ASSESSING THE KNOWLEDGE TOWARDS HEPATITIS B VIRUS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT QUEEN ELIZABETH CENTRAL HOSPITAL, MALAWI

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Abstract summary

Hepatitis B Virus (HBV) remains a major public health concern in Malawi, particularly among pregnant women due to its potential for vertical (mother-to-child) transmission. This study assessed knowledge related to HBV among 369 pregnant women attending antenatal care at Queen Elizabeth Central Hospital in Blantyre. Knowledge scores were used to categorize respondents into two groups: those with adequate knowledge (answered more than 5 questions correctly) and those with poor knowledge (answered 5 or fewer correctly).

While 60.2% of the participants had heard of HBV, only 25.5% correctly identified it as a virus. This indicates that general awareness did not always correspond with scientific understanding. Many participants lacked clarity on HBV's classification and transmission pathways—49.3% were unsure whether it is caused by a virus, and 54.7% were unaware of its viral nature. Knowledge of transmission routes was equally inconsistent. Only 17.9% believed it could be transmitted through casual contact, while 42.5% acknowledged the possibility of infection through an infected husband. Meanwhile, just 45.3% were aware of mother-to-child transmission during childbirth.

Although more than half (53.4%) recognized the preventive role of the HBV vaccine, misconceptions around curability and risk persisted. About 50.7% believed HBV is curable, and only 33.3% acknowledged unsafe sex as a transmission risk. Furthermore, just 30.9% of respondents were aware that asymptomatic individuals can still transmit the virus. These knowledge gaps reflect limited understanding of key aspects that influence prevention and early detection.

Statistical analysis revealed significant associations between knowledge levels and socio-demographic factors such as residence, education level, and income ($p < 0.001$). Women residing in urban areas or those with higher education and income levels were more likely to demonstrate accurate knowledge about HBV. These findings underscore the disparities in health literacy that may hinder public health efforts, particularly among rural and underserved populations.

In conclusion, the study highlights a critical need for targeted educational interventions within antenatal care settings to improve HBV-related knowledge. By strengthening communication strategies and leveraging existing ANC touchpoints, healthcare providers can empower pregnant women with essential information, ultimately contributing to the reduction of HBV transmission and improved maternal and neonatal health outcomes.

CERTIFICATE OF APPROVAL

The Dissertation of Andrew Theu is approved by Uganda Christian University, Department of Public health

(Supervisor) - WATAKA EMMANUEL

Declaration

I, **ANDREW SAMUEL THEU** hereby declare that this is my original work, is not plagiarized and has not been submitted to any other institution for any award.

Student's name **ANDREW SAMUEL THEU** Signature……. Date: **23rd April 2025**

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Abbreviations and acronyms

HBV	Hepatitis B Virus
HBsAg	Hepatitis B surface antigen
WHO	World Health Organization
QECH	Queen Elizabeth Central Hospital
MOH	Ministry of Health
SSA	Sub-Saharan Africa
LMICs	Low and Middle-Income Countries
HIV	Human Immunodeficiency Virus
HCC	Hepatocellular Carcinoma
ANC	Antenatal Clinic
STIs	Sexual Transmitted Infections
DHQs	District Headquarter Hospital
NHSCR	National Health Science Research

CHAPTER ONE

1.1 Background information

Hepatitis B is a potentially fatal liver illness caused by the Hepatitis B virus (HBV). It usually results in a chronic or asymptomatic sickness during pregnancy, but in rare cases, it might cause acute Hepatitis. (Wakjira, Darega, Oljira, & Tura, 2022)

Children born to Hepatitis B surface antigen-positive and Hepatitis B envelope antigen-positive women have a 70–90% more chance of prenatal acquisition of Hepatitis B virus and about 85–90% will become chronic carriers of the diseases. (Scasso, et al., 2018) The World health organization (WHO) recommends screening pregnant women for Hepatitis B virus infection, providing its vaccine and Hepatitis B immune globulin to neonates within the first day of childbirth (Wakjira, et al., 2022).

According to the World Health Organization (WHO, 2017), about a third of the global population is infected with HBV, with an estimated 240 million people living with chronic HBV and approximately 780,000 HBV-attributable deaths reported annually. HBV is ubiquitous, but high prevalence rates are reported in sub- Saharan Africa (10 to 20%), compared to the developed world (0.2 to 0.5%) (Chipetah, Chirambo, Billiat, & Shawa, 2017)

The prevalence of HBV infection among pregnant women and its associated factors varies across studies and therefore studies from different settings are crucial to precisely measure the burden of the problem, and to make informed decisions (Asaye, Aferu, & Asefa, 2021). Therefore, this study aimed to assess the prevalence of Hepatitis B virus screening and associated factors among pregnant women attending antenatal clinic at Queen Elizabeth Central Hospital Blantyre, Malawi.

In Malawi, like many other low-resource settings, the burden of hepatitis B virus infection among pregnant women is not well documented. Understanding the prevalence and associated factors of HBV screening in this population is crucial for developing effective public health interventions and policies. Queen Elizabeth Central Hospital in Blantyre serves as a major referral center for pregnant women in the region, making it an important location for this study.

For example, a study conducted at Queen Elizabeth Central Hospital in Blantyre found that only 20% of pregnant women attending antenatal clinics were screened for Hepatitis B virus infection (Riches, TThom, & Mzumara WPhiri , 2018). This highlights the need for increased awareness and the implementation of HBV screening programs in this population to prevent mother-to-child transmission. Additionally, the study revealed that many pregnant women were unaware of their HBV status, indicating a lack of education and access to healthcare services. By increasing screening rates and providing education on HBV transmission and prevention, Queen

Elizabeth Central Hospital can play a significant role in reducing the prevalence of hepatitis B in the region. Implementing routine screening protocols and offering vaccinations to high-risk individuals can help protect both mothers and their babies from this potentially deadly infection from their mothers.

This can have serious consequences for both the mother and the child, as HBV can lead to liver damage, liver cancer, and even death if left untreated. It is crucial that healthcare providers prioritize screening pregnant women for HBV and providing appropriate interventions to prevent transmission to their newborns. Education on the importance of vaccination and proper hygiene practices can also help reduce the risk of HBV transmission within families and communities. By taking proactive measures to address HBV in pregnant women, Queen Elizabeth Central Hospital can make a significant impact on public health in the region.

In a previous study at Queens Elizabeth central Hospital Blantyre, Malawi it was found that a large percentage of pregnant women were unaware of their HBV status, highlighting the need for increased education and screening initiatives (Stockdale, Mitambo, Everett, Gerett, & Gordon, 2018). By taking proactive measures to address HBV in the community, Queen Elizabeth Central Hospital can make a significant impact on improving maternal and child health outcomes in the region.

The hospital's commitment to raising awareness and providing necessary interventions can help prevent the spread of hepatitis B and ultimately save lives. With proper education and screening, pregnant women can receive the necessary treatment and care to prevent transmission of HBV to their newborns. By implementing regular testing and early interventions, Queen Elizabeth Central Hospital can effectively reduce the prevalence of hepatitis B in the community. This proactive approach not only benefits the health of mothers and their children but also contributes to the overall well-being of the population in Blantyre, Malawi. Through continued efforts and support, the hospital can play a vital role in eradicating HBV and improving health outcomes for generations to come.

1.12 Problem statement

Hepatitis B virus (HBV) infection is a major global health concern, particularly in low- and middle-income countries. In Malawi, the prevalence of Hepatitis B surface antigen (HBsAg) among pregnant women was estimated at 8.1% (95% CI 6.1–10.3) at Queen Elizabeth Central Hospital (QECH) from 2001 to 2008 (Stockdale et al., 2018). While this prevalence may seem relatively low, the risk of mother-to-child transmission (MTCT) remains a significant public health challenge, with lifelong consequences for newborns. Infants infected at birth have a 90% chance of developing chronic HBV, which can lead to severe complications such as liver cirrhosis and cancer later in life.

The World Health Organization (WHO) recognizes preventing MTCT as a key strategy in eliminating HBV as a public health threat. Effective interventions such as HBV vaccination at birth and antiviral therapy for infected mothers can significantly reduce transmission. However, these interventions rely on early detection, which depends on routine HBV screening during antenatal care (ANC) visits. In Malawi, ANC services are a critical touchpoint for maternal and child health, yet gaps in adherence to HBV screening protocols mean that many pregnant women remain undiagnosed. Without screening, infected mothers unknowingly pass the virus to their newborns, perpetuating a silent cycle of transmission.

The decision to undergo HBV screening is influenced by a woman's knowledge (KAP) towards the virus. Many pregnant women may not fully understand HBV, its transmission, or the long-term consequences for their children. Cultural beliefs, misconceptions, and fear of stigma can also discourage screening. For example, some women might believe that HBV is only transmitted through casual contact or associate it with moral judgment, leading to reluctance in seeking testing. Additionally, access barriers such as long hospital wait times, financial constraints, and inadequate community awareness campaigns further limit screening uptake.

Despite the central role of ANC services in HBV prevention, there is limited data on the KAP of pregnant women at QECH regarding HBV screening. Without this information, it is difficult for healthcare providers and policymakers to design interventions that address the specific concerns and barriers faced by expectant mothers.

This study seeks to assess the knowledge, attitudes, and practices of pregnant women towards HBV screening at QECH. By understanding the factors influencing screening adherence, we can develop targeted educational campaigns, improve ANC service delivery, and strengthen policies to ensure more women are screened. Ultimately, these efforts will contribute to reducing HBV transmission, improving maternal and child health outcomes, and moving Malawi closer to the global goal of HBV elimination.

1.2 Objectives of the study

1.2.1 Broad objective of the study

1. To determine the level of knowledge and factors associated with Hepatitis B among pregnant women attending antenatal clinic at Queen Elizabeth Central Hospital.

1.2.2 Specific Objectives

1. To assess the general knowledge of Hepatitis B among pregnant women attending the antenatal clinic.
2. To identify the socio-demographic factors associated with knowledge levels of Hepatitis B among the pregnant women.

1.2.3 Main Research question

1. What is the level of knowledge and what factors are associated with Hepatitis B among pregnant women attending the antenatal clinic at Queen Elizabeth Central Hospital?

1.3 Supporting Research Questions

1. What is the general level of knowledge about Hepatitis B among pregnant women attending the antenatal clinic?
2. What is the socio-demographic factors associated with the knowledge levels of Hepatitis B among pregnant women attending the antenatal clinic?

1.4 Justification

Research studies have often been conducted on the prevalence of Hepatitis B virus infection and associated factors among pregnant women. Literature shows that in Malawi, the Ministry of Health (MoH) has resolved to respond to the Hepatitis B virus in a concerted and strategic manner. As part of the response, a National Viral Hepatitis Unit has been created in the MoH to guide the direction of policy and practice (Stockdale, et al., 2018). To consolidate the current available evidence on the epidemiology of HBV, this research will help increase knowledge and awareness on how best the community can be informed of HBV from the health systems in Malawi, which will help to improve the lives of pregnant women and their unborn children, hence reducing the burden of Hepatitis B infections in Malawi. This research will contribute to the development of guidelines for the screening and management of HBV in pregnant women, ensuring that appropriate interventions are in place to protect both the mother and the unborn child. Ultimately, this comprehensive approach will help reduce the burden of Hepatitis B infections and improve maternal and child health outcomes in Malawi.

CHAPTER TWO

2.1 Literature review

This chapter will review previous studies conducted on a global scale about the adherence to Hepatitis B screening and the incidence of Hepatitis B virus infection and related variables among pregnant women visiting prenatal clinics throughout the continent. There are two subsections inside it. The frequency of HBV infection among pregnant women throughout the continent will be discussed in the first subsection. The variables linked to HBV infection in expectant mothers are described in the second subsection.

2.2 Introduction

Hepatitis B virus (HBV) infection is a major public health concern worldwide, particularly in low- and middle-income countries (LMICs) where it is highly endemic. In Africa, the prevalence of chronic HBV infection is estimated to be between 5% and 20%, depending on the region and population studied (WHO, 2021). The virus is transmitted through contact with infected blood and other bodily fluids, including semen and vaginal secretions, as well as from mother to child during childbirth. Perinatal transmission is the most common mode of transmission in endemic areas, leading to chronic infection, which is associated with an increased risk of liver cirrhosis, liver failure, and hepatocellular carcinoma (Asrani et al., 2019).

Pregnant women are particularly vulnerable to HBV infection due to the heightened risk of mother-to-child transmission. In Africa, the prevalence of HBV infection among pregnant women can reach as high as 10% to 15% (Terrault et al., 2018). This is a significant public health issue, as perinatal transmission can result in chronic infection in newborns, increasing their risk of liver disease and cancer later in life. Several factors contribute to HBV infection among pregnant women in Africa, including a lack of awareness about HBV, low socio-economic status, a history of multiple sexual partners, inadequate vaccination coverage, HIV co-infection, traditional practices, and blood transfusions. These factors are often interconnected and compound the risk of HBV infection among pregnant women (Al-Mamari, 2019).

Preventing and controlling HBV infection among pregnant women in Africa necessitates a comprehensive approach that includes education, screening, vaccination, and treatment. It is essential to educate pregnant women and their families about the risks of HBV infection and prevention strategies. All pregnant women should be screened for HBV infection as part of routine antenatal care, with appropriate treatment and counseling provided for those who test positive to prevent perinatal transmission. Vaccination against HBV should be offered to all pregnant women who are not already immune (Tianyu He, 2016).

In conclusion, HBV infection poses a significant public health challenge among pregnant women in Africa, associated with various risk factors. Effective prevention and control require a multifaceted strategy encompassing

education, screening, vaccination, and treatment. Implementing these measures can help reduce the burden of HBV infection among pregnant women in Africa and prevent perinatal transmission of the virus.

A literature review conducted in Malawi indicated that the prevalence of HBV vaccination among pregnant women is relatively low. A study by Chipetah et al. (2017) reported that only 35% of pregnant women in Malawi had received the HBV vaccine. This underscores the need for increased awareness and accessibility of vaccination programs targeting pregnant women to effectively combat the spread of HBV in the country. The review identified several factors contributing to the low vaccination rates, including limited resources, inadequate healthcare infrastructure, and a lack of education regarding the importance of vaccinations.

These findings highlight the urgency for government interventions and collaborations with international organizations to improve vaccination coverage among pregnant women. By implementing targeted strategies and increasing funding for vaccination programs, Malawi can make significant progress in preventing HBV transmission and protecting the health of both pregnant women and their infants.

2.3 Prevalence of HBV vaccination of pregnant women in Sub Sahara Africa (SSA)

According to a systematic review and meta-analysis titled "Prevalence of HBV Vaccination among Pregnant Women in Sub-Saharan Africa," significant variations exist in vaccination rates across different countries in the region. For instance, the review found that in Nigeria, only 58% of pregnant women were vaccinated against HBV, whereas in Rwanda, the vaccination rate was as high as 93% (Panagiotakopoulos et al., 2021). These findings highlight the urgent need for targeted interventions and educational programs to improve HBV vaccination rates among pregnant women in Sub-Saharan Africa.

The study analyzed data from multiple research projects conducted throughout the region and revealed considerable disparities in vaccination rates, influenced by various socio-cultural and healthcare factors. The authors emphasize the importance of addressing these disparities to enhance vaccination coverage in this vulnerable population. Major barriers to vaccination uptake included a lack of awareness about the significance of HBV vaccination and limited access to healthcare facilities. Additionally, socio-cultural factors, such as traditional beliefs and practices, significantly shaped vaccination behaviors.

In another study conducted in Tanzanian referral hospitals, only 30% of pregnant women received the HBV vaccine, despite the World Health Organization's recommendation for universal vaccination (Aaron et al., 2017). This lack of coverage contributes to high rates of mother-to-child transmission of HBV, underscoring the urgent need for improved access to vaccination services for pregnant women in Sub-Saharan Africa. Furthermore, studies indicate that HBV vaccination during pregnancy not only protects mothers from infection but also significantly reduces the risk of vertical transmission to newborns.

Vaccine hesitancy among pregnant women and their families has also been a barrier to uptake. To combat this, culturally sensitive interventions have been implemented, such as community-based education sessions led by trusted local healthcare providers. These sessions provided accurate information about the vaccine's safety and efficacy, addressing specific concerns of pregnant women and their families. Engaging community leaders helped dispel rumors and misinformation, promoting the importance of HBV vaccination. As a result, confidence in the vaccine grew, leading to increased vaccination rates in rural communities.

For instance, in a rural area concerned about the safety of the COVID-19 vaccine for pregnant women, healthcare providers conducted informational sessions to address these fears. They shared evidence-based information about the rigorous testing and monitoring ensuring vaccine safety during pregnancy, and invited obstetricians and gynaecologists to reassure attendees about the vaccine's efficacy in protecting both mothers and unborn babies. This effort fostered trust and ultimately increased vaccination rates among pregnant women.

In Malawi, particularly in the Blantyre District, a literature review revealed concerning findings regarding HBV vaccination coverage. A study by Stockdale et al. (2018) reported that less than 50% of pregnant women attending antenatal clinics had received the HBV vaccine. This low coverage rate raises alarms about the effectiveness of the vaccination program and the risk of vertical transmission from mother to child. Given the high burden of HBV infection in Malawi, the need for further research and interventions to enhance vaccination uptake is critical.

To improve HBV vaccination rates during antenatal care visits, the government and healthcare providers must implement strategies that increase awareness and accessibility. These strategies could include training healthcare workers, improving vaccine supply chains, and conducting community outreach programs to educate pregnant women about the importance of HBV vaccination for their health and that of their infants. By addressing these barriers, the transmission of HBV from mother to child can be significantly reduced, leading to better maternal and child health outcomes in Blantyre District and beyond.

2.4 Prevalence of HBV infection among pregnant women in SSA

Hepatitis B virus (HBV) infection is a serious public health issue worldwide, particularly in Sub-Saharan Africa (SSA), where prevalence rates are notably high. It is estimated that around 10% of the global population is living with chronic HBV infection, with the majority residing in low- and middle-income countries (LMICs), including those in SSA (WHO, 2017). HBV infection during pregnancy is particularly concerning as it can lead to transmission to newborns, resulting in chronic Hepatitis B infection, cirrhosis, and hepatocellular carcinoma (HCC) (Terrault et al., 2018).

The prevalence of HBV infection among pregnant women in SSA is approximately 6.025%, with variations ranging from 5% to 15% (Ott et al., 2012). West Africa reports the highest rates, particularly in countries like Nigeria and

Ghana, where prevalence can range from 10% to 20% (Mbaawuaga & Enenebeaku, 2014). In contrast, East and Southern Africa exhibit lower prevalence rates, from 2.7% in Kenya to 8.6% in South Africa (Makokha et al., 2023).

In Malawi, the burden of HBV infection among pregnant women has not been extensively studied, leading to limited data on its prevalence and associated factors. A study found a prevalence of 12% among pregnant women, highlighting the urgent need for increased awareness and screening programs (source needed). Implementing routine testing and vaccination programs could significantly reduce the risk of mother-to-child transmission and decrease the overall burden of HBV infection. This could lead to fewer infants born with HBV each year and improve health outcomes for both mothers and their children. By enhancing access to antenatal care and educating healthcare providers on the importance of vaccination, efforts can be made to eliminate HBV transmission from mother to child.

Research in Malawi indicates varying prevalence rates among regions: a study in Lilongwe reported 6.4%, while another in Blantyre found 9.5% (Taha et al., 2015). A more recent study in Mzuzu reported a prevalence of 7.3% (Riches et al., 2018), suggesting that rates in Malawi are comparable to those in other SSA countries.The World Health Organization estimates that over 2 billion people have been infected with HBV at some point in their lives, with 350 million continuing to carry chronic infections, leading to nearly one million deaths annually from HBV-related liver disease. Most of these infections are acquired during the perinatal period and early childhood, with a 95% risk of becoming chronic for infections acquired at this stage, compared to just 5% for those acquired during adulthood (Navabakhsh et al., 2011).

The prevalence of HBV infection among pregnant women varies significantly by geographic location and endemicity. In Ghana, a reported prevalence of 12.3% was observed (Antuamwine et al., 2022), while a study in Nigeria indicated a prevalence of 10.6% among pregnant women attending antenatal clinics (Puije et al., 2021). Another study in Ghana found a prevalence of 6.0% among women accessing free maternal care (Antuamwine et al., 2022).

These findings underscore the importance of screening for HBV infection in pregnant women and implementing effective interventions to prevent mother-to-child transmission. Healthcare providers must prioritize the detection and management of HBV infection in this population to enhance maternal and child health outcomes. Further research is necessary to understand the factors contributing to varying prevalence rates in different regions and settings, enabling the development of more effective strategies for HBV prevention and control during pregnancy.

In Ethiopia, a study at Mizan-Tepi University teaching hospital and Mizan health center found a prevalence of 5.9% among pregnant women (Asaye et al., 2021). In contrast, a study in Saudi Arabia reported a lower prevalence of 2.6% (Al-Shamahy et al., 2019). In Asia, HBV prevalence among pregnant women ranges from 2.4% in Cambodia

to 8.3% in Laos (WHO, 2018). The highest prevalence rates are consistently found in sub-Saharan Africa and parts of Asia (WHO, 2020).

2.5 Factors associated with HBV infection among pregnant women

Several factors have been associated with HBV infection among pregnant women, with maternal age being a significant risk factor. For instance, a study in Nigeria found that the prevalence of HBV infection was higher among pregnant women aged 35 and above (16.7%) compared to those under 35 (9.9%) (Baba et al., 2019). Similarly, research in Ethiopia indicated that women aged 30 to 34 had the highest prevalence of HBV infection at 16.5% (Gebremichael et al., 2018).

Education level also plays a crucial role in the risk of HBV infection. Studies show that women with lower educational attainment are at a greater risk. In Nigeria, pregnant women with no formal education had a prevalence of HBV infection of 16.7%, compared to just 7.2% among those with secondary education (Panagiotakopoulos et al., 2021). A similar trend was observed in Ghana, where pregnant women without formal education had a prevalence of 13.6%, compared to 9.6% among those with secondary education (Panagiotakopoulos et al., 2021).

Behavioral factors such as unsafe sexual practices, multiple sexual partners, and a history of sexually transmitted infections (STIs) have also been linked to HBV infection in pregnant women. A study in Nigeria reported that pregnant women with a history of STIs had a significantly higher prevalence of HBV infection (22.2%) compared to those without such a history (9.7%) (Panagiotakopoulos et al., 2021).

Other factors associated with HBV infection among pregnant women include marital status, occupation, and household income. For example, a study in Ghana found that pregnant women who were divorced or separated had a higher prevalence of HBV infection.

These findings highlight the multifaceted nature of HBV infection risk among pregnant women, indicating the need for comprehensive strategies to address these various factors.

Age

Older age has been associated with an increased risk of HBV infection among pregnant women, as highlighted in several studies. For instance, research in Ethiopia revealed that the odds of HBV infection were 2.2 times higher among pregnant women over the age of 25 compared to those aged 18 to 25 (Birhanu et al., 2020). Similarly, a study in Nigeria found that pregnant women over 30 had a higher prevalence of HBV infection than those aged 20 to 30 (Antuamwine et al., 2022). A study in Iran also reported higher prevalence rates among pregnant women over 30 compared to those aged 20 to 30 (Davtyan et al., 2018). These findings suggest that older pregnant women may face a greater risk of HBV infection, potentially due to longer exposure to the virus or a decline in immune

function with age.

Healthcare providers should consider age as a significant risk factor for HBV infection in pregnant women and implement appropriate measures to prevent transmission to newborns. This could include routine screening for HBV in all pregnant women, providing education on prevention methods, and offering vaccination for both the mother and the newborn.

Moreover, further research is essential to deepen our understanding of the relationship between age and HBV infection among pregnant women, as well as to develop targeted interventions aimed at reducing transmission rates.

Marital status

Being married or in a union has been associated with an increased risk of HBV infection among pregnant women, as indicated by several studies. For instance, research in China found that the odds of HBV infection were 2.3 times higher among married women compared to their unmarried counterparts (Phan, Thom Long, & Thi, 2021). Similarly, a study in Nigeria reported a higher prevalence of HBV infection among pregnant women who were married or cohabiting compared to those who were single (Antuamwine et al., 2022). These findings suggest that pregnant women in sexual relationships may face a higher risk of HBV infection, potentially due to exposure to an infected partner.

Further research is needed to investigate the specific mechanisms through which marital status and cohabitation may elevate the risk of HBV infection among pregnant women. Possible factors include close contact with an infected partner, sharing personal items, and engaging in risky sexual behaviors. Additionally, cultural and social dynamics associated with marriage and cohabitation may contribute to the higher prevalence of HBV infection in these groups.

Understanding these factors is crucial for developing targeted interventions aimed at preventing HBV transmission among pregnant women and their partners. Strategies such as promoting safe sex practices, increasing awareness about the importance of vaccination, and ensuring access to testing and treatment can help reduce HBV transmission in these populations. By addressing these issues and implementing appropriate interventions, we can work towards decreasing the burden of HBV infection among pregnant women and ultimately improving maternal and child health outcomes.

Education

Lower levels of education have been linked to an increased risk of HBV infection among pregnant women, as shown in several studies. For instance, research in Ethiopia indicated that the odds of HBV infection were 2.2 times higher among pregnant women with primary education or less compared to those with secondary education

or higher (Asaye et al., 2021). Similarly, a study in Pakistan found that pregnant women with no formal education had a higher prevalence of HBV infection than those with higher education (Terrault et al., 2018). These findings suggest that women with lower educational attainment may have less access to information about HBV prevention, placing them at greater risk of exposure.

This underscores the importance of targeted education and outreach initiatives to ensure that all pregnant women, regardless of their educational background, are informed about the risks of HBV and the steps they can take to protect themselves and their unborn children. Providing accessible and culturally sensitive information about HBV transmission and prevention strategies can empower women to make informed health decisions and reduce their risk of infection.

Moreover, increasing access to prenatal care and HBV screening services is crucial for early identification and management of infections, leading to better health outcomes for both mothers and babies. By implementing targeted education and outreach programs, healthcare providers can reach a broader audience and ensure that all pregnant women understand the significance of HBV screening and vaccination.

This proactive approach can help mitigate the burden of HBV-related complications during pregnancy and enhance maternal and infant health outcomes. Through collaborative efforts to raise awareness and improve access to care, we can make significant progress in combating HBV transmission, ensuring that every mother and child has the opportunity to lead a healthy life.

Occupation

Several studies have identified a link between occupation and the risk of HBV infection among pregnant women. For instance, a study in Nigeria discovered that pregnant women engaged in farming had a higher prevalence of HBV infection compared to those in other occupations (Oche et al., 2019). Similarly, research in Ghana indicated that pregnant women working as traders or manual laborers had a greater prevalence of HBV infection compared to those in professional or administrative roles (Antuamwine et al., 2022). These findings suggest that certain occupations, particularly those involving outdoor or manual work, may elevate the risk of HBV exposure.

In summary, various demographic factors such as older age, marital status, lower education levels, and specific occupations have been associated with an increased risk of HBV infection among pregnant women. These findings highlight the need for targeted interventions to prevent and manage HBV infection in high-risk groups.

Awareness and knowledge of HBV infection among pregnant women in Sub-Saharan Africa remain generally low. For example, a study in Lesotho reported that only 6.7% of pregnant women were aware of HBV infection, while a study in Namibia found that only 17.6% had knowledge about HBV. Moreover, low socioeconomic status and

limited education have been linked to a higher risk of HBV infection. A study in Cameroon reported that pregnant women with no formal education were more likely to be infected compared to those with at least primary education (OR = 2.46, 95% CI: 1.40–4.35).

Lack of antenatal care (ANC) attendance is another significant factor contributing to the high prevalence of HBV infection among pregnant women in Sub-Saharan Africa (SSA). ANC offers an essential opportunity for screening and preventing mother-to-child transmission of HBV. However, many women in SSA do not attend ANC, or they begin attending late in pregnancy. A study in Cameroon revealed that only 56% of pregnant women attended ANC at least once during pregnancy, and just 37% attended during the first trimester. Similarly, research in Ethiopia found that only 32.4% attended ANC during the first trimester. The absence of ANC attendance has been associated with a higher risk of HBV infection, as demonstrated by a study in Ethiopia, which reported that women who did not attend ANC were more likely to be infected (OR = 2.4, 95% CI: 1.4–4.1).

Late initiation of ANC is also linked to increased HBV infection risk. A study in Malawi showed that women who started ANC after the first trimester were more likely to be infected (OR = 1.8, 95% CI: 1.1–2.9). Late initiation limits opportunities for screening and preventing HBV transmission from mother to child.

Barriers to ANC attendance in SSA include a lack of awareness about its importance, long distances to health facilities, lack of transportation, and the cost of services. To improve ANC coverage and enhance HBV screening and prevention, interventions should address these barriers. Community-based initiatives, such as mobile clinics and community health workers, can be effective in reaching women living far from health facilities. Additionally, health education and promotion campaigns can raise awareness about the importance of ANC and HBV screening, ultimately improving maternal and child health outcomes.

2.6 Knowledge of Hepatitis B Among Pregnant Women

Understanding of HBV Transmission and Prevention

Many studies have highlighted that pregnant women generally possess inadequate knowledge about HBV transmission, prevention, and treatment. A cross-sectional study conducted by Adekanle et al. (2015) in Nigeria found that only 37% of pregnant women knew that HBV could be transmitted from mother to child. Additionally, fewer than half of the participants were aware that HBV is preventable through vaccination. These findings suggest a significant gap in understanding among pregnant women, which could hinder prevention efforts.

Similarly, a study in Ethiopia by Deressa and Ahmed (2018) revealed that only 25% of pregnant women had adequate knowledge about HBV transmission, including awareness of modes such as sexual contact, needle-sharing, and perinatal transmission. These low knowledge levels highlight the urgent need for comprehensive HBV education in

antenatal care settings. Moreover, Wang et al. (2019) noted that women who received HBV-related education during antenatal visits were more likely to have a better understanding of the disease, emphasizing the role of healthcare professionals in increasing awareness.

2.7 Socio-Demographic Factors Influencing Knowledge Levels

Age and Education Level

Age and educational attainment have been identified as significant determinants of HBV knowledge among pregnant women. Nwokediuko et al. (2016) found that younger women and those with higher education levels demonstrated better knowledge about HBV compared to older, less-educated counterparts. The study suggested that younger women might have better access to health information through digital platforms and formal education, while older women might have missed out on such opportunities.

Similarly, a study conducted by Munthali and Nyirenda (2017) in Malawi reported that pregnant women with secondary or tertiary education were more knowledgeable about HBV compared to those with primary education or no formal schooling. The study emphasized the importance of tailoring educational interventions to accommodate women with lower educational levels, ensuring that they receive clear and understandable information about HBV.

Occupation and Socioeconomic Status

Occupation and socioeconomic status also play a crucial role in shaping knowledge levels about HBV. According to the study by Chen et al. (2018), women employed in formal sectors or engaged in skilled occupations demonstrated greater awareness of HBV transmission and prevention methods compared to those in informal employment or unemployed. This correlation suggests that women with stable incomes may have better access to health information and healthcare services.

Socioeconomic status influences access to antenatal care services, which can impact HBV knowledge. Pregnant women from lower socioeconomic backgrounds often have limited access to health education and screening services (Nyirenda et al., 2020). Therefore, public health programs should consider socioeconomic disparities when designing interventions to improve HBV knowledge among pregnant women.

Marital Status and Cultural Beliefs

Marital status and cultural beliefs can also influence knowledge and attitudes towards HBV. In some studies, married women were more likely to be informed about HBV than unmarried women, possibly due to greater exposure to health education through spousal support and participation in community programs (Afolabi et al., 2017). Cultural beliefs and misconceptions about HBV transmission can also affect knowledge levels. For example, some women may incorrectly believe that HBV is only transmitted through sexual contact, leading to stigmatization

and reluctance to seek screening or vaccination (Ojo et al., 2018).

2.8 Attitudes and Practices Towards Hepatitis B

Perception of Risk and Vaccination Uptake

Pregnant women's attitudes towards HBV are shaped by their perception of risk and understanding of the disease's seriousness. Many women underestimate their risk of contracting HBV, resulting in low vaccination uptake rates (Chimphamba et al., 2019). A study in China by Chen et al. (2018) found that only 40% of pregnant women perceived themselves to be at risk of HBV infection, which contributed to low demand for HBV vaccination and screening services.

To address this issue, healthcare providers must emphasize the importance of HBV vaccination and dispel misconceptions about the vaccine's safety and efficacy. This can help increase vaccination rates and prevent mother-to-child transmission.

Practices Regarding HBV Screening and Prevention

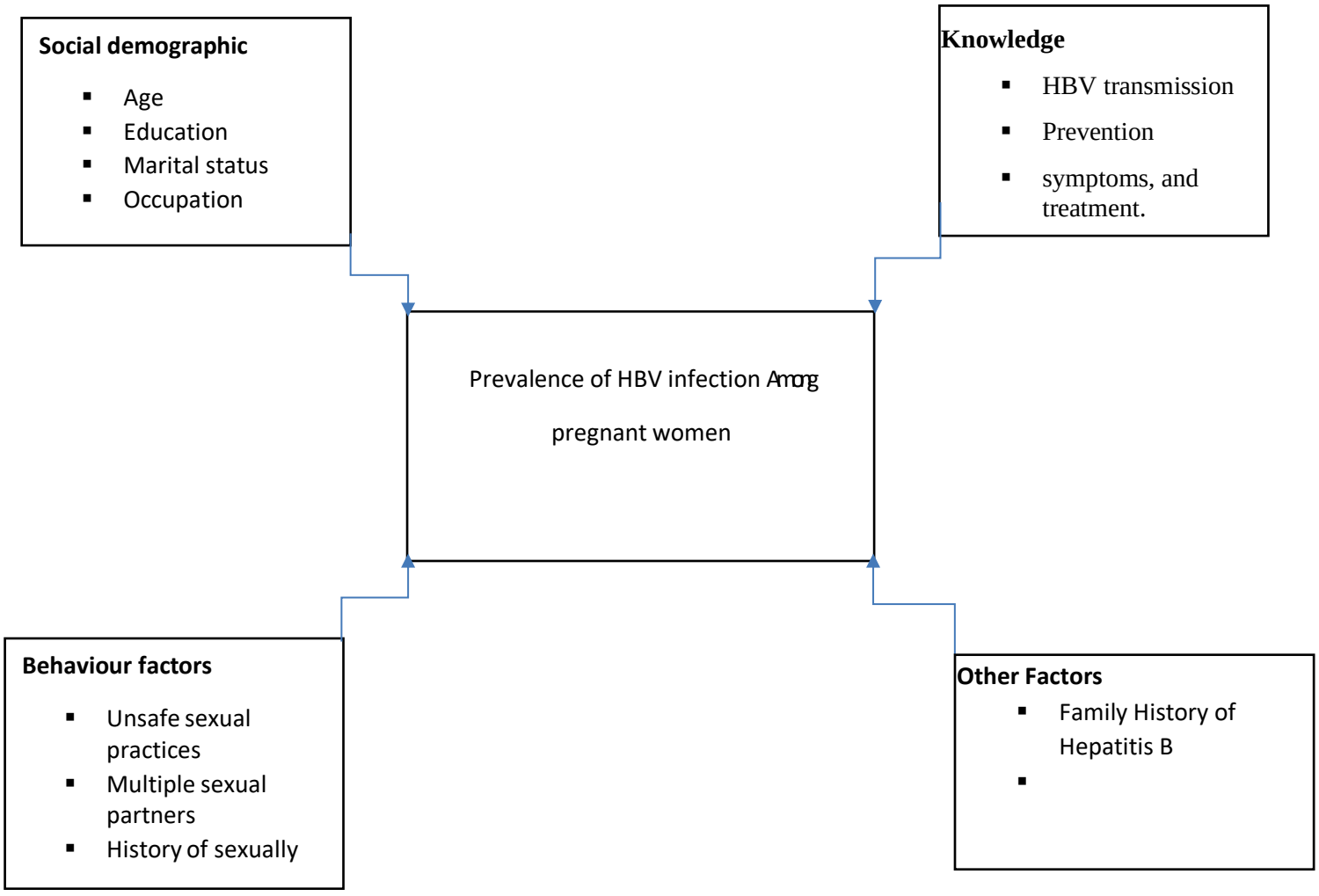
Despite the availability of Hepatitis B Virus (HBV) screening services within antenatal clinics, a significant number of pregnant women still do not undergo testing. This low uptake persists even among women who consistently attend antenatal care (ANC) services. For instance, a study by Adekanle et al. (2015) found that only 32% of pregnant women reported having been screened for HBV, despite their regular visits to ANC clinics. This finding highlights a critical gap between service availability and service utilization. The reasons behind this gap may be multifaceted, including a lack of awareness among expectant mothers about the importance of HBV screening, insufficient counselling by healthcare providers, fear of stigma, or the assumption that screening is not necessary in the absence of symptoms. The persistently low screening rates underscore the urgent need for antenatal clinics to adopt more proactive and integrated approaches—such as routine opt-out screening policies, targeted health education, and personalized counselling during ANC visits. Strengthening these areas could significantly improve early detection and management of HBV in pregnant women, ultimately reducing the risk of mother-to-child transmission and contributing to broader public health goals.

Implications for Public Health Interventions

The literature suggests that improving knowledge, attitudes, and practices regarding HBV among pregnant women requires a multifaceted approach. Integrating HBV education into routine antenatal care services can significantly enhance knowledge and encourage positive health behaviours. Furthermore, healthcare providers should be trained to deliver culturally sensitive and clear messages about HBV, ensuring that all pregnant women, regardless of their socio-demographic background, receive the necessary information to protect themselves and their babies from HBV

transmission (WHO, 2020).

CONCEPTUAL FRAMEWORK



CHAPTER THREE: METHODLOGY

3.1 Introduction

The purpose of this chapter is to present the research approach that was used to carry out the studies. This chapter is divided into sub-sections that will explore the various techniques implemented. To begin with, it involves the selection of the type of study and research design that best fit the research question. It also covers data collection methods, which means choosing the most suitable tools and techniques for gathering and analysing data and data analysis techniques. The chapter will also discuss population, which means identifying the group of individuals or objects that will be studied in the research. The sample selection process means choosing a smaller subset of the population to actually participate in the study. This chapter also shows the limitations or challenges that may arise during the research, which means identifying potential obstacles or constraints that could impact the study's validity or reliability.

The study employed multiple logistic regression analysis and binary logistic regression to look into the link between independent components and a result variable. To make sure the variables were complete, descriptive data sets were created. The bivariate p-value of less than 0.25 indicated that a variable may be included in the analysis. The degree of association between the variables was ascertained using the odds ratio and 95% confidence intervals. At $p < 0.05$, statistical significance was determined.

3.1 **Type of study**

A quantitative cross-sectional study was used for this research

3.2 Study setting

Blantyre City, the largest commercial and industrial capital of Malawi, is in the Shire Highlands and geographical centre of the Southern Region of the country. It covers an area of 228 km^2. The city is classified as a 'National Urban Centre' within the designated six hierarchical levels system of urban centre of the country and is the regional administrative headquarters of the Southern Region Queen Elizabeth Central Hospital (QECH) is the biggest public healthcare institution in Malawi, serving 19.1 million people, according to the most recent census.

The hospital offers a wide range of medical services, including surgery, paediatrics, maternity care, and emergency services. With a staff of over 1,500 healthcare professionals, QECH is equipped to handle a variety of medical conditions and emergencies. The hospital plays a crucial role in providing healthcare to the people of Malawi, especially those in rural areas who may not have access to other medical facilities. Serving patients from all regions of Malawi and even neighbouring countries, the hospital is a significant referral facility for the southern region. About 30 women report for ANC every day at the facility. And approximately 90% of Malawian women attend antenatal care at least once during their pregnancies

3.3 Study population

This study focussed on pregnant women attending antenatal clinic at Queen Elizabeth Central hospital.

3.31 Eligibility inclusion criteria

During the study, all pregnant women who had prenatal appointments and were willing to participate were enrolled. It was vital to emphasize that only pregnant women were included in the study, given the emphasis on the prevalence of Hepatitis B among pregnant women attending the antenatal clinic at Queen Elizabeth Central Hospital.

3.32 Exclusion criteria

- All women who could not understand either English or Chichewa.

3.33 Sample determination

The sample size had been calculated using Fischer's formula; it took into account the desired level of precision, confidence level, and estimated prevalence of the disease. By determining the appropriate sample size, the fisher formula ensures that the obtained results were statistically valid and representative of the larger population.

$$n = \frac{z^2\, pq}{d^2}$$

Where:

n= the ideal sample example estimates

z= the standard normal deviation, which is set at 1.96 comparing to 95% certainty interim

P = (0.4) (maximum variability) (Campbell, 2019).q= is (1-p)

d= the confidence level wanted which is 0.05 if certainty interim is set at 95%

1.96*1.96*0.4*0.6/0.0025 = 369

= <u>369 Pregnant Women</u>

3.4 Sampling method

The study utilized co systematic random sampling techniques. This sampling method involved selecting individuals who were readily available and accessible, such as those who were already present at the clinic for their routine check-ups. This allowed for a quick and efficient way to gather data for the study.

3.5 Data collection

The health passport books of prospective pregnant women were inspected to see if Hepatitis B testing was performed and what the findings of the antigenic tests were. Participants in the research were provided with a study guide to assess their knowledge of Hepatis B. This is because the participant's level of literacy indicates that they were able to read, write, and comprehend the content in the study guide.

Primary outcome Hepatitis B surface antigen positivity.

The dependent variable is Hepatitis B infection among pregnant women, assessed by HBsAg positivity.

The independent variables are (social demographic factors associated with positive Hepatitis Bstatus).

3.6 Ethical considerations

Permission was requested to conduct this research from the following institutions: Uganda Christian University (REC), Queen Elizabeth Central Hospital, and the National Health Science Research Committee (NHSRC). All participants ***were*** provided ***a*** written informed consent before participating in the study. As such, the Department of Public Health submitted this proposal to the Uganda Christian University research committee for evaluation and approval. In addition, Queen Elizabeth Central Hospital Research Committee accepted the proposal and granted permission for the research to be conducted at their facility. The National Health Research Committee will ultimately assess and take into consideration the study's proposals for final approval. Following a comprehensive assessment, the National Health Research Committee gave the research its final go-ahead.

3.7 Data quality management

To ensure that the language is not a barrier to the research, research questions were translated into the local language, "Chichewa," for those who could not understand English and still obtained the necessary information from the participant. This allowed the questionnaire to be pretested among the 80% of pregnant women who were taken into consideration in order to verify the quality of the data.

In addition, the data was collected over a three-week period at Queen Elizabeth Central Hospital, primarily on Mondays, Tuesdays, and Wednesdays during the antenatal clinic. Ultimately, the primary investigator reviewed and validated the data after supervising the data gathering procedure. Consistency and correctness were confirmed by verification of subsequent data collection. During the gathering process, standard operating protocols were strictly adhered to, particularly in the questionnaire interview. Throughout the whole investigation, the individuals' privacy was protected.

3.8 Data processing and analysis

The raw study data was imported into STATA V.14.1 and analysed the data after it had been verified that they were complete. Additionally, descriptive data sets were produced. To confirm the relationship between the independent factors and the result variable, binary logistic regression was employed. For multiple logistic regression analysis, variables with a bivariate p-value of less than 0.25 were deemed suitable. Each independent variable and outcome variable's degree of relationship was determined using the odds ratio with 95% confidence intervals. At $p < 0.05$, statistical significance was finally recognized.

Knowledge Assessment Criteria:

- A scoring system ranging from 0 to 15 was employed to evaluate participants' knowledge about hepatitis B.
- Participants answered a series of questions related to the transmission, prevention, and treatment of hepatitis B.
- Based on their total scores, knowledge levels were categorized as follows:
    - **High Knowledge**: Scores between 12 and 15
    - **Moderate Knowledge**: Scores between 8 and 11
    - **Low Knowledge**: Scores below 8

3.9 Limitations

The study was conducted at referral Queen Elizabeth Central Hospital and therefore the research results may not be representative of all pregnant women in the in Blantyre District. The interview was conducted in health facility, such that the study could be subject to socially desirable biases.

Furthermore, HBsAg-positive pregnant women were not tested for HBeAg or viral load due to a lack of funding, which prevented this study from determining the level of HBV transmission during pregnancy.

3.10 Dissemination of results

After completing the study, the results were presented to the department of public health at Uganda Christian University. This was followed by the presentation of the results to the Queen Elizabeth Central Hospital Gynaecology Department, which was then presented to the National Health Research Committee of Malawi.

CHAPTER FOUR: RESULTS

4.1 Socio-demographic characteristics of study participants

The data provided in Table 1 in the social demographic table shows that the majority of individuals surveyed fall within the age range of 20–25, with 36.0% of respondents in this category. Additionally, a significant portion of the respondents reside in rural areas (53.9%) and have attained secondary education (48.8%). The majority of individuals are married (81.6%) and work as housewives (33.3%) or government employees (25.7%). This data suggests that the population surveyed is predominantly young, rural, and married, with a significant portion having attained secondary education. This demographic information provides valuable insights into the characteristics of the population surveyed. The high percentage of individuals in the 20–25 age range indicates a youthful population, while the prevalence of respondents residing in rural areas suggests a potential focus on rural development initiatives. The high marriage rate and prevalence of housewives among the respondents highlight traditional family structures, while the significant number of government employees indicates a potential influence of government policies and programs on this population. Overall, this data paints a picture of a community that is young, rural, and largely married, with a strong emphasis on education and traditional family roles.

Table 1 Social-demographic characteristic of study participants n=369

Variable	Characteristics	Frequency	Percent
Age	16 - 20	70	19.0%
	20 - 25	133	36.0%
	25 - 30	103	27.9%
	30 - 44	54	14.6%
	45 >	9	2.4%
Resident	Rural	199	53.9%
	Urban	170	46.1%
Education Background	Primary Education	79	21.4%
	Secondary Education	180	48.8%
	Tertiary Education	107	29.0%
	None	3	0.8%
Marital Status	Married	301	81.6%
	Not Married	39	10.6%
	Divorced	10	2.7%
	Single	19	5.1%
Occupation	Farmer	46	12.5%

	Government Employee	95	25.7%
	Private Employee	58	15.7%
	Housewife	123	33.3%
	Unemployed	33	8.9%
	Student	8	2.2%
	Health Worker	6	1.6%

4.2 Assessment of Knowledge towards HBV

To assess the level of knowledge among participants regarding Hepatitis B Virus (HBV), individual knowledge scores were determined by summing the number of correctly answered questions from a set of HBV-related knowledge items. Participants were then classified into two categories: those with adequate knowledge (defined as answering more than five knowledge questions correctly) and those with poor knowledge (defined as answering five or fewer questions correctly). This method allowed for a clear distinction between individuals with a solid understanding of the disease and those with significant knowledge gaps.

Among the participants, a majority (60.2%) indicated that they had heard about HBV, suggesting a general level of awareness about the condition. However, when examined in greater detail, many responses reflected a superficial or incomplete understanding of the virus. For instance, nearly half of the respondents (49.3%) were uncertain about whether HBV is caused by a virus. This lack of clarity was further supported by the 54.7% who were unaware of HBV's classification as a viral infection. These findings reveal a critical misconception that could hinder effective prevention, early detection, and treatment behaviors within the population.

Participants were also asked about the demographic groups affected by HBV. Only 42.8% of respondents correctly identified that the virus can affect individuals of all ages, while others either gave incorrect responses or stated they did not know. This gap in knowledge may lead to underestimation of personal risk, especially among pregnant women who may believe they or their children are not at risk of infection. Such misunderstandings can potentially affect health-seeking behavior and adherence to preventative measures, such as vaccination and regular screenings.

Understanding of the transmission routes for HBV was similarly inconsistent. Just 17.9% of respondents believed that HBV could be transmitted through casual contact—such as hugging, sharing food, or handshakes—which is a common misconception. While this is a relatively small proportion, it still indicates the presence of stigma and misinformation that can influence how people with HBV are treated within their communities. On the other hand, 42.5% correctly noted that a husband infected with HBV could transmit the virus to his partner, showing a partial understanding of sexual transmission as a valid route.

Awareness of preventive measures was mixed. Encouragingly, more than half of the participants (53.4%) were aware that the Hepatitis B vaccine can protect individuals from infection. This awareness is critical, especially among pregnant women, as the vaccine offers a key method for preventing mother-to-child transmission and protecting newborns. However, when asked specifically about vertical transmission—that is, from mother to child during childbirth—only 45.3% recognized this as a potential route of infection. This limited awareness presents a significant public health concern, as preventing mother-to-child transmission is one of the most effective strategies to reduce the global HBV burden.

When it came to the curability of HBV, responses were evenly split. About 50.7% believed that HBV is curable, while the remainder were either unsure or incorrectly believed it to be incurable. This uncertainty may reflect confusion between the concepts of "treatability" and "curability." While HBV can be managed and controlled through antiviral medications, it is not always curable, especially in chronic cases. Misconceptions about curability could influence whether individuals seek testing and adhere to treatment if diagnosed.

Knowledge of less commonly discussed transmission routes was also low. Only 33.3% of participants associated HBV with unsafe sexual intercourse, despite this being a well-documented means of transmission. Additionally, just 30.9% of respondents recognized that asymptomatic carriers—individuals who show no symptoms but still carry the virus—can transmit HBV to others. These gaps suggest that many individuals may not understand the full range of risk factors and could unknowingly contribute to the spread of the virus.

In summary, while a basic level of awareness about HBV exists among pregnant women attending antenatal care at Queen Elizabeth Central Hospital, the depth of understanding is generally limited. Misconceptions about the virus's cause, transmission routes, affected populations, and curability are common. This limited knowledge can pose significant barriers to the effectiveness of HBV prevention and control strategies. In particular, the gaps in understanding about mother-to-child transmission and the importance of vaccination highlight areas that require urgent public health attention.

The findings of this study point to the urgent need for targeted educational interventions aimed at improving community knowledge and awareness of HBV. These efforts should focus not only on correcting misinformation but also on emphasizing the benefits of screening, vaccination, and early treatment. Community health workers, antenatal care providers, and public health campaigns must work collaboratively to ensure that accurate, culturally appropriate information reaches those at highest risk—particularly pregnant women, who play a vital role in protecting the next generation from infection.

Knowledge Items		Frequency	Percentage %
Heard of the HBV	Yes	222	60.2
	No	147	39.8
Caused by a Bacteria	Yes	46	12.5
	No	141	38.2
	Do not Know	182	49.3
Caused by a Virus	Yes	94	25.5
	No	73	19.8
	Do not Know	202	54.7
Affect Any age group	Yes	158	42.8
	No	85	23.0
	Do not Know	126	34.1
Transmitted through Casual Contact	Yes	66	17.9
	No	148	40.1
	Do not Know	155	42.0
Transmitted through unsterilized equipment	Yes	127	34.4
	No	98	26.6
	Do not Know	144	39.0
Transmitted by an infected Husband	Yes	157	42.5
	No	77	20.9
	Do not Know	135	36.6
Can Hepatitis B vaccine prevent Hepatitis B	Yes	197	53.4
	No	48	13.0
	Do not Know	124	33.6
Can Hepatitis B be transmitted from mother to unborn child	Yes	167	45.3
	No	68	18.4
	Do not know	134	36.3
Can Hepatitis B virus cause liver disease	Yes	163	44.2
	No	76	20.6
	Do not know	130	35.2
Is Hepatitis B curable	Yes	187	50.7
	No	49	13.3
	Do not know	133	36.0
Can Hepatitis B be transmitted during labor	Yes	131	35.5
	No	97	26.3
	Do not Know	141	38.2
Can Hepatitis B be transmitted through unsafe sex	Yes	123	33.3
	No	95	25.7
	Do not Know	151	40.9
Can Hepatitis B be transmitted from person without symptoms	Yes	114	30.9
	No	105	28.5
	Do not Know	150	40.7
Is the vaccine available for Hepatitis B infection	Yes	154	41.7
	No	61	16.5
	Do not know	154	41.7
Is hepatitis B infection vaccine available in Blantyre	Yes	143	38.8
	No	55	14.9
	Do not know	171	46.3

Table 2 Knowledge towards hepatitis B virus among pregnant women attending ANC at Queen Elizabeth Central Hospital n=369

4.3 **Screening level of Hepatitis B**

The data presented in the table shows the distribution of HBsAg test results among pregnant women based on different age groups. Among women aged 16–20, none tested positive for HBsAg, while 2.2% tested negative, and 16.8% were never tested. In the 20–25 age group, 5.4% tested positive, 11.9% tested negative, and 18.7% were never tested. For women aged 25–30, none tested positive, 10.6% tested negative, and 17.3% were never tested. In the 30-44 age group, 2.2% tested positive, 4.9% tested negative, and 7.6% were never tested. Finally, in the 45 and older age group, none tested positive, none tested negative, and 2.4% were never tested. This data can be used to assess the screening levels for hepatitis B among pregnant women in different age brackets.

	Characteristics	**HBV Screening**		
		Positive n (%)	Negative n (%)	Never Tested n (%)
Age	16 - 20	0 (0.0%)	8 (2.2%)	65 (16.8%)
	20 - 25	20 (5.4%)	44 (11.9%)	69 (18.7%)
	25 - 30	0 (0.0%)	39 (10.6%)	64 (17.3%)
	30 - 44	8 (2.2%)	18 (4.9%)	28 (7.6%)
	45 >	0 (0.0%)	0 (0.0%)	9 (2.4%)

Table 3 results of HBsAg tests based on different age groups n=369

4.4 Assessment of Attitude towards HBV

The table below illustrates various attitudes towards Hepatitis B among participants, shedding light on a mix of awareness, concern, and misconceptions. A substantial 61.0% believed they could contract Hepatitis B, showing some level of awareness. However, a notable 46.3% were unaware of the availability of the vaccine in Blantyre, highlighting a clear gap in knowledge about vaccination resources.

Even though most participants (79.1%) self-reported that they were not infected, nearly half (49.9%) said they wouldn't seek medical help if symptoms appeared, with 48.0% opting for traditional healers instead. This pattern may reflect limited understanding of the importance of medical treatment or lack of information about healthcare options. Moreover, while 21.7% considered treatment expensive, a larger group (68.0%) expressed uncertainty about the actual cost—another indicator of limited knowledge.

Concerns about treatment costs (31.2%) and the possibility of transmitting the virus to family members (20.9%) further reflect emotional and practical fears, but also reveal areas where accurate information could make a difference. The fear and sadness expressed by some participants if diagnosed, paired with the uncertainty and misconceptions shown, underscore the pressing need to strengthen public health education—particularly around vaccine availability, treatment options, and the importance of timely medical care.

Attitude items		Frequency	Percentage (%)
Is hepatitis B infection vaccine available in Blantyre	Yes	143	38.8%
	No	55	14.9%
	Do not know	171	46.3%
Do you think you can get hepatitis B?	Yes	225	61.0%
	No	144	39.0%
What would be your reaction if you found that you have hepatitis B?	Fear	139	37.7%
	Sadness	115	31.2%
	Go to health facility	115	31.2%
Do you have hepatitis B?	Yes	77	20.9%
	No	292	79.1%
Whom would you communicate to about your illness?	Physician	139	37.7%
	Parents	77	20.9%
	Husband	145	39.3%
	No one	8	2.2%
What will you do if you think that you have symptoms of hepatitis B?	Go to health facility	8	2.2%
	Go to traditional healers	177	48.0%
	Will not go anywhere	184	49.9%
If you had symptoms of hepatitis B, at what stage would you go to the health facility?	As soon as I realized the symptoms	77	20.9%
	After 2-4 weeks of the appearance of the symptoms	8	2.2%
	Own treatment fails	118	32.0%
	Will not go to health facility	166	45.0%
How expensive do you think is the diagnosis and treatment of hepatitis B?	Cheap	0	0.0%
	Free	38	10.3%
	Moderately expensive	0	0.0%
	Expensive	80	21.7%
	I do not know	251	68.0%
What worries you if you are diagnosed with hepatitis B?	Cost of treatment	115	31.2%
	Fear of transmitting the disease to family members	77	20.9%
	Fear of death	80	21.7%
	Discrimination by the society	0	0.0%
	Nothing to worry about	97	26.3%

Table 4 Attitude towards hepatitis B virus among pregnant women attending ANC at Queens Elizabeth Central Hospital n=369

4.5 Assessment of Practice towards HBV

HBV was assessed by asking five questions as shown in Table 1. Each question was labelled with good or poor practice. A score of 1 was given to good while 0 was given to poor practice, with a score range of maximum of 5 to a minimum of 0. The scale classified practice as good with score > 3 and poor ≤3. Out of the 354 participants, 282 (79.7%) were within the poor practice range, while 72 (20.3%) showed good practice.

Majority of the respondents (304, 85.87%) had never screened for HBV, and 346 (97.7%) are not immunized against HBV. At the same time, 182 (51.4%) of them did not ask their barber to change the blade for safe equipment for ear and nose piercing. These responses reflect the extent of knowledge on preventive measures, revealing a considerable gap in understanding how HBV can be transmitted and the steps needed to reduce the risk. The table provides insights into the practices related to Hepatitis B among participants, highlighting areas where awareness and intervention are needed. A majority (62.9%) of respondents have never been tested for Hepatitis B, indicating a significant gap in knowledge and awareness regarding the importance of screening. Only 7.6% tested positive, which may suggest that the rest are unaware of their HBV status. When it comes to further investigation and treatment upon diagnosis, responses were divided. 53.7% were willing to seek treatment, while 46.3% were unwilling—pointing to a possible lack of knowledge about the seriousness of HBV and the importance of early treatment. Vaccination rates were also concerning, as only 46.3% reported having been vaccinated against Hepatitis B, despite the known benefits of immunization in preventing the disease. Additionally, more than half (53.7%) admitted to avoiding contact with Hepatitis B patients, which could reflect not only stigma but also a lack of accurate knowledge about how the virus is transmitted. These findings emphasize the need for targeted interventions to promote Hepatitis B screening, vaccination, and public education. Closing the knowledge gap will be vital in reducing stigma, improving health-seeking behaviour, and ensuring better outcomes for individuals and communities at risk of HBV according to table 2 below.

Practice Items		Frequency	Percentage (%)
Have you been screened for hepatitis b	Positive	28	7.6
	Negative	109	29.5
	Never Tested	232	62.9
When diagnosed with hepatitis b, would you go for further investigation and treatment?	Yes	198	53.7
	No	171	46.3
Have you got yourself vaccinated against hepatitis b?	Yes	171	46.3
	No	198	53.7
Do you avoid meeting hepatitis b patients?	Yes	198	53.7
	No	171	46.3

Table 5 Practice towards Hepatitis B virus among pregnant women attending ANC at Queen Elizabeth Central Hospital n=369

4.6 Association of Demographic Characteristics and Mean Scores.

The association of demographic characteristics and mean Knowledge scores is presented in Table 6. Among the demographic variables, area of residence, educational status, and occupation were significantly associated with mean Knowledge scores ($P < 0.001$).

Variable	Category	Poor	Good	AOR (95% CI)	P-value
Age	16 - 20	42 (28.6%)	28 (12.6%)	2.04 (1.61 - 2.57)	0.000
	20 - 25 (ref)	65 (44.2%)	68 (30.6%)	1.00	0.000
	25 - 30	31 (21.1%)	72 (32.4%)	2.22 (1.62 - 3.04)	0.001
	30 - 44	9 (6.1%)	45 (20.3%)	4.78 (2.9 - 7.89)	0.000
	45 >	0 (0%)	9 (4.1%)	(NA)	0.000
Resident	Rural	100 (68%)	99 (44.6%)	0.38 (0.245 - 0.59)	0.108
	Urban (ref)	47 (32%)	123 (55.4%)	1.00	—
Marital Status	Married	131 (89.1%)	170 (76.6%)	2.34 (1.5 - 3.64)	0.993
	Not Married	16 (10.9%)	23 (10.4%)	1.00	0.998
	Divorced	0 (0%)	10 (4.5%)	1.52 (0.75 - 3.10)	0.998
	Single	0 (0%)	19 (8.6%)	1.75 (0.95 - 3.20)	1.000
Education	Primary Education	49 (33.3%)	30 (13.5%)	0.13 (0.08 - 0.21)	0.000
	Secondary Education	83 (56.5%)	97 (43.7%)	0.25 (0.17 - 0.38)	0.000
	Tertiary Education	12 (8.2%)	95 (42.8%)	1.00	—
	None	3 (2%)	0 (0%)	0.00	—
Occupation	Farmer	20 (13.6%)	26 (11.7%)	0.83 (0.54 - 1.29)	0.422
	Govt. Employee	26 (17.7%)	69 (31.1%)	1.83 (1.2 - 2.8)	0.007
	Private Employee	39 (26.5%)	19 (8.6%)	0.33 (0.18 - 0.62)	0.001
	Housewife (ref)	42 (28.6%)	81 (36.5%)	1.00	0.943
	Unemployed	17 (11.6%)	16 (7.2%)	1.48 (0.89 - 2.45)	0.136
	Student	3 (2%)	5 (2.3%)	0.87 (0.25 - 2.98)	0.812
	Health Worker	0 (0%)	6 (2.7%)	(NA)	0.000

Table 6 Comparison of Knowledge Scores on Hepatitis B Virus Among Pregnant Women by Social-Demographic Variables N=36

The table 7 below examines the relationship between demographic factors and knowledge scores on Hepatitis B among 369 participants. Findings indicate that knowledge scores increase with age and education level, showing significant differences ($p < 0.05$)

4.6.1 Multivariate Logistic Regression on association of Demographic Characteristics knowledge scores.

Variables	N (369)	Knowledge Score (Mean ± SD)	P-Value
Age			0.000
16 - 20	70	3.2 ± 4.2	
20 - 25	133	5.1 ± 4.7	
25 - 30	103	7.2 ± 4.9	
30 - 35	54a	7.3 ± 4.3	
45 >	9	7.3 ± 4.3	
Residence			0.004
Rural	199	4.9 ± 4.8	
Urban	170	6.7 ± 4.7	
Marital Status			0.000
Married	301	5.4 ± 4.9	
Not Married	39	5.1 ± 4.9	
Divorced	10	8.4 ± 1.3	
Single	19	10.4 ± 0.5	
Education Background			0.001
Primary Education	79	3.2 ± 3.8	
Secondary Education	180	5.0 ± 4.9	
Tertiary Education	107	8.8 ± 3.6	
None	3	0 ± 0	
Occupation			0.307
Farmer	46	5.5 ± 4.8	
Government Employee	95	7.0 ± 4.4	
Private Employee	58	3.5 ± 5.3	
Housewife	123	6.1 ± 4.7	
Unemployed	33	4.6 ± 4.9	
Student	8	4 ± 3.7	
Health Worker	6	5.7 ± 4.8	

Table 7 multivariable logistic regression analysis between knowledge, practice responses, and sociodemographic characteristics attending Antenatal Clinic at Queen Elizabeth Central Hospital N=369

CHAPTER FIVE

5.1 Discussion

The current study sought to evaluate knowledge towards HBV among pregnant women who are attending antenatal clinic at QUECH. Results of the study revealed poor and practice towards HBV. The mean knowledge score was 2.04 ± 0.86 indicating low level of knowledge towards. This lack of knowledge may influence the attitudes of the mother towards interventions that could reduce the risk of transmission to their infants. The current finding showed that 73.4% of the participants had poor knowledge, whereas another study conducted in eastern Ghana in 2016 showed that 40.2% of pregnant women had good knowledge (Adjei, Asamoah, Atibila, & Ti-enka, 2020) .

In addition, in a cross-sectional study conducted in China in 2017, only 21% of the participants were able to answer all the general knowledge-related questions correctly (Han, Yin, & Zhang , 2017). Similarly, a study conducted in Ghana in 2014 revealed that less than half of the participants (46.2%) knew about hepatitis B infection and its disease (Dun-Dery, Adokiya, Walana, & Yirkyio, 2017). Moreover, a study conducted in the Buea Health District, Cameroon, in 2012 showed that<20% of the participants had the correct knowledge. (Atashili, Fon, & Ndumbe, 2014)

On the other hand, in a study conducted in Addis Ababa, Ethiopia, in 2014, 39.2% of them had adequate knowledge about HBV (Asaye, Aferu, & Asefa, 2021). According to our result where measures against HBV depend on whether people know that hepatitis is a transmissible disease or not, only 18.4% of the respondents know HBV is transmissible through blood and blood products, 14.2%% through unsafe sex, and 17.2%% from mother to child during pregnancy. Lack of knowledge about HBV transmission can be attributed to rise in the frequency of HBV in the community. This low level of knowledge of ways of HBV transmission calls for targeted health education in order to prevent and control the spread of the virus.

On the contrary, a study conducted in Nigeria in 2015 showed that pregnant women who demonstrated good knowledge regarding the transmission of HBV from mother to child were recognized by 72.9% of respondents (Gboeze, Ezeonu, Onoh, Ukae, & Nwali, 2015), and a study reported by Pham et al. in Vietnam in 2019 showed that 75.3% of the participants were aware that HBV pregnant women in different countries regarding the different modes of transmission of hepatitis B virus infection can be explained by the fact that these women have been receiving regular antenatal care education on the subject of hepatitis B infection.

In relation to preliminary findings from other studies conducted in Malawi, they support the need and importance of educating pregnant women about Hepatitis B screening in order to prevent transmission to their newborn babies. This education can help increase awareness about the risks of transmission and the benefits of getting tested for

Hepatitis B during pregnancy. By providing pregnant women with this information, healthcare providers can empower them to make informed decisions about their health and the health of their unborn child. A study conducted (Riches, et al., 2018) in Lilongwe, Malawi, reported a prevalence of 6.4%, while another study conducted in Blantyre, Malawi, reported a prevalence of 9.5% (Taha, et al., 2015). A recent study conducted in Mzuzu, Malawi, reported a prevalence of 7.3% (Riches, et al., 2018). However, according to the current findings, 74.1 % have never been tested for HBV, which is the highest compared to those tested, whether positive or negative. This highlights a significant gap in HBV testing and diagnosis in the region.

Good knowledge of pregnant women in different countries regarding the different modes of transmission of hepatitis B virus infection can be explained by the fact that these women have been receiving regular antenatal care education on the subject of hepatitis B infection. Only 44.2% of our study participants believed that hepatitis B can cause liver cancer; similarly, low level of knowledge was reported from Japan in 2013, which is 18.5% (Aaron, Nagu, Rwegasha, & Komba, 2017), from Pakistan in 2012, which is 28.2% (Makokha , Zhang, Hayes , Songok , & Chayama , 2023), and from Adds Ababa, Ethiopia, in 2014, which is 30.5% .

However, it contradicts findings of Wah et al. from China who found that 87% of the study participants believed that HBV can cause liver cancer (Panagiotakopoulos, Conners, Hofmeister, & Spradling, 2021). In our study, 51% of the respondents had positive attitude towards HBV. This was slightly higher than a study conducted in Honiara, Solomon Islands (35.3%) (Asrani, Devarbhavi, Eaton, & Kamath, 2019) .

In addition, a study conducted in Bangladesh in 2012 showed that 50% of participants had good knowledge about HBV (Protsenko, Zubarev, Ugrekhelidze, Telnova, & Kulikov, 2016). In our study, 48% of participants preferred traditional therapies as their treatment of choice until there was no improvement in the signs and symptoms of HBV infection. Furthermore, only 22.3% reported consulting a physician.

A study conducted in Addis Ababa, Ethiopia, in 2014 reported that 11.8% of respondents opted for traditional healers as their first line of treatment until no improvement was observed in HBV symptoms, while 49.2% consulted physicians when infected with HBV (Atashili, Fon, & Ndumbe, 2014). The variation in findings between the two studies could be attributed to differences in geographic location, socioeconomic status, limited accessibility of healthcare services, and educational levels of participants.

In our study, 33.3% of participants demonstrated good knowledge towards HBV prevention and management. This was slightly higher than the 26.3% reported in a study from Honiara, Solomon Islands, in 2015 (Mamuye, Gobena,

& Oljira, 2020), yet lower than the 42.7% reported in Addis Ababa, Ethiopia, in 2014. Additionally, 85.9% of participants in our study had not undergone HBV screening, a higher percentage compared to 68.5% reported in a 2017 study from China (Asaye, Aferu, & Asefa, 2021). This difference may stem from limited healthcare availability, low awareness about the HBV vaccine, a lack of understanding of the importance of screening, and low educational attainment.

Area of residence, literacy, and income were significantly associated with knowledge scores. Similar patterns were observed in studies by ul Haq et al. in Pakistan (excluding income as a significant factor), Wu et al. in 2007 among Americans (Navabakhsh, Mehrabi, Estakhri, Mohamadnejad, & Poustchi, 2011), and Cheung et al. in 2005 among Chinese and South Asian Canadians (Mbaawuaga & Enenebeaku, 2014). Conversely, studies from Addis Ababa, Ethiopia, and Guangdong Province, China, revealed that higher education levels were linked to improved knowledge scores (Han, Yin, & Zhang, 2017). Moreover, **religion** was significantly associated with knowledge and practice ($P < 0.001$), while **occupation** was only significantly associated with practice ($P < 0.001$).

5.2 Conclusion

The WHO classification of HBV infection among pregnant women attending Queen Elizabeth Central Hospital's antenatal care clinic indicated a low screening rate, indicating a potential gap in the healthcare system's ability to identify and manage cases of HBV in this population. This highlights the need for increased awareness and education about the importance of screening for HBV during pregnancy, as well as the implementation of strategies to improve screening rates among pregnant women. Addressing this issue can help prevent mother-to-child transmission of HBV and reduce the overall burden of the disease in the community.

A history of abortion, an educational background, having multiple sexual partners, and the family history of a patient with HBV were identified as a sign to the lack of awareness of HBV. Additionally, lower socioeconomic status and inadequate access to healthcare were also found to be contributing factors to the high prevalence of HBV infection among pregnant women in the study area. These findings indicate the need for targeted interventions and educational campaigns aimed at increasing awareness about HBV transmission and prevention methods. Comprehensive screening programs and early detection initiatives should also be implemented to reduce the burden of HBV infection in this population.

Furthermore, it is crucial for healthcare providers to offer vaccination and treatment options to pregnant women at risk of HBV infection. Access to affordable and culturally sensitive care services is essential in order to reach vulnerable populations and provide them with the necessary resources to prevent and manage HBV. By addressing

these social determinants of health and implementing evidence-based strategies, we can work towards reducing the prevalence of Hepatitis B virus infection among pregnant women and ultimately improving maternal and child health outcomes.

It is also important for healthcare providers to educate pregnant women on the importance of prenatal screenings for HBV, as early detection can lead to better outcomes for both mother and baby. In addition, promoting vaccination for newborns born to HBV-infected mothers can help prevent transmission of the virus from mother to child. By taking a comprehensive approach to addressing HBV infection in pregnant women, we can make significant strides in improving the health and well-being of both mothers and their children.

5.3 Recommendations

To lower the number of transmissions, it is advised that the government launch a nationwide immunization program, raise public awareness about HBV vaccination campaigns, and start with mass vaccinations. Furthermore, healthcare professionals must get training in appropriate screening methods and prenatal education regarding the significance of HBV testing. By implementing these measures, the government can significantly reduce the prevalence of HBV in the population and prevent future transmissions. This comprehensive approach will not only protect the health of individuals but also help in achieving the goal of eliminating HBV as a public health threat. It is essential for all stakeholders to work together towards this common goal and prioritize the health and well-being of the population.

This proactive approach can also reduce the risk of vertical transmission of the virus from mother to child during childbirth. By prioritizing the health and well-being of pregnant women, the government can play a crucial role in preventing the spread of HBV within the population. Overall, investing in affordable healthcare services for pregnant women is essential for ensuring a healthier future generation free from the burden of HBV infection.

This investment can lead to significant long-term benefits, not only in terms of improved maternal and child health outcomes but also in reducing the economic burden of treating HBV-related complications. By providing accessible and comprehensive healthcare services, including routine screening and vaccination programs, the government can effectively combat the spread of HBV and help create a healthier society for future generations. It is crucial for policymakers to recognize the importance of proactive measures in addressing public health challenges such as HBV, particularly when it comes to protecting vulnerable populations like pregnant women and their babies. By working together to prioritize preventive care and education, we can make great strides in eliminating the transmission of HBV and ensuring a brighter, healthier future for all.

Hepatitis B vaccinations should be given to all neonates as soon as feasible after delivery, preferably within 24 hours. All pregnant HBV-positive women should also undergo HBsAg testing and antiviral prophylaxis in order to lower the chance of transmission from mother to child.

Additionally, expecting pregnant women should get greater education on HIV infection prevention and control from the health bureau and medical experts. In the end, this all-encompassing strategy to stop HBV from spreading will contribute to a decrease in the virus's general prevalence in the population.

Further studies need to be conducted in the southern region at four DHQs to get representative results for the region instead of one hospital. This will allow for a more comprehensive understanding of the healthcare practices and challenges faced in these areas. By including multiple DHQs in the study, researchers can gather a more diverse range of data and perspectives. This will ultimately lead to more effective and targeted interventions to improve healthcare outcomes in the southern regions.

This collaboration can help ensure that vaccines are widely available and accessible to all individuals, especially those in rural and underserved areas. Additionally, healthcare professionals play a key role in educating the public about the importance of early detection and treatment of Hepatitis B to prevent further spread of the disease. By working together, Malawi can make significant strides in reducing the burden of Hepatitis B and improving the overall health of its population.

In order to achieve this goal, it is essential for the government to provide adequate resources and support to healthcare professionals, including training programs and access to necessary medical supplies. By investing in the healthcare system and promoting preventative measures, Malawi can effectively combat the spread of Hepatitis B and other infectious diseases. Collaboration between healthcare professionals and the government can also help in developing targeted vaccination campaigns and raising awareness about the importance of regular screenings and early treatment. Ultimately, by working together, Malawi can create a healthier and more resilient population.

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Appendices

APPENDIX 1: DATA COLLECTION TOOL

STUDY GUIDE IN ENGLISH

SOCIAL DEMOGRAPHIC CHARACTERISTICS

1. How old are you

   15 – 20 ☐ 20 – 25 ☐ 25 - 30 ☐ 30 – 44 ☐ 45> ☐

2. Residence

   Urban ☐ Rural ☐ Marital Status ☐

3. Marital Status

   Single ☐ Divorced ☐ Widowed ☐ Separated ☐

4. What is the highest level of school you completed?

   Primary school ☐ Secondary ☐ university ☐ Skills training ☐ None ☐

5. Occupation

   Farmer ☐ Merchant ☐ Employee Student ☐ Housewife ☐

HBsAg Test Results

6. **Rapid HBsAg Test Result** Positive ☐ Negative ☐

7. What Trimester are you in now?

   First ☐ Second ☐ Third ☐

8. Do you have a history of Abortion?

   Yes ☐ No ☐

9. Multi-partner sexual intercourse

   Yes ☐ No ☐

10. Do You have a Family hepatitis history

Yes ☐ No ☐

HEPATITIS B KNOWLEDGE

1. Have you ever heard about a disease called hepatitis

   Yes ☐ No ☐

2. Is hepatitis B caused by bacteria

   Yes ☐ No ☐

3. Is hepatitis B caused by virus

   Yes ☐ No ☐

4. Can hepatitis B infection affect any age group

   Yes ☐ No ☐

5. Can Hepatitis B be transmitted through casual contact such as holding of hand?

   Yes ☐ No ☐

6. Can Hepatitis B be transmitted through unsterilized equipment

   Yes ☐ No ☐

7. If your husband is carrier of Hepatitis B, are you at risk of being infected

   Yes ☐ No ☐

8. Can Hepatitis B vaccine prevent Hepatitis B

   Yes ☐ No ☐

9. Can Hepatitis B transmit from mother to child

   Yes ☐ No ☐

10. Can Hepatitis B virus cause liver disease

    Yes ☐ No ☐

11. Will an infected person remain infected for life

Yes ☐ No ☐

12. Can Hepatitis B transmit during labor

Yes ☐ No ☐

13. Can Hepatitis B transmit by unsafe sex

Yes ☐ No ☐

14. Can hepatitis B infection transmit from person without symptoms

Yes ☐ No ☐

15. Is vaccine available for hepatitis B infection

Yes ☐ No ☐

16. Is hepatitis B infection vaccine available in

Yes ☐ No ☐

17. Do you think you can get hepatitis B?

a. Yes b. No

18. What would be your reaction if you found that you have hepatitis B?

a. Fear b. Sadness c. Go to Health Facility

19. Do you have hepatitis B?

a. Yes b. No

20. Whom would you communicate to about your illness?

a. Physician b. Parents c. Husband d. No one

21. What will you do if you think that you have symptoms of hepatitis B?

a. Go to health facility b. Go to traditional healers c. Will not go anywhere

22. Have you been screened for hepatitis b

a. Positive b. Negative c. Never Tested

23. When diagnosed with hepatitis b, would you go for further investigation and treatment?

a. Yes b. No

24. Have you got yourself vaccinated against hepatitis b?

a. Yes b. No

25. Do you avoid meeting hepatitis b patients?

a. Yes b. No

MAFUNSO MU CHICHEWA

1. Mulindi zaka zingati

16 – 20 ☐ 20 – 25 ☐ 25 - 30 ☐ 30 – 34 ☐ 45> ☐

2. Kokhala

Town ☐ Mudzi ☐

3. Ulipa pa Banja?

Eya ☐ Ayi ☐

4. Maphunziro ako anafika pati?

Primary ☐ Secondary ☐ university ☐

5. Ukuchita Chani?

Mlimi ☐ Olembedwa tchito ☐ Sukulu ☐ Mkazi wa pa nyumba ☐

HBsAg Test Results

6. **Zotsatira za mayeso a HBsAg** Ndili Nayo ☐ Ndilibe ☐

7. Kodi muli mu Trimester yanji tsopano?

First ☐ Second ☐ Third ☐

8. Ulin ndi mbiri ya kutaya mimba?

   Eya ☐ Ayi ☐

9. Kodi munayamba mwagonanapo ndi zibwenzi zambiri?

   Eya ☐ Ayi ☐

10. Kodi muli ndi mbiri ya banja lachiwindi

    Eya ☐ Ayi ☐

KUDZIWA KWA MATENDA A HEPATIS B

11. Munamvapo matenda a Hepatitis B

    Eya ☐ Ayi ☐

12. Kodi matenda a Hepatits B amayabisidwa ndi ka chilombo ka bacteria?

    Eya ☐ Ayi ☐

13. Kodi matenda a Hepatits B amayabisidwa ndi ka chilombo ka virus?

    Eya ☐ Ayi ☐

14. Kodi matenda a Hepatis B akhonza kugwira aliyense

    Eya ☐ Ayi ☐

15. Matenda akonza kufalikira kuzera kukhudzana waymab ngati kugwirana?

    Eya ☐ Ayi ☐

16. Kodi matenda a Hepatitis B atha kufalikira kudzera pazida zosasamala?

    Eya ☐ Ayi ☐

17. Ngati amuna anu ali ndi Hepatitis B, kodi atha kukupasilani ?

    Eya ☐ Ayi ☐

18. Kodi katemela wa Hepatitis B atha kuteteza Ku matenda a Hepatitis B.

    Eya ☐ Ayi ☐

19. Kodi ndizotheka m'mayi atha kupasira matenda kwa mwana asanabadwe?

Eya ☐ Ayi ☐

20. Kodi kachilombo ka Hepatitis B kamayambitsa matenda a chiwindi?

Eya ☐ No ☐

21. Kodi muthu ali ndi matenda a Hepatitis B atha kuchira?

Eya ☐ Ayi ☐

22. Kodi angathe kumupasira wina pa thawi yobeleka?

Eya ☐ Ayi ☐

23. Kodi matenda a Hepatits B atha kupasiridwa pogonana osaziteteza

Eya ☐ Ayi ☐

24. Kodi matenda a hepatitis B amatha kufalikira kuchokera kwa munthu popanda zizindikiro

Eya ☐ Ayi ☐

25. Kodi katemela wa Hepatitis B alipo?

Eya ☐ Ayi ☐

26. Kodi katemela wa Hepatitis B alipo Mu Blantyre?

Eya ☐ Ayi ☐

APPENDIX 2: INFORMED CONSENT FORM

Study title: Prevalence of Hepatitis B virus infection and associated factors among pregnant women attending antenatal clinic at Queen Elizabeth Central Hospital Blantyre, MalawiQueen Elizabeth Central Hospital Blantyre, Malawi, Malawi, Malawi.

Study site: Queen Elizabeth Central Hospital Malawi

Principal Investigator

Andrew Samuel Theu

0885505265

andrewtheu76@gmail.com

NHSRC Contacts:

MINISTRY OF HEALTH

P.O. BOX 30377

LILONGWE 3

MALAWI

Tel: +265 1 789 400

Email: research@health.gov.mw

This study aims to assess the prevalence of hepatitis B virus infection among expectant mothers visiting the prenatal clinic at Queen Elizabeth Central Hospital in Blantyre, Malawi. The study will use convenient sampling techniques, such as regular check-ups, to determine the local prevalence of pregnant women's hepatitis B virus infection and develop plans to control and stop the virus's transmission. Health passport books will be checked to determine if hepatitis B testing was completed and antigenic test findings were. A study guide will be provided to participants to determine their degree of acquaintance with Hepatitis B, including symptoms, prevention, and transmission.

The benefits of this study include raising awareness about the prevalence of the virus among pregnant women, providing valuable data for future research, and identifying potential preventive measures to reduce the transmission of the virus from mother to child. Participation may offer pregnant women the opportunity to receive appropriate medical care and treatment if they test positive for the virus.

Privacy and confidentiality will be prioritized throughout the research process, with data collected being anonymized and stored securely. Permission has been obtained from Institutional Review Boards (IRBs) of participating universities and local IRBs, demonstrating ethical approval and collaboration.

Participant Signature

……..

Principal Signature

…….. DATE: ……

APPENDIX 3: CERTFICATE OF ETHICS APPROVAL

CERTIFICATE OF ETHICS APPROVAL

This is to certify that the National Health Science Research Committee has reviewed and approved the study titled:

Study Title: **Protocol # 24/01/4319: Prevalence of Hepatitis B Virus Infection and Associated Factors Among Pregnant Women Attending Antenatal Clinic at Queen Elizabeth Central Hospital, Blantyre, Malawi**

Investigator: Andrew Samuel Theu

StartDate: 19/01/2024 End Date: 18/01/2025

Date of issue: 19/01/2024

Dr. Martias Joshua
Chairperson-NHSRC

National Health Sciences Research Committee
2024 -01- 19
APPROVED

Mr. Billy Nyambalo
NHSRC -Administrator

APPENDIX 4: LETTER OF APPROVAL FROM THE DEPARTMENT OF GYNAECOLOGY

Telephone: (265) 01 874 333 / 677 333
Facsimile: (265) 01 876928
Email: queenshosp@globemw.net

All communications should be addressed to:
The Hospital Director

In reply please quote **No.**

QUEEN ELIZABETH CENTRAL HOSPITAL
P.O. BOX 95
BLANTYRE
MALAWI

30 October 2023

Andrew Theu
Uganda Christian University
Uganda

RE: PREVALENCE OF HEPATITIS B VIRUS INFECTION AND ASSOCIATED FACTORS IN WOMEN ATTENDING ANTENATAL CLINIC AT QECH

I write to give a departmental approval for the above named study to be done in our department .

We are hopeful that the study will be able highlight the prevalence of hepatitis B infections in women attending ANC at this facility.

Hepatitis B is one of the emerging diseases with a special interest especially in pregnancy women. We are hopeful that your findings will open a door for more research in the department looking at Hepatitis B.

Please proceed to seek approval from the research committee as per protocal

Yours Sincerely,

Dr W. Peno

For Head of Department

APPENDIX 5: LETTER OF APPROVAL FROM QECH DIRECTOR

Telephone: (265) 01 874 333 / 677 333
Facsimile: (265) 01 876928
Email: qech@health.gov.mw

All communications should be addressed to:
The Hospital Director

In reply please quote **No.**

QUEENELIZABETHCENTRALHOSPITAL
P.O. BOX 95
BLANTYRE
MALAWI

Ref. QE/Research/11/12/2023 – 0203

11 December, 2023

The chairperson
National Health Science Research Committee
P. O. Box 30377
Capital City
Lilongwe 3
Malawi

Dear Sir/ Madam,

PREVALENCE OF HEPATITIS B VIRUS INFECTION AND ASSOCIATED FACTORS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT QUEEN ELIZABETH CENTRAL HOSPITAL

I write to support the conduct of the above research activity in this hospital by Mr Andrew Samuel Theu and his study team. The study will determine the prevalence of Hepatitis B virus among women attending antenatal clinic at Queen Elizabeth central hospital and determine factors associated with infection.

We request that the findings of the study be made available to our Hospital research committee and relevant department in this hospital.

We wish the study team success

Yours faithfully

The Hospital Director
Queen Elizabeth Central Hospital
1 DEC 2023
P.O. BOX 95
Blantyre

Dr Kelvin Mponda
Hospital Director

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UGANDA CHRISTIAN UNIVERSITY

SCHOOL OF RESEARCH & POSTGRADUATE STUDIES

DISSERTATION CORRECTION COMPLIANCE REPORT BY THE CANDIDATE (POST VIVA FORM)

Date:23rd April 2025

Name of Candidate: Andrew Samuel Theu **Reg. No: RJ21M21/002**

Title of Dissertation: ASSESSING THE KNOWLEDGE TOWARDS HEPATITIS B VIRUS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT QUEEN ELIZABETH CENTRAL HOSPITAL, MALAWI

SN	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Student needs to align the results with the objective	Adjusted results section to clearly align with the research objectives, highlighting relevant findings for each objective.	Page [29 - 36], Results Section
2	How did you determine association? what statistical manipulation did you do	Explained the statistical tests used (logistic regression) for determining associations.	Page [35], Section 4.6

3	How did you measure knowledge?	Detailed the use of a 0-15 scale questionnaire to measure knowledge, and clarified the scoring system.	Page [27], 3.5 Data Collection tool Methodology Section
4	What criteria did you use to assess whether one was knowledgeable	Defined the scoring criteria, with scores 0-7 as "low knowledge" and 8-15 as "high knowledge".	Page [28], Section 3.2 Data processing and analysis
5	Tell us how you selected the first two participants and how did you find them	Explained the use of random sampling from antenatal clinic records for participant selection.	Page [27], 3.5 Sampling Method Section

SN	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	This was fairly done but there are fewer citations and some of the citations are not properly set up (see comments in the text)	All in-text citations were reviewed and corrected to align with APA 7th edition format. Additional relevant citations were also added to strengthen literature support.	Accurate and sufficient citations throughout the document
2	The general objective and the specific objectives are not aligned at all. The two talk about different things	The general and specific objectives were revised to ensure alignment. All objectives now focus on assessing knowledge of Hepatitis B among pregnant women.	Objectives clearly aligned and consistently addressed across the study
3	The English language is fair BUT it requires a line edit to improve clarity of the document.	A comprehensive language and grammar check was conducted. Sentences were restructured for clarity, coherence, and academic tone.	Document is clearly written and professionally edited.

SN	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	The results need to be realigned.	Results were reviewed and reorganized to correspond directly with the specific objectives of the study, ensuring consistency between the data presented and the research	Results structure reflects research objectives clearly

		focus.	
2	the candidate has insufficient data and only limited to one variable. The candidate needs to refocus the study based on the available data	The study was refocused to concentrate on the knowledge variable only. Objectives, research questions, and related sections were updated to align with the available data.	Study focus aligns with available data; revised objectives reflect this adjustment.
3	Realign the rest of the work in relation to the available data The objectives need to be realigned with the available data (knowledge)	All chapters were updated to focus solely on knowledge. Objectives, methodology, results, discussion, and recommendations were realigned accordingly.	Study sections consistently address the knowledge component

ANDREW SAMUE THEU  WATAKA EMMANUEL 

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Candidate's Name Signature Supervisor's Name Signature