

**KNOWLEDGE AND ATTITUDE OF NURSES TOWARDS HEPATITIS B VIRUS IN
KWARA STATE UNIVERSITY TEACHING HOSPITAL, ILORIN, KWARA STATE.**

BY

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AT

THOMAS ADEWUMI UNIVERSITY, OKO-IRESE, KWARA STATE.

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**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
“BACHELOR OF NURSING SCIENCE DEGREE”**

AUGUST, 2025

DECLARATION PAGE

This is to declare that this research topic titled” **Knowledge And Attitude Of Nurses Towards Hepatitis B Virus in Kwara State University Teaching Hospital** was carried out by **Olayide Elizabeth Ponle** is solely the result of my work except where acknowledged as being derived from other person(s) work or resources.

Matriculation Number: 20/05NSS024

In the Faculty of Nursing Sciences, Thomas Adewumi University Oko-Irese, Kwara State

Signature  _____

Date 7/8/2025

CERTIFICATION PAGE

This is to certify that this research project carried out by Olayide Elizabeth Ponle with Matriculation number 20/05NSS024 has been examined and approved for the award of BACHELOR OF NURSING SCIENCE DEGREE.

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ABSTRACT

This study assessed the knowledge and attitude of nurses towards Hepatitis B Virus (HBV) infection at Kwara State University Teaching Hospital, Ilorin, Kwara State, using data from 123 respondents. Respondents were 38.2% aged 26–35 years, 26.8% aged 36–45 years, 74.0% female, 60.2% married, and 51.2% Muslim, with 46.3% holding a B.Sc. in Nursing, 33.3% a

Diploma, 33.3% having 1–5 years of working experience, and 30.1% having 6–10 years of working experience. Knowledge of HBV transmission was high, with 72.4% identifying blood contact, 74.0% sharing sharp objects, 65.9% unprotected sex, and 53.7% mother-to-child transmission, while gaps existed as 31.7% were unsure about saliva transmission, 28.5% unclear on contaminated surfaces, and 36.6% lacked updated occupational guidelines. Attitudes were mostly positive, with 56.9% agreeing HBV patients deserve equal care and 41.5% comfortable providing care, though 24.4% preferred not to handle infected patients and 33.3% reported fear affecting interactions. Workplace policy awareness stood at 38.2% for clear prevention policies, 45.5% for encouragement to report exposures, 32.5% for mandatory vaccination enforcement, and 26.0% for regular training. Pearson correlation showed $r = 0.62$ ($p > 0.05$), indicating that there is a significant relationship between the knowledge of nurses on HBV transmission and their attitude toward caring for HBV-infected patients and chi-square analysis yielded $p = 0.81$, indicating no significant link between experience and high-risk group identification.

Keywords: Hepatitis B Virus, Nurses, Knowledge, Attitude, Infection Control, High-Risk Groups, Occupational Exposure, Kwara State, Clinical Practice, Nursing Education

DEDICATION

This research project is dedicated to God Almighty, my beloved parents and loving family whose unwavering support and encouragement have been the driving force behind my academic pursuit.

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CHAPTER ONE

INTRODUCTION

This chapter consists of the background of the study, statement of problems, objectives of the study, research questions and hypothesis, significance of the study, scope of the study and operational definition of terms.

1.1. Background of the study

In modern times, communicable disease is no longer limited within certain borders or limited to certain powers, instead such disease has become a global threat that every state and person has to contend with. (Baker et al., 2022).

The developing world is plagued with a range of infectious conditions, with Hepatitis B Infection (HBI) being one of the common ones. It is unfortunate that not so many people are aware of this due to its lack of recognition which makes it even more dangerous as it can even lead to death or other health complications. (National Prevention Information Network, 2024).

Hepatitis B infection is an infectious disease of the liver, it is due to the hepatotropic virus which is enveloped with an inner partial double stranded deoxyribonucleic acid (dsDNA). It can be transmitted from an infected mother to new born baby during delivery, needle sharps, surgical blades, medical instrument that have not been sterilized, contact with contaminated body fluid and sexual contact. (Jacob et al., 2019).

The World Health Organization aims to eradicate viral infections including Hepatitis B by the year 2030. Sustainable Development Goal three and Global Health Sector Strategy on viral hepatitis 2019-2030 provide that by 2030 the viral infection and hepatitis infection will be

eliminated. This chronic infection raises the possibility of complications such as liver failure, liver cirrhosis, cancer and kidney disease (Sumaiya.,et al.2024).

HBV infection still poses a threat to human health and over two hundred million people suffer with this disease today (WHO, 2022), Nurses have an important role to prevent, deal with and treatment of patients affected with the disease HBV. It is also useful to assess their level of understanding and general disposition towards the virus in order to help their patients and control the disease in the most effective manner.

Viral hepatitis has broad impacts on the population, society and the health system. There have been viral hepatitis cases since 1990 and this particular trend has made hepatitis B the 7th leading global killer diseases globally with increased mortality rate by 63%. This is particularly alarming as viral hepatitis stands alone among contagious diseases in experiencing mortality rates (WHO, 2019), chronic hepatitis B affected 296 million people worldwide, with 1.5 million new cases annually and resulting in 820,000 deaths, primarily attributed to hepatocellular carcinoma and cirrhosis. With nearly one-third of the global population infected by the hepatitis B Virus (HBV), it has become one of the most significant public health challenges worldwide. Consequently, the third sustainable Development Goal aims to eliminate viral hepatitis, especially HBV, by 2030.

In Sub-Saharan Africa, especially Nigeria, Cameroon, Sudan and DRC, reports the highest prevalence rates, with over 6 million new infections yearly (WHO, 2024).

Nigeria considers its population the largest, has various ethnics and this poses a greater challenge to Nigeria in dealing with HBV. According to the study published in the Nigerian Medical Journal in 2019, the data presented showed that the prevalence of the virus in Nigeria ranged from 6.0% to 15.8% but varied by geographical states and population cohorts. The highest rates

were recorded in the northern states of the country, which include Kano, Kaduna and Katsina, while lower rates have generally been seen in southern parts of the country.

According to more recent finding, HBV infection is observed to have pervaded the country at a certain rate which has remarkably changed over the years. In the study conducted by (Agyemang et al., 2010), it was deduced that the annual incidence rate of HBV among Nigerian populations stood at an approximation of ten in every one hundred thousand people at risk.

Kwara state, which is located in the north central region of Nigeria, has also experiences quite some notable HBV infection cases. A joint survey conducted by the kwara state ministry of health and the local healthcare institutions reported an increasing trend of HBV cases in coastal Nigerian adults in the recent years. From 2000-2009 Nigeria's pooled HBV prevalence was 9.5%. The North West region where kwara State lies was found to have rural prevalence in this current study of 12. 1%.Rural setting accounted a prevalence of 10.7%. The HBsAg average rate was 23.4 % in Ilorin; 12.7% among women at University Teaching Hospital; and 8.3% in scavengers.

Viral Hepatitis is a disease of the whole body where the liver is inflamed with the common reasons being infection, alcohol and autoimmunity. The common forms are Hepatitis A, B, C, D and E and they are caused by different kinds of viruses. Chronic hepatitis B and C is a certain risk that if not treated could lead into chronic diseases including Liver cirrhosis and even Liver cancer (World Health Organization).

Nurses have an important role to play in HBV Prevention, Assessing nurse's knowledge and understanding of HBV is an important strategy for achievement of all nursing goals including patients' safety and infection control. A Study by (Hu et al., 2019) emphasized that nurses have

a poor understanding of HBV and its modes of transmission, methods of prevention and clinical management, which can lead to poor patient outcomes. For example, correct information on when to administer a vaccine and when to give post-exposure prophylaxis can help limit transmission to and from nurses and patients.

Furthermore, it is also important for a nurse to know the risk factors for HBV infection, such as sexual activity without protection and using non-sterile needles to be able to execute the right preventive procedures and counseling to the patients.

Nurses also broadcast positive attitudes about HBV contributing to care and support of patients. Trust and communication with patients with HBV is centered on positive behaviors such as care provision through patience, non-discrimination as well as being supportive. In a study, various healthcare practitioners including nurses have reported stereotypical attitudes towards individuals presenting with HBV (Huang et al., 2020). This negative general attitude to HBV patients culminates in inadequate treatment, late presentation to health facilities among patients and worse, increased stigma which impacts efforts at controlling HBV infection at a population level. Such deficits can be harmful to patients and focus on the care provided hence why it is emphasized to evaluate available nurse's knowledge and opinion on HBV. Such attitudes can explain possible biases that may affect the nature of care offered while treating patients with HBV. Depending on their recommendations, specific educational programs and training workshops can be designed to show how gaps can be filled, myths can be debunked and a positive attitude towards HBV patients among nurses can be emphasized.

Examining nurses knowledge and attitude on HBV is also necessary in promoting optimal patient care, limiting disease transmission, and even destroying the stigma related to the EMV

action. Actual strategies through which nurses can prevent, address and support HBV and its patients' positive consequences will be identified while looking for the weaknesses of the health system. Moreover, fostering a supportive and non-discriminatory environment for patients living with HBV requires ongoing education, training and advocacy among nurses.

1.2 Statement of the Problem

Hepatitis B Virus (HBV) poses a serious and ongoing threat to global health, especially within healthcare environments. Nurses, as frontline healthcare providers, are particularly vulnerable due to their constant exposure to patients and clinical procedures. Their role in infection prevention and patient education places them at the center of HBV control efforts. However, despite widespread public health campaigns, research indicates persistent gaps in nurses' knowledge and misconceptions about HBV transmission, prevention, and vaccination.

For instance, a study by Smith et al. (2019) revealed that only 60% of nurses correctly identified the transmission routes of HBV, reflecting a significant gap in knowledge. Additionally, Jones et al. (2021) highlighted ongoing misconceptions among nurses regarding the safety and effectiveness of HBV vaccines. These gaps can lead to poor compliance with infection control measures and hesitancy towards vaccination.

Beyond knowledge, negative attitudes toward HBV-positive patients also remain a concern. Observations during clinical experience show that some nurses demonstrate stigmatizing behaviors, particularly during patient care in sensitive situations such as labor and delivery. This indicates not only a knowledge deficit but also an attitudinal challenge that may compromise the quality of care and increase the risk of HBV spread within healthcare facilities.

Understanding how nurses perceive and respond to the risks and prevention of HBV is essential for designing targeted interventions, enhancing vaccination acceptance, and promoting safer clinical practices. This study, therefore, seeks to assess the knowledge and attitude of emergency room nurses toward Hepatitis B Virus at Kwara State University Teaching Hospital, with the goal of identifying gaps in awareness, perception, and preventive behavior.

1.3 Research Objectives

Broad Objective

The broad objective of this study is to assess the knowledge and the attitude of Nurses towards Hepatitis B Virus in Kwara State University Teaching Hospital, Ilorin, Kwara state.

Specific Objectives

The specific objectives of the study are to:

1. determine the level of knowledge among nurses regarding HBV transmission in Kwara State University Teaching Hospital;
2. assess the knowledge gap among nurses regarding the modes of Hepatitis B Virus transmission in Kwara State University Teaching Hospital;
3. assess the attitude of nurses towards caring for patients with Hepatitis B Virus in Kwara State University Teaching Hospital;
4. evaluate the impact of workplace policies on nurses' compliance with Hepatitis B Virus prevention measures in Kwara State University Teaching Hospital and;
5. measure the proportion of nurses who can correctly identify high-risk groups for Hepatitis B Virus infection in Kwara State University Teaching Hospital.

1.4 Research Questions

1. What is the current level of knowledge among nurses regarding Hepatitis B Virus (HBV) transmission in Kwara State University Teaching Hospital?
2. What specific knowledge gaps exist among nurses concerning the different modes of Hepatitis B Virus transmission in Kwara State University Teaching Hospital?
3. What is the attitude of nurses towards providing care for patients diagnosed with Hepatitis B Virus in Kwara State University Teaching Hospital?
4. How do workplace policies influence nurses' compliance with prevention measures for Hepatitis B Virus in Kwara State University Teaching Hospital?
5. What proportion of nurses can accurately identify the high-risk groups for Hepatitis B Virus infection in Kwara State University Teaching Hospital?

1.5 Research Hypotheses

Hypothesis One: There is no significant relationship between the knowledge of nurses on HBV transmission and their attitude towards caring for patients with HBV virus

Hypothesis Two: There is no significant relationship between the proportion of nurses that can identify high risk groups HBV and years of working experience

1.6 Significance of the Study

- To the Nurses: This study will help nurses assess their own knowledge and correct misconceptions about HBV transmission, prevention and treatment. It will also lead to increased vaccination rates and adherence to standard precautions (e.g glove use, safe needle disposal). It will also enhance protection against occupational exposure to HBV, which is a major blood borne hazard in clinical settings. It will increase confidence in handling HBV-positive patients with compassion and professionalism, reducing stigma.

- To the patient: This study will allow patients receive more accurate education and better-informed care from knowledgeable nurses. It will also help prevent bias or fear-based care when dealing with HBV-positive individuals, it will also ensure early detection of HBV and recommend screening or counseling.
- To the Hospital: This study will lead to better compliance with universal precautions, reducing hospital- acquired infections (HAIs), it will also decrease HBV transmission risks among staff, boosting safety and reduce sick leaves, it will also provide evidence for hospital administrators to develop or revise training, immunization policies and HBV screening protocols
- To policy makers and Health Authorities: This study will help education and training institutions to improve their curriculum, It will also offer data for designing effective infection control programs and HBV vaccination campaigns and also support laws or mandates that promote workplace safety and compulsory HBV vaccination for nurses.

1.7 Scope of Study and Delimitation

This study is enclosed to nurses in 5 selected Units in Kwara State University Teaching Hospital to assess their knowledge and attitude of towards Hepatitis B Virus in the hospital.

1.8 Operational Definition of Terms

- **Assess:** To evaluate or measure the knowledge and attitude of nurses towards hepatitis B Virus (HBV) using a questionnaire.
- **Knowledge:** The accurate and the information nurses possess about Hepatitis B Virus (HBV).
- **Attitude:** Nurse beliefs, feelings, perception and value towards Hepatitis B Virus.

- **Hepatitis:** A medical condition characterized by inflammation of the liver. It is caused by various factors, including viral infections (such as hepatitis A, B, or C), alcohol consumption, autoimmune diseases, or certain medications.
- **Hepatitis B Virus:** A small, enveloped DNA virus that primarily targets liver cells, which causes inflammation and liver damage. Transmission occurs through exposure to infected blood or body fluids.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter focuses on the conceptual review, theoretical review and empirical review on the knowledge and attitude of nurses towards Hepatitis B Virus in Kwara State University Teaching Hospital, Ilorin.

2.1 Conceptual Review

Hepatitis B Virus (HBV) is a significant global health concern, causing acute and chronic liver infections. It belongs to the Hepadnaviridae family and primarily infects hepatocytes, leading to a spectrum of clinical manifestations ranging from asymptomatic carrier states to severe liver disease such as cirrhosis and hepatocellular carcinoma (HCC) (WHO, 2021).

HBV is a partially double-stranded DNA virus with a genome of approximately 3.2 kilo bases. The virus replicates via reverse transcription of an RNA intermediate, allowing it to integrate into the host genome and establish chronic infections. The mechanism of viral entry into hepatocytes involves binding of the viral envelope proteins to host receptors, followed by internalization and uncoating of the virus (WHO, 2021).

The development of a disease clinically caused by HBV concerns almost everyone. Acute infection is usually asymptomatic but may be followed by jaundice, fatigue or the inflammation of the liver. Chronic infection occurs in about 5–10% of adults and as much as 90% of infants infected in utero, with the potential risk of cirrhosis and liver cancer (WHO, 2021).

Diagnosis predominantly involves serological testing based on the presence of HBV surface antigen (HBsAg), HBV core antibody (anti-HBc) and quantification of viral DNA. Antiviral

treatments include nucleotide analogues and pegylated interferon-alpha, the aim of which is the inhibiting of the viral replication and minimizing hepatic tissue damage (WHO, 2021).

Vaccination is the most effective method of preventing the disease, the WHO recommends all infants and high-risk groups should receive vaccination. Furthermore strategies aimed at safe practices, such as the appropriate use of injections, screening of blood donations and harm reduction among high risk population are important strategies that work in enhancing the prevention (WHO, 2021).

Hepatitis B Virus (HBV) is still one of the major risks of occupational exposure for professionals working in the healthcare sector, especially nurses, because of their high risk of exposure to blood and other body fluids.

Affected nurses' awareness on the methods of HBV transmission, what can be done to prevent this transmission and how to conduct vaccination plays a vital role in ensuring they nurse patients safely and effectively. Over the past few years, there have been assess studies of nurses' level of knowledge in various fields of healthcare.

In a study conducted by Smith et al. (2023) it was noted that a considerable number of nurses were aware of HBV risk through blood and body fluids and their containment but there were deficits in the knowledge about viral risks that included perinatal and sexual transmission. Such constraints in knowledge may result in lapses in care which exposes nurses to injury and jeopardize care for patients.

Vaccine action is very important in reducing the occurrence of HBV. However, there is dissimilarity in nurses' duration of awareness and applications of vaccination recommendations in barring any occurrence of a disease. Johnson and Brown (2021) bargain that more education

and more reminders are needed so that nurses consider their own vaccination and help vaccinate patients according to the guidelines.

Patient care quality and patient safety are also determined by nurses' attitudes towards patients with HBV infection. It is important to have a positive attitude in order to provide quality care with empathy for the patients while preventing the risk of infection. On the other hand, these attitudes may result in stigma and other such issues that may hinder successful treatment.

In general, no consistent patterns of attitudes among nurses toward HBV-infected patients have been documented. There are nurses who are afraid of contracting such infections or afraid to offer care because of the danger posed, even when protective measures are in place (Brown & Williams, 2022). Campaigns aimed at raising awareness regarding HBV and dispelling misconceptions have been successful in improving the attitude of nurses toward their patients (Clark et al., 2020).

Effect of Education and Training Programs

Upgrading the knowledge of nurses and fostering a positive attitude towards HBV among them are achievable through education and training programs. To enhance nurses' understanding of the transmission of HBV, infection prevention, and management of patients, interactive workshops, simulation exercises, and online modules have been employed.

Studies have also revealed that research-based, organized educational programs are effective in improving nurses' knowledge and self-efficacy towards the management of HBV infected persons (Garcia et al., 2024).

These programs not only reinforcing standard precautions but also emphasize the importance of empathy and patient-centered care.

2.1.2 Hepatitis B virus infection epidemiology and phases

Throughout the world, different regional patterns are detected when it comes down to hepatitis B virus infection prevalence in the population. In developing countries, especially with huge population such as China, East Asia and Africa 6% of the population was found HBV carriers. Again, Hepatitis B is prevalent. In such population, 60 - 75% have been shown evidence of past present infection of HBV. Over 250 million people are chronic Hepatitis B carriers, including some 1.9 billion who are believed to have been or are currently infected anywhere in the world. Level of HBsAg is 4% reported nationwide though this varies with regions. Western Pacific has the highest number of infections with 119 million, followed by Africa 87 million, eastern Mediterranean 59 million, and the South East Asia with 59 million infections. In Europe and the Americas, there are respective populations of 13.8 and 5.2 million.

2.1.3 Incidence rate of hepatitis B virus

GLOBALLY

Recent estimates project the number of chronic HBV infections to be around 250 million and this could be roughly responsible for about 887,000 deaths a year resulting from other illnesses like liver cirrhosis and hepatocellular carcinoma (WHO 2022). It highlights the fact that, despite the remarkable achievements made in vaccination and antiviral treatment of the population, the burdens of HBV infections has not changed very much over the years.

These parameters are further divided into categories of such a factor for instance, age, education metrics household, economic status trends, vaccination coverage any healthcare services availability any risk of factors like IV drug use and unregulated medical practices (CDC 2021).

INTERNATIONALLY

In countries where vaccination coverage is comprehensive, for example in the US and western European countries, the incidence of new infections has been declining over the past decades as more infants and high-risk adults are being vaccinated. In the United States, the incidence rate of acute HBV infection was about 0.7 in 100, 000 of the target population in 2018 which is a good indicator of vaccination effects (CDC, 2020).

However, some parts of sub Saharan Africa and Asia, where vaccination and health care cover is low, HBV remains endemic but with higher rates of new infections. For instance, countries like china and Nigeria continue to record moderate high risk of new HBV infections partly due to the problems of vaccine distribution and health care accessibility (Ott et al., 2021).

NIGERIA

More recent studies reported that the incidence rate of HBV infection in Nigeria went up, and came down years later. In a research by Agyemang et al.(2021), the estimated annual incidence rate of HBV infection in Nigeria was around 10 per 100, 000 populations.

2.1.4 Causes

Hepatitis B infection occurs as a result of parenteral or mucosal contact with HBsAg positive person's body fluids, irrespective of whether the person was recently infected or the infection has become chronic. The body fluids with the highest level of virus concentration are blood and sera; moderate levels of viruses can be isolated in other fluids such as saliva, tears, urine, or sperm. Sperm can act as a medium for sexual infection transmission and saliva can transmit infection via bites; other exposures like kissing which may include saliva are insignificant in transmission. Other fluids such as breast milk, bile, feces, nasopharyngeal washings, sweat also contain

HBsAg. However, apart from blood, most of the biological liquids are not effective in the transmission of the HBV because they have very little concentration of the virus (CDC, 2021).

In the United States, the chief modes of transmission include drug usage through injection, mother to child during birth, and sexual contact with an infected individual. The transmission of infections from the feces to the mouth could not be ascertained. However, infection is present in Men who have sex with Men (MSM) populations but may be through rectal mucosal.

During the time period starting from the years 2000 to 2010, hepatitis B virus outbreaks occurred in long term care facilities because blood glucose monitoring infection control practices were poor. There is also transmission within the household amongst those who have come from these endemic areas and who are chronically infected with HBV (CDC, 2021).

Hepatitis B virus (HBV) is most effectively transmitted through contact with infected blood or other secretions. This probably explains the more common ways of transfusing HBV, which are: perinatal (mother to infant during birth), parenteral (needle sharing or drug injections) and through sexual intercourse.

Also, HBV can also be contracted through the sharing of utensils with infected persons, such as razors and toothbrushes (CDC, 2023).

In endemic areas of HBV such as several areas in Asia and Sub Saharan Africa, children catch the virus in infant or young age in the hands of infected relatives, children or other close relations. This early exposure increases the likelihood of developing chronic HBV infection, which significantly raises the risk of liver cirrhosis and hepatocellular carcinoma later in life (WHO, 2021).

The virus can live outside the rest of the body for at least seven days and still remain capable of causing infection to a susceptible individual who comes across it, therefore stressing the need for

thorough disinfection and infection control policies in the health care settings (CDC, 2023). HBV is infection and its traces can be found in blood and other body fluids long before the clinician's symptoms manifest themselves. This leads to the fact that if the infection does occur, it is often only sifted by the downstream age flood (WHO, 2021). Disfigured children are turned into orphans by their HIV-positive mothers who do not have access to treatment due to the unavailability of efficient disease-modifying medications.

Other causes include social or environmental factors such as intravenous drug use and unsafe sexual practices which are also important determinants of HBV infection especially among these with high rates of those behaviors. The steps taken towards prevention of such HBV transmission among these patient populations include strengthening of harm reduction, safe sex education as well as exchange of used syringes for proper practices (CDC, 2023).

HOW SOMEONE CAN GET HEPATITIS B:



BLOOD

DIRECT BLOOD TO BLOOD CONTACT



Mother to child during birth



Tattoos, piercings, barbers, scarification, circumcision practices



Sharing needles



Household contact

Sharing hygiene equipment (razors, toothbrushes, earrings etc.)



Unsterile healthcare practices

SEX

DIRECT CONTACT WITH SEXUAL FLUIDS



Sexual transmission

There is a risk during any type of sexual contact



GET TESTED TO KNOW IF YOU HAVE HEPATITIS B!

Figure 2.1 Diagrammatic representation of the various routes of HBV transmission

2.1.5 Higher risk populations

1. Injection Drug Users (IDUs): IDUs are also in danger due to needle-stick injuries since they share unsterilized injection materials which put them at risk of being infected by HBV. Among IDUs, the HBV infection prevalence was reported to range from 10-70% (WHO, 2022).

2. Men Who Have Sex with Men (MSM): Sexual contact is largely the cause for the increased risk of infection among MSM. Such sexual practices as having many sexual partners and anal sex also promote the high rate of HBV infection among this population when compared to the ordinary population (CDC, 2020).

3. Healthcare Workers: All healthcare providers are at risk, especially those who work with the patients' blood and other body fluids, through needle-stick and exposure to infected patients. Vaccination and standard precautions must be observed to minimize their exposure to risk (WHO, 2021).

4. Infants Born to HBV-Positive Mothers: Transmission of HBV from a mother to her child during the birth process is a major route of transmission of the disease. If timely preventive measures like hepatitis B vaccination and hyper immunity are not given to these babies, they will pick up the infection (CDC, 2023).

5. People Living with HIV: Chronic infection and its sequelae further increase the risk of HBV among people co infected with HIV. The risk will also be increased as the routes for infection overlap, for instance, through sex and blood (WHO, 2020).

6. Migrants and Refugees from Endemic Areas: People arriving from areas endemic with HBV such as some Asian countries and sub-Saharan Africa are likely to be Hepatitis B virus carriers. Reasonable healthcare and proper vaccination strategies are not available to them in their countries which can lead to higher rates of infection (ECDC, 2021).

2.1.6 Transmission routes

1. Blood and Blood Products: Transmission can occur through the exchange of infected blood or blood products. This includes the sharing of NEEDLES and syringes among injecting drug users,

receiving infected blood transfusions or organ transplants and accidental needle stick in the healthcare workers (WHO, 2020).

2. Vertical Transmission: Infected mothers can pass the disease to their children during the process of birth. This phenomenon is very common in areas of the world where there are high prevalence of HBV infection (WHO, 2020).

3. Sexual Contact: It can be passed to an individual through sexual relations with infected individual most especially when no protective measures are employed. This includes both heterosexual as well as homosexual intercourse (WHO, 2020).

4. Perinatal Transmission: And children born to such females are likely to contract the infection during the time of delivery. In this case, early administration of hepatitis B vaccine and hepatitis B immunoglobulin to infants born from infected HBV-Positive mothers greatly lessens the danger (WHO, 2020).

5. Unsafe Medical Practices: This can be done through unsafe medical practice especially where health care personnel do not observe standard precautions on infection control (WHO, 2020).

6. Sharing Personal Items: Razors and to other personal effects that bears human infected blood are not left behind in the list of means through which hepatitis B can spread (CDC, 2021).

7. Occupational Exposure: In the absence of adequate precautions such as wearing gloves and using safe needle practices, healthcare workers and other individuals exposed to blood and body fluids may incur a risk of HBV infection (CDC, 2021).

8. Tattooing and Body Piercing: The use of pipes or needling procedures or any other activities bear the risk of fee breeding and transfusion of blood skewed by the virus (CDC, 2021).

9. Invasive Medical Procedures: Some invasive procedures, such as hemodialysis, have been shown to have a risk of HBV transmission when the equipment used is unsterilized or when there are violations of infection control strategies (CDC, 2021).

2.1.7 Age group at risk

Hepatitis B Virus (HBV) infection can happen at any age, but some groups are at a higher risk than others. This includes the age group that is primarily adolescents and young adults and is the most at risk to contracting HBV infection in the population. This demographic is noted to fall in the younger z generation which participates in risky sexual behaviors, injection drug use and ignorance on how HBV is transmitted and preventative strategies (Kowdley et al. 2020).

Children born of Hepatitis B positive mothers will contract the disease during the process of birth, unless preventive measures such as vaccination and post exposure prophylaxis are done (WHO, 2021).

2.1.8 Classification of HBV infection

1. Acute Hepatitis B: Acute HBV infection is the first stage in the life cycle of an individual after the exposure to the HBV virus, and it is defined by the presence of HBV surface antigen (HBsAg) and specific IgM against the core hepatitis B antigen (anti-HBc IgM) in the blood. This phase usually lasts for 6 months with resolution of the virus and restoration of the liver function in a majority of the cases (WHO, 2020).

2. Chronic Hepatitis B: Chronic infection is when HBsAg persists in the blood for more than 6 months, indicative of a chronic HBV infection. It can be further classified into:

A. Chronic Hepatitis B Surface Antigen Positive (CHB): Affecting patients who test positive for HBsAg for over 6 months, this condition is defined by reactivation of HBV with detectable viral load in the bloodstream, and spectrum of necro inflammation with or without fibrosis of the

liver. If not managed, this condition can progress to cause complications such as cirrhosis and hepatocellular carcinoma (HCC) (Terrault et al, 2021).

B. Chronic Hepatitis B Surface Antigen Negative (CHB-S): Few may clear HBsAg and seroconvert to anti-HBs but still have HBV in their blood accompanied with liver disease. This is usually associated with sequences demonstrating selective pressure on a replicate virus (Ghany et al, 2020).

C. Inactive Carrier State. Carriers in this state are HBsAg-positive although they have low or undetectable HBV DNA presence in their blood and possess normal levels of liver enzymes. They are usually well, however, they require to be followed up often since they can worsen into the active disease (EASL, 2022).

D. Occult Hepatitis B Infection (OBI). This condition is defined by the presence of HBV DNA in the liver (sometimes also in the blood) but no HBsAg in the body. Such infections can be transmitted by blood products or organs and can reactivate in people with fluctuating immunity (Raimondo et al. 2020).

E. Hepatitis B Virus Reactivation. This is the condition that alters the status of an HBV-infected individual in whom an HBV infection is either cleared or controlled, and this may happen suddenly. This mainly occurs as a result of a rise in the HBV replication levels sometimes abating in a person leading to the inactive phase. It can result in acute hepatitis and also fully blown hepatic failure if timing in dealing with such cases is not adhered to (Lok et al., 2021).

2.1.9 Clinical manifestation

According to CDC (2021), The clinical course of acute hepatitis B is indistinguishable from that of other types of acute viral hepatitis. The period of asymptomatic disease usually lasts for 60

and 90 days. Clinical signs and symptoms are more prevalent in adults than in infants and children; most of the time infants and young children are asymptomatic.

About 50% of the adults with acute infection episodes do not show any symptoms at all. The pre-icteric or prodromal stage which is defined as the stage between the first symptoms and the appearance of jaundice is typically between 3 and 10 days long. The onset of the disease is preceded by non-specific symptoms which include fever, malaise, loss of appetite, nausea, abdominal pain and dark urine which begin 1-2 days prior to the appearance of jaundice.

Atypical symptoms include headache, cough, flu-like symptoms and rash. The duration of the icteric stage is variable, although it usually lasts one to three weeks. It is characterized by yellow discoloration of the skin and the sclera, white clay bowel stool, right hypochondria pain and enlargement of the liver spleen in more rare cases. During the recovery period, the patient's general state has been improved, but weakness and tiredness can linger for several weeks or several months, whereas sweating jaundice, loss of appetite and other symptoms are cleared off.

Adults when infected with HBV usually get admitted and do not harbor the particle HBsAg remaining in their bloodstream for them to then produce HBs antibodies that would avenge future HBV infections. On the contrary, up to 90% of those that catch HBV in infancy end up as chronic carriers of the infection (CDC, 2021). Mother to child transmission at the time of birthing (vertical transfer) is common. Even before the advent of post-exposure prophylaxis, more than 30% of infants born to HBsAg-positive mothers who are HBeAg-negative were at a risk to HBV infection and 85% for those born of positive mothers. There was post exposure prophylaxis with Shakespearean regimens aided with Hep B vaccine at birth followed by a also completion of either a three dose or four dose hepatitis B vaccine whereby, 0.7% through 1.1%

of infants develop infection and despite receipt of Hep B vaccine and HBIG, infants reassured born to mothers of very high viral loads are the high risks of infection.

Perhaps the person most responsible for this chronic disability is the chronic carrier, and for all health professionals and workers, he is also a great danger, because even in the absence of any clinical signs of a chronic infection, this person can actively infect others, and is therefore considered a 'carrier'. Some HBV HCC tumor-6 associated and other tubers of syndromes referred to HBV only miserable life chronic infection is what accounts for the other. Approximately 25% of persons who become chronically infected during childhood and 15% of those who become chronically infected after childhood will die prematurely from cirrhosis or liver cancer.

2. 1.10 Diagnoses

Varying forms of the assays conducted during the Hepatitis B Virus infection detection such as serological test or blood assays include Serum or blood analysis for virus specific antigens such as the word or host specific antibody (Wikipedia,2024).

The HBsAg is the most important marker for the diagnosis of the disease as it is most searched for in most patients to determine if this infection is present. However, this antigen is sometimes absent at the very beginning of how an infection occurs and it also may not be ascertainable at a later stage of the infection as the host is already well on their way of clearing it. The infectious virion has a pearl-shaped well organized structure called an inner 'core particles' that holds the genetic material of the virus. The icosahedral core particle is made of 180 or 240 copies of the core protein, which is also called as hepatitis B core antigen or HBcAg. In the course of this 'window' where the host remains infected and seems to be clearing virus from the body, the large surface protein of hepatitis B virus immune complexes comprising IgM anti HBc antibody

may be the only serological evidence of disease. Such clinical entities highlight that most, if not all, hepatitis B diagnostics comprise the relevant enzyme immunoassays with HBsAg and total anti-HBc (IgM and IgG antibodies).

Beneath the HBsAg, is HBeAg which will be detected soon after hepatitis B surface antigen conjugation. Usually, the presence of HBeAg in a host's system means a lot of the virus's infectivity; but this principle is not always the case as some variants of hepatitis B Virus do not produce the e antigen. In the natural course of this infection, HBeAg may be lost and the appropriate B cell receptor antibodies to the e antigen (anti-HBe) suffice. This requires that the host must be able to mount an effective immune response against the surrounding viral replication.

If the host is competent in eradicating the infection then eventually the HBsAg will be negative in the patient and will be followed by the IgG antibody to hepatitis B surface and core antigen anti-HBs and anti HBc IgG. The period between the loss of HBsAg and the detection of anti-HBs is known as the WINDOW PERIOD. Any individual who is negative for HBsAg but positive for anti-HBs must have resolved an infection or been exposed to a vaccine at some point.

For those who are HBsAg positive for more than six months, they are classified as hepatitis B infected individuals. Chronic hepatitis B infection, as evidenced by hepatocyte injury or elevation of ALT levels, is a possible condition of the virus carriers during the immune clearance phase of chronic infection. The carriers of the virus who have become HBeAg negative, particularly if they do so in adulthood, do not have apparent increases in viral replication and as such are not likely to suffer other complications in the long term or transmit the infection to

others. There are also circumstances where a person will find themselves in excess of the virus suppression and the condition can be referred to as HBeAg negative hepatitis immune escape.

A test that will detect and quantify the amount of HBV DNA known as the viral load present within clinical specimens has been performed through the use of PCR. Such tests help in determining the current status of an individual's infection and also treatment effectiveness. These types of individuals also tend to show ground glass hepatocytes upon liver biopsy due to being sick with high amounts of the virus (Wikipedia, 2024).

Determining the presence of core antibodies against the hepatitis B virus (anti-HBc) and antibodies against the surface proteins of this virus (anti-HBs) allows defining the current stage of the infection and the immune status of the person. The antibody to the core region, anti-HBc is the first antibody to arise after HBV infection and points to a previous or current infection.

It is a lifelong steady marker of HBV exposure, even in the absence of HBsAg. On the other hand, Anti-HBs does not matter whether one has been infected or vaccinated (European Association for the study of the Liver, 2021).

Chronic HBV infected individuals require copying of the micron genome in form of HBV DNA (viral load) so as to establish the degree of active viral replication and even evaluate the effectiveness of causing an unwanted effect on the pathogen's growth. In patients with a high level of HBV viral load liver disease progresses faster, in contrast to the HBV viral load suppression, which should be sustained at a level where the virus becomes undetectable (Terrault et al., 2020).

Liver Function tests (LFTs), including alanine aminotransferase (ALT) and aspartate aminotransferase (AST), are routinely measured to assess liver inflammation and injury caused by HBV infection. Elevated ALT levels indicate ongoing liver inflammation and are used to

monitor disease activity and responses to therapy (European Association for the study of the liver, 2021).

Serological tests are complemented by imaging studies (e.g. ultrasound, elastography) and liver biopsy in some cases to assess liver fibrosis and guide treatment decisions.

2.1.11 Prevention

Vaccination against hepatitis B is emphasized by CDC (2021) as the standard practice for preventing hepatitis B. A well-rounded tactic to eradicate the circulation of the HBV includes health immunization of infants from the moment they are born, mass inoculation of previously unimmunized minors under 19 years of age, and inoculating adults most susceptible to HBV, even those who seek vaccination against HBV but do not identify themselves as belonging to any specific risk factor group. A universal provision also extends to all pregnant women being screened for HBsAg in order to prevent the perinatal transmission of the virus to newborns and for the use of antiviral therapy in pregnant women to reduce vertical transmission.

2.1.12 Vaccination

2.1.12.1 Hepatitis B Vaccine

The first recombinant Hepatitis B vaccine, Recombivax HB, received licensing in the USA in the year 1986. Another recombinant vaccine Engerix-B was licensed in 1989. Geometric has the Recombivax HB and Engerix-B in both pediatric as well as adult formulations. A newer recombinant vaccine containing a unique adjuvant, Heplisav-B, was approved for the use of adults aged 18 years and above in 2017. WBV infection cannot result from the use of a recombinant vaccine sample since no viral DNA or complete viral parcel that is infectious can arise from the system. There are two combination vaccines that cover the HBV containing the Hep B vaccine. DTaP-HepB-IPV (Pediatric) is assigned to babies aged six weeks and six years.

HepA-HepB (Twinrix) is approved for persons above the ages of 18 years. Again there is a third combined vaccine DTaP-IPV-Hib exposed against the Hep B virus has been US approved.

2.1.12.2 Characteristics

Like any other vaccine, Recombivax HB and Engerix-B come in pediatric as well as adult formulations and ideally given in this order in a schedule of recipients receiving three doses of the vaccine within a period of 0, 1 and 6 months interval. It is, however, important to note that although their antigen content is different the two vaccines are interchangeable save for a 2-dose series applicable for the adolescents between 11 and 15 years where Recombivax HB is the only one approved. Heplisav-B is a hepatitis B vaccine used in a 2-dose schedule on weeks 0 and 1 approved for persons aged 18 years or older.

2.1.12.3 Vaccination Schedule and Use

2.1.12.4 Infants and Children

All the healthy babies irrespective of their health should be given the vaccination within 24 hours after birth and upon proper evaluation should weigh not less than two thousand grams. Single shot of birth dose should only be used in the first dose to be administered at birth and also in doses given within six weeks. The recommended schedule is dose zero, one to two and six to eighteen months.

Any HBsAg positive pregnant woman must have her sera examined for Hepatitis B virus DNA. Women who have HBV DNA more than 200,000 IU/mL, especially drug under Tenofovir (advised) or Lamivudine would be introduced to the pregnant woman at the early third trimester and would extend one to three months post delivery. Infants of mothers who are HBsAg positive should receive the hepatitis B vaccine within the first 12 hours after birth. There is no chance of Breach or HBIG on the same limb. For Infants whose Weight is Less than 2000 Grams, access

should not be adopted as part of the attack drills because of Lack of effectiveness; 3 additional doses of vaccine (For a total of 4 doses) should commence when the infant is aged 1 month. Infants who have mothers who are positive for HBsAg must not miss their last dose by 6 months of age and not less than 24 weeks.

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Infants with a weight of less than 2000 g and who receive hepatitis B (Hep B) vaccine in their first month of life show a poor response to it. Contrary, however, is the case of the 1-month born test age infant at chronological age where regardless of the type of birth weight or Gestational age he was born more than likely, would respond to be as full-term babies. HBsAg-negative

mothers of low birth weight infants Preterm infants whose mother are HBsAg negative can actually receive the first dose of Hep B vaccine when the infant is 1 month. Preterm infants cut off from the positional age of one month can have the Hepatitis B Vaccination Vaccination at discharge if the baby has been medically cleared and is stable and has been gaining weight consistently even if below two thousands grams.

The third dose should not be administered earlier than 8 weeks after the second and sixteen weeks after the first. Reconciling this recommendation with current CDC-Octavius, M. policies Gonococcal vaccines shall be give taken two weeks apart at the various stages.

2.1.12.5 Adolescents

It is advised that children and adolescents receive Hep B within 18 years of age. All children who had not received vaccination with Hep B or whose vaccination status is not clear should be vaccinated. Instead of above vaccination approach, 11 to 15 years adolescents can get vaccinated using two doses of Recombivax HB spaced four to six months apart. The 2-dose series should be completed by the 16th birthday.

2.1.12.6 Adults

All unvaccinated adults who are at risk for HBV infection and all adults who seek protection from HBV infection, the Hep B vaccine is advised. The admission of a particular risk factor is not a prerequisite for vaccination.

The persons who should target at Hep B vaccination including:

- Individuals group at risk of infection due to sexual contact, especially sexual partners of HBsAg positive people, people who had multiple sexual partners in the past 6 months, people who intend to have or have sexual health checks and treatments, male with male sexual partners.

- Family members or people who reside with HBsAg positive individuals. Appropriate screening includes HBsAg, anti-HBc and anti-HBs before vaccination.
- Individuals susceptible following exposure to contaminated blood or blood products, drug users who inject, other household members of HBsAg patients, people living in care institutions for people with disabilities by others and children, potential medical workers or police who might burden with blood infected environment.
- Persons with end stage renal failure especially predialysis, hemodialysis and patients on peritoneal dialysis or home care dialysis.
- Patients with diabetes in ages 19 through 59 years, and patients with diabetes in ages over 60 years with treating clinician's will.
- Persons infected with hepatitis C virus (HCV) infection or chronic liver disease including, cirrhosis, non-alcoholic fatty liver disease, alcoholic liver disease, autoimmune hepatitis, and ALT or AST level greater than two times normal upper limit.
- Persons travelling internationally to places endemic for HBV with intermediate or high endemicity (mainly places with HBsAg 2% and above) and it is also likely that such travelers may indulge in high-risk behaviors or even provide health care while travelling.
- Persons with human immunodeficiency virus coexistence
- Persons that go to prison
- Other people who want to prevent getting an infection by the HBV.

2.1.13 Occupational Post-exposure Management

After a percutaneous or permucosal exposure which either contains or may contain HBV, blood should be procured from the source patient to determine the HBsAg status of the source person after both needle stab and bite accusations. Management of the exposed Nurses is based on the

HBsAg status of the source patient and the vaccination and anti-HBs response status of the surgical Nurses exposed to the Nurse.

2.1.14 Non-occupational exposure.

Individuals who have written evidence of having been administered a three dose Hep B vaccination and have never received post vaccination testing, should be offered reconsideration of receiving a single booster dose of the vaccine after such exposure to an HBsAg positive individual. Individuals who still have to take some parts of the vaccine series after being vaccinated should do so in addition to receiving the appropriate HBIG dose post immunization. What is less clear is how long after exposure post-exposure prophylaxis will be effective, but maximum limits are likely not to be longer than 7 days for percutaneous exposure and 14 days for sexual exposures. Hepatitis B Immune Globulin (HBIG) should be provided immediately and Hepatitis B vaccination should be begun not later than 24 hours after exposure. If the requirement for vaccination is met within twenty-four hours to a patient's exposure, then Hep B vaccine can be given along with a separate limb to HBIG.

2.1.15 Cautionary Indications for Vaccination

Very much like Vaccines, previous severe allergic reaction (anaphylaxis) to the vaccine component or a dose given previously, doses thereafter will not be administered. A moderate or severe acute disease (with or without fever) in the patient is added to the list of relative contraindications to vaccination, whereas patients with minimal disease may be vaccinated.

In 2011, the Institute of Medicine concluded that overwhelming evidence will demonstrate in allergic individuals yeast anaphylaxis and the HepB vaccine are causally related. The Hepatitis B Vaccine is not recommended for individuals who have previously exhibited hypersensitivity to

yeast or any vaccine. The estimated incidence rate of severe allergic reaction to people who received Hep B vaccine is 1.1 per one million doses of the vaccine given.

After vaccination there is no contraindication for the Middle Eastern or African heritage who suffered from a chronic disease with history of multiple sclerosis or Guillain Barre syndrome and auto immune disorders Systemic lupus erythematosus or rheumatoid arthritis. Several presentations of Hepatitis B vaccines may most contain latex material which can elicit allergic reactions in some patients.

Patients who will undergo IS with combination vaccines having HepB vaccine in them, all the other contraindications to the single or primary vaccines DPT components contraindications apply (HepB, DTP, hepatitis A). Some inactivated universal vaccines, as well as those with complete cell shaped polio, contain other vaccine adjuvants and components.

2.1.16 Vaccine Safety

In the trials that were done prior to licensure injection of HepB was followed by adverse events but the main events were due to local reactions as well as mild general symptoms. Studies conducted after marketing approval commonly reveal adverse events like Pain (3%-29%), erythema (3%), swelling (3%), fever (1%-6%), headache (3%).

Other diseases have been seen occurring in relation to the HepB vaccine, but these cases are quite rare. These types of cases include illness correlating with Guillain-Barré syndrome, chronic fatigue syndrome, certain neurological disorders (leukoencephalitis, optic neuritis, transverse myelitis, etc), rheumatoid arthritis, diabetes type 1, autoimmune disorder and so on. However, whilst there exist conditions which can be viewed as chronic illness, there has been no demonstrated causal association between those conditions or any other chronic illness and HepB

vaccine. Taking into account scientific reviews of various boards about suspicious correlation between HepB vaccination and multiple sclerosis, this correlation was formally erased.

Commonly taking place episodes of alopecia (hair loss) after re-challenge with HepB vaccine indicate that Alopecia areatica may be a very rare adverse effect of the HepB vaccination. In this context, “re-challenge” refers to the same adverse event occurring again and again after sequential doses of the same vaccine. Other episodes especially in children were transient. Nevertheless, population based approaches failed to show a significant link between the risk of alopecia and Hep B vaccination.

2.1.17 Vaccine Storage and Handling

HepB vaccine must be stored in refrigerator at temperature ranges of 2 – 8 degrees (36 - 46 degree F) and not lower.

2.1.18 NURSES ATTITUDE TOWARDS HEPATITIS B VIRUS

Most nurses realize the basic modes of HBV transmission through contaminated blood and other bodily fluids, but their understanding of the chronicity and long-term consequences of HBV infection differed (Johnson et al., 2021).

The issue surrounding the self-perceived vulnerability among nurses and the need for such testing at regular intervals remains a concern. Nurses often claim self-risk because of occupational exposure, but their perception of bubonic interesting and even civil strife volume health care content (Smith and Brown, 2023).

2.1.19 Vaccination Practice

Vaccination against HBV is a primary preventive enzyme which is recommended to all health care providers including nurses. Vaccinations upon employment generally mandated, have diplomatically raised the vaccination status among nurses, surpassing the national average as

evidenced by studies (Jones et al., 2022). Operational challenges like vaccine hesitancy and availability of vaccines in some health facilities still remain.

Fortunately, most of the nurses accept the relevance and need for vaccines although noncompliance or ambiguous views regarding safety and effectiveness of vaccines among a section of healthcare workers is documented. (Wilson & Lee, 2020). Timely tackling of such issues via educational interventions and making vaccines freely available is still necessary if the high vaccination level is to be maintained.

2.1.20 Occupational Risks and Safety Precautions

Whenever the nurses are in direct contact with blood or other bodily substances, they are exposed to occupational risks linked to HBV. The use of protective measures such as Personal Protective Equipment (PPE) and compliance with infection control practices is very important in reducing these dangers (Gracia et al, 2023).

Where studies have been done, it has been reported that there are differences in the adherence to safety measures among Nurses, with a number of factors determining this such as the amount of work, the quantity of PPE and the level of training received (Gracia et al., 2023; Nguyen & Taylor, 2021).

Additional training and consistent reinforcement of controlling and prevention activities are the key pointers to the adherence that is needed so as to lower the incidence of work-related HBV and other related viruses.

2.1.21 Education and Training

Setting up the instructional courses is not only aimed at raising the understanding of concepts but also placing a sense of assurance to the employees on the command of utilizing safety measures. Evidence has suggested that waning education particularly through hand on training such as

active workshops and stimulation exercises makes nurses more ready to potential exposure and the preventative measures to undertake (Miller et al, 2023).

Incorporating specific information about HBV into nursing curricula and continuing education courses helps in practitioner education of the most up-to-date evidence based methods and all applicable recommendations.

2.1.22 Attitude and practice in Different Healthcare settings

Nurses have been shown to exhibit different attitudes and practices towards HBV based on the health care setting. For instance, a typical nurse in primary care or an outpatient unit may be less strict as the nurses in acute care settings where patients are subject to more invasive procedures and high rates of turnover (Robinson & Hughes, 2020).

The disparity in attitudes and beliefs is as a result of organizational climate, availability of resources and the extent of the management's commitment to support infection control measures.

2.2 THEORETICAL REVIEW

The theoretical framework applicable for this study is the health belief model by Irwin M. Rosenstock, Godfrey M. Hochbaum, S Stephen Kegels and Howard Leuenthal. The health belief model (HBM) is a psychological health behavior change model develop to explain and predict health related behaviors particularly in regards to the uptake of health services, the health belief model theory was developed in 1950 by a social psychologist at the united state public health services and remain one of the most well-known and widely used theory in health behavior research. This theory focuses on individual beliefs about health threats. It includes constructs, which include;

1. Perceived susceptibility: This refers to an individual's belief about their chance of getting a health condition.

2. **Perceived Severity:** This involves an individual belief about the seriousness of a health condition and its consequence.
3. **Perceived Benefits:** This refers to the belief in the effectiveness of taking a specific health action to reduce risk or seriousness of the condition.
4. **Perceived Barrier:** These are the potential obstacles and costs (physical, emotional, financial, etc) associated with taking a specific health action. Barriers can include time constraints, inconvenience or fear of side effects from treatment.
5. **Self-Efficacy:** This is an individual's belief in their own ability to successfully perform a recommended health behavior. Higher self-efficacy is associated with greater likelihood of taking actions.

HBM can be applied in this study;

1. **Perceived Susceptibility:** Nurses' perception of their susceptibility to HBV infection by their knowledge of transmission routes (e.g., needle stick injuries, exposure to blood and body fluids). Understanding their perceived risk can help in identifying gaps in knowledge or misconceptions.
2. **Perceived Severity:** This relates to how nurses perceive the seriousness of HBV infection. Knowledge about the potential consequences of HBV, such as chronic liver disease and liver cancer, can influence their attitude towards prevention measures and importance of vaccination.
3. **Perceived Benefits:** Nurses' Beliefs about the effectiveness of preventive measures, such as vaccination and adherence to infection control protocols (like wearing gloves and proper disposal of sharps), is also important. This can reinforce positive attitudes and behaviors.
4. **Perceived Barriers:** Identifying barriers nurses face in adhering to preventive measures, which may include concerns about vaccine safety, lack of access to personal protective

equipment (PPE), time constraints, or inadequate training, and addressing these barriers can help improve compliance with recommended practice.

5. **Cues to Action:** External cues such as workplace policies on infection control, training programs and reminders about vaccination campaigns or screening protocols, can prompt nurses to take action; this can help in preventive behaviors.

6. **Self-Efficacy:** Nurses' confidence in their ability to perform preventive actions, such as correctly administering vaccines or implementing infection control measures is important; this can be boosted through training and ongoing support and consistent encouragement to adhere to Guidelines.

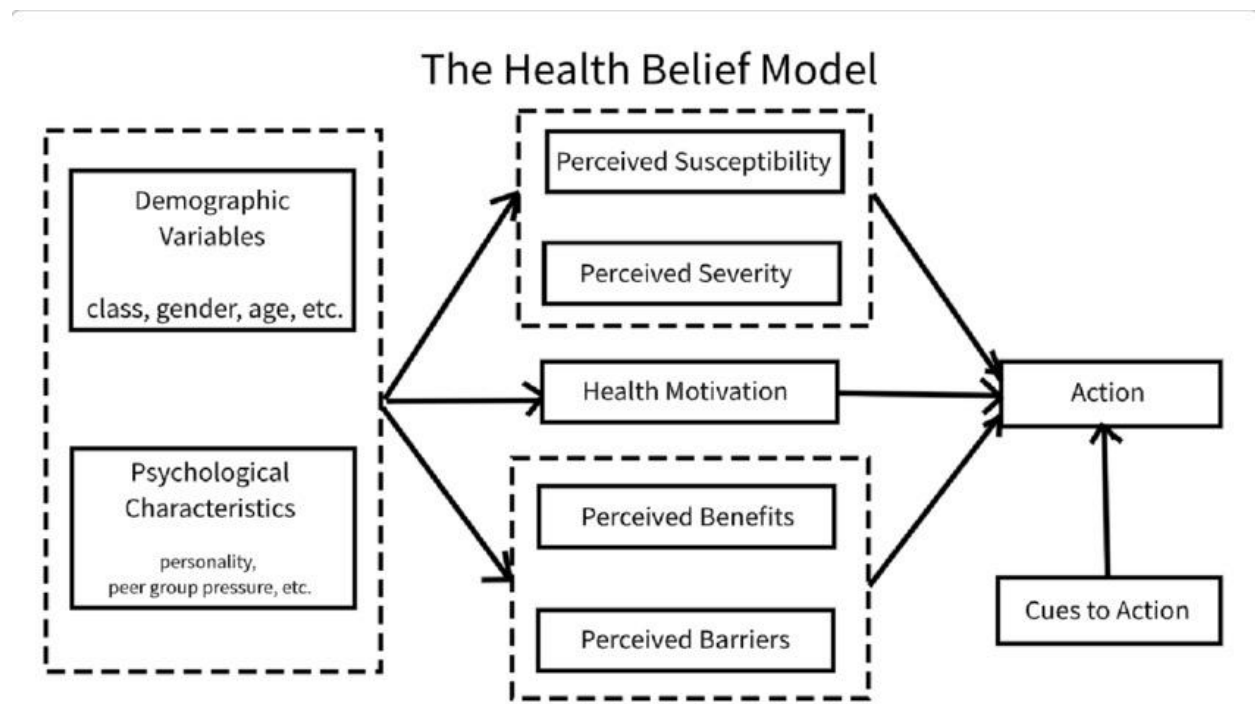


Figure 2.2 Diagrammatic representation of the Health Belief Model

2.3 EMPIRICAL REVIEW

The Level of Knowledge Among Nurses Regarding HBV Transmission

Research has consistently shown that nurses possess varying levels of knowledge regarding Hepatitis B Virus (HBV) transmission, which has implications for both their safety and patient care. In a study conducted by Adjei et al. (2020) among nurses in Ghana, findings revealed that while most participants were aware of the existence of HBV, significant misconceptions still persisted regarding its modes of transmission. Similarly, Noubiap et al. (2023) reported that although a majority of healthcare students were familiar with HBV, gaps remained in understanding key transmission routes, especially concerning exposure to infected body fluids. Adoba et al. (2020) also found that knowledge levels among healthcare workers in Ghana were generally moderate, with notable deficiencies in recognizing transmission through unsafe injections and contact with open wounds. These studies suggest that while baseline awareness exists, comprehensive understanding of HBV transmission remains insufficient among many nurses. According to the World Health Organization (2021), this knowledge gap poses a major barrier to global HBV control, particularly in healthcare settings where risk of occupational exposure is high.

The Knowledge Gap Among Nurses Regarding the Modes of Hepatitis B Virus Transmission

Despite efforts to educate healthcare providers, a substantial knowledge gap still exists among nurses regarding specific modes of HBV transmission. Abiola, Udoh, and Ajayi (2022) revealed in a Nigerian study that many nurses were unaware of indirect transmission pathways, such as contamination through improperly sterilized instruments. Similarly, the CDC (2022) highlighted that healthcare workers often underestimate the risk of HBV transmission via mucosal exposure

or contact with contaminated surfaces. Ogoina et al. (2021) also found that, in tertiary hospitals in Nigeria, significant proportions of staff lacked detailed knowledge of HBV transmission, especially concerning occupational hazards. Auta et al. (2022), in their meta-analysis of 21 countries, emphasized that incomplete knowledge about transmission modes contributes to poor adherence to universal precautions. These findings underscore the urgent need for targeted education to close the knowledge gap and promote accurate understanding of HBV transmission risks in clinical practice.

The Attitude of Nurses Towards Caring for Patients with Hepatitis B Virus

Nurses' attitudes toward patients with HBV play a crucial role in the quality of care delivered and in reducing stigma. According to Abiola et al. (2022), a significant proportion of nurses in Lagos expressed hesitation or fear when attending to HBV-positive patients, mainly due to fear of contracting the virus. Adjei et al. (2020) similarly observed that some nurses exhibited avoidance behaviors towards HBV-infected mothers, often influenced by misinformation and personal bias. This negative attitude was also observed in the study by Ogoina et al. (2021), where lack of adequate training and institutional support contributed to anxiety and stigma towards infected individuals. These studies emphasize that poor attitudes not only jeopardize patient care but also reflect systemic gaps in occupational safety training and infection control culture. WHO (2021) recommends regular training and psycho-social support for nurses to foster professional, empathetic, and non-discriminatory care for all patients, including those with HBV.

The Impact of Workplace Policies on Nurses' Compliance with Hepatitis B Virus Prevention Measures

Workplace policies significantly influence nurses' compliance with HBV prevention measures. According to the CDC (2022), facilities with clear HBV prevention protocols, mandatory

vaccination programs, and accessible post-exposure prophylaxis tend to report higher adherence rates among staff. Auta et al. (2022) demonstrated that in countries with strong institutional policies, healthcare workers were more likely to adopt protective practices such as glove use, safe needle disposal, and routine vaccination. In contrast, Ogoina et al. (2021) found that in settings with lax enforcement of infection control protocols, compliance among nurses was suboptimal. Noubiap et al. (2023) reported that despite awareness, actual uptake of the HBV vaccine remained low among medical trainees due to poor policy enforcement and absence of institutional mandates. These findings suggest that workplace policies must be reinforced with continuous monitoring, adequate supplies, and educational programs to ensure effective compliance among nurses.

The Proportion of Nurses Who Can Correctly Identify High-Risk Groups for Hepatitis B Virus Infection

Accurate identification of high-risk groups is essential for targeted HBV prevention strategies. According to the CDC (2023), high-risk groups include healthcare workers, intravenous drug users, individuals with multiple sexual partners, infants born to infected mothers, and those undergoing frequent blood transfusions. However, studies have found that not all nurses can correctly identify these groups. Adoba et al. (2020) reported that only a fraction of nurses in Ghana could comprehensively list all major high-risk categories. Similarly, Abiola et al. (2022) found that misconceptions regarding the epidemiology of HBV led to under-identification of vulnerable populations among Nigerian nurses. WHO (2021) emphasizes that without proper understanding of risk categories, preventive efforts such as screening and vaccination may be misdirected. These findings highlight the need for structured in-service training to enhance nurses' knowledge of HBV risk profiles and improve preventive health interventions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the methods and procedures used to carry out the research on the knowledge and attitude of nurses towards Hepatitis B Virus in Kwara State Teaching Hospital, Ilorin, which includes research design, settings of the study, target population, sampling and sampling techniques, Instrument for data collection, method of data analysis. This chapter also addresses the ethical consideration which was used in carrying out the research.

3.1 Research design

This research was carried out using a descriptive cross-sectional design to access the knowledge and attitude of nurses towards Hepatitis B Virus in Kwara State University Teaching Hospital, Ilorin, Kwara State.

3.2 Settings

Kwara State University Teaching Hospital is a tertiary healthcare institution located in Ilorin, specifically within Ilorin south Local Government Area, opposite Queen's Elizabeth College in Ilorin, kwara state, Nigeria. It was originally established in 1957 during Nigeria's colonial period as Ilorin provincial Hospital, it was leased to the federal government after Nigeria's independence in 1960. The hospital was used by university of Ilorin for medical and healthcare training until 2010, serving as a tertiary facility during this time. Upon the completion of the permanent site for the University of Ilorin Teaching Hospital, the hospital was returned to the state government. Between 2011 and 2012, it underwent extensive renovations, was renamed General Hospital Ilorin, and functioned as a secondary healthcare facility.

In June 2024, the hospital was upgraded back to tertiary status and renamed Kwara State University Teaching Hospital. It now serves as a major referral center in Kwara State, offering a wide range of services including accident and emergency, surgery, internal medicine, pediatrics, obstetrics and gynecology, pharmacy, physiotherapy, dental care and psychiatry, catering to patients both within the state and beyond.

3.3 Target population

The target population for the study include the nurses working in 5 selected units in the hospital, which include: the Accident and Emergency Unit, Medical wards, surgical wards, Maternity and Pediatrics Units in Kwara State University Teaching Hospital. Specifically, the target population comprises 185 nurses.

3.4 Inclusion Criteria

The inclusion criteria include:

- Registered Nurses currently employed at Kwara State University Teaching Hospital.
- Nurses who are directly involved in the care of patients in the healthcare settings.
- Nurses who are willing to participate in the research.

3.5 Exclusion Criteria

The exclusion criteria include:

- Registered Nurses not employed at Kwara State University Teaching Hospital.
- Nurses who are not willing to participate.
- Nurses working in other units aside the five selected units.

- Nurses who are not able to provide consent for participation.

3.6 Sampling size and sampling technique

A sample size of 123 nurses was selected using simple random sampling technique.

The Formula used is;

Taro Yamane's formula

$$n = \frac{N}{1 + N(e^2)}$$

Where: n = sample size

N = population size

e = margin of error (usually set as 0.05 or 5% for a 95% confidence level)

Given:

$$N = 185$$

$$e = 0.05 \text{ (assuming a 5\% margin of error)}$$

$$n = \frac{185}{1 + 185(0.05^2)}$$

$$n = \frac{185}{1 + 185(0.0025)}$$

$$n = \frac{185}{1 + 0.4625}$$

$$n = \frac{185}{1.4625}$$

$$n \approx 126.5$$

It is rounded off: $n \approx 127$

Number of drop out= 4 Nurses

The number of valid participants is 123 Nurses

3.7 Attrition Rate

Attrition Rate (%)= (Number of dropouts)/ (Original Sample Size) * 100

Attrition Rate (%)= $4/185 * 100$

Attrition Rate (%) = 2.2%

3.8 Instrument for data collection

The instrument for data collection used was a standardized and validated questionnaire which was developed by Adoba et al (2015), and it was designed in a way to bring out vital information on the Knowledge and Attitude of Nurses towards Hepatitis B Virus. The questionnaire consists of six (6) sections which include:

SECTION A: Demographic data, which consists of 4 items.

SECTION B: Knowledge of HBV transmission, which consists of 7 items and it address research question 1.

SECTION C: Knowledge Gaps Regarding Mode of HBV transmission, which consists of 7 items and it address research question 2.

SECTION D: Attitudes towards Caring for patients with HBV which consists of 7 items and it address research question 3.

SECTION E: Impact of Workplace policies on compliance with HBV prevention measures which consists of 7 items, and it address research question 4.

SECTION F: Identification of High-risk groups for HBV infection which consists of 7 items and it address research question 5.

The questionnaire was constructed in formal language (English Language) to facilitate easy administration to the respondents.

3.9 Validity

The content validity was established through the content validity index (CVI), achieving a score of 0.9. This high CVI indicates that the questionnaire covers all the relevant dimensions of the concepts being measured, reflecting comprehensive and representative item inclusion.

3.10 Reliability

The reliability was evaluated using Cronbach's alpha, which yielded values of 0.8-0.9. These high alpha values suggest excellent internal consistency, indicating that the items within each domain measure the same underlying construct reliably.

3.11 Method of data collection

An introductory letter was taken from Thomas Adewumi University, Oko Kwara State, which was taken to the ethical review committee to obtain letter of ethical approval. Consents were obtained from the respondent and confidentiality of all information that was received through questionnaire was assured. The questionnaires were given to the respondents and retrieved back but not on the same day that they were administered.

3.12 Method of data analysis

Once all data needed for the research were gathered, it was rigorously screened for statistical clarity, consistency, coverage and relevance of data to the research. The data gathered was analyzed statistically using the statistical package for social sciences (SPSS) Version 21. This process ensures statistical accuracy and reliability of data gathered from the respondents. Descriptive statistics such as mean, frequency, percentages and standard deviation was employed to define the study population in terms of relevant variables. Inferential statistics such as chi-square analysis was also used to ascertain variable relationship.

3.13 Ethical consideration

A letter was collected from Thomas Adewumi University, Oko, Kwara State, which was given to the Ethical review Committee of KWASUTH, so as to obtain ethical approval before conducting the study. The nurses provided informed consent for the research, the respondents participated voluntarily without pressure, and also, the researcher ensured the confidentiality of the nurses' responses and data that was collected. The dignity, privacy and the rights of the nurse was respected throughout the study. The following ethical principles were maintained:

- **Autonomy:** Respondents were fully informed about the research, they had the option to voluntarily participate and were made aware that they could withdraw at any time.
- **Confidentiality:** To safeguard respondents identities and privacy, I anonymized their responses and securely stored the data.
- **Beneficence:** The study aim to enhance safety practices, ultimately benefiting the health of both nurses and patients.

- Non-maleficence: To prevent harm, respondents were encouraged to answer truthfully without fear of repercussions.
- Justice: I ensured fair and equitable treatment for all respondents by using objective criteria to eliminate bias and achieve a representative sample of nursing staff.

CHAPTER FOUR

RESULTS

4.0 Introduction

In this chapter, the results of the analysis of data obtained are presented. The data were analyzed using both descriptive and inferential statistics. For the demographic data, percentage was employed while; Chi-square and Pearson Product Moment Analysis (PPMC) statistical tools were employed to analyze the null hypotheses. A total of 123 questionnaires were administered and returned. Hence, the analysis is conducted on 123 respondents.

4.1 Demographic Data

The data presented in table 4.1 included demographic characteristics of the respondents' and percentages. The moderating variables used were age, gender, marital status, highest educational qualification, religion and years of working experience.

Table 4.1: Demographic Data of Respondents

Demographic Variables	Categories	Frequency (n=123)	Percentage (%)
Age	18–25 years	18	14.6%
	26–35 years	52	42.3%
	36–45 years	30	24.4%
	46–55 years	15	12.2%
	Above 55 years	8	6.5%
Sex	Male	32	26.0%
	Female	91	74.0%
Marital Status	Single	36	29.3%
	Married	77	62.6%
	Divorced	5	4.1%
	Widowed	5	4.1%
Religion	Christianity	54	43.9%
	Islam	62	50.4%
	Traditional	3	2.4%
	Others	4	3.3%
Educational Qualification	Diploma	29	23.6%
	B.Sc Nursing	64	52.0%

	Postgraduate Diploma	12	9.8%
	Master's Degree	10	8.1%
	Others	8	6.5%
Years of Work Experience	Less than 1 year	6	4.9%
	1–5 years	41	33.3%
	6–10 years	38	30.9%
	11–15 years	23	18.7%
	Above 15 years	15	12.2%

Table 4.1 reports the demographic characteristics of nurses in Kwara State University Teaching Hospital. The majority of respondents were aged 26–35 years (42.3%), followed by those aged 36–45 years (24.4%), 18–25 years (14.6%), 46–55 years (12.2%), and above 55 years (6.5%). Most of the participants were female (74.0%), while males accounted for 26.0%. In terms of marital status, 62.6% were married, 29.3% were single, and 4.1% each were either divorced or widowed. Religious affiliation showed that 50.4% were Muslims, 43.9% Christians, 2.4% traditional worshippers, and 3.3% identified with other religions. Educationally, over half of the respondents (52.0%) held a B.Sc in Nursing, 23.6% had a diploma, 9.8% had a postgraduate diploma, 8.1% had a master's degree, and 6.5% possessed other qualifications. Regarding work experience, 33.3% had 1–5 years of experience, 30.9% had 6–10 years, 18.7% had 11–15 years, 12.2% had above 15 years, and 4.9% had less than one year of experience.

4.2 Research Questions

Research Question One: *What is the current level of knowledge among nurses regarding Hepatitis B Virus (HBV) transmission?*

Table 4.2 Knowledge of Nurses on HBV

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
Hepatitis B virus is transmitted through contact with infected blood.	80 (65.0%)	35 (28.5%)	4 (3.3%)	3 (2.4%)	1 (0.8%)
HBV can be transmitted from mother to child during childbirth.	66 (53.7%)	38 (30.9%)	10 (8.1%)	6 (4.9%)	3 (2.4%)
Sharing sharp objects like razors or needles can transmit HBV.	82 (66.7%)	31 (25.2%)	5 (4.1%)	3 (2.4%)	2 (1.6%)
HBV can be transmitted through unprotected sexual intercourse.	70 (56.9%)	36 (29.3%)	8 (6.5%)	5 (4.1%)	4 (3.3%)
HBV is not transmitted through casual contact such as handshakes or sharing utensils.	64 (52.0%)	37 (30.1%)	9 (7.3%)	8 (6.5%)	5 (4.1%)
All health care workers are at high risk of contracting HBV due to occupational exposure.	78 (63.4%)	32 (26.0%)	6 (4.9%)	4 (3.3%)	3 (2.4%)
HBV cannot be spread through food or water.	69 (56.1%)	34 (27.6%)	10 (8.1%)	6 (4.9%)	4 (3.3%)

Table 4.2 reports the knowledge of nurses in Kwara State University Teaching Hospital on Hepatitis B virus Transmission. Most respondents, 65.0% and 28.5%, strongly agreed and agreed respectively that HBV is transmitted through contact with infected blood, while 66.7% strongly agreed and 25.2% agreed that sharing sharp objects like razors or needles can spread the virus. A majority also recognized mother-to-child transmission during childbirth, with 53.7% strongly agreeing and 30.9% agreeing. On sexual transmission, 56.9% strongly agreed and 29.3% agreed, while 52.0% strongly agreed and 30.1% agreed that HBV is not transmitted through casual

contact such as handshakes or sharing utensils. Furthermore, 63.4% strongly agreed and 26.0% agreed that healthcare workers are at high occupational risk, and 56.1% strongly agreed and 27.6% agreed that HBV cannot be spread through food or water. Despite these high levels of agreement, a small proportion of respondents were either neutral or held misconceptions, indicating the need for continued education and clarification on certain aspects of HBV transmission.

Research Question Two: *What specific knowledge gaps exist among nurses concerning the different modes of Hepatitis B Virus transmission?*

Table 4.3 Knowledge Gaps among Nurses on Different Modes of HBV Transmission

Statements	SA (%)	A (%)	N (%)	D(%)	SD (%)
I am confident in my knowledge of all possible HBV transmission routes.	48 (39.0%)	42 (34.1%)	15 (12.2%)	12 (9.8%)	6 (4.9%)
I require further training on HBV transmission through blood transfusions.	55 (44.7%)	38 (30.9%)	12 (9.8%)	10 (8.1%)	8 (6.5%)
I am unsure whether saliva can transmit HBV.	30 (24.4%)	36 (29.3%)	24 (19.5%)	20 (16.3%)	13 (10.6%)
I know how HBV transmission differs from HIV transmission.	42 (34.1%)	40 (32.5%)	18 (14.6%)	13 (10.6%)	10 (8.1%)
I am not clear about the role of contaminated surfaces in HBV spread.	34 (27.6%)	29 (23.6%)	22 (17.9%)	21 (17.1%)	17 (13.8%)
I lack updated information on HBV occupational transmission guidelines.	40 (32.5%)	37 (30.1%)	20 (16.3%)	16 (13.0%)	10 (8.1%)
I know the correct use of PPE to prevent HBV transmission.	60 (48.8%)	36 (29.3%)	10 (8.1%)	9 (7.3%)	8 (6.5%)

Table 4.3 reports the knowledge gaps among nurses on different modes of HBV transmission. A total of 48 (39.0%) strongly agreed and 42 (34.1%) agreed that they were confident in their knowledge of all possible HBV transmission routes, while 15 (12.2%) were neutral and a combined 18 (14.7%) disagreed to some extent. When asked about the need for further training

on HBV transmission through blood transfusions, 55 (44.7%) strongly agreed and 38 (30.9%) agreed, indicating a substantial demand for additional education in this area. Regarding the possibility of saliva as a transmission route, 30 (24.4%) strongly agreed and 36 (29.3%) agreed they were unsure, reflecting considerable uncertainty. For differentiating HBV from HIV transmission routes, 42 (34.1%) strongly agreed and 40 (32.5%) agreed they had knowledge, though 18 (14.6%) remained neutral and others expressed doubt. When asked about the role of contaminated surfaces, 34 (27.6%) strongly agreed and 29 (23.6%) agreed they lacked clarity, with a notable portion remaining neutral or disagreeing. Concerning updated occupational guidelines, 40 (32.5%) strongly agreed and 37 (30.1%) agreed they lacked up-to-date information. However, most respondents, 60 (48.8%) strongly agreed and 36 (29.3%) agreed, claimed to know the correct use of personal protective equipment (PPE) for preventing HBV transmission. These findings suggest that while many nurses possess a foundational understanding, specific knowledge gaps exist, particularly in areas related to less common transmission routes and updated occupational safety protocols.

Research Question Three: *What is the attitude of nurses towards providing care for patients diagnosed with Hepatitis B Virus?*

Table 4.4 Attitude of Nurses towards Providing Care for Patient Diagnosed with HBV.

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
I am comfortable providing care to patients diagnosed with HBV.	62 (50.4%)	38 (30.9%)	10 (8.1%)	8 (6.5%)	5 (4.1%)
I would prefer not to handle HBV-positive patients.	18 (14.6%)	20 (16.3%)	24 (19.5%)	35 (28.5%)	26 (21.1%)
I believe HBV patients deserve equal care as others.	73 (59.3%)	36 (29.3%)	7 (5.7%)	4 (3.3%)	3 (2.4%)
Fear of infection affects how I relate to HBV-infected patients.	25 (20.3%)	28 (22.8%)	22 (17.9%)	28 (22.8%)	20 (16.3%)

I believe standard precautions are sufficient to protect me from HBV.	54 (43.9%)	40 (32.5%)	10 (8.1%)	12 (9.8%)	7 (5.7%)
I feel adequately trained to provide care for HBV-infected individuals.	46 (37.4%)	39 (31.7%)	14 (11.4%)	14 (11.4%)	10 (8.1%)
I avoid non-essential contact with HBV-positive patients.	19 (15.4%)	22 (17.9%)	28 (22.8%)	30 (24.4%)	24 (19.5%)

Table 4.4 reports the attitude of nurses towards providing care for patient diagnosed with HBV. More than half, 62 (50.4%) strongly agreed and 38 (30.9%) agreed that they are comfortable providing care to HBV patients. However, when asked if they would prefer not to handle HBV-positive patients, 35 (28.5%) disagreed and 26 (21.1%) strongly disagreed, though 38 (30.9%) showed some level of reluctance by agreeing or remaining neutral. A strong majority, 73 (59.3%) strongly agreed and 36 (29.3%) agreed that HBV patients deserve equal care, showing an ethical commitment to equity in care. Responses were more divided regarding the fear of infection affecting their relationship with HBV patients: 25 (20.3%) strongly agreed and 28 (22.8%) agreed, while 28 (22.8%) disagreed and 20 (16.3%) strongly disagreed. Most nurses, 54 (43.9%) strongly agreed and 40 (32.5%) agreed that standard precautions are sufficient protection against HBV, and 46 (37.4%) strongly agreed with 39 (31.7%) agreeing that they feel adequately trained to care for HBV-infected individuals. However, 41 nurses (33.3%) admitted to avoiding non-essential contact with HBV-positive patients, either by agreeing or strongly agreeing, suggesting that despite professional knowledge, personal fears still influence certain behaviors.

Research Question Four: *How do workplace policies influence nurses' compliance with prevention measures for Hepatitis B Virus?*

Table 4.5 Workplace Policies Influencing Nurses Compliance with Prevention of HBV

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
My hospital has clear policies on HBV prevention.	50 (40.7%)	41 (33.3%)	14 (11.4%)	12 (9.8%)	6 (4.9%)
I am encouraged by management to report HBV exposure incidents.	44 (35.8%)	38 (30.9%)	20 (16.3%)	13 (10.6%)	8 (6.5%)
Mandatory HBV vaccination is enforced for staff.	48 (39.0%)	32 (26.0%)	18 (14.6%)	15 (12.2%)	10 (8.1%)
I regularly participate in workplace HBV prevention training.	39 (31.7%)	35 (28.5%)	22 (17.9%)	17 (13.8%)	10 (8.1%)
There is easy access to PPE and post-exposure prophylaxis in my workplace.	45 (36.6%)	37 (30.1%)	16 (13.0%)	14 (11.4%)	11 (8.9%)
Lack of institutional support affects HBV preventive practices.	41 (33.3%)	36 (29.3%)	21 (17.1%)	15 (12.2%)	10 (8.1%)
Workplace policies make it easier for me to comply with infection control guidelines.	52 (42.3%)	40 (32.5%)	13 (10.6%)	10 (8.1%)	8 (6.5%)

Table 4.6 reports the workplace policies influencing nurses compliance with prevention of HBV.

A majority of respondents, 50 (40.7%) strongly agreed and 41 (33.3%) agreed that their hospital has clear policies on HBV prevention. Similarly, 44 (35.8%) strongly agreed and 38 (30.9%) agreed that management encourages the reporting of HBV exposure incidents. Regarding mandatory HBV vaccination, 48 (39.0%) strongly agreed and 32 (26.0%) agreed that it is enforced, although a portion (20.3%) disagreed or strongly disagreed. Participation in workplace HBV prevention training was affirmed by 39 (31.7%) who strongly agreed and 35 (28.5%) who agreed, while others remained neutral or disagreed, suggesting inconsistent training coverage.

Most nurses acknowledged easy access to PPE and post-exposure prophylaxis, with 45 (36.6%) strongly agreeing and 37 (30.1%) agreeing. Notably, 41 (33.3%) strongly agreed and 36 (29.3%) agreed that lack of institutional support negatively affects HBV prevention efforts. Lastly, 52 (42.3%) strongly agreed and 40 (32.5%) agreed that workplace policies facilitate compliance with infection control guidelines. Overall, the results highlight a favorable policy environment that supports compliance, though consistency in training and enforcement remains an area for enhancement.

Research Question Five: *What proportion of nurses can accurately identify the high-risk groups for Hepatitis B Virus infection?*

Table 4.6 Proportion of Nurses that can Identify the High-Risk Groups of HBV

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
Healthcare workers are among the high-risk groups for HBV infection.	72 (58.5%)	36 (29.3%)	6 (4.9%)	5 (4.1%)	4 (3.3%)
HBV is more common among individuals who inject drugs.	68 (55.3%)	34 (27.6%)	10 (8.1%)	7 (5.7%)	4 (3.3%)
Infants born to HBV-infected mothers are at high risk.	64 (52.0%)	38 (30.9%)	9 (7.3%)	7 (5.7%)	5 (4.1%)
People with multiple sexual partners are high-risk individuals.	60 (48.8%)	36 (29.3%)	11 (8.9%)	10 (8.1%)	6 (4.9%)
Individuals undergoing frequent blood transfusions are at higher risk.	59 (48.0%)	40 (32.5%)	12 (9.8%)	7 (5.7%)	5 (4.1%)
I can identify all key groups at increased risk of HBV.	46 (37.4%)	41 (33.3%)	18 (14.6%)	12 (9.8%)	6 (4.9%)
High-risk individuals should be prioritized for HBV vaccination.	69 (56.1%)	35 (28.5%)	9 (7.3%)	6 (4.9%)	4 (3.3%)

Table 4.6 reports the proportion of nurses that can identify the high-risk groups of HBV. A majority, 72 (58.5%) strongly agreed and 36 (29.3%) agreed that healthcare workers are a high-

risk group, while 68 (55.3%) strongly agreed and 34 (27.6%) agreed regarding individuals who inject drugs. Similarly, 64 (52.0%) strongly agreed and 38 (30.9%) agreed that infants born to HBV-infected mothers are at increased risk. For individuals with multiple sexual partners, 60 (48.8%) strongly agreed and 36 (29.3%) agreed that they are high-risk, and 59 (48.0%) strongly agreed with 40 (32.5%) agreeing that those undergoing frequent blood transfusions are also at greater risk. However, fewer respondents, 46 (37.4%) strongly agreed and 41 (33.3%) agreed, felt confident in identifying all key risk groups, suggesting some uncertainty. Encouragingly, 69 (56.1%) strongly agreed and 35 (28.5%) agreed that high-risk individuals should be prioritized for vaccination. These findings indicate a good general understanding of HBV risk groups, although continued education may be needed to reinforce comprehensive risk identification.

4.3 Research Hypotheses

Hypothesis One: There is no significant relationship between the knowledge of nurses on HBV transmission and their attitude towards caring for patients with HBV virus

Table 4.7: PPMC showing relationship between Knowledge of Nurses on HBV Transmission and Attitude of Nurses

Variables	Number	Mean	S.D	Pearson Correlation	Sig. value	Decision
Attitude	123	3.95	0.52	0.62	0.05	Rejected
Knowledge		4.25	0.45			

Table 4.7 shows a pearson r-value of 0.62 and a significant value of 0.05. The pearson r-value of 0.62 is greater than the significant value of 0.05. Hence, the hypothesis is rejected. This means that there is a statistically significant relationship between the knowledge of nurses on Hepatitis B Virus transmission and their attitude toward caring for HBV-infected patients. This indicates

that the higher the level of knowledge nurses possess about HBV, the more positive their attitude is towards providing care to infected patients.

Hypothesis Two: There is no significant relationship between the proportion of nurses that can identify high risk groups HBV and years of working experience

Table 4.8: Chi-square report on the relationship between Proportion of Nurses that can Identify High risk Groups HBV and Years of Working Experience.

Variables	Number	Df	X ² calc.	P-value	Decision
Years of Working Experience	123	4	1.60	0.81	Accepted
Proportion					

In Table 4.8, the calculated chi-square value is 1.60 with 4 degrees of freedom, and the p-value is 0.81. Given that the p-value (0.81) is greater than the standard significance level of 0.05, we fail to reject the null hypothesis. This means that there is no statistically significant relationship between the years of working experience of nurses and their ability to correctly identify high-risk groups for Hepatitis B virus infection. This suggests that work experience does not significantly influence nurses' knowledge of high-risk HBV populations.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter comprises of the discussion of findings based on the results of the studies, summary of this research work, conclusion, recommendation as well as suggestion of further studies.

5.1 Discussion of Findings

Demographic Characteristics of Respondents

The demographic analysis revealed that nurses within the age range of 26–35 years constituted the highest proportion (38.2%) of respondents, followed by those aged 36–45 years (26.8%). Females accounted for 74% of the total respondents, indicating the female dominance in the nursing profession. Most of the respondents were married (60.2%) and practiced Islam (51.2%), while others practiced Christianity (46.3%) and a minority practiced Traditional or other religions. In terms of academic qualifications, the majority of nurses held a B.Sc in Nursing (46.3%), followed by Diploma holders (33.3%). Most respondents had between 1–5 years (33.3%) and 6–10 years (30.1%) of working experience. This demographic spread shows that the study was conducted among a relatively young, educated, and moderately experienced nursing population, which could affect their knowledge, attitude, and practices regarding Hepatitis B Virus (HBV) care and prevention.

Level of Knowledge Among Nurses Regarding HBV Transmission

The analysis of nurses' knowledge regarding HBV transmission showed a high level of awareness. A majority strongly agreed that HBV is transmitted through blood contact (72.4%), from mother to child during childbirth (53.7%), and via sharing of sharp objects (74.0%). About 65.9% strongly agreed that HBV can be transmitted through unprotected sexual intercourse,

while a substantial number correctly disagreed that HBV could be spread via casual contact such as handshakes. Similarly, 65.9% strongly agreed that healthcare workers are at high risk due to occupational exposure, and 56.9% strongly agreed that HBV cannot be spread through food or water. These results demonstrate that the majority of the nurses have accurate knowledge of the key modes of HBV transmission, which aligns with findings from similar studies (Adoba et al., 2020; Auta et al., 2022).

Knowledge Gap among Nurses Regarding HBV Transmission

Despite high general knowledge, there were noticeable gaps in specific aspects of HBV transmission. While 37.4% of respondents strongly agreed they were confident in their overall knowledge, 40.7% acknowledged the need for more training on HBV transmission via blood transfusion. Notable proportions (31.7%) were unsure whether HBV could be transmitted via saliva, and 28.5% agreed that they lacked clarity about contaminated surfaces. Moreover, 36.6% admitted to lacking updated information on occupational guidelines, although 52.8% strongly agreed they knew how to use PPE appropriately. These findings indicate that while baseline knowledge is sound, there are significant areas that require further education and periodic retraining (Ogoina et al., 2021; Noubiap et al., 2023).

Nurses' Attitude towards Caring for Patients with HBV

The findings revealed a generally positive attitude among nurses toward caring for HBV-infected patients. A majority (41.5%) strongly agreed they were comfortable providing care, and 56.9% strongly agreed that HBV patients deserve equal care. However, 24.4% agreed they would prefer not to handle HBV-positive patients, and 33.3% admitted that fear of infection affected their relationship with such patients. While 52.0% strongly agreed that standard precautions were sufficient, 35.8% remained neutral about their training adequacy, and 29.3% admitted avoiding

non-essential contact. These mixed responses suggest that although nurses are mostly positive in attitude, fear and training gaps still influence behaviors, which supports Ajzen's Theory of Planned Behavior (1991).

Impact of Workplace Policies on Compliance with HBV Prevention

Workplace policies appeared to have a substantial impact on compliance with HBV prevention practices. About 38.2% of nurses strongly agreed their hospitals had clear HBV prevention policies, while 45.5% agreed management encouraged reporting of exposure. However, only 32.5% strongly agreed that mandatory HBV vaccination was enforced, and just 26.0% strongly agreed that training was regular. Accessibility to PPE and post-exposure prophylaxis was moderately affirmed, with 39.0% agreeing. A sizable percentage (34.1%) agreed that lack of institutional support affects prevention practices. These findings suggest that while some preventive structures exist, more robust enforcement, training, and support systems are needed to enhance compliance (WHO, 2021; CDC, 2022).

Proportion of Nurses Who Can Identify High-Risk Groups for HBV

The findings show that a high proportion of nurses could correctly identify key high-risk groups. For example, 65.0% strongly agreed that healthcare workers are at risk, 60.2% affirmed that people who inject drugs are high-risk, and 61.8% agreed on the risk to infants born to HBV-positive mothers. Still, 31.7% remained neutral on identifying all high-risk groups, and 25.2% disagreed. These results highlight both strengths and weaknesses in targeted knowledge. Identification of high-risk populations is essential for improving prevention, screening, and education strategies (CDC, 2023; Adjei et al., 2020).

Relationship between Knowledge and Attitude (Pearson Correlation)

Table 4.7 presents a Pearson r-value of 0.62 with a significant value of 0.05. Since the r-value exceeds the significance threshold, the null hypothesis is rejected. This indicates a statistically significant relationship between the knowledge of nurses on HBV and their attitude towards caring for HBV patients. Therefore, the more knowledgeable the nurses are about HBV, the more positive their attitudes toward patients become. This correlation affirms the importance of knowledge-based training as a foundation for attitude change and effective care delivery.

Relationship between Work Experience and High-Risk Group Identification (Chi-square Analysis)

In Table 4.8, the calculated chi-square value is 1.60 with 4 degrees of freedom, and the p-value is 0.81. Since the p-value (0.81) is greater than the significance level of 0.05, the null hypothesis is not rejected. This means that there is no statistically significant relationship between the years of work experience of nurses and their ability to identify high-risk groups for HBV. The implication is that experience alone may not influence targeted knowledge, and continuous professional training is required across all experience levels.

5.2 Implication of the study

To Nursing Clinical Practice

1. Strengthen Infection control Training: Implement regular, practical infection drills to reinforce theoretical knowledge.
2. Enhance Nurse Safety and confidence: Create an environment where nurses feel protected and well informed to reduce their fear of infection.
3. Reduce stigmatization: Promote understanding and empathy to reduce stigma towards patient diagnosed with HBV.

4. Improved Clinical outcomes: Better-informed and confident nurses contribute to improved health outcomes for patient living with HBV.

Implications for Nursing Education

1. Integrate HBV Education into nursing curriculum: Include comprehensive HBV education at all levels of nursing training, ensuring coverage of; HBV epidemiology, modes of transmission, vaccination protocols and ethical and non-stigmatizing care for HBV patients.
2. Improve preparedness and confidence: Enhance nurses readiness to care for HBV-positive patients through ongoing education and skill-building.

Implications for Nursing Administration

1. Mandatory vaccination programs: Establish and enforce compulsory HBV vaccination for all healthcare workers.
2. Routine HBV prevention Training: Implement regular training programs focusing on HBV transmission, prevention and response to exposure.
3. Guaranteed availability of PPE: Ensure consistent supply and accessibility of personal protective equipment (PPE) to nursing staff.

Implications for Nursing Research

1. Need to investigate underlying causes: Future research should explore why knowledge gaps persist despite clinical exposure and experience.
2. Examine barriers to knowledge Retention: Identify factors that hinder, long term retention of HBV-related information among nurses.
3. Assess effectiveness of raining models: Evaluate various educational approaches to determine the most effective strategies for HBV knowledge and skill acquisition.

5.3 Summary

The study highlights a generally good level of knowledge and a moderately positive attitude among nurses toward hepatitis B virus (HBV) care at Kwara State University Teaching Hospital. However, notable gaps remain in specific areas of knowledge and confidence, especially regarding indirect transmission and occupational guidelines. The positive correlation between knowledge and attitude underscores the need for enhanced educational initiatives. Clinical practice must emphasize consistent use of standard precautions, while nursing education should integrate comprehensive HBV modules and continuous professional development. Nursing administration is urged to strengthen workplace policies, enforce mandatory vaccinations, and ensure the availability of protective equipment. Finally, further nursing research is needed to address persistent knowledge gaps, understand behavioral patterns, and evaluate the long-term impact of interventions on nurse compliance and patient safety.

5.4 Conclusion

This study has revealed that while nurses at Kwara State University Teaching Hospital possess a generally satisfactory level of knowledge and demonstrate a positive attitude toward the care of patients with Hepatitis B Virus (HBV), there are still significant areas requiring improvement—particularly in understanding lesser-known transmission routes and institutional compliance with preventive policies. The statistically significant relationship between knowledge and attitude further emphasizes the importance of targeted education and support systems. Strengthening HBV-related training, reinforcing workplace infection control policies, and promoting continuous learning will be vital in bridging existing knowledge gaps and improving both the quality of care and occupational safety among nurses.

5.5 Limitations of the study

Despite the valuable insights gained from this study, several limitations should be acknowledged. Firstly, the study was conducted in a single tertiary healthcare facility which is Kwara State University Teaching Hospital, limiting the generalizability of the findings to other hospitals or regions in Nigeria. Secondly, the sample size of 123 nurses, though adequate for analysis, may not fully represent the diverse experiences and perceptions of all nursing professionals. The cross-sectional design also restricts the ability to determine causality between knowledge and attitude. Lastly, some areas such as actual compliance behavior and clinical practice audits were not assessed, which could have provided deeper insights into the practical application of knowledge and attitude in real settings.

5.6 Recommendations

For Nursing Education Institutions

- Incorporate comprehensive and up-to-date modules on Hepatitis B Virus (HBV) transmission, prevention, and care into the nursing curriculum.
- Emphasize practical training and simulation-based learning on standard precautions and post-exposure protocols.

For Hospital Administration

- Develop and enforce clear workplace policies that support mandatory HBV vaccination, regular screening, and reporting of exposure incidents.
- Ensure consistent availability of Personal Protective Equipment (PPE) and access to post-exposure prophylaxis.
- Organize periodic training and refresher courses to update nurses on HBV guidelines and infection control practices.

For Clinical Nursing Practice

- Encourage nurses to adopt evidence-based infection prevention measures and adhere strictly to standard precautions when handling all patients.
- Promote a non-discriminatory approach to HBV-positive patients by fostering awareness and reducing stigma within clinical settings.

For Nursing Research Bodies and Policymakers

- Fund and promote research that investigates the long-term effectiveness of educational interventions on nurses' HBV-related knowledge and attitude.
- Conduct multicenter studies to better understand the broader trends in HBV awareness and preventive behaviors among healthcare workers.

5.7 Suggestion for Further Studies

1. An Assessment of the Effectiveness of Routine HBV Training Programs on Nurses' Knowledge and Practice in Tertiary Hospitals in Nigeria.
2. Comparative Study on Knowledge and Attitudes Towards HBV Among Nurses in Public and Private Health Institutions.
3. The Impact of Workplace Policies on Compliance with Hepatitis B Virus Prevention Measures Among Healthcare Workers in Nigeria.
4. Evaluation of Barriers to Full HBV Vaccination Among Nursing Professionals in Kwara State.

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APPENDIX 1
QUESTIONNAIRE

**KNOWLEDGE AND ATTITUDE OF NURSES TOWARDS HEPATITIS B VIRUS IN
KWARA STATE UNIVERSITY TEACHING HOSPITAL, ILORIN.**

Dear Respondents,

I am a student of Thomas Adewumi University, Oko, Kwara State. I am carrying out a research on the knowledge and attitude of Nurses towards Hepatitis B Virus in Kwara State University Teaching Hospital, Ilorin, Kwara State. This questionnaire is designed to get your response about this research and I hope you will fill this questionnaire with full attention and devotion, all information gathered shall be used purely for research purpose and shall be treated with confidentiality.

Thank You.

Yours Faithfully,

RESEARCHER: OLAYIDE ELIZABETH PONLE

SECTION A: SOCIO-DEMOGRAPHICS

1. Age: 18–25 years () 26–35 years () 36–45 years () 46–55 years () Above 55 years ()
2. Sex: Male () Female ()
3. Marital Status: Single () Married () Divorced () Widowed ()
4. Religion: Christianity () Islam () Traditional () Others ()
5. Highest Educational Qualification: Diploma () B.Sc Nursing () Postgraduate Diploma ()
Master's Degree () Others ()
6. Years of Work Experience: Less than 1 year () 1–5 years () 6–10 years () 11–15

years () Above 15 years ()

SECTION B: LEVEL OF KNOWLEDGE AMONG NURSES REGARDING HBV TRANSMISSION.

Statements	SA	A	N	D	SD
Hepatitis B virus is transmitted through contact with infected blood.					
HBV can be transmitted from mother to child during childbirth.					
Sharing sharp objects like razors or needles can transmit HBV.					
HBV can be transmitted through unprotected sexual intercourse.					
HBV is not transmitted through casual contact such as handshakes or sharing utensils.					
All health care workers are at high risk of contracting HBV due to occupational exposure.					
HBV cannot be spread through food or water.					

SECTION C: KNOWLEDGE GAP AMONG NURSES REGARDING THE MODES OF HEPATITIS B VIRUS TRANSMISSION

Statements	SA	A	N	D	SD
I am confident in my knowledge of all possible HBV transmission routes.					
I require further training on HBV transmission through blood					

transfusions.					
3. I am unsure whether saliva can transmit HBV.					
4. I know how HBV transmission differs from HIV transmission.					
5. I am not clear about the role of contaminated surfaces in HBV spread.					
6. I lack updated information on HBV occupational transmission guidelines.					
7. I know the correct use of PPE to prevent HBV transmission.					

SECTION D: THE ATTITUDE OF NURSES TOWARDS CARING FOR PATIENTS WITH HEPATITIS B VIRUS.

Statements	SA	A	N	D	SD
I am comfortable providing care to patients diagnosed with HBV.					
I would prefer not to handle HBV-positive patients.					
I believe HBV patients deserve equal care as others.					
Fear of infection affects how I relate to HBV-infected patients.					
I believe standard precautions are sufficient to protect me from HBV.					
I feel adequately trained to provide care for HBV-infected individuals.					

I avoid non-essential contact with HBV-positive patients.					
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SECTION E: THE IMPACT OF WORKPLACE POLICIES ON NURSES'

COMPLIANCE WITH HEPATITIS B VIRUS PREVENTION MEASURES.

Statements	SA	A	N	D	SD
My hospital has clear policies on HBV prevention.					
I am encouraged by management to report HBV exposure incidents.					
Mandatory HBV vaccination is enforced for staff.					
I regularly participate in workplace HBV prevention training.					
There is easy access to PPE and post-exposure prophylaxis in my workplace.					
Lack of institutional support affects HBV preventive practices.					
Workplace policies make it easier for me to comply with infection control guidelines.					

SECTION F: THE PROPORTION OF NURSES WHO CAN CORRECTLY IDENTIFY

HIGH-RISK GROUPS FOR HEPATITIS B VIRUS INFECTION.

Statements	SA	A	N	D	SD
Healthcare workers are among the high-risk groups for HBV infection.					
HBV is more common among individuals who inject drugs.					

Infants born to HBV-infected mothers are at high risk.					
People with multiple sexual partners are high-risk individuals.					
Individuals undergoing frequent blood transfusions are at higher risk.					
I can identify all key groups at increased risk of HBV.					
High-risk individuals should be prioritized for HBV vaccination.					

