the area of public health. This is a goal that may be attained since the vaccine is effective and there is a minimal danger that the vaccination will present for unwanted consequences. This is a goal that has a chance of being accomplished. According to the findings of surveys that were carried out in areas with a high HBV prevalence (Chen, 2009), the incidence of chronic HBV infection among children has dropped to less than 2% as a consequence of routine newborn vaccination. This is a significant improvement over the previous rate, which was much higher. These surveys were carried out in parts of the country that had a very high incidence of HBV. This drop may almost always be traced to the practice of regularly vaccination newborns and young children against diseases.

The Expanded Programme on Vaccines, more often known as EPI, is responsible for the development of strategies for the prevention of a wide variety of illnesses. These strategies were produced by taking part in a process of consultation with regional professionals who work for key vaccine organizations. These are some of the ways that you may protect yourself against a broad range of diseases. The procedures that were described above are now being carried out in every region of the planet. Introduction In the year 2000, the EPI-TF traveled across Africa to a total of six nations with low incomes and provided vaccinations against HBV in those nations. These countries were chosen

using a procedure that included random selection. These very same nations have just very recently begun offering the immunization against hepatitis B as part of their Essential Precautions Initiative (EPI) programs. According to the World Health Organization (2014), as of the year 2012, 183 countries that were members of the WHO had included HBV vaccination in the policy guidelines for their EPI programs, and 79% of the neonates in those countries had been vaccinated against the illness. This information is based on data that was collected from the year 2012. The data shown here is derived from surveys conducted in the year 2012. KEMRI and the Ministry of Health (MOH) have each taken a separate approach in their joint mission to wipe out HBV infection throughout the course of time. These are the two approaches that have been taken. Every blood bank goes through the index procedure, which includes a test to determine whether or not HBV is present. This test is a part of the index process. The purpose of carrying out this test is to establish whether or not HBV is present in the system. The second approach is to include the HB immunization within the EPI itself as an essential component of the program. Because of this inclusion, a course of immunization against hepatitis B consisting of three doses has been recommended for medical personnel and other high-risk groups (Ministry of Health Kenya, 2018). This course of vaccine is intended to protect against HBV.

2.4 The Conceptual framework

The Independent Variables **Dependent Variable**

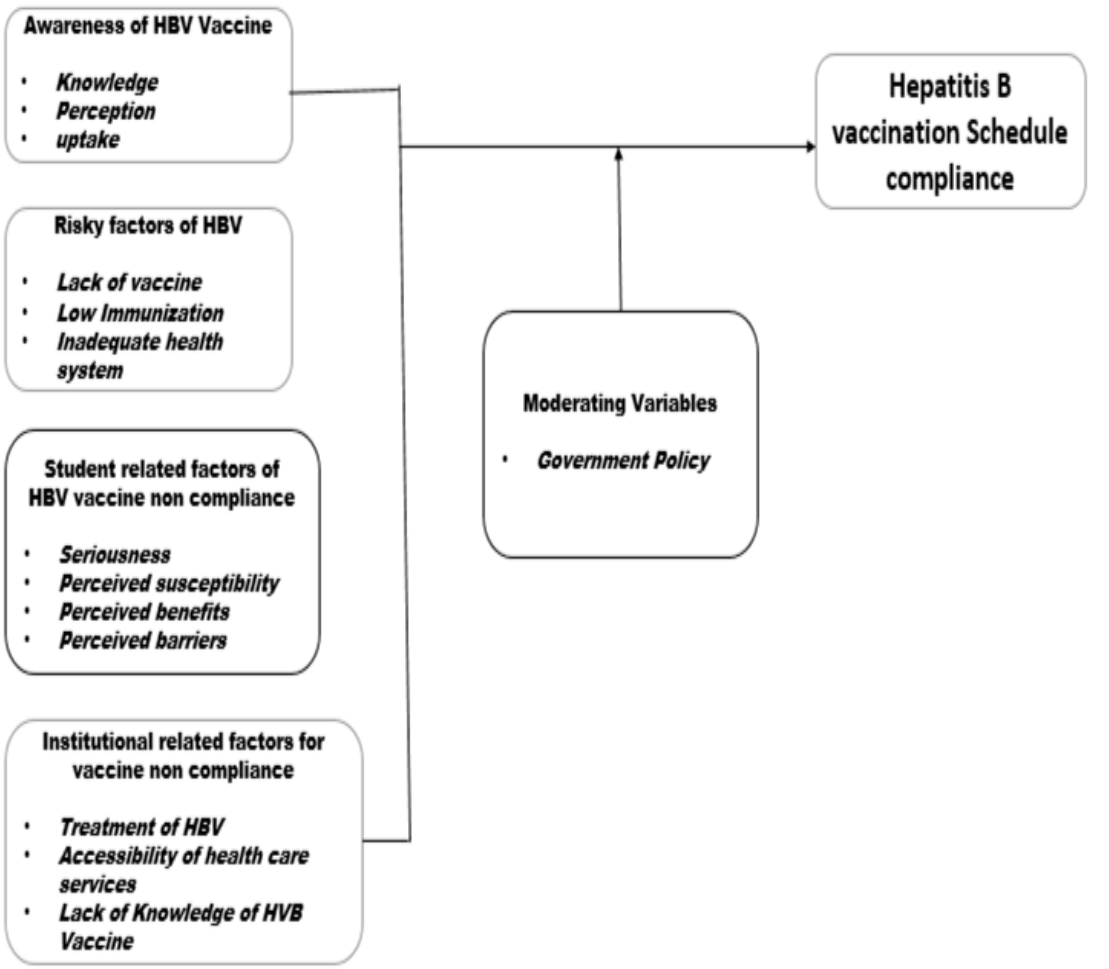

Figure 2: The Conceptual framework of the Study
Source: Review by the Researcher

2.5 Summary of the conceptual framework

The conceptual framework for the study on the determinants of non-compliance to hepatitis B vaccination among students of Kenya Medical Training College in Machakos Sub County, Kenya includes several independent variables, a dependent variable, and a moderating variable.

Independent Variables:

1. Awareness of HBV Vaccine: This variable encompasses knowledge, perception, and uptake of the hepatitis B vaccine among students. It examines the level of understanding and awareness of the vaccine and its importance in preventing hepatitis B infection.

2. Risky Factors of HBV: This variable explores factors that contribute to the risk of hepatitis B infection, such as the lack of vaccination or immunization programs, as well as weaknesses or inadequacies within the health system that hinder vaccination efforts.

3. Student-Related Factors of HBV Vaccine Noncompliance: This variable includes factors specific to the students themselves that may influence their compliance with the hepatitis B vaccine. It incorporates variables such as the seriousness of the disease, perceived susceptibility to infection, perceived benefits of vaccination, and perceived barriers to receiving the vaccine.

4. Institutional-Related Factors for Vaccine Noncompliance: This variable focuses on factors related to the institutions or healthcare settings that affect vaccination compliance. It considers variables such as the treatment of hepatitis B within healthcare facilities, the accessibility of health care services, and the level of knowledge about the hepatitis B vaccine among healthcare providers.

Dependent Variable:

Hepatitis B Vaccination Schedule Compliance: This variable represents the level of adherence to the recommended hepatitis B vaccination schedule among students. It reflects the extent to which students receive the vaccine according to the recommended guidelines.

Moderating Variable:

Government Policy: This moderating variable pertains to the influence of government policies and regulations on hepatitis B vaccination. It considers the role of national and local policies in shaping vaccination programs, coverage, and accessibility.

The conceptual framework suggests that the independent variables, including awareness of HBV vaccine, risky factors of HBV, student-related factors of HBV vaccine noncompliance, and institutional-related factors for vaccine noncompliance, collectively influence the dependent variable of hepatitis B vaccination schedule compliance among students. The moderating variable of government policy can impact the relationship between the independent variables and the dependent variable.

By examining these variables and their interrelationships, the study aims to identify the factors that contribute to non-compliance with hepatitis B vaccination among students and assess the influence of government policies in addressing these barriers. This framework provides a comprehensive approach to understanding the determinants of non-compliance and informing interventions and strategies to improve vaccination rates among students in Machakos Sub County, Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section elaborates on the methodologies employed in this study, encompassing a variety of aspects. It discusses the research design and approach we chose to conduct this investigation, and provides details about our target population.

It further delves into the specifics regarding sample size, including the means by which we determined the appropriate size and the sampling procedure we employed to ensure a representative and unbiased sample.

We then provide an overview of the tools and activities involved in data collection, ensuring they have both validity and reliability for the purposes of this study. We discuss the evaluation of these tools, presenting the methods utilized for data analysis.

In addition to that, we will detail the various formats in which the collected data is presented for enhanced comprehension and interpretation. Finally, we shed light on the ethical considerations adhered to throughout the research, underlining our commitment to upholding the highest standards of research integrity and ethics..

3.1 Research design.

This research employed a cross-sectional descriptive study design, a methodology aimed at describing specific characteristics of an individual or a group within a certain context. The study's objective was to ascertain the factors leading to non-adherence to the hepatitis B vaccination among students from KMTC (Kenya Medical Training College) in the Machakos sub-County in Kenya.

The research incorporated a survey approach in the selected areas of study. This approach provided an extensive understanding and analysis of various variables and their interrelationships, such as the students' awareness of the hepatitis B virus (HBV) vaccine schedule, their compliance status, attitudes towards HBV vaccination, and the existence and efficacy of implementation measures for institutional policies on HBV vaccination, as suggested by Kothari (2004).

3.2 Research approach.

This research adopted a mixed-method approach, incorporating both quantitative and qualitative data collection among KMTC students, with the aim of investigating the factors leading to non-adherence to the HBV vaccine.

The quantitative data was acquired via a researcher-led questionnaire, which provided statistically analyzable data. On the other hand, qualitative data was gathered through the examination of record-keeping tools related to HBV vaccination, offering deeper insights and nuances that can't be expressed numerically.

The combination of these two methodologies, as recommended by Mugenda and Mugenda (2013), ensured a comprehensive and holistic approach to problem-solving within the population studied. By integrating the strengths of both qualitative and quantitative data, the research was able to offer a more complete understanding of the determinants of noncompliance to HBV vaccination.

3.3 Study Location.

This research was done at the Kenya Medical training colleges in Machakos County, namely Machakos and Manza campuses. The location of this study was chosen due to several reasons. Firstly, the Kenya Medical Training College (KMTC) is a reputable mid-level training institution in Kenya, which draws students from all over the country.

Secondly, both Machakos and Manza campuses of KMTC are among the largest and oldest institutions in the country. These factors make the location ideal for conducting a study on the knowledge, attitude, and compliance of medical students to Hepatitis B vaccination.

Moreover, KMTC Machakos and Manza campuses are affiliated with several hospitals at different levels of the healthcare system, which are used as clinical training and attachment sites for students. This provided a diverse pool of potential respondents for the study, with varying levels of exposure to the importance of Hepatitis B vaccination in their training and clinical practice. Additionally, the location of the study is easily accessible, with Machakos town being only 65 kilometers away from Nairobi, the capital city of Kenya, and Manza campus being located along the Machakos-Nairobi highway.

Therefore, conducting the study in KMTC Machakos and Manza campuses provided an ideal setting for collecting data on the knowledge, attitude, and compliance of medical students to Hepatitis B vaccination in a diverse population of students, with varying levels of exposure to the importance of the vaccination in their training and clinical practice.

3.4 Targeted Population

The respondents participating in this study were exclusively students from KMTC (Kenya Medical Training College) at both Machakos and Manza Colleges, located within the Machakos Sub County in Kenya. These students were selected because they were directly or indirectly associated with the factors influencing non-adherence to the HBV vaccination, as per the information obtained from the KMTC Information Systems in 2018.

3.5 Sample size determination.

The formula developed by Fischer et al. (1998) was used to determine the appropriate sample size given the target population. This formula is presented as follows;

$$n = Z^2pq/d^2$$

Where n = required sample size

z = the z value at 95% confidence interval = 1.96

p = proportion of the population with the characteristic of interest = 0.5

q = 1-p

d = level of significance = 0.05

Therefore $n = 1.96^2(0.5)\ (0.5)/0.05^2 = 384$

Since the source population is less than 10000. A finite correction formula will be used.

$$nf = n/1+n/N$$

Therefore nf = 384

Hence:

Machakos Campus: 5 departments

Manza Campus: 4 departments

Total = 9 departments at a ratio of 5:4 (Machakos:Manza)

Machakos = Campus: 5/9 X 384 = 214 participants

Manza = Campus: 4/9 X 384 =170 participants

Table 3.1: Proportionate Sample Size Distribution

S/No	Campus	Sample population	No of departments
1	Machakos	214	5
2	Manza	170	4
3	Total	384	9

Source: Literature review by Researcher.

Table 3.2: Proportionate Sampling

S/No	Campus	No of classes (cohorts) per Department	Total population per cohort	% of cohort in total population (x)	Target size per department per campus target population	No selected per cohort in year of study
1	**Machakos**		**730**	**100**	**(x) x 214/100**	**x/cohorts (for each class)**
		4 classes Nursing	370	52	110	110/4=28
		3 classes Clinical medicine	124	16	36	36/3=12
		2 class Medical laboratory sciences	43	6	12	12/2=6
		3 classes Occupational therapy	62	8	18	18/3=6
		3 classes Plaster technology	131	18	38	38/3=12
2	**Manza**		**636**	**100**	**(x) x 170/100**	**x/cohorts (for each class)**
		3 classes Medical Imaging	83	13	22	22/3=7
		3 classes Pharmacy	159	25	42	42/3=14
		3 classes Environmental Health Sciences	165	26	44	44/3=15
		5 classes Health Records and information	229	36	61	61/3=20
3		**Sample size**	**1366**	**100%**	**384**	**384**

Source: KMTC Campus info data (2018)

3.6 Sampling procedure

The selection of participants in this study followed a two-stage sampling technique. The first stage involved a stratified random sampling technique, which was used to pick participants from the nine departments across the two colleges in Machakos Sub County. The second stage employed a purposive sampling technique to identify key informants among the student representative council. These individuals had a thorough understanding of the factors contributing to the noncompliance to HBV vaccination among the medical students, as articulated by Mugenda and Mugenda (2013).

After this stratified random sampling, a proportionate random sampling technique was used to ensure a representative sampling of various groups. This technique segmented the population into homogeneous sub-groups based on several factors, including year of study, vaccination status, knowledge of HBV management, institutional policies regarding HBV vaccination, stakeholder engagement, and the overall responsibility of students towards HBV vaccination (Mugenda and Mugenda, 2013).

A class list, acting as the sampling frame, was employed to obtain the calculated number (n) of participants from each group through a systematic sampling approach.

The executive members of the student representative council, who voice the students' concerns about the determinants leading to non-adherence to Hep B vaccination, were also included. There were five members from each college, totaling ten.

Consequently, the overall number of respondents for this study equated to 394, comprising 384 students and 10 student council executives.

3.6.1 Inclusion and Exclusion Criteria

Inclusion criteria are the characteristics that define the population that will be included in a research study, while exclusion criteria are the characteristics that will prevent individuals from being eligible for the study.

The inclusion criteria for this research study include:

i).Students enrolled in diploma and certificate courses at KMTC Manza and Machakos constituent colleges

ii).Students who have consented to participate in the study

iii).Students who are willing to provide information on their compliance with Hepatitis B vaccination

3.6.2 The exclusion criteria for this study include:

i).Students who have completed their training and have left KMTC

ii).Students who are unable to provide informed consent

iii).Students who are not willing to provide information on their compliance with Hepatitis B vaccination

These criteria were put in place to ensure that the study population is relevant and representative of the target group and that the data collected is valid and reliable. Exclusion criteria are also important in ensuring that the study population is not biased and that the study is conducted in an ethical manner.

3.7 Data collection instruments

3.7.1 Questionnaires

The primary data gathered in this study focused on the determinants of non-adherence to HBV vaccination. The key informants were students from the KMTC campuses in Machakos Sub County, Kenya.

Data collection was facilitated through structured questionnaires, which were assisted by the researcher and tailored for two distinct groups: the students and the student representative council body from both Machakos and Manza campuses. This data collection approach was based on the guidelines provided by Kothari (2004).

3.7.2 Observation check list

In order to assess individual student compliance with the HBV vaccine, a clinical vaccination guide provided by the Ministry of Health, Kenya, was utilized. This guide included the requirements outlined by the Kenya Expanded Programme on Immunization (KEPI) HBV vaccine schedule (WHO, 2018), which records the number of vaccine doses each student has received, both on an individual level and in the context of their respective college and department, as noted in individual vaccination cards and campus clinic records.

In addition to this, the guide also facilitated the evaluation of the implementation of institutional policies. It assessed the applicability and validity of these policies, following the guidelines set out by Kothari (2004).

3.7.3 Validity and Reliability

3.7.3.1 Validity of the instrument

In this study, validity of the research instruments was ensured through expert review and pilot testing. Two experts in the field of public health and epidemiology were consulted to review the questionnaire for content validity. They provided feedback on the clarity and relevance of the questions, which were then revised accordingly. Pilot testing was conducted on a small sample of students from a different medical training institution to assess the face and construct validity of the questionnaire. Based on the feedback received, minor adjustments were made to improve the clarity and understanding of some questions.

3.7.3.2 Tool Reliability

Reliability in research refers to the degree to which the results of a study are consistent over time and accurately represent the total population under investigation. Reliability analysis is a method for determining how likely a measurement process is to produce the same results if repeated under identical conditions (Toke et al., 2012).

To evaluate the reliability of the questionnaire used in this study, a pretest was carried out at Makueni campus with 21 students, who represent 10% of the target population. These students had similar backgrounds and were undergoing similar training to the main population of interest. The reliability of the questionnaire was determined using the SPSS software, through which the Cronbach's alpha coefficient was calculated. A Cronbach's alpha value above 0.7 is generally considered reliable, while values below 0.5 are deemed unreliable (Toke et al., 2012).

In the case of qualitative data, an in-depth interview tool was employed to collect information from the key informants, ten individuals selected from the student cabinets of various departments across both colleges.

An observation checklist was used for student HBV vaccination cards and to evaluate the existence of pertinent record-keeping tools in the student clinics, providing additional data (Toke et al., 2012).

3.8 Data Analysis Technique

3.8.1 Quantitative data

The collected data was meticulously cleaned, sorted, coded, and then analyzed using SPSS (Statistical Package for the Social Sciences), version 21.0. Descriptive statistics, such as graphs, percentages, means, and standard deviations, were utilized to illustrate the factors contributing to non-adherence to the HBV vaccination among KMTC students, as outlined by Toke et al. (2012).

The data was cleaned using SPSS software. Firstly, the responses were checked for completeness and any missing data was noted. The researchers then checked for any inconsistencies or errors in the data by reviewing the responses and comparing them to the original questionnaires. Any identified errors were corrected by either contacting the respondents or by using logical imputation techniques. The next step involved coding the qualitative data by assigning numerical codes to each response. These codes were used to facilitate the analysis of the data. Finally, the data was checked for outliers and extreme values, and any identified outliers were either removed or corrected using appropriate statistical techniques. Overall, the cleaning process ensured that the data used in the study was accurate, consistent, and complete.

3.8.2 Quantitative data

The Pearson's correlation coefficient was employed to identify any potential relationships between the variables under investigation. This statistical measure was used to determine whether any such relationships existed, whether they were positive or negative, and whether they were strong or weak, as per the guidelines outlined by Toke et al. (2012).

In this study, the researchers used the chi-square test to analyze the association between categorical variables and determine if a significant relationship existed between them. Specifically, they used the chi-square test to analyze the relationship between the compliance status of medical students to HBV vaccination (dichotomous variable: compliant or noncompliant) and the various factors that may have contributed to their noncompliance (categorical variables: knowledge level, attitude, institutional policy).

The chi-square test worked by comparing the observed frequencies with the expected frequencies, assuming that there was no association between the variables. The test calculated the chi-square statistic, which measured the difference between the observed and expected frequencies, and determined whether this difference was significant or due to chance. If the p-value of the chi-square test was less than the level of significance (usually set at 0.05), then it could be concluded that there was a significant association between the variables.

Therefore, the chi-square test helped in determining the strength of association between the compliance status of medical students to HBV vaccination and the various factors that contributed to their noncompliance. This information was useful for policymakers and healthcare providers in developing interventions to improve the compliance of medical students with the HBV vaccination schedule.

3.9 Ethical Consideration.

Prior to commencing the research, permissions were obtained from the Mount Kenya University Post Graduate Studies Research and Ethics Committee, the National Commission for Science, Technology and Innovation (NACOSTI), and the KMTC Research and Ethics Committee in Nairobi, via the individual college administrations and research committees at both the Machakos and Manza campuses.

Participants' consent was secured before including them in the study, ensuring that their participation was voluntary and not compelled. The participants were informed about the study's purpose, which was solely for academic use, and assured that the data collected from them would be kept confidential and used strictly for learning purposes, following the guidelines set out by Mugenda and Mugenda (2012).

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The results of the data analysis, focusing on the various determinants of non-adherence to hepatitis B vaccination among Kenya Medical Training College students in Machakos Sub County, Kenya, are outlined in this chapter. The chapter is organized as follows:

Firstly, the return rate of the questionnaire is reported, followed by the respondents' demographic information. Subsequent sections assess the level of awareness of HBV vaccination among KMTC students in Machakos Sub County, determine the level of compliance with the Hepatitis B vaccination schedule among these students, and evaluate their attitudes towards Hepatitis B vaccination. The chapter concludes by exploring the presence of institutional measures designed to ensure the implementation of HBV vaccination policies for KMTC students in Machakos County.

Descriptive statistics in this chapter are presented in the form of means and tables. To test the stated hypotheses, inferential statistical methods, such as linear regression and Analysis of Variance (ANOVA), were employed.

4.2 Questionnaires' Return Rate

Distribution of the participants was as follows; 384 students and 10 student representatives. The respondents were administered a well-designed questionnaire to fill where the total return rate was 92.3% making an effective return rate. According to (Fincham, 2008), assessing approximating 60% for the majority of studies should be the objective of expertise and definitely are the realization of the Editor and Associate Editors. The return rate was tabulated as below;

Table 4.3: Questionnaires' Return Rate

Sample size	Return rate	Frequency	Non-participants	Frequency
384 (students)	368	95.83%	16	4.17%
10 (student leader)	10	100%	0	0%
Total	378	95.93%	16	4.07%

Source: Research Data 2023

4.3 Demographic characteristics

The demographic factors contribute to the report about the composition of the respondents. The goal of the profile was to help generate a picture of the groups' characteristics that will facilitate the information needed for the research. Descriptive data on demographics from the subject of study is required to comprehend sample characteristics and ascertain if samples represent the populations of interest (INDONESIA, 2020).

This section contains the gender, age, marital status, the department which the student came from, the year of study and the home residence of the student.

Table 4.4: Demographic characteristics

Test Item		N	%
What your Gender	Male	142	36.0%
	Female	252	64.0%
What your Age	18 - 29 years	265	67.3%
	30 - 39 years	102	25.9%
	40 - 49 years	24	6.1%
	50 years and Above	3	0.8%
Marital status	Married	138	35.0%
	Single	211	53.6%
	Others	45	11.4%
Which is our department	Clinical Medicine	38	9.6%
	Public health officer	65	16.5%
	Nursing	104	26.4%
	Midwifery	19	4.8%
	Medical laboratory	12	3.0%
	Environment Health	46	11.7%
	Medical Imaging	19	4.8%
	Pharmacy	46	11.7%
	Occupation Therapy	15	3.8%

Test Item		N	%
	Orthopaedic Trauma medicine	30	7.6%
What is your study year	First year	62	15.7%
	Second year	197	50.0%
	Third year	74	18.8%
	Fourth year	61	15.5%
What is your home Residence	Urban	55	14.0%
	Semi-Urban	221	56.1%
	Rural	118	29.9%

Source Research Data 2023

From the table above it indicated that Female respondents were many female respondent sampled in our study 252(64.0%) while the male respondents were 142(63.0%), while in terms of the age distribution among the student in KMTC was as follows; those who aged between 18 – 29 years were 265(67.3%) being the majority with over 50%, while followed by those who aged between 30 – 39 years with a total frequency of 102(25.9%) for those who aged between 40 – 49 years and 50 years and above were 24(6.1%) and 3(0.8%) respectively. Most of the students represented in the study sample were single and married with 211(53.6%) and 138(35.0%) respectively with the highest percentages while 45(11.4%) indicated other which comprised of window or separated. Most of the students sampled in the study come from the department of nursing with a total tally of 104(26.4%) while public health officer student had a tally of 65(16.5%). The clinical medicine had a total of 38(9.6%), in the department of midwifery, medical laboratory environmental health, medical imaging pharmacy, occupational therapy and Orthopaedic Trauma medicine were indicated by 4.8%, 3.0%, 11.7%, 4.8%, 11.7%, 3.8% and 7.6% respectively. On assessing the level of student in terms of years there were more second year student in the college with a tally of 197(50.0%) while first year student being 62(15.7%) while the third-year student were 74(18.8%) and the fourth year being the least in our study with a total of 61(15.5%). Most of the student come from the semi urban with 221(56.1%) while those who came from rural areas were indicated by

118(29.9%) while urban student was 55(14.0%) being the less contribution based on the residence of home.

4.4 Descriptive Analysis

4.4.1 To assess the level of awareness on HBV vaccination amongst students in KMTC in Machakos Sub County.

Most of the study indicated that they heard about the Hepatitis B virus infection with 301(76.1%) indicating yes while 93(23.6%) have never heard about the Hepatitis B virus infection. From those who indicated yes they indicated different sources from where they heard Hepatitis B virus infection from with majority indicating from a class by lecturer with a total of 168(55.8%) followed by those who heard from the media with a total of 112(37.1%), those who heard the information from colleagues, physician and infected person were 12(4.1%), 4(1.3%) and 5(1.8%) respectively. This was represented by the table below;

Table 4.5: Assessment about Hepatitis B virus infection

Test item		N	%
Have ever heard about Hepatitis B Virus infection	Yes	301	76.4%
	No	93	23.6%
If Yes, how did you learn about it?	From a colleague	12	4.1%
	From your Physician	4	1.3%
	From your lecturer	168	55.8%
	From an infected person	5	1.8%
	From the media	112	37.1%

Source: Research Data 2023

Majority of the student at KMTC indicated that the major source in which Hepatitis B virus can be transmitted is by contact with blood of an infected person with 98(24.9%) respondents, contact with contact with body fluid contaminated by blood of an infected person and also Sexual transmission had also had high frequency of 74(18.8%) and 71(18.0%) respectively. Those students who indicated contact through saliva of infected

person, needle stick injury and contact with stool had the lowest frequency of 14.0%, 14.2% and 4.1% respectively as the mode of transmission. 24(6.1%) were not aware on the modes in which a person can be infected with hepatitis B virus.

This was similar to study by Anne & Leah Chebet (2020) the College's vaccination program offers HBV vaccination, which was acknowledged by most students (94.6%), but a smaller percentage (53.3%) knew that vaccination for typhoid fever was also accessible. In terms of HBV infectivity, a little over half of the students (58.6%) knew that HBV is more contagious than HIV and can result in liver cancer (59.5%). Additionally, we investigated the students' comprehension of the WHO's established HBV transmission modes.

This information was represented in the table below;

Table 4.6: Mode of Hepatitis B virus infection transmission

Test item		N	%
How can someone be infected with hepatitis B virus?	Contact with contaminated blood is the primary mode of transmission.	98	24.9%
	Direct contact with an infected person's saliva.	55	14.0%
	Transmission occurs when one comes into touch with blood or other bodily fluids from an infected individual.	74	18.8%
	Injuries caused by needle sticks	56	14.2%
	Transmitted During Sexual Contact	71	18.0%
	Involvement with Stool	16	4.1%
	I'm not sure	24	6.1%

Source: Research Data 2023

Study by Anne & Leah Chebet (2020) most of the participants (76.8%) were aware that HBV can be transmitted through various ways, including contact with open wounds and cuts, as well as the transfusion of contaminated blood or blood products (88.1%) among other possible modes of transmission.

4.4.2 To ascertain the level of compliance of compliance to Hepatitis B vaccination schedule among students in Kenya Medical Training Colleges in Machakos County.

High number of respondents indicated that there was high chances of preventing Hepatitis B virus with 307(77.9%) with 87(22.1%) indicating it was hard to prevent Hepatitis B virus while on the effectiveness of the hepatitis B vaccination is in protecting someone against hepatitis B virus infection highest percentage indicated that there is very effective with 162(41.1%) and those who indicated slightly effective on the hepatitis B virus vaccine protection is 102(25.9%) and 130 of the respondents indicated they are not aware on the effectiveness of the hepatitis B virus vaccine protection towards hepatitis B virus infection. On the full dose of hepatitis B vaccine towards protection of someone most of the respondents indicated should be in between 1 – 5 years with a tally of 172(43.7%) followed by those who indicated some indicating a period of 6 – 10 years as the full dose of hepatitis B vaccine to protect someone with 48(12.2%) however 39(9.9%) indicated 11 – 19 years and 16(4.1%) indicated more than 20 years as the full dose of hepatitis B vaccine protect someone. 9(2.3%) were not sure of how long would the dose last towards protecting someone once she/he has contacted hepatitis B. Despite most of the student being mostly in various department in hospital they had different opinion towards the risk involved in relative towards the exposure of contracting hepatitis B virus infection where most of them indicated high risk towards the exposure270(68.5%) while low risk and moderate exposure had each 39(9.9%) respondents towards the level of risk exposure. 9(2.3%) indicated no risk of exposure of hepatitis B in their place of work and 37(9.4%) they had no idea on the work exposes you to the risk of contracting hepatitis B virus infection. This was tabulated as per the table below

Table 4.7: Prevention of Hepatitis B Virus

Test item	N	%
Yes	307	77.9%

Do you think hepatitis B is preventable?	No	87	22.1%
How effective do you think hepatitis B vaccination is in protecting someone against hepatitis B virus infection?	Slightly effective Very effective I don't know	102 162 130	25.9% 41.1% 33.0%
How long does a full dose of hepatitis B vaccine protect someone?	Less than 1 year 1 - 5 years 6 - 10 years 11 - 19 years 20 years or more I don't know	110 172 48 39 16 9	27.9% 43.7% 12.2% 9.9% 4.1% 2.3%
How much do you think your work exposes you to the risk of contracting hepatitis B virus infection	No risk of exposure Low risk of exposure Moderate risk of exposure High risk of exposure I don't know	9 39 39 270 37	2.3% 9.9% 9.9% 68.5% 9.4%

Source: Research Data 2023

Based on the findings of our research, it is necessary to raise health awareness and initiate a vaccination campaign to safeguard aspiring medical professionals from the risk of HBV infection, which they may come across during their careers in medicine.Most students expressed a strong agreement that it is essential for all students to receive HBV vaccination before starting their practical placement due to the potential risk of contracting HBV during clinical procedures. Additionally, there was a consensus that HBV vaccination should be obligatory for all healthcare workers (HCWs) and students.

4.4.3 Assess of the attitudes towards Hepatitis B vaccination among students in KMTC in Machakos Sub County.

According to the table below shows the response on various factors used in assessment of attitudes towards Hepatitis B vaccination among students in KMTC.

Table 4.8: Rating on assessment of the attitudes towards Hepatitis B vaccination among students in KMTC in Machakos Sub County

	SA		A		N		D		SD	
	N	%	N	%	N	%	N	%	N	%
How comfortable are you with advising patients on HBV prevention?	74	18.8	191	48.5	70	17.8	55	14.0	4	1.0

	SA		A		N		D		SD	
	N	%	N	%	N	%	N	%	N	%
Do you feel comfortable giving a patient a prescription for treatment of chronic hepatitis B?	69	17.5	155	39.3	80	20.3	63	16.0	27	6.9
Do you feel comfortable directing CHB patients' lab work?	43	10.9	139	35.3	122	31.0	63	16.0	27	6.9
Do you think it's safe to conduct social interactions or collaborate with someone who has chronic HBV?	43	10.9	64	16.2	94	23.9	104	26.4	89	22.6
Would you feel comfortable using the same cutlery and plates with a CHB?	21	5.3	86	21.8	104	26.4	147	37.3	36	9.1
I don't believe the hepatitis B vaccination is necessary for me since I'm not at risk.	86	21.8	154	39.1	130	33.0	16	4.1	8	2.0
Those who work in the medical field should get the hepatitis B vaccine.	32	8.1	163	41.4	102	25.9	23	5.8	74	18.8

Source: Research Data 2023

Most of the students in KMTC indicated that they agree that they are confident in counselling patients about the prevention of HBV where 191(48.5%) agreed while 74(18.8%) strongly agreed that they can counselling patients while 70(17.8%) were not sure that they can counselling patients while 14.0% and 1% they disagreed and strongly disagreed on the counselling patients on prevention of HBV. High number of respondents were confident in prescribing treatment for a patient with chronic hepatitis B where 155(39.3%) agreed, while 69(17.5%) were strongly agreed while 80(20.3%) had a neutral case while those who disagreed and strongly disagreed were presented by 16.0% and 6.9% respectively. The attitude of the students in KMTC to measure on the confident in ordering the tests to monitor CHB patients most of students indicated that 139(35.3%) agreed while the lowest count was on strongly disagreed with 27(6.9%).

On testing on the attitude of student based on any concerns in any concerns sharing food or utensils with a CHB where high number of them indicated that they had a disagreed idea with a tally of 147(37.3%) followed by those who had a neutral case with a tally of

104(26.4%) while 21.8%, 9.1% and 5.3% were percentage indicated by those who agreed, strongly disagreed and agreed respectively. A Likert scale was used to measure on any concerns having casual contact or working together with a chronic HBV where the high number of respondents indicated that they 104(26.4%) disagreed while 89(22.9%) strongly disagree on any issue on any concerns having casual contact or working together with a chronic HBV. Most of the student liked to have hepatitis B vaccine because they are not at risk but being in a hospital they need to have the vaccine this will minimize the risk of being infected by hepatitis B virus where 154(39.1%) they agreed to have the vaccine while 130(33.0%) were not sure whether they need to have the vaccine because they were not at risk. 86(21.8%) strongly agreed on having hepatitis B vaccine while 4.1% disagreed and 2.0% strongly disagreed on having hepatitis B vaccine. High number of the respondent indicated that there it is necessary for all the health workers to receive hepatitis B vaccine with 163(41.4%) agreed while 102(25.6%) had a neutral idea on hepatitis B vaccination among medics while 23(5.8%) disagreed while 32(8.1%) strongly agreed on vaccination among medical practitioners while 74(18.8%) strongly disagreed.

4.4.4 Existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County

The table below shows the descriptive statistics on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County.

Table 4.9: Assessment on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County

	SA		A		N		D		SD	
	N	%	N	%	N	%	N	%	N	%
The prevalence of HBV is alarming and poses a risk to public health.	22	5.6	160	40.6	104	26.4	76	19.3	32	8.1
At the time of hospital admission, all patients should have had an HBV vaccination.	39	9.9	160	40.6	139	35.3	38	9.6	18	4.6
Your current treatment plan puts you at risk for hepatitis B virus infection.	51	12.9	66	16.8	84	21.3	103	26.1	90	22.8
I shall be safe from HBV infection as long as the policy and procedure for vaccination against it are enforced.	68	17.3	132	33.5	87	22.1	65	16.5	42	10.7
When it comes to providing service to my clients, I always behave fairly.	104	26.4	147	37.3	86	21.8	36	9.1	21	5.3
It is not acceptable to delay treatment for HBV infection.	16	4.1	153	38.8	129	32.7	86	21.8	10	2.5
HBV may be spread from patient to patient by a student or healthcare professional.	74	18.8	191	48.5	70	17.8	55	14.0	4	1.0

Source: Research Data 2023

From the study high number of respondents indicated that there were very high chances of HBV infection a threatening population health concern this was measured by use of Likert scale where 160(40.6%) agreed to this 26.4% had a neutral idea while 19.3%, 8.1 % and 5.6% indicated disagree, strongly disagree and strongly agreed response respectively. Most of the student in KMTC indicated that there is need for all patients should be immunized against HBV on hospital registration with 160(40.6%) agreed with this and 139(35.3%) having a neutral idea.39(9.9%) of the respondent strongly agreed while 38(9.6%) disagreed and 18(4.6%) strongly disagreed. Most of the respondents indicated that there current medical course predisposes you to HBV infection with 51(12.9%) strongly agreed while 66(16.8%) agreed, 84(21.3%) of respondents had a neutral idea on current medical course predisposes you to HBV infection on the 103(21.3%) disagreed and 90(22.8%) strongly disagreed on exposure based on current medical course predisposes this was similarly according to .

On the measure of imposition of HBV policy and protocol for immunization will keep me protected from HBV infection 68(17.3%) strongly agreed while the lower total count was experienced in strongly disagreed with 42(10.7%) and high count on agreed response with 132(33.5%) of the respondents. Most of the students in KMTC they practice equity in executing my duty in patient care to all my customers with high percentage indicating agreed with this with 147(37.4%) while those who indicated a strongly agreed response were 104(26.4%) while 21.8%, 9.1% and 5.3% indicted neutral, disagree and strongly disagree response respectively practice equity in executing my duty in patient care to all my customers. High number of respondents had agreed to the appropriateness to to take time with care of HBV-infected cases with 153(38.8%) agreed to this while 129(32.7%) had neutral idea, while 16(4.1%) strongly agreed there is inappropriate to take time with care of HBV-infected cases while for the response of disagree and strongly disagree were 21.8% and 2.5% respectively. 191(48.5%) of the students indicated that their high chances of the health care worker or student can infect patients with HBV if he/she is working in various department in hospital while 74(18.8%) of the respondents strongly agreed while 4(1.0%) of the respondents strongly disagreed on the chances of any health care worker or student can infect patients with HBV while working in the hospital.

4.5 Regression Analysis

4.5.1 Regression Results on the on assessment of the attitudes towards Hepatitis B vaccination among students in KMTC

A multiple linear regression was tabulated to test for existing relationship between the attitude and Hepatitis B vaccination among students in KMTC. The findings are presented in model summary, ANOVA and regression coefficients in Tables below

Table 4.10: Model summary on the assessment of the attitudes towards Hepatitis B vaccination among students in KMTC

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.998[a]	.996	.996	.06453

Source: Research Data 2023

R square of 99.6% of the data was achieved indicating that there was goodness in fit of the data used in assessment of on the relationship between the studied dependent and independent variables i.e. the attitudes towards Hepatitis B vaccination among students in KMTC.

This is similar to study by Anne & Leah Chebet (2020) where majority of participants held a favorable outlook towards HBV vaccination, mainly because of its potential to provide protection against the disease. Nevertheless, recommendations concerning the vaccine's administration to various groups at risk of HBV infection differed among respondents. Specifically, only 53.1% of healthcare students surveyed would suggest HBV vaccination for newborns, indicating that more awareness-raising is required regarding the crucial role of HBV-BD in the eradication of HBV.

Table 4.11: ANOVA Summary on the assessment of the attitudes towards Hepatitis B vaccination among students in KMTC

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	421.293	7	60.185	14451.092	.000[b]
	Residual	1.608	386	.004		
	Total	422.901	393			

Source: Research Data 2023

An f-value of 14451.092 was obtained which is greater than the f-table value at (386,7) at 95% confidence interval which is 2.0333 hence this indicate we reject the null hypothesis that there existed a relationship between the attitudes towards Hepatitis B vaccination among students in KMTC. A significance of 0.000 which is less than $p<0.05$

statistically significant relationship indicated that attitudes towards Hepatitis B vaccination among students in KMTC.

Table 4.12: Regression Coefficients on the assessment of the attitudes towards Hepatitis B vaccination among students in KMTC

Model		Coefficients[a] Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-.037	.013		-2.818	.005
	How comfortable are you with advising patients on HBV prevention?	.189	.010	.176	19.127	.000
	Do you feel comfortable giving a patient a prescription for treatment of chronic hepatitis B?	.085	.012	.094	6.966	.000
	Do you feel comfortable directing CHB patients' lab work?	.281	.011	.291	24.802	.000
	Do you think it's safe to conduct social interactions or collaborate with someone who has chronic HBV?	.114	.011	.142	10.845	.000
	Would you feel comfortable using the same cutlery and plates with a CHB?	.181	.010	.184	17.264	.000
	I don't believe the hepatitis B vaccination is necessary for me since I'm not at risk.	.095	.011	.083	8.991	.000
	Medical personnel are encouraged to get the hepatitis B vaccine.	.070	.008	.075	8.609	.000

Source: Research Data 2023

From the table above it indicates the regression coefficient on the parameters used in assessment of attitude towards Hepatitis B vaccination among the student in KMTC where a constant of -0.037 was obtained. The coefficient of each different where self-assured in ordering diagnostic procedures to track CHB patients with 0.281 had high coefficient among the parameter used to assess the attitudes towards Hepatitis B vaccination among students in KMTC followed by relates to the sharing of meals or utensils with a CHB with 0.181 while conscience in prescribing diagnosis for a patient

with chronic hepatitis B 0.085 had the lowest coefficient. A significance of 0.000 which is less than p<0.05 statistically significant relationship indicated that attitudes towards Hepatitis B vaccination among students in KMTC.

The following multiple linear regression was formulated and can be used to estimate the attitude of the student towards Hepatitis B vaccination.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 \beta_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \varepsilon$$

$$y = -0.037 + 0.189 x_1 + 0.085 x_2 + 0.281 x_3 + 0.114 x_4 + 0.181 x_5 + 0.095 x_6 + 0.070 x_7 + \varepsilon$$

x_1 = Confident in counseloring patients on HBV prevention

x_2 = self-assured in writing prescriptions treatment to a client with chronic hepatitis B

x_3= Do you have confidence in ordering laboratory tests to monitor? CHB patients.

x_4 = Would you have any concerns having casual contact or working together with a chronic HBV

x_5 = if one may be having concerns on sharing food and utensils with CHB.

x_6 = I don't think I need hepatitis B vaccine because am not at risk

x_7 = Health workers should receive the hepatitis B vaccination

Where each coefficient corresponds towards the parameter as indicated above.

4.5.2 Existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County

In order to examine the relationship regarding the existence of institutional measures aimed at ensuring the implementation of policies for HBV vaccination among KMTC students in Machakos County, linear regression analysis was conducted. The results of

this analysis, including the model summary, ANOVA, and regression coefficients, are presented in the tables below..

Table 4.13: Model Summary on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC in Machakos County

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.998[a]	.996	.996	.06703

Source; Research Data 2023

As the model summary in Table above reveals, the R^2 value on the relationship between the studied dependent and independent variables was $R^2 = 0.996$ showing a good fit of the model and the parameter were best for the testing the on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC. The research may be needed to assess the implementation status and effectiveness of institutional measures for HBV vaccination among students in specific healthcare settings or regions.

Table 4.14: ANOVA on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	421.166	7	60.167	1391.771	.000[b]
	Residual	1.734	386	.004		
	Total	422.901	393			

Source: Research Data 2023

An f-value of 13391.1771 was obtained which is greater than the f-table value at 3.2416 at (7,386) degree of freedom. This indicating that there was a statistical significance on the existence hence we fail to reject the null hypothesis of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC.

Regression Coefficients of the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC

The table below shows the correlation coefficients of the factors used in determination of the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC.

Table 4.15: Regression Coefficients of the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC

Model		Coefficients[a] Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.116	.013		8.659	.000
	The prevalence of HBV is alarming and poses a risk to public health.	.120	.013	.122	8.876	.000
	At the time of hospital admission, all patients should have had an HBV vaccination.	.166	.010	.152	16.258	.000
	Your current treatment plan puts you at risk for hepatitis B virus infection.	.262	.008	.337	34.244	.000
	I shall be safe from HBV infection as long as the policy and procedure for vaccination against it are enforced.	.098	.013	.117	7.634	.000
	When it comes to providing service to my clients, I always behave fairly.	.126	.010	.136	12.576	.000
	It is not acceptable to delay treatment for HBV infection.	.087	.012	.076	7.033	.000
	HBV may be spread from patient to patient by a student or healthcare professional.	.111	.012	.103	9.360	.000

Source: Research Data 2023

The regression coefficient results presented in table above revealed on the existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC this is because the p-value of 0.000 was lower than p = 0.05.

Hence, there exists a statistically significant relationship existence of institutional measures to ensure implementation of policies in KTMC.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 \beta_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \varepsilon$$

$$y = 0.116 + 0.120 x_1 + 0.166 x_2 + 0.262 x_3 + 0.098 x_4 + 0.126 x_5 + 0.087 x_6 + 0.111 x_7 + \varepsilon$$

x_1 = HBV infection a threatening population health concern

x_2 = All patients should be immunized against HBV on hospital registration.

x_3= Your current medical course predisposes you to HBV infection.

x_4 = Imposition of HBV policy and protocol for immunization will keep me protected from HBV infection.

x_5 = I practice equity in executing my duty in patient care to all my customers

x_6 =It is inappropriate to take time with care of HBV-infected cases

x_7 = A health care worker or student can infect patients with HBV

The table presented above shows the results of the regression coefficients, which indicate the existence of institutional measures for implementing policies on vaccination against HBV for students in KMTC. The p-value of 0.000 is lower than the significance level of 0.05, indicating a statistically significant relationship.

The multiple linear regression equation shows that the dependent variable (y) is influenced by seven independent variables (x1 to x7). These variables are related to the threat of HBV infection, immunization policies, medical courses, personal protection against HBV, patient care, and the risk of infecting patients with HBV. The coefficients (β) of these variables indicate the direction and strength of their relationship with the dependent variable.

The results show that the variable with the highest correlation to the dependent variable is "current medical course predisposes you to HBV infection," with a coefficient of 0.262. This implies that students who are currently pursuing medical courses are more susceptible to HBV infection and, therefore, require vaccination policies to protect them. On the other hand, the variable with the lowest correlation is "inappropriate to take time with care of HBV-infected cases," with a coefficient of 0.087. This suggests that students who do not prioritize the care of HBV-infected patients are less likely to appreciate the importance of vaccination policies.

The constant term in the regression equation is 0.116, indicating that even without the influence of the independent variables; there is still a minimum level of institutional measures to ensure the implementation of vaccination policies in KMTC. However, the other coefficients of the independent variables suggest that these measures are not enough and need to be strengthened to achieve the desired outcomes.

Overall, the regression analysis provides evidence that institutional measures to ensure the implementation of policies on vaccination against HBV are crucial for protecting students in KMTC from the risk of infection. The findings also suggest that these measures should focus on improving the awareness of the threat of HBV infection and the importance of immunization, especially among students pursuing medical courses. Additionally, the policies should address the importance of patient care and the risks of infecting patients with HBV, which can also influence students' attitudes towards vaccination.

In conclusion, the results of the regression analysis support the need for institutional measures to ensure the implementation of policies on vaccination against HBV for students in KMTC. The findings provide valuable insights into the factors that influence the effectiveness of these measures and can inform the development of targeted

interventions to improve vaccination coverage and reduce the risk of HBV infection among students and patients.

4.6 Thematic Analysis

4.6.1 Assessment of the attitudes towards Hepatitis B vaccination among students in KMTC

Thematic analysis reveals several key themes related to students' perceptions of communication issues, inefficiencies in the immunization program execution, and insufficient awareness creation about the availability of the hepatitis B vaccine.

4.6.1.1 Communication Issues

Students expressed dissatisfaction with the lack of communication from the institution regarding the hepatitis B immunization program. They felt that the college did not effectively represent their needs and concerns, leading to a lack of information and clarity. One student mentioned, "The college is not representing well due to a lack of communication because there is no communication. They stand by for the students to demand it." This indicates a breakdown in communication channels between the institution and the students, resulting in a sense of frustration and the need for students to actively seek information rather than receiving it proactively.

4.6.1.2 Inefficiencies in Program Execution

Students perceived the execution of the immunization program to be inefficient. They highlighted issues related to monitoring and evaluation, as well as the lengthy vaccine supply chain and procurement processes. Students felt that these inefficiencies contributed to delays in receiving the vaccine. One student stated, "They perceived that inefficient monitoring and evaluation of both the lengthy

vaccine supply chain and procurement processes were the fusion for delay." This suggests that students perceived a lack of effective management and coordination within the immunization program, leading to delays in receiving the vaccine.

4.6.1.3 Need for Immunization Prior to Practical Attachment

Students recognized the importance of receiving the hepatitis B vaccine before starting their practical attachments in various hospital departments. They acknowledged the potential exposure to the virus during their training and saw vaccination as a necessary precaution. One student remarked, "Yes, [we must be inoculated prior to actually our practical attachment] because we will be exposed in various departments throughout the hospital." This indicates that students were aware of the risks associated with their practical training and understood the importance of being vaccinated beforehand.

4.6.1.4 Insufficient Awareness Creation

Students expressed concerns about the administration's lack of sufficient awareness creation channels regarding the availability of the hepatitis B vaccine. They felt that the administration had not effectively communicated information about the vaccine to the students. This lack of awareness might have contributed to students' perception of careless administration and delays in receiving the vaccine. Students felt that the administration should have taken proactive measures to ensure that students were well-informed about the vaccine's availability.

The analysis reveals students' frustrations with the lack of communication from the institution, perceived inefficiencies in the execution of the immunization program, the recognition of the need for vaccination prior to practical attachments, and concerns about insufficient awareness creation regarding the vaccine's availability.

These findings shed light on the students' perspectives and highlight areas where improvements can be made in communication, program management, and awareness creation to enhance the hepatitis B vaccination process among students at the Kenya Medical Training College in Machakos Sub County.

4.6.2 Existence of institutional measures to ensure implementation of policies for vaccination against HBV for students in KMTC

This section provides an analysis of the qualitative data collected in this study. Thematic analysis, a commonly employed method for analyzing qualitative data, was utilized (Braun & Clarke, 2012). The analysis process consisted of several key steps, including data familiarization, generating initial codes, identifying themes, reviewing and refining themes, and finally defining and naming the identified themes (Braun & Clarke, 2012).

Several themes emerged from the responses, including knowledge and awareness, perceived risk, personal beliefs and attitudes, institutional policies and practices, and access to vaccination.

4.6.2.1: Knowledge and Awareness

A common theme that emerged from the responses was the lack of knowledge and awareness about HBV and the importance of vaccination. Many participants reported that they were not adequately informed about HBV and its transmission, which contributed to their noncompliance with vaccination. This finding is consistent with previous studies that have shown a lack of knowledge and awareness about HBV among healthcare workers (Ziraba et al., 2011; Kabir et al., 2012).

4.6.2.2: Perceived Risk

Another concern that emerged from the responses was the perceived risk of HBV infection. Participants who perceived themselves to be at a low risk of infection were less

likely to comply with vaccination. This finding is consistent with previous studies that have shown that perceived risk is an important predictor of vaccination behavior (Chen et al., 2017; Huang et al., 2018).

4.6.2.3: Personal Beliefs and Attitudes

Personal beliefs and attitudes were also identified as important determinants of noncompliance to HBV vaccination. Participants who held negative beliefs and attitudes towards vaccination were less likely to comply. Some participants expressed concerns about the safety and efficacy of the vaccine, while others believed that vaccination was unnecessary because they did not perceive themselves to be at risk of infection. This finding is consistent with previous studies that have shown that personal beliefs and attitudes are important predictors of vaccination behavior (Lau et al., 2012; Huang et al., 2018).

4.6.2.4: Institutional Policies and Practices

The institutional policies and practices related to HBV vaccination were also identified as important determinants of noncompliance. Participants who reported that their institutions did not have clear vaccination policies and practices were more likely to be noncompliant. Some participants also reported that the vaccination services were not easily accessible, which contributed to their noncompliance. This finding is consistent with previous studies that have shown that institutional policies and practices are important predictors of vaccination behavior (Ziraba et al., 2011; Kabir et al., 2012).

4.6.2.5: Access to Vaccination

Access to vaccination was also identified as an important determinant of noncompliance. Participants who reported difficulties in accessing vaccination services were more likely to be noncompliant. Some participants reported that the vaccination services were not

conveniently located, while others reported that the services were not provided free of charge. This finding is consistent with previous studies that have shown that access to vaccination services is an important predictor of vaccination behavior (Chen et al., 2017; Huang et al., 2018).

4.7 Discussion

4.7.1 Risk Factors and Vaccination Compliance:

Medical students are at a high risk of exposure to hepatitis B due to their early involvement in patient care during their clinical training. It is crucial for these students to be vaccinated against hepatitis B and educated about the disease before starting their clinical training (Moolasart et al., 2019). However, studies conducted in Thailand and Pakistan revealed suboptimal vaccination coverage among university students and healthcare personnel, indicating a gap in vaccination compliance (Moolasart et al., 2019; Saleem et al., 2018). This highlights the importance of understanding the risk factors and barriers that contribute to non-compliance with the hepatitis B vaccination schedule among students.

4.7.2 Attitudes and Awareness:

Studies conducted in Pakistan, China, and Egypt assessed students' attitudes towards the hepatitis B vaccine. While the majority of participants expressed a positive attitude and willingness to be vaccinated, there were also concerns and knowledge gaps (Anwar et al., 2018; Wang et al., 2018; Elmahalli et al., 2017). Factors such as fear of vaccine side effects, lack of information, and misconceptions about the vaccine's safety were identified as barriers to vaccination (Anwar et al., 2018; Elmahalli et al., 2017). These findings emphasize the need for educational interventions to address misconceptions, improve knowledge, and enhance attitudes towards hepatitis B vaccination.

4.7.3 Institutional Policies and Procedures:

Participants in the study expressed concerns about the timing of vaccination, especially when it coincided with exams or busy clinical rotations. This aligns with previous research highlighting the importance of considering the timing of vaccines to minimize disruptions to academic schedules and clinical duties (Hofmann et al., 2014; Ndejjo et al., 2017). Additionally, inadequate institutional policies and procedures were identified as contributing factors to non-compliance with the hepatitis B vaccination program (Moolasart et al., 2019). This suggests the need for institutions to develop effective policies and procedures that address the timing and convenience of vaccination for medical students.

4.7.4 Knowledge Gaps and Health Education:

The survey results indicated that some students had insufficient knowledge about HBV transmission and preventive measures (Ndejjo et al., 2017). This highlights the importance of enhancing health education programs at medical schools to improve students' understanding and awareness of hepatitis B and its prevention (Ndejjo et al., 2017). Proper education and counseling are needed to address misconceptions about the safety of vaccinations and potential adverse effects (Hofmann et al., 2014). By improving health education programs, medical schools can play a vital role in increasing students' comprehension and awareness of hepatitis B.

The discussion of the research findings highlights several key factors that contribute to non-compliance with the hepatitis B vaccination program among medical students. These factors include inadequate knowledge and awareness, concerns about vaccine safety and side effects, timing-related issues, and institutional policies and procedures. The findings are consistent with previous research and provide insights into the specific challenges

faced by medical students in Machakos Sub County, Kenya. Addressing these factors through targeted interventions, improved health education programs, and the development of student-friendly policies can help increase vaccination rates and prevent the spread of hepatitis B among medical students.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section provides a concise overview of the study's most important results, conclusions, and suggestions. This abstract has been written to answer questions about why certain students at the Kenya Medical Training College in Machakos Sub County, Kenya, choose not to be vaccinated against hepatitis B.

The data findings provide valuable insights into the factors influencing non-compliance to Hepatitis B vaccination among the students. These findings shed light on the level of awareness regarding HBV vaccination, compliance with the vaccination schedule, attitudes towards HBV vaccination, and the existence of institutional measures to ensure policy implementation.

Based on these data findings, a number of conclusions can be drawn. These conclusions highlight the significant gaps in awareness, compliance, and attitudes towards HBV vaccination among the student population. Furthermore, the study identifies the need for stronger institutional measures and policies to promote and enforce HBV vaccination among the students.

In light of these conclusions, several recommendations are put forth. These recommendations aim to address the identified gaps and enhance compliance with HBV vaccination. They emphasize the importance of comprehensive awareness campaigns, targeted educational interventions, and the establishment of robust institutional policies to ensure the effective implementation of HBV vaccination programs among KMTC students in Machakos Sub County, Kenya.

In conclusion, this section presents a brief overview of the study's most important results, conclusions, and suggestions, shedding light on the factors that contribute to low vaccination rates for Hepatitis B among KMTC students in Machakos Sub County, Kenya.

5.2 Summary

5.2.1 Assessing the level of awareness on HBV vaccination amongst students in KMTC in Machakos Sub County

The respondents' level of awareness about Hepatitis B virus infection was at 94% (n=362) implying that majority of them have adequate knowledge concerning it. The source of information awareness was from lecturers 56% (n=216) while 38% (n=149) sourced it media. Majority of the respondents gave needle stick injury, 30% (n=115) being the most probable route of the disease transmission. The study findings indicated that all 100% (n=384) respondents were aware of existence of Hep B virus infection preventive measures. Concerning the preventive measures to Hep B virus infection, 28% (n=108) of the respondents indicated sexual abstinence, while 24% (n=92) indicated vaccination as their preventive measure.

All respondents 100% (n=384) were aware of a vaccine against Hep B infection. On the effectiveness of Hep B vaccine against transmission of the disease, 41% (n=158) representing the majority indicated lack of knowledge at all. Concerning the availability of Hep B vaccine within the students' area of reach, a greater percentage 77% (n=296) confirmed its availability. On full recommended dose of Hep B vaccine in prevention of the disease they indicated that the nursing students had 78% (n=86). About the validity of the Hep B vaccination protection against the disease following full dose completion, 44% (n=169) gave 1-5 years period. On the students' knowledge on the risk of

professional exposure to the Hep B disease transmission, 78% (n=300) gave a response of high risk.

5.2.2 Assessing the status of compliance to Hepatitis B vaccination schedule among students in Kenya Medical Training Colleges in Machakos Sub County

On possession of Hepatitis B vaccination card, 78% indicated they have it while 22% stated no. All the respondents (100%) indicated that they had started on Hep vaccine. On the duration since last dose of Hepatitis B vaccine, 23% stated to have received it 1-3 months, 51% 4-6 months while 29% more than 6 months. Further, 51% of the respondents had completed the vaccine schedule while 49% had not completed it.

A study conducted by Gupta et al. (2017) among medical students in India revealed that only 63.3% of participants completed the full Hepatitis B vaccination schedule, with lack of awareness and fear of side effects as the main reasons for non-compliance. Similarly, a study by Lee et al. (2019) among nursing students in the United States found that only 68% of participants completed the full vaccination series, with perceived barriers such as cost and inconvenience reported as reasons for non-compliance.

5.2.3 Assessing the attitudes towards Hepatitis B vaccination among students in KMTC in Machakos Sub County

Regarding the perception on who should be vaccinated against Hep B virus, 88% (n=338) felt that both adults and children receive the vaccination, 20% and 2% stated that only adults and children respectively should receive it. The respondents gave 100% (n=384) agreement that their job is a risk. The respondent's vaccination status and the determinant to the current status was the high cost of the vaccine with 58 % (n=222), and its unavailability 37% (n=142). Perception about the probability of cure after Hep B

infection, 86% (n=330) gave a positive response. 90% (n=345) of the respondents were involved in health education concerning the Hep B infection transmission.

5.2.4 Establishing institutional measures for implementation of policies for vaccination against HBV for students in KMTC in Machakos Sub County

All the respondents (n=10) perceived Hepatitis B is a threat to population health. On whether all patients should be immunized against Hepatitis B on hospital registration, 50% strongly agreed (n=5), 30% agreed (n=3) and 20% neutral (n=2). All the students perceived that the medical courses as a risk to the infection (n=10). All the respondents indicated they strongly agreed Hepatitis B vaccine policy and protocol should be imposed to keep them protected from infection (n=10). On administering patient care equally to all clients, 50% of the respondents strongly agreed they practice equity (n=5) while 50% agreed they practice equity during patient care (n=5).

On health workers or students being a source of infection for patients, 60% agreed (n=6), 20% strongly agreed (n=2) while 20% were neutral (n=2). All respondents strongly agreed that medical staff infected with Hepatitis B should not take up patient care services (n=10). All respondents (n=10) stated that they had trust in Hepatitis B vaccine EPI programs. Further, all respondents strongly agreed that HBV should be compulsory (n=10). Likewise, all the respondents strongly agreed that although the vaccination provides immunity, it was too expensive. All the respondents strongly agreed that all KMTC students should be tested upon completion (n=10)

5.3 Conclusions

5.3.1 Awareness on HBV Vaccination:

The study findings indicate that the majority of the students in KMTC Machakos Sub County have adequate awareness of HBV infection and its preventive measures. They

are aware of the existence and availability of the HBV vaccine. However, there is a lack of knowledge regarding the effectiveness of the vaccine in preventing disease transmission and its long-term protection following completion of the full vaccination schedule.

5.3.2 Compliance to Hepatitis B Vaccination Schedule:

The study reveals a low level of compliance with the full vaccination schedule among the students, with only 51% having completed the recommended doses. The high cost of the vaccine and its limited availability are the primary factors influencing the students' vaccination status. These barriers need to be addressed to improve compliance rates.

5.3.3 Attitudes towards Hepatitis B Immunization:

Overall, the students have positive attitudes towards HBV vaccination. They perceive their job as a risk and agree that both adults and children should receive the vaccine. Additionally, they have a positive perception of the probability of cure after HBV infection. This indicates a favorable attitude towards vaccination and a recognition of its importance in preventing disease transmission.

5.3.4 Institutional Measures for Vaccination Implementation:

The study identifies the existence of institutional measures to ensure the implementation of vaccination policies for HBV among students in KMTC Machakos Sub County. The students perceive HBV as a threat to population health and support the implementation of a vaccine policy and protocol. They also agree that all patients should be immunized against HBV upon hospital registration and that infected medical staff should not provide patient care services. However, the high cost of the vaccine poses a challenge to its effective implementation.

Based on the findings, it is crucial to take measures to improve the availability and affordability of the HBV vaccine. Efforts should be made to increase students' awareness of the vaccine's effectiveness in preventing disease transmission and its long-term protection. Education campaigns can address misconceptions and provide accurate information. Furthermore, the implementation of comprehensive policies and protocols is necessary to protect both medical staff and patients from HBV infection.

While the level of awareness and positive attitudes towards HBV vaccination among KMTC students in Machakos Sub County are high, there is a need to improve compliance with the full vaccination schedule. Overcoming barriers such as the high cost and limited availability of the vaccine is crucial to ensure higher vaccination rates. By addressing these challenges and implementing effective policies, it is possible to enhance HBV vaccination coverage among students and contribute to the prevention and control of hepatitis B in Kenya.

5.4 Recommendations

Based on the conclusions drawn from the study, the following recommendations can be made:

5.4.1 Increase awareness

The responsibility to act on increasing awareness about HBV vaccination lies with various stakeholders, including:

Kenya Medical Training College (KMTC): KMTC should prioritize health education programs that specifically address HBV awareness among students. This can be done by incorporating HBV vaccination and prevention information into the curriculum, organizing awareness campaigns, and providing educational materials on HBV to students.

Health authorities and policymakers: Government health authorities and policymakers should play a role in promoting HBV awareness by developing comprehensive national vaccination strategies that emphasize the importance of HBV vaccination. They can allocate resources to support awareness campaigns, provide accurate information about HBV, and ensure that vaccination services are accessible and affordable.

Healthcare professionals and lecturers: Healthcare professionals and lecturers have direct contact with students and can act as key influencers in promoting HBV vaccination. They should provide accurate and up-to-date information about HBV, its transmission routes, and the benefits of vaccination. They can also address any misconceptions or concerns students may have about the vaccine.

Media sources: Media platforms, including television, radio, and social media, can contribute to increasing awareness about HBV vaccination. Collaboration with media sources can help disseminate information on HBV prevention, vaccination schedules, and the importance of early immunization.

Student organizations and peer educators: Student organizations and peer educators can actively engage in promoting HBV awareness among their peers. They can organize awareness campaigns, workshops, and informational sessions to educate students about the importance of HBV vaccination and its role in preventing transmission.

5.4.2 Improve accessibility and affordability

The responsibility to improve the accessibility and affordability of HBV vaccination rests with the following stakeholders:

Government and healthcare authorities: They can take measures to subsidize the cost of HBV vaccines or negotiate lower prices with vaccine manufacturers to make the vaccine more affordable for students. They can also ensure that vaccination services are widely available in healthcare facilities and educational institutions.

Health insurance providers: Health insurance companies can consider including HBV vaccination coverage in their policies, making it more accessible and affordable for students who are covered by health insurance.

Educational institutions: Institutions like KMTC can collaborate with healthcare facilities to provide on-campus vaccination services at reduced costs or through partnerships with government health programs.

5.4.3 Enhance compliance

Various stakeholders can contribute to improving compliance with the HBV vaccination schedule:

Healthcare professionals and lecturers: They should emphasize the importance of completing the full vaccination schedule and address any concerns or misconceptions students may have. They can also provide reminders and educational materials to reinforce the importance of compliance.

Student support services: Educational institutions can establish support services, such as counseling or dedicated vaccination coordinators, to assist students in scheduling and completing their vaccinations.

Government and healthcare authorities: They can develop public health campaigns and initiatives that highlight the importance of compliance with the HBV vaccination schedule. These campaigns can provide information on the benefits of completing the schedule and address common barriers to compliance.

5.4.4 Develop and implement policies

The responsibility to develop and implement policies for HBV vaccination lies with the following stakeholders:

Government and health authorities: They should develop and enforce policies that require educational institutions to implement comprehensive HBV vaccination programs for

students. These policies can include guidelines on vaccine administration, the recommended schedule, and post-vaccination testing to assess immunity levels.

Educational institutions: Institutions like KMTC should establish and enforce policies that mandate HBV vaccination for students and provide necessary resources and support for implementation. They can collaborate with healthcare facilities to ensure the availability of vaccines and facilitate vaccination services for students.

5.4.5 Conduct follow-up studies

The responsibility to conduct follow-up studies to assess the level of awareness, compliance, and attitudes towards HBV vaccination among students lies with:

Research institutions: They can conduct comprehensive studies involving multiple institutions and counties to gather data on HBV awareness, compliance rates, and attitudes towards vaccination. These studies will provide valuable insights for designing targeted interventions and evaluating the effectiveness of awareness campaigns and policies.

Government and healthcare authorities: They can support and fund research initiatives that focus on HBV vaccination and prevention among students. The findings from these studies can inform policy decisions and interventions aimed at improving vaccination rates and reducing the prevalence of HBV.

Promoting HBV vaccination among students is crucial to reducing the prevalence of the disease and protecting the population's health. It is essential to create awareness, improve accessibility and affordability, enhance compliance, develop and implement policies, and conduct follow-up studies to assess the effectiveness of interventions and identify areas that require further attention.

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APPENDICES

Appendix I: Consent form

I, ***Nthambi Silla Winfred***, a Master's degree student in Public Health at Mount Kenya University, am currently conducting a study ***titled "Determinants of Non-compliance to Hepatitis B Vaccination among Students of Kenya Medical Training College in Machakos Sub County, Kenya."***

I would like to inform you that this study is being conducted as a requirement for my master's degree program. I am reaching out to you to request your voluntary participation in this study. Please be assured that strict confidentiality will be maintained throughout the study, and the information gathered will not be disclosed to anyone. Your participation in this study is entirely voluntary, and there are no risks associated with your involvement.

Before you decide whether to participate, I kindly request you to review the purpose of the study and sign the declaration below, indicating your agreement or disagreement to participate.

I have read and understood the purpose of the study, and I hereby agree/disagree to participate in this research.

Respondent

Sign…… Date……

Principal investigator

Name: **Nthambi Silla Winfred** Sign……

In case of any complaints or further clarification, kindly contact the;

The Chairman
Mount Kenya University,
Ethics Review committee (MKU-ERC)
P.O Box 342-0100

Thanking you in advance.

Appendix II: KMTC student's questionnaire

Instructions

Please check the relevant boxes or provide textual responses to all questions. Your responses will be treated as strictly private. Do not sign any of the paperwork with your name.

Section A: Demographic Questions

1. What is your sex?

Male ☐

Female ☐

2. What was your age on your last birthday?

18 to 29 years ☐

30 to 39 years ☐

40 to 49 years ☐

50 years and above ☐

3. Marital Status

Married ☐

Single ☐

Others……

4. Department ☐

Clinical Medicine ☐

Public health officer ☐

Nursing ☐

Midwifery ☐

Medical laboratory ☐

Environmental Health ☐

Medical Imaging ☐

Medical imaging ☐

Pharmacy ☐

5. Year of study

First year ☐

Second year ☐

Third year ☐

Fourth year ☐

6. Home Residence

Urban ☐

Semi-urban ☐

Rural ☐

Section B: Awareness Level on Hepatitis B Vaccination

1. Have ever heard about Hepatitis B Virus infection

Yes ☐

No ☐

If Yes, How did you learn about it?

a) From a colleague ☐

b) From your Physician ☐

c) From your lecturer ☐

d) From an infected person ☐

e).from the media ☐

2. How can someone be infected with hepatitis B virus? (Please check (✓) all the correct boxes if your answer is more than one)

Through contact with blood of an infected person ☐

Through contact with saliva of an infected person ☐

Through contact with body fluid contaminated by blood of an infected person

Through contact with Needle stick injury ☐

Through Sexual transmission ☐

Through contact with Stool ☐

I don't know ☐

3. Do you think hepatitis B is preventable?

Yes ☐

No ☐

If so, how?

Don't know ☐

Through Vaccination ☐

Through abstaining ☐

Through pre exposure therapy ☐

Educational programmes ☐

Use of protective wear while in the clinics/wards

Improving hygiene practices ☐

Avoid sharing items with infected people ☐

4. Have you ever heard about hepatitis B vaccination?

Yes ☐

No ☐

5. How effective do you think hepatitis B vaccination is in protecting someone against hepatitis B virus infection?

Not effective ☐

Slightly effective ☐

Very effective ☐

I don't know ☐

6. Is vaccination available for Hepatitis B?

Yes ☐

No ☐

7. What do you think is the recommended full dose of hepatitis B vaccine?

1 dose ☐

2 doses ☐

3 or more doses ☐

I don't know ☐

8. How long does a full dose of hepatitis B vaccine protect someone?

Less than 1 year ☐

1 year to 5 years ☐

6 years to 10 years ☐

11 years to 19 years ☐

20 years or more ☐

I don't know ☐

9. How much do you think your work exposes you to the risk of contracting hepatitis B virus infection?

No risk of exposure ☐

Low risk of exposure ☐

Moderate risk of exposure ☐

High risk of exposure ☐

I don't know ☐

Section C: Attitudes towards Hepatitis B Vaccination

Test item	SA	A	N	D	SD
Is preventing HBV via patient counseling something you feel comfortable doing?					
How comfortable are you with treating a patient who has chronic hepatitis B?					
Are you comfortable with the idea of conducting lab testing to track CHB patients?					
Would you be comfortable socializing or working with someone who has chronic HBV?					
Do you think it would be okay to eat with a CHB or use the same cutlery?					
Since I am not at risk for hepatitis B, I do not believe that I need vaccination.					
Medical personnel are encouraged to get the hepatitis B vaccine.					

Appendix III: KMTC Students' Representative Council Questionnaire

Instructions

Kindly tick your answer against the appropriate box. Do not indicate your name. The information will be confidential and will only be used for study purposes.

SECTION A

Awareness and students perception towards Hepatitis B infection and its vaccination

Cues	**SA**	**A**	**N**	**D**	**SD**
HBV infection is a major public health risk.					
When checking into a hospital, all patients should be vaccinated against hepatitis B.					
Your current treatment plan puts you at risk for hepatitis B virus infection.					
I shall be safe from HBV infection as long as the policy and procedure for vaccination against it are enforced.					
When it comes to providing service to my clients, I always behave fairly.					
It is not acceptable to delay treatment for HBV infection.					
HBV may be spread from patient to patient by healthcare providers and students.					
Cues	**SA**	**A**	**N**	**D**	**SD**
Healthcare workers who test positive for HBV should not treat patients.					
HBV EPI Vaccine Programs are not something I have faith in.					
Vaccination against HBV should be mandatory at KMTC.					
The vaccine against HBV is effective yet costly.					
HIV and HBV infections are linked after exposure to any					
After finishing their time at KMTC, all students should be required to take a test for HBV.					

Appendix IV: Hepatitis B vaccination status and compliance observation check list for individual KMTC students.

A researcher guide

Section A

Individual HBV vaccination Status

1. Credible proof of hepatitis B vaccine

Present ☐

Absent ☐

2. Immunization against hepatitis B?

Yes ☐

No ☐

3. the total amount of hepatitis B vaccination doses shown on the card

1 dose ☐

2 doses ☐

3 doses ☐

More than 3 doses ☐

4. The completion of all hepatitis B vaccinations

Less than 1 month ago ☐

1 month to 3 months ago ☐

4 months to 6 months ago ☐

More than 6 months ago ☐

SECTION B

Individual HBV Vaccination schedule compliance

1. Once only (incomplete vaccination)
2. Got two doses (incomplete vaccination) ☐
3. Three complete doses (fully vaccinated) ☐
4. Completed schedule ☐
5. Fully vaccinated ☐
6. In complete vaccination ☐
7. Tested for HBV after completion of full schedule? ☐
8. Tested for the vaccine effect ☐

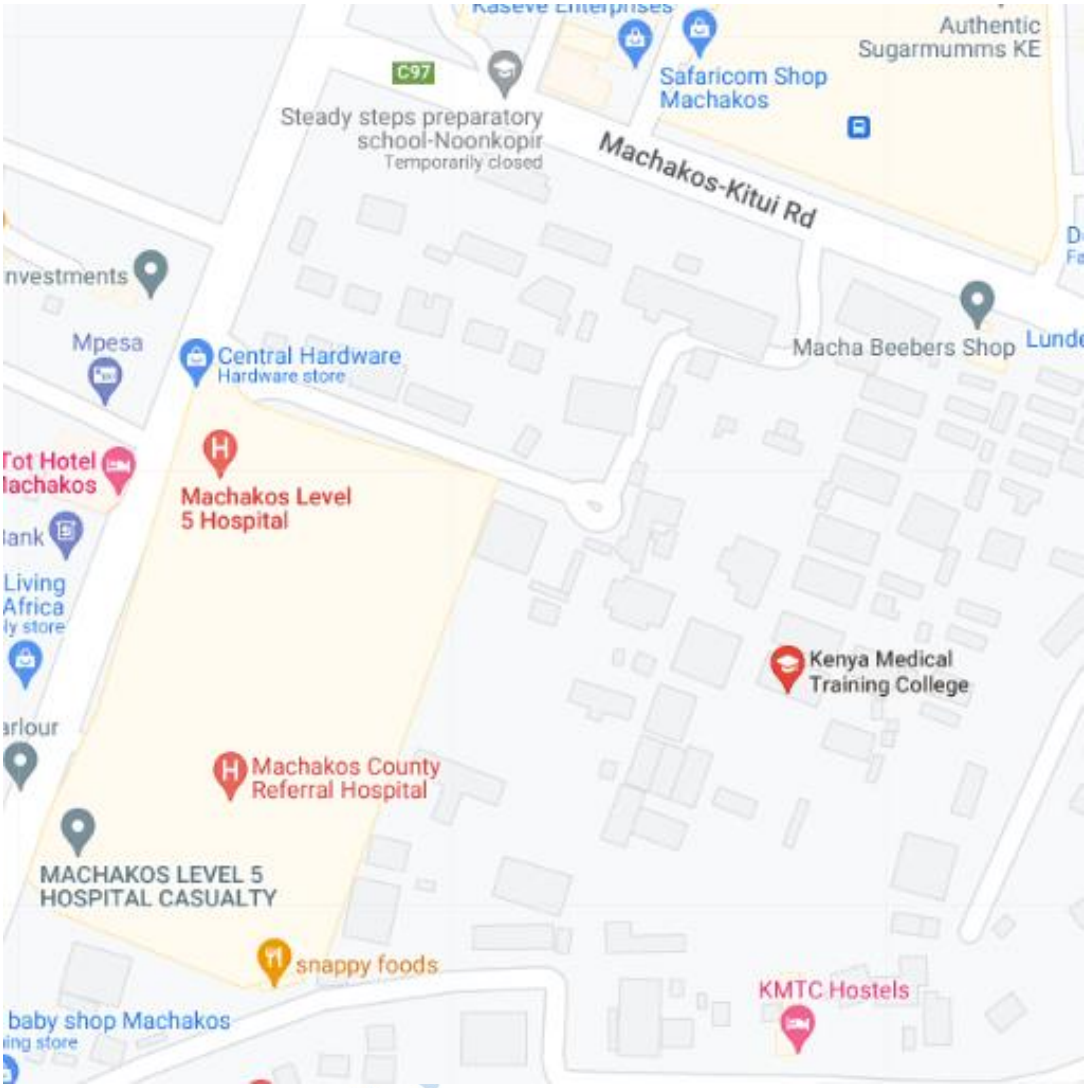
Test result present

i. Not protected(anti-HB titer <10MIU/ml) ☐
ii. Protected (anti-HB titer >10MIU/ml) ☐
iii. Not tested ☐

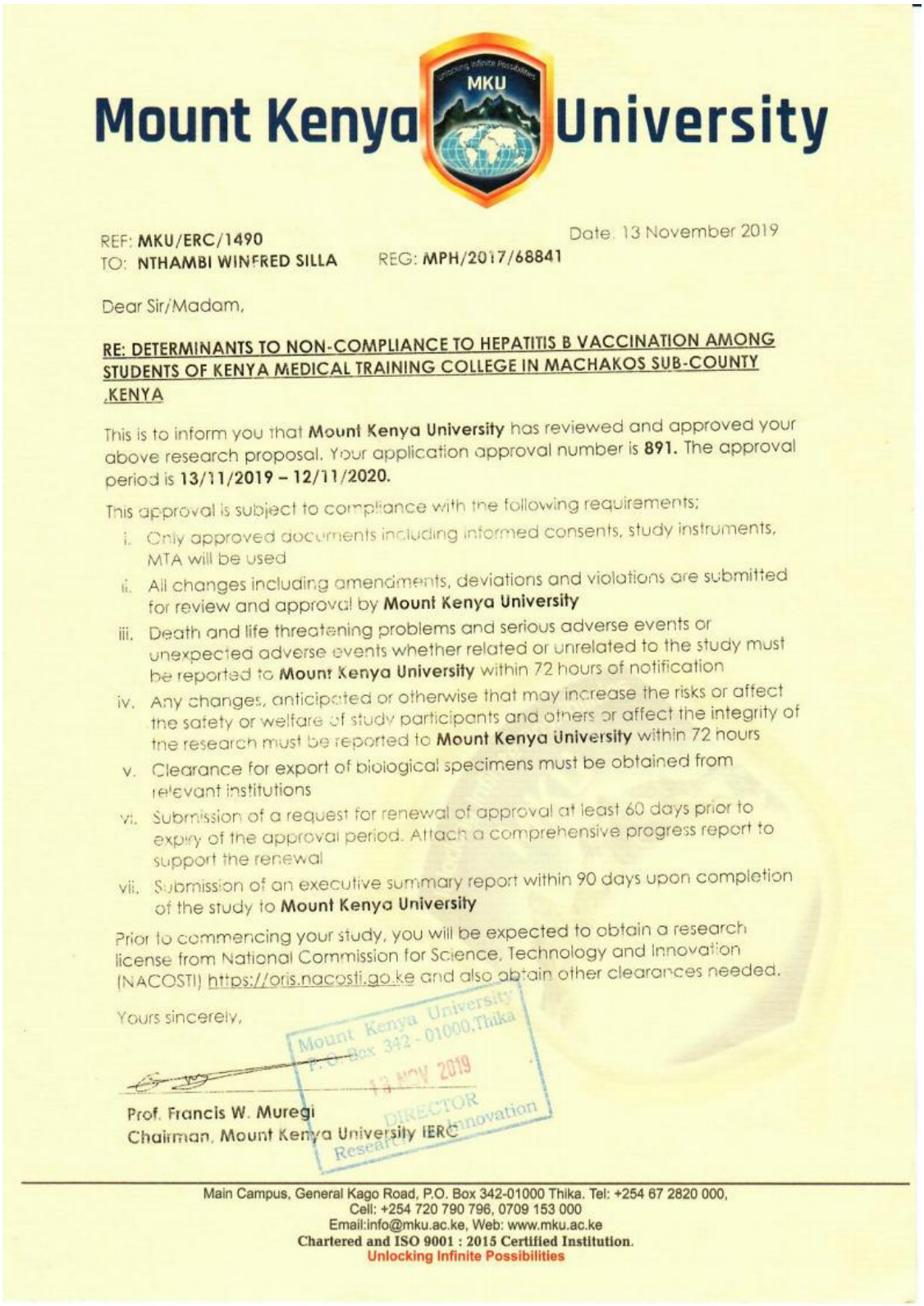
Appendix V: Focus Group Discussion Guide:

1. What do you know about the spread of hepatitis B virus (HBV)?
2. Have you been vaccinated against hepatitis B? How did you get it if so? Defend your position, please.
3. In your opinion, what obstacles prevent medical students from getting the HBV vaccine?
4. Can you describe any personal experiences or observations of noncompliance with HBV vaccination among medical students?
5. In your opinion, what do medical students think and feel about HBV vaccination?
6. Do medical schools have any regulations or procedures in place that affect whether or not their students get the HBV vaccine?
7. Can you provide some specifics on the ways in which institutional rules and practices impact medical students' willingness to be vaccinated against hepatitis B?
8. What can medical schools do to increase their students' immunization rates against HBV?
9. Is there any evidence that medical student adherence to HBV vaccination is affected by cultural or social factors?
10. When it comes to medical students, what may happen if they don't get the HBV vaccine?
11. Do you have anything more you'd want to say or bring up about this issue?

Appendix VI: Map of study area showing KMTC campuses



Appendix VII: Ethical Clearance Certificate



Mount Kenya University

REF: MKU/ERC/1490
TO: NTHAMBI WINFRED SILLA REG: MPH/2017/68841

Date: 13 November 2019

Dear Sir/Madam,

RE: DETERMINANTS TO NON-COMPLIANCE TO HEPATITIS B VACCINATION AMONG STUDENTS OF KENYA MEDICAL TRAINING COLLEGE IN MACHAKOS SUB-COUNTY ,KENYA

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **891.** The approval period is **13/11/2019 – 12/11/2020.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Mount Kenya University P.O. Box 342 - 01000, Thika 13 NOV 2019 DIRECTOR Research Innovation

Prof. Francis W. Muregi
Chairman, Mount Kenya University IERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika. Tel: +254 67 2820 000,
Cell: +254 720 790 796, 0709 153 000
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Appendix VIII: Introductory Letter

Mount Kenya University

SCHOOL OF POSTGRADUATE STUDIES

MPH/2017/68841

18th May, 2020

The Director, Research Coordination Division
National Commission for Science, Technology & Innovation
Utalii House, 8th & 9th Floor
P.O Box 30623- 00100
NAIROBI

Dear Sir/Madam,

RE: NTHAMBI WINFRED SILLA - REGISTRATION NO. MPH/2017/68841

The purpose of this letter is to introduce the above named student who is pursuing **Master of Public Health** in the Department of **Epidemiology and Biostatistics** in the School of **Public Health.**

The title of her research is *"Determinants to Non-Compliance to Hepatitis B Vaccination among Students of Kenya Medical Training College in Machakos Sub-County, Kenya."*

She has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data for her research between May and July 2020.

Any assistance accorded to him will be highly appreciated.

Thank you.

Mount Kenya University
P. O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies

Dr. Samuel M. Kadenga, Ph.D.
Director, Graduate Studies
Enc.

Appendix IX: Approval from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 918285

Date of Issue: 12/August/2020

RESEARCH LICENSE

This is to Certify that Ms.. NTHAMBI SILLA WINFRED of Mount Kenya University, has been licensed to conduct research in Machakos on the topic: DETERMINANTS TO NON-COMPLIANCE TO HEPATITIS B VACCINATION AMONG STUDENTS OF KENYA MEDICAL TRAINING COLLEGE IN MACHAKOS SUB COUNTY, KENYA. for the period ending : 12/August/2021.

License No: NACOSTI/P/20/6077

918285

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

Appendix X: Approval from KMTC

Telegrams:"MEDTRAIN"Nairobi
TELEPHONE: 2725191,2725711/14
Fax 2722907 Email; Info@kmtc.ac.ke
Please address all correspondence to:
The Directot
P.O Box 1121 – 90115, Kangundo

KENYA MEDICAL TRAINING COLLEGE
P.O BOX 30195
NAIROBI

When replying please quote;

Ref No.: **KMTC/ADM//VOLVI/336**

Date: 18th Septemberr, 2020

Winfred Nthambi Silla
KMTC Kangundo Campus
P.O. Box 1121 – 90115
Kangundo

RE; DATA COLLECTION APPROVAL

This is inform you that you have been given the consent to do your research on ***"Determinants for non compliance to Hepatitis B vaccination among students of Kenya Medical Training College Machakos Sub County, Kenya"*** and collect data at our KMTC Machakos and Manza Campuses according to the Kenya Medical Training College Research Policy guided by the office of the principals.

You are here by expected to furnish your findings to the office of the Deputy Director Academic Affairs and Registra Research at the end of the exercise.

Thank you

Solomon Kilaha
Deputy Registra Research

Cc

1. Principal KMTC Manza
2. Principal KMTC Machakos

Kenya Medical Training College Is ISO 9001:2015 Certified by

Scanned with CamScanner

Appendix XI: Originality Report

DETERMINANTS OF NON-COMPLIANCE TO HEPATITIS B VACCINATION AMONG STUDENTS OF KENYA MEDICAL TRAINING COLLEGE IN MACHAKOS SUB COUNTY, KENYA

by Winfred Nguih Nthambi Silla

Submission date: 02-Jun-2023 04:40PM (UTC+0300)
Submission ID: 2107485382
File name: NTHAMBI_SILLA_WINFRED_-2-6-23_A.docx (1.14M)
Word count: 38935
Character count: 207284

DETERMINANTS OF NON-COMPLIANCE TO HEPATITIS B VACCINATION AMONG STUDENTS OF KENYA MEDICAL TRAINING COLLEGE IN MACHAKOS SUB COUNTY, KENYA

ORIGINALITY REPORT

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