REPUBLIC OF TURKEY
ANKARA YILDIRIM BEYAZIT UNIVERSITY
INSTITUTE OF HEALTH SCIENCES

KNOWLEDGE AND ATTITUDE TOWARDS HEPATITIS B VIRUS INFECTION AMONG ADULTS IN TAMALE IN THE NORTHERN REGION OF GHANA-A DESCRIPTIVE STUDY

MASTER'S THESIS

Abdul Ghaffar DONKOR

PUBLIC HEALTH PROGRAM

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Master's Thesis

28/05/2019

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We declare that this thesis, which we have read and listened to, has met all the scope and quality requirements for a Master's degree.

Institute Coordinator
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I certify that this thesis meets all requirements for Master's Degree.

DECLARATION

I hereby declare that this thesis is an original and my own work. All information in this thesis has been obtained and presented in accordance with academic rules and ethical conduct without any ethical violation. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work. I therefore accept all legal responsibility pertaining to this study.

28-05-2019



Abdul Ghaffar DONKOR

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ÖZET

Gana'nın Kuzey Bölgesi'ndeki Tamale'de Yetişkinler Arasında Hepatit B Enfeksiyonuna İlişkin Bilgi Düzeyi ve Tutum: Tanımlayıcı Bir Çalışma

Bu çalışma, Gana'nın Kuzey Bölgesi'ndeki Tamale şehrinde yaşayan yetişkinler arasında Hepatit B Enfeksiyonuna İlişkin Bilgi Düzeyleri ve Tutumlarını incelemeyi amaçlamaktadır.

Gana, Tamale'deki yetişkinler arasından seçilen kişilerin hepatit B enfeksiyonuna karşı bilgi düzeyi ve tutumlarını değerlendirmek için anket kullanılarak tanımlayıcı bir çalışma yapılmıştır. Çalışmaya katılmayı kabul eden kişilerden veriler toplanmıştır. Çalışma örneği 281 katılımcıdan oluşmaktadır. Katılımcıları çalışmaya dahil etmek için basit rastgele örnekleme yöntemi kullanılmıştır. Veriler SPSS 24.0 kullanılarak analiz edilmiş, çalışma bulguları metin ve tablolar kullanılarak sunulmuştur.

Çalışma, katılımcıların yaklaşık olarak yarısının hepatit B enfeksiyonu hakkında yeterli bilgiye sahip olduğunu ortaya koymuştur. Enfeksiyon hakkında yeterli bilgiye sahip olanların bile bazı bilgi eksiklikleri vardır. Çalışma aynı zamanda katılımcıların %64'ünün hepatit B aşılamasına karşı iyi bir tutum sergilediğini de ortaya koymuştur. Hepatit B'ye karşı aşılama yapmayanlar, maliyeti ve aşılamanın önündeki diğer engelleri neden olarak belirtmiştir. Katılımcıların hemen hemen hepsi, hepatit B ile enfekte olduklarını fark ettiğinde tedavi için sağlık tesislerine başvuracaklarını söylemiştir.

Çalışma, hepatit B'ye karşı bilgi ve tutumun yeterli olmadığını göstermektedir. Bu nedenle, hepatit B enfeksiyonuna karşı bilgi ve tutumu artırmak için halkı hepatit B enfeksiyonu hakkında daha fazla eğitmek, bunun için daha çok çaba gösterilmesi ve bu enfeksiyona karşı önlem alınması gerekmektedir**.**

Anahtar Kelimeler: Bilgi, Gana, Hepatit B, tutum, yetişkinler

ABSTRACT

Knowledge and Attitude Towards Hepatitis B Infection Among Adults in Tamale in the Northern Region of Ghana

The study aims is to investigate knowledge and attitude towards hepatitis B infection among adults in Tamale, Ghana.

A descriptive study was conducted using self-administered structured questionnaire to assess participants' level of knowledge and attitude towards hepatitis B infection among adults in Tamale, Ghana. Data was collected from people who agreed to participate in the study. The study sample was 281 participants. Simple random sampling was used to recruit participants. Data was analysed using SPSS version 24 and study findings presented using text and tables.

The study revealed that about half of the respondents had good knowledge on hepatitis B infection. There were even some knowledge gaps among the respondents who had good knowledge on the infection. The study also revealed that 64% of the respondents had good attitude towards hepatitis B vaccination. Those who did not vaccinate against hepatitis B indicated the cost and other reasons as the barrier for not vaccinating. Almost all the respondents indicated they will visit health facility for treatment in case they realise they are infected with hepatitis B.

The study shows knowledge and attitude towards hepatitis B is not adequate. There is therefore the need to put in more measures to educate the public on hepatitis B in order to improve the public's knowledge and attitude towards hepatitis B infection.

Keywords: Adults, attitude, Ghana, Hepatitis B, knowledge

LIST OF SYMBOLS AND ABBREVIATIONS

AHO	: African Health Observatory
EPI	: Expanded Programme on Immunization
GDHS	: Ghana Demographic and Health Survey
GHS	: Ghana Health Service
GSS	: Ghana Statistical Service
HBM	: Health Belief Model
HBV	: Hepatitis B Virus
JHS	: Junior High School
MTCT	: Mother-To-Child Transmission
NCCE	: National Commission on Civic Education
NGOs	: Non-Governmental Organizations
SHS	: Senior High School
SPSS	: Statistical Package for Social Sciences
WHO	: World Health Organization

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1. INTRODUCTION

1.1. Research Background

This research was designed to examine adults' knowledge and attitude on hepatitis B in Tamale in Northern Ghana. WHO defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (1). To ensure that this definition of health is realised in an individual's life, accurate information about health-related issues is necessary to help in attitudinal change and policies formulations.

Hepatitis B is caused by virus which affects the liver. It can cause both acute and chronic disease (2). The virus is gotten from coming contact with blood or similar fluids of individuals who are infected; during child birth from the mother, among individuals in a family through cut skin contact, mucous membrane discharges and saliva that have Hepatitis B Virus. Also, the virus is gotten from: unsafe sexual intercourse; transfusing infected blood and products of blood; infected medical items; and injecting drug users who share infected syringes and needles among themselves (33). The infection is a serious liver condition with high fatality. Globally, it is a major health concern. Death from this condition is usually from liver cancer and cirrhosis (2).

Globally about 257 million of the population are living with condition-hepatitis B surface antigen positive. The condition caused 887 000 fatalities in 2015. Most of the deaths are usually from complications like cirrhosis and liver cancer. The prevalence of hepatitis B is high in the WHO-West Pacific region (6.2%) and the WHO-African region which is 6.1% of adult population got infected. With the WHO East Mediterranean Region, the prevalence rate was about 3.3% , the WHO South-East Asia region was about 2%, WHO European region was about 1.6%, and WHO-American Region has 0.7% of its population infected (2).

Endemicity of hepatitis B is high in West Africa, where Ghana is situated. It has a highest prevalence rate in the world of 8% (4). In Ghana, Hepatitis B is considered to be of public health concern and requires greater attention (5). The

estimated prevalence rate of chronic HBV infection in Ghana is 12.92% (6). Other researchers have also estimated that the prevalence rate in Ghana is about 10–15 % (7, 8).

Hepatitis B can be prevented by taking vaccination. The vaccine was made known in 1982. It is 95% effective to prevent the infection. Globally in 2015, 84% of infants took the complete dose of the vaccine (2).

Africa put in much effort in preventing the infection. Data from African Health Observatory shows the vaccination among children in African rose to 72% in 2012 from 42% in 2005 (4). WHO recommended hepatitis B vaccine addition into the expanded programme on immunization (EPI) for globally in 1991 (9). Ghana delayed in implementing it. Ghana later introduced it in 2002. In Ghana, the immunization coverage for Hepatitis B among children as part of the EPI was 88% (10). The EPI schedule for Ghana recommends 3 doses of pertussis, diphtheria, tetanus, hepatitis B and haemophilus influenza type B at 6, 10 and 14 weeks (10).

Because of the perceived inadequate knowledge on Hepatitis infections, yearly on July 28, WHO and its partners celebrate World Hepatitis Day to help educate and change of attitude towards hepatitis and other conditions can leads to. Africa regards hepatitis as a serious health problem (4).

1.2. Statement of the Problem

Knowledge and attitude on hepatitis B are part of key issues to look at in order to effectively tackle this infection. The condition is common in West Africa, where Ghana is situated with a 8% as the prevalence (4). In Ghana, It is therefore regarded as serious health problem and requires greater attention. The prevalence is estimated to be about 12.92% (6). With increase in knowledge and positive attitudinal change towards hepatitis B infection, the incidence and prevalence will significantly reduce. Unfortunately, little researches have been conducted on the knowledge and the attitude of hepatitis B infection especially in Ghana.

In order to tackle this problem, people's knowledge level and attitudes need to be assessed. Vaccination as part of the attitudinal change in preventing hepatitis B is a very effective measure (2). People's hepatitis B vaccination status need to be

assessed. Ghana incorporated the hepatitis B vaccine onto the EPI in 2002. This implies that most children born from 2002 will get vaccinated against hepatitis B from 6 weeks of life (10). People born before 2002 in Ghana are at higher risk of getting the infection and awareness of the importance of taking the hepatitis B vaccine should be made since they did not receive the immunization at infancy.

Various researches have been conducted on the knowledge and the attitude on hepatitis B infection globally. Most of these researches focused on particular groups: pregnant women (11); barbers (12); students (13); healthcare workers (14); patients (15) and others.

Little has been done on knowledge and attitude of adults in developing countries especially Ghana. To ensure that the spread of and resultant deaths from Hepatitis B are reduced, it is essential to investigate knowledge level and the attitude on this infection in adults to help in formulating policies and the implementation. The study thus seeks to assess level of knowledge among adults on hepatitis B infection, and also seek to investigate the attitude of adults on infection.

1.3. Objectives

1.3.1. General Objective

The main research objective is to investigate the level of knowledge and attitude towards hepatitis B in adults in Tamale, northern Ghana.

1.3.2. Specific Objectives

1. To investigate knowledge level on hepatitis B in Tamale
2. To investigate the attitude of adults on the infection in Tamale
3. To determine any link among Gender, Education background, Age groups and the level of knowledge and attitude on the infection in Tamale

1.4. Hypothesis

1.4.1. Null Hypothesis

1. No difference exists about knowledge level on hepatitis B between males and females in Tamale.

2. No difference exists in level of knowledge on hepatitis B infection among people with high education and people with low education background in Tamale.
3. No difference exists in level of knowledge on the infection among various ages in Tamale.
4. No difference exists on attitude about hepatitis B infection between males and females in Tamale.
5. No difference exists on attitude about the infection between adults with high education and adults with low education background in Tamale.
6. No difference exists on attitude about the infection between age groups in Tamale.

1.4.2. Alternative Hypothesis

1. Females have good knowledge on hepatitis B infection than Males in Tamale.
2. Adults with higher education background have good knowledge on hepatitis B infection than adults with low education background people in Tamale.
3. There is difference in knowledge on hepatitis B infection among various age groups in Tamale.
4. Females have good attitude towards hepatitis B infection than Males in Tamale.
5. Adults with higher education background have good attitude towards hepatitis B infection than adults with low education background in Tamale.
6. There is difference in attitude about the infection the age groups.

1.5. Research Significance

In order for the prevalence of hepatitis B to be reduced in Ghana, it is important that the knowledge level and attitude about hepatitis B should be investigated. This will help in policy formulations as policy makers will be more informed about the level of knowledge and the attitude on the infection. The results of this research can help public health officials and other concerned institutions to know the level of knowledge and the attitude about hepatitis B in adults and what needs to be done to help reduce the infection in the country.

Finally from the articles reviewed, there is no research carried out on level of knowledge and attitude on hepatitis B in adults within Northern Ghana. Most researches conducted in Ghana only focused on specific groups (Students, pregnant women, barbers, healthcare workers and Hepatitis B infected people). It is therefore important to conduct a research about level of knowledge and the attitude on hepatitis B in adults within Tamale in Northern Region Ghana.

1.6. Research Organization

The first chapter in this research is the background of the research: hepatitis B infection explanation, transmission modes and complications, prevalence and vaccination are discussed. It also includes problem statement, aims of the study, hypothesis and research significance. Chapter two explains research theoretical framework using the Health Believe Model (HBM). Literature on previous related studies is also reviewed in this chapter.

The third chapter explains the research methods: study design, study setting, target group, exclusion and inclusion criterion, research sample and its techniques, data gathering tool and its procedure, analysis of data, and ethical consideration. The forth chapter presents of the study results Chapter five focuses on discussing the study results to reach a logical conclusion. Finally, chapter six illustrates the research conclusions, offers recommendations for further studies and policy formulations and also present the limitations of the study.

2. LITERATURE REVIEW

This chapter discusses the theory on which the study is based and the findings of related studies. The review of other related studies was looked at the purpose, methods used and findings of other articles. For the purpose of this study, the Health Belief Model was used.

2.1. Theoretical Framework

2.1.1. Health Belief Model

The theoretical framework for this research is the Health Belief Model. This framework is usually used in studies related to health attitudes. The framework is gotten from behavioural and psychological theories. It has two basic concepts related to health behaviours; interest in avoiding sickness or getting fine if the individual is sick already, and the thought that a particular action will treat or stop sickness. Generally, peoples' health actions are usually related to the beliefs of benefits and problems in relation to a particular attitude. The health belief model has 6 basic concepts. These include perceived severity, perceived susceptibility, perceived benefits, perceived barriers, self-efficacy and cues to actions.

Believing that one is at risk of acquiring a sickness is perceived susceptibility. For instance, an individual believing he/she is at risk of getting hepatitis b. An individual believing in the seriousness of a particular condition and its complications is perceived severity. For instance, an individual believing that hepatitis b is dangerous and can lead to liver cancer and even death. Perceived benefits refer to the belief in effectiveness of health intervention in order to reduce the complications or risk of a condition. For instance, an individual believing vaccination works well in preventing sicknesses. An individual weighs costs on prescribed actions is perceived barrier. For example, an individual returns to get the complete dose (three) of the vaccine. Cues to certain actions; ways to get information and preparedness to use it. For example, the individual believes he/she is exposed to hepatitis B and the need to get tested. Self-efficacy is the individuals' confidence in performing the advised

health action. For example, the individual has confidence in testing for hepatitis B (16).

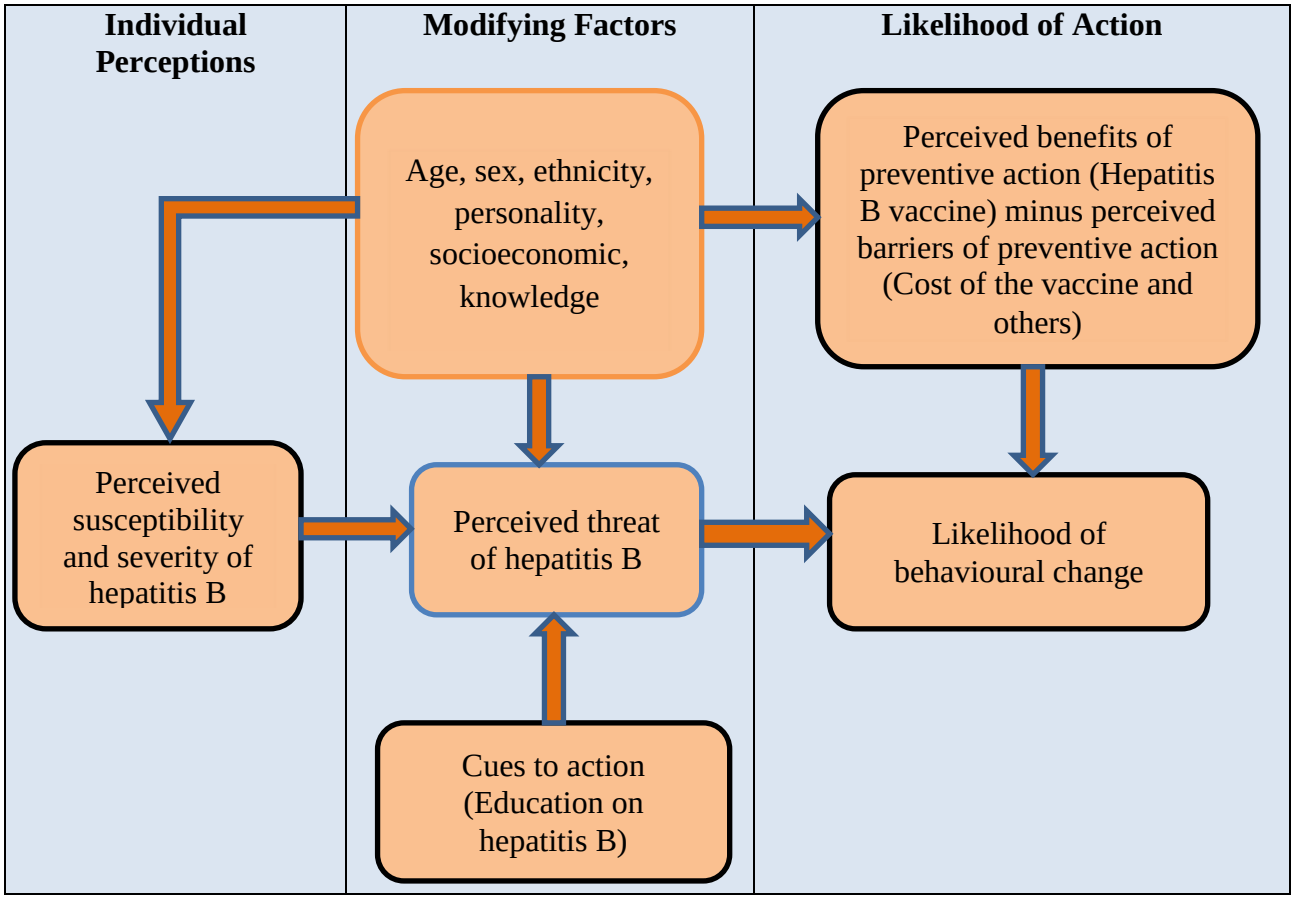


Figure 2.1. Health Belief Model (17).

2.3. Related Studies

WHO estimates that, globally in 2015, about 3.5% of people got infected with chronic hepatitis B. Western Pacific and Africa constituted 68% of people living with the infection. According to WHO, majority of positive hepatitis B patients are those born before the vaccination became highly taken among infants. The prevalence and complications of Hepatitis B have given cause to several studies about knowledge and the attitude on different group of people on it (2).

2.4. Level of Knowledge and Attitude on Hepatitis B Virus Infection

A quantitative research carried out on hepatitis B in a French population within France between 18 and 69 years old people with a random sample of 9,014

participants. It revealed that about 96% were aware of the infection, about 90% correctly answered hepatitis B is gotten through sharing of needles, 69.7% knew it is gotten from unsafe sexual activities, and 26% believed it can be transmitted through mosquito bite. Also, 27.4% indicated that they went for hepatitis B screening before and 47% indicated that they have taken the hepatitis B vaccine before. Vaccination was more common among women, people with secondary school education and above and participants aged 18 to 30 years. Collection of data was however carried out on phone calls and the study did not also indicate why some respondents did not go for hepatitis B vaccination (18).

A research carried out in Poland on hepatitis B with a study sample of 410 participants. About 70% answered correctly that it has a possibility of leading to liver cancer, 54.4% knew hepatitis B is usually asymptomatic, 50% knew the transmission from mother to child, majority of respondents (86.6%) knew sharing needle can transmit hepatitis B, 54.1% knew it is possible to get infected by practicing unsafe sexual activities. Only 31.5% correctly knew that it cannot be transmitted through sharing of cups. About 55.4% of the respondents took the vaccine. This research however was limited to patients visiting primary care clinics but not the general adult population. It did not also indicate why some respondents failed to take the vaccine (19).

Another survey conducted on knowledge on Hepatitis B among Korean-American parents in USA. The sample size of the study was 521 participants. It was found out that general awareness of hepatitis B as a liver disease was high (93.2%), 48.6% knew it is gotten from blood and contaminated needles, 23.3% correctly answered it is gotten from unsafe sexual contact, 28.7% thought it can be transmitted through utensils, 20.6% knew it can be transmitted through child birth, 72% correctly knew it can cause liver cancer and about 75% participants screened for the infection before. This research however did not compare the knowledge levels among genders, educational levels and the various age groups (20).

A study conducted on attitude towards hepatitis B in Texas among 113 participants. The results showed that participants had misconceptions on the causes and prevention of hepatitis B. They also had bad attitude towards hepatitis B prevention. Their misconception was linked to the bad attitude towards the condition.

The study concluded that participants had bad attitude towards hepatitis B and therefore suggested more education on the disease. Focus group discussion was however used in the data collection (21).

Another survey was carried out on hepatitis B among newly recruited military in China with 800 participants. 60.2% participants correctly answered it cannot be gotten from handshake or talking to infected person, 43.3% correctly answered it is possible to get it from mother by a child during childbirth, 36% correctly answered it is gotten from unsafe sexual activities, 55.7% knew it is possible to get it by needles sharing, 42.5% knew it could cause cancer of the liver and 70.7% correctly answered the vaccination hepatitis B. Though 70.7% stated the vaccine effective, only 51.3% indicated that they had taken the vaccine. Generally, the study revealed that 83.6% of the participants demonstrated poor knowledge. Only about 16% had good basic knowledge on hepatitis B. The study concluded that there is low knowledge level on the infection. This research however was conducted only among newly recruited military personnel and not the general adult population (22).

Han et al (2017) carried out a research on knowledge and attitudes of pregnant women towards transmission from mother to child within Guangdong province, China. A study sample was 737 participants. The research findings revealed 53.3% does not know hepatitis B could be gotten from unsafe sex activities. About 20% indicated they do not know it is possible to get through mother to child. In relation to attitude, about 83% and 90% agreed to go through screening for hepatitis B at antenatal and will also allow the child to get the hepatitis B vaccination respectively. Respondents were asked if they will take drugs during pregnancy in order to avoid transmitting to child, about 17% accepted to take the drugs. The study was however conducted only among pregnant women without comparison of respondents' education level, and age with attitude and knowledge on hepatitis B (11).

A research was carried out on attitude and knowledge on hepatitis B among international students in Malaysia. The study sample consisted of 662 participants. Its results showed 50% participants with good knowledge. However, 38.1% took the vaccination. Out of about 38%, only 14.4% took the complete doses (3 doses). The

research was however conducted only within international students at a university not the general adult population (13).

A research was carried out in Pakistan about hepatitis B. A research sample of 1000 participants was used. With regards to knowledge, 97.8% had heard of hepatitis B before, 45.8% correctly knew that hepatitis B is viral, 27.9% knew it can cause liver cancer, 18.4% knew that hepatitis B does not usually present with symptoms and only about 10% correctly stated the infection is possible to be gotten from unsafe sex intercourse. With regards to attitude, about 80% of the participants believed they cannot get hepatitis B infection, when asked what their reactions will be when diagnosed of hepatitis B, 39.5% indicated shame and 31.5% indicated fear, majority of the respondents (47.1%) indicated they will talk to their spouse first when they realize they have hepatitis B, 29.6% indicated they will visit health centre if they realize they are infected. Participants were asked their most worry when diagnosed of hepatitis B, 37.3% indicated isolation and 32.2% indicated fear of death. It also revealed that only 3.1% had gone for screening and 13.2% indicated they had vaccinated against hepatitis B. These research results revealed participants got poor level of knowledge and bad attitude on the infection. However, this research was carried out with convenient sampling technique (23).

A research was carried out on hepatitis B infection among infected patients in Bangladesh. The research sample consisted of 150 participants. About 71% participants never took the vaccination and most of them had bad sexual behaviours. The study revealed majority of the participants got poor attitudes on the infection. The research however was limited to only hepatitis B positive patients who visited Essence Homeopathic Medical Centre with relatively small sample size (15).

Another research was carried out on hepatitis B in Malawi. This research involved 199 respondents. The results showed that 31.6% thought hepatitis B is genetic, 46.6% thought it can be transmitted through air, 50.3% thought it can be transmitted through sharing bowls and spoons, 55.4% correctly knew it can be gotten through sharing of toothbrush, 44.6% knew it can be gotten through unsafe sex and 48.7% knew it can be gotten during childbirth from mother to child. The study concluded that respondents had fair knowledge. However, respondents showed bad

attitudes on the infection. The study however was conducted in only one hospital and also among only healthcare workers (24).

A research was conducted on attitude towards infection control on hepatitis B virus in Yemen. The study was conducted among 204 dental students in Sana'a University in Yemen. Only about 71% of the participants took the vaccination though participants had adequate knowledge on the vaccine. The study concluded that attitude towards hepatitis B transmission is inadequate among participants. The study was only limited to dental students but not the general adult population (25).

A postal research was carried out on hepatitis B among Turkish-Dutch living in Netherland. A sample of 1176 participants was used. In the study, 54% believed that hepatitis B infected persons who look healthy cannot transmit the virus, 54% correctly stated it is possible to get it from childbirth, 53% correctly stated one could get it from sexual intercourse, 44% knew it could lead to cancer of the liver, 52% believed the infection cannot be prevented, about 15% participants tested for the infection, only about 3% took the complete doses of the vaccine (3doses) and 12% took the vaccine but did not complete taking the three doses. The study showed that the knowledge level and attitude on the infection was poor. Prevention and mode of transmission knowledge was moderate but there was little awareness on the serious consequences of the infection. The study response rate however was very low (26).

A related research was conducted on public awareness of HBV in Turkey. This research was conducted among 181 patients diagnosed of hepatitis B virus. Approximately 60% of the patients had basic knowledge on their condition, and how it is transmitted. About 72% patients exhibited good knowledge on consequences of the infection. Also, 66.3% vaccinated all their family members against hepatitis B infection. It revealed that more knowledgeable and more educated people are more likely to vaccinate their family members. The study however was conducted only among hepatitis B infected patients but not the general adult population with relatively small sample size (27).

A research was also carried out on knowledge among Egyptian students with a study sample of 640 participants. About 32% got some knowledge about the transmission modes of the infection, 50% participants correctly stated hepatitis B is

caused by virus, and 42% knew existence of the vaccine. This research concluded very inadequate knowledge on the infection among the research respondents. The research however was done only among students between the ages of 16 and 18 years and not the general adults (28).

A research carried out in Egypt on hepatitis B. The study consisted of 574 students. The results showed that about 75% of the participants lacked knowledge about the infection. It revealed that, only 26.3% knew hepatitis B is viral, 11% correctly stated that hepatitis B does not transmit through consuming food cooked by an infected individual, about 48% corrected stated one can get the infection by sharing of toothbrush with infected individual, 30% stated correctly one cannot get the infection through handshake, about 39% correctly stated the infection can be gotten by a child from mother through childbirth, 36.9% correctly believed hepatitis B could cause liver cancer. The research concluded low knowledge among participants. It was however conducted only among students aged 11 to 17 years but not the general adult population (29).

Another related research was carried out about hepatitis b in Cameroon in 2015. The study sample was 344 participants. About 57.9% had poor knowledge level on the infection. With regards to the attitudes on the infection, 69.4% believed they can get infected if exposed. However, only 67.8% was willing to do the test. Also, 97.1% was willing to vaccinate unfortunately they could not vaccinate because of the cost. Only 24% was willing to pay before vaccination. Respondents also indicated that in case they realize they are infected, 22.5% will go to hospital immediately, 53.8% will wait till symptoms present before going to hospital and the remaining will go for other options like traditional doctor, churches and advice from others. Respondents were asked on whether they have screened and taken the hepatitis B vaccine, only 20.6% had gone for screening and only 2.3% of the respondents had vaccinated. The research indicated poor knowledge level and bad attitudes about the infection of participants. The research was however conducted in a rural area (30).

A survey was conducted on awareness and vaccine uptake about hepatitis B in Yaoundé, Cameroon. Sample size was 163 participants. Though 47% respondents had good knowledge level on the infection, only 19% took at least one hepatitis B

dose of the vaccination. Post exposure notification among workers was also very poor. The study concluded that attitude on hepatitis B virus infection was very poor among participants. The study was however conducted among healthcare workers but not the general adult population (31).

A research was also carried out on hepatitis B on pregnant women in Nairobi, Kenya with a study sample of 287 participants in 2016. About 50% never heard about the infection, and about 38% got limited information on the infection. People who had tertiary education had higher knowledge on hepatitis B compared the secondary school and primary education. The research indicated a very poor level of knowledge on the infection. It was however conducted only among pregnant women who went for antenatal in a particular district hospital (32).

Another survey was carried out in Sudan about hepatitis B infection among health workers in 2012. The study sample was 295 participants randomly selected. The study showed participants got poor level of knowledge about standard precautions in the hospital, and over 50% of the participants did not vaccinate against hepatitis B. The study was however conducted only among healthcare workers but not the general adult population (33).

A study was also conducted in 2013 in New York among West African immigrant women to investigate the knowledge on hepatitis B. One hundred and forty-four participants were those who had child deliveries between 2004 and 2008 in a hospital in Bronx and are from West Africa (Ghana, Togo, Guinea and Mali). The results showed that only 54% was aware of hepatitis B. 76% out of the 54% correctly stated it can transmit through childbirth, 67% knew it can be gotten through needles, 81% through sexual intercourse, 62% correctly stated one will not get it from consuming food cooked by an infected individual, 57% correctly stated it does not transmit through air, 90% correctly stated the infection cannot be gotten from hand shake, 67% knew it can be gotten from toothbrush sharing and 57% correctly indicated infected individual who appears well can still transmit the virus to others. It revealed that, participants who were aware of hepatitis B had adequate level of knowledge on the infection transmission. The study was however a retrospective research on women who delivered in a particular hospital and tested positive for hepatitis B (34).

A similar research was carried out within Nigeria about hepatitis B knowledge in 2013. The sample size was 643 respondents. About 76% of the pregnant women got low level of knowledge of the infection. Almost 72% was aware of hepatitis B, about 25% pregnant women knew the infection is viral and affects the liver, 72.94% knew it can be gotten from mother to child and only 10.3% knew it can be gotten from transfusion of unscreened blood. It was realized that only 26.3% had taken the hepatitis B vaccine. This study concluded low knowledge and attitude among respondents. The study was however conducted only among pregnant women who went for antenatal in specified hospitals but not the general adult population (35).

A research was done in 2015 in Nigeria on hepatitis B. The study consisted of 382 participants. Though respondents got adequate level of knowledge about the infection, only 65% participants vaccinated against the infection. The study was however limited to only healthcare workers in the facility (36).

A research was carried out in 2016 at Kintampo, Ghana about hepatitis B. The survey was done on 504 pregnant ladies in Kintampo north municipality. About 41% pregnant ladies had awareness on the infection, 33.5% was able to correctly mention the transmission routes, 66.5% of the respondents believed wrongly one can get the infection by air-borne, food contamination, or through vector-borne and only 9.2% knew their hepatitis B status. The research revealed knowledge among pregnant women in Kintampo municipal was low. It was however conducted only among pregnant women who went for antenatal care but not the general adult population (37).

A study was conducted about knowledge on hepatitis B among barbers in Kumasi, Ghana in 2015. The study was conducted among 120 certified barbers. The results showed that only 40.8% of the barbers correctly believed it could be gotten through the instruments they use for barbering. It revealed that knowledge of the route of transmission, availability of vaccines and the main cause of HBV was poor among the barbers. Also, only 2% of the barbers were aware that individuals infected with HBV could remain asymptomatic for several years and only 2% had taken the hepatitis B vaccine. The study however did not compare knowledge among various

age groups, gender and educational level. It was also conducted only among barbers with relatively small sample size (12).

Another research was done in Obuasi, Ghana concerning knowledge of hepatitis B consisting 200 barbers in 2015. The findings revealed about 91% respondents had awareness on the infection, 64.5% did not know the modes of transmission, none of the respondents correctly stated one can get the infection from reusing needles and barbers shaving equipment, 64% believed they are not at risk of being infected with the infection and only 5.8% had taken the vaccine. The study concluded there is low knowledge level among participants. The study however used convenient sampling technique in recruiting participants (38).

A research carried out by Afihene et al (2015) on attitude on hepatitis B in Bantama in Ashanti region of Ghana. The study sample was 180 participants. The research indicated majority of the participants possessed good level of knowledge but only 69.7% took the vaccination. The study was however conducted in one health facility among health workers (39).

A research done by Mkandawire et al (2013) about perceptions and understanding of hepatitis B in Upper West region, Ghana. Participants aged 17 to 75 years. Data was collected using 9 focus group discussion (52 were males in five groups, and 36 were females in four groups) and interviews. The study revealed a very low knowledge level among respondents. The sample size for the study was however small (40).

A research was carried out on hepatitis B among expectant mothers at the upper west region of Ghana by Dun-Dery et al (2017). The research was carried out to investigate expectant mothers' level of knowledge about transmission of hepatitis B from mother to child with study sample of 450 participants. This research showed 76% of the participants knew that a carrier expectant mother could transmit the virus to the child during childbirth. Also, 47.1% stated correctly it can cause liver conditions like liver cirrhosis, 42.8% knew one can get infected through unprotected sexual intercourse with infected individual, 77% knew that infected baby may not show any symptom and 48.7% correctly stated one can possibly get the infection from infected blood transfusion. Average knowledge on in general was about 46%

and mother to child transmission was 34.7%. Also, majority was unaware of whether they have the infection or not. This study concluded respondents' knowledge level on MTCT of the infection is relatively poor in Upper West Region of Ghana. The study was however conducted only among pregnant women visiting antenatal (41).

A research was done by Adjei et al (2016) about level of knowledge among physicians, midwives on MTCT of hepatitis B at Eastern region, Ghana. The study sample was 130 respondents. This research showed that 93.7% of physicians and midwives correctly believed the infection is viral and 95.2% correctly knew a mother can transmit it to the child during childbirth. However, only about 13% knew a vaccine exist and when given together with hepatitis B immunoglobulin on babies with positive mothers may protect the child from getting it from mother. It concluded both physicians and midwives had adequate level of knowledge about transmitting from mother to child. Some knowledge gaps however exist on effective protective measures for instance, the giving of hepatitis B vaccine and immunoglobulin to prevent mother-to-child transmission of HBV infection. The study was however conducted only among physicians and midwives and not all clinical health workers (14).

Konlan et al (2017) conducted a research on knowledge of Nurses about hepatitis B post exposure in Tamale, Ghana. The study participants included 108 nurses from two hospitals in the city. The results showed that 94.4% of participants were aware they are occupationally susceptible to HBV infection, 91.7% correctly believed it is caused by virus and only 57.4% correctly knew that it can be gotten from infected blood and blood products. About 12% exhibited fair level of knowledge on hepatitis B Post Exposure Prophylaxis. Also, only 44.4% of the nurses took the vaccine. For participants who did not take the vaccination, 50.8% indicated the cost as the reason for not taking the vaccine and 16% indicated the accessibility. These were the two major reasons why most nurses did not vaccinate. The study concluded that the nurses had awareness on the high risk to getting infected with the infection. Participants lacked however the correct know how on treatment of post exposure and even its prevention. The research however used a relatively smaller sample size (42).

Based on the literature reviewed, many researches have been conducted about level of knowledge and the attitudes on HBV globally. Most researches indicated knowledge levels and attitude on hepatitis B is poor. Also, most of the studies were conducted only among some particular groups (Students, healthcare workers, barbers, pregnant women and military). There is however, no study in Northern Ghana at the time of this research, which assesses the level of knowledge and the attitudes on HBV in adults. It is therefore essential to conduct a study on the adult population.

3. METHODOLOGY

The methodology of the research is discussed here. It includes the design of the research, research setting, study sample and its technique, population, data gathering tool and procedure, inclusion and exclusion criteria, analysis of data and ethical clearance.

3.1. Research Design

The study is a descriptive study. Quantitative methods were used.

3.2. Research Setting

The research was carried out in 2018 in Tamale in Northern Ghana, West Africa. It is the Northern regional capital being the third biggest city in the country. It is situated at the centre of the region and it is about 180 meters above sea level. Generally, the landscape is rolling and has some shallow valleys serving as courses of stream. Some isolated hills are located there though it does not hinder development physically. The boundries of Tamale are; Yendi in the eastern part, Savelugu in the northern part, Central Gonja in the south-eastern part, Tolon in the western part, and the southern part is East Gonja. It has an estimated population of 233 252 people. This include 111 109 males and 112 143 females according to the 2010 population and housing census (43). The total size of land of tamale is estimated to be about 646 901 80sqkm. Due to its location, it serves as a centre for administrative and trading in Northern Ghana. Tamale has three main hospital; Tamale central hospital, Tamale west hospital and Tamale teaching hospital being one of the four teaching hospitals in Ghana (43). The Teaching Hospital is the last referral health facility for the 3 Northern Regions. They are; upper west, upper east, and Northern.

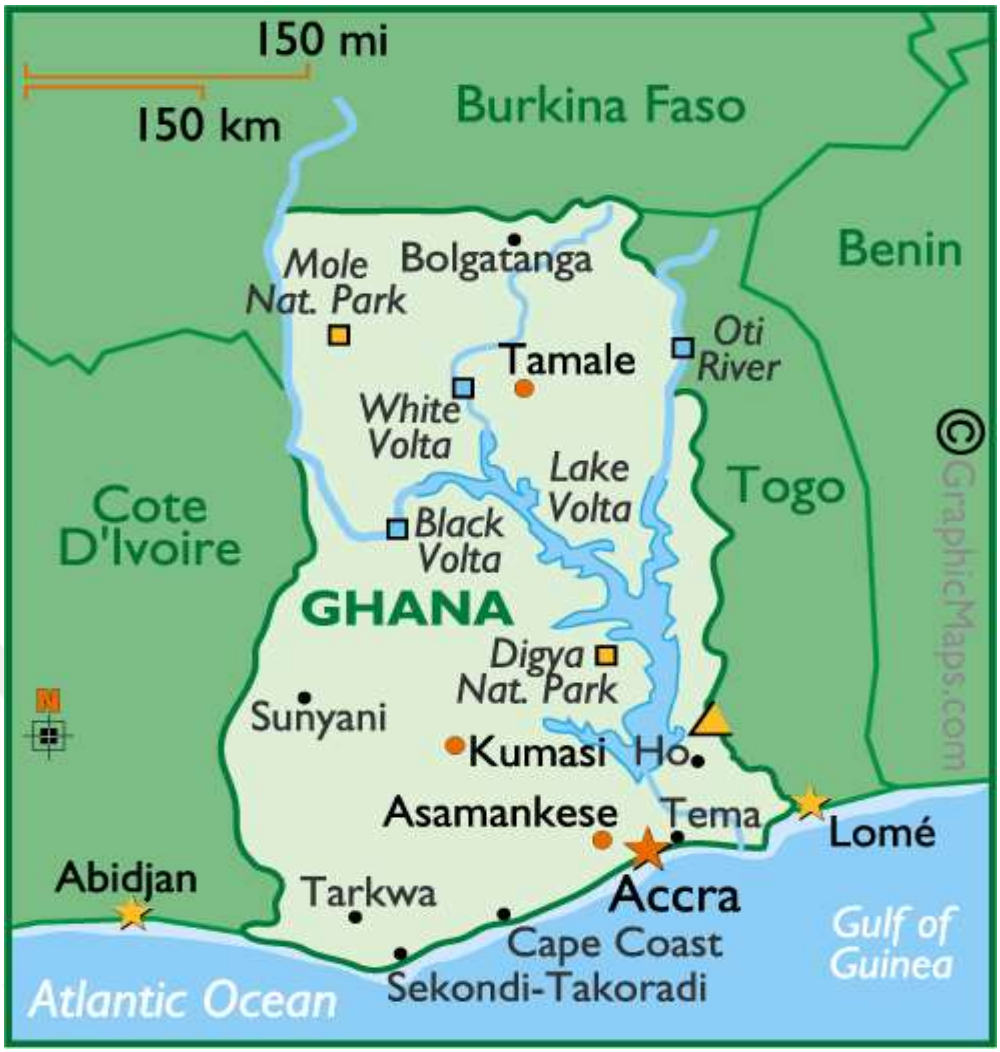


Figure 3.1. Ghana map indicating location of Tamale.

3.3. Target Group

The research population was any adult resident in Tamale.

3.4. Exclusion and Inclusion Criteria

3.4.1. The inclusion criteria

- People living in Tamale city
- Aged 18years and above.

3.4.2. The exclusion criteria

- Person who unwilling to take part in this research.

3.5. Size of Sample and Sampling Technique

This study had a sample is 281 participants. The sampling technique used in this research was simple random sampling.

3.6. Data Gathering Tool

Questionnaire which is structured was used in this study and it was adopted from (29), and modified to suit this current study. The questionnaire consisted of three parts: demographic data, level of knowledge about hepatitis B, attitudes on hepatitis B infection (Appendix I).

Part 1 was demographics: education background, gender and age. Participants could choose from predetermined options.

Part II consisted of 14 questions on knowledge on hepatitis. The participants could choose from 3 options which were “yes”, “no” or “do not know” (29).

Part III consisted of 9 questions on attitudes towards Hepatitis B Virus infection. The participants had predetermined options to choose from and could sometimes give their own answer if it was not among the ones provided (29).

3.7. Data Gathering Procedure

Structured questionnaires were administered randomly to adults in Tamale to fill after seeking informed consent from participants and retrieved immediately after they completed filling the questionnaire. The data collection was done in various hospitals, schools and any public place in Tamale where people agreed to participate. The hospitals data was collected include; Tamale Central Hospital, and Bilpeila Health Centre. The questionnaires were administered to anyone in the hospitals who agreed to take part in the study and retrieved immediately after filling.

Tamale Central Hospital is the oldest government hospital in Northern Ghana located in centre of Tamale. The hospital started operating around July 1929. This Tamale Central Hospital also known as the Northern Regional Hospital has 186 beds, 8 working wards and provides a 24hour service. The hospital offers various services including Ear, Nose and Throat, Out Patient Department, Pharmacy, Laboratory, Antenatal care, Maintenance care and other services (44).

The schools data was collected include the following; University for Development Studies-Tamale, Tamale Technical University and Ambariyya Senior High School. The questionnaires were administered randomly on the campuses to anyone who agreed to participate and retrieved immediately they completed filling it.

University for Development Studies-UDS was established under PNDC law 279 in 1992. It was established to combine academic and community experiences for provide better development in Ghana specifically in the Northern part of Ghana. The school started its operations in 1993 and admitted 39 people as the first batch. They were admitted at Nyankpala under the Agriculture faculty. The university has 4 campuses; Wa, Navrongo, Nyankpala and Tamale. The Tamale campus is where they offer health courses; Nursing, medicine, midwifery, Medical laboratory, Pharmacy, Nutrition and others (45)

Public places data was collected include the following; Tamale market, wedding places, outdooring ceremonies and other places people grouped.

The questionnaire was self-administered by default and face to face interview for people who could not read and understand.

3.8. Analysis of Data

Analysis of the data gathered was done using SPSS Version 24. Demographic data was nominally scaled. Codes in a form of numbers were assigned to them and registered in the Statistical Package for Social Sciences. This was based on descriptive statistics (46). Various tests used in this study include; percentages, mean, frequencies, chi square and others.

3.8.1. Scoring

Section I and II of the questionnaire were scaled nominally. In section II, "yes" was sometimes a correct answer. It was also sometime a wrong answer. "Do not know" was always a wrong answer. These variables were matched with the correct answers as a template to make a decision on the answer provided. Correct answer given was awarded one mark and wrong answer given was not awarded any mark but zero. Respondents who scored from zero to five marks were described as having poor knowledge, those who had six to seven marks were described as having average knowledge, and those who got eight to 13 marks were described as having good knowledge (29).

In Part III, respondents who indicated they will visit health facility for treatment, those who believed healthy people and children under two years need the vaccine and also know where to go for the hepatitis B vaccine, screened for hepatitis B and took the vaccine and those who believed they could get infected with hepatitis B when exposed were classified as having good attitude. Those who will not visit health facility but will make use of other options like self-treatment, traditional healers and others, those who do not believe that healthy people and children under 2years need the vaccine and also did not know the place for vaccination, those who did not go for hepatitis B screening and did not also take the vaccine, and those who did not believe they can get infected with hepatitis B when exposed were classified as having bad attitude (29).

Part II and III were analysed using chi square test. The findings of this test indicated if there exist any variation with regard to the level of knowledge on Hepatitis B Virus and the attitude on Hepatitis B Virus infection among gender, among the various ages and between the various educational backgrounds. P value less or equal to 0.05 showed there is significant difference (46). Results were illustrated on tables, texts and figures.

3.9. Ethical Considerations

The study was approved by Ghana Health Service (Northern Regional Health Directorate) in Ghana (Appendix II) and Ankara Yildirim Beyazit University ethics

board in Turkey (Appendix III). Informed consent was sort from the participants in a form of oral and written before the questionnaire were given to be filled out. The participation in this research was voluntary and anonymous. All data collected was kept confidential and used for only academic purposes.

3.10. Study variables and Operational Definitions

3.10.1. Dependent Variable and definition

- Level of knowledge and attitude on hepatitis B Virus

Knowledge : This is awareness or familiarity of the individual about hepatitis B virus infection. Thus whether he or she has heard of hepatitis B infection and how much knowledge the individual has on hepatitis B in terms of how the disease can be spread and the complications.

Attitude : This is the individuals' behaviour on HBV and preventive measures. Thus whether individual feels he or she can get infected when exposed, what he or she will do if diagnosed of the condition and whether the perso has taken the vaccine or not.

Adult : This refers to any individual who participated in this study and aged 18years and above.

3.10.2 Independent variables and definition

Gender **:** Whether the student is male or female

Age **:** A period of participant's life, measured by years from birth.

Education level **:** whether the participants had high school, primary or tertiary educational background (two years Certificate programme, three years Diploma programme, Three years Higher National Diploma, and University education- Bachelor's degree, Masters or PhD)

4. RESEARCH FINDINGS

The research findings are presented here. The study sought to investigate the level of knowledge and the attitude on hepatitis B in adults living in Tamale, Ghana

4.1. Participants' Demographics

The table 4.1.1 below presents the demographic data of the study. Total number of 281 people took part in this research; 52% males and 48% females. Mean age of the study participants was 23.9±5.28 years old, and ranged from 18 to 61years; 62% aged 18-24years, 38% aged 25years and above. Also, 63% had tertiary education, 33% had high school education, 1% had only primary education and 3% were illiterates. People with tertiary education include those who have attained Certificate or Diploma in a training school, Higher National Diploma from Technical University, and Degree, Masters or PhD from University. People with High school education include people who graduated from Junior High School or Senior High School. People with primary education background are those who attained a maximum of Class 6 in primary school. Illiterates are those who never had any formal education.

Table 4.1. Demographic data of participants.

	Frequency	**Percentage**
Gender		
Male	146	52
Female	135	48
Age group		
18-24 years old	175	62
25 and Above	106	38
Education background		
Illiterates	7	3
Primary school	3	1
High school	92	33
Tertiary education	179	63
Mean Age (±SD) : 23.9 (±5.285)		**Median Age**: 23years
Minimum age: 18years		**Maximum Age:** 61years

4.2. Level of Knowledge on Hepatitis B

All research respondents (281) had awareness of hepatitis B before this study. Table 4.1 below illustrates the respondents' distribution on correct answers regarding Hepatitis B virus infection. The participants who knew correctly that hepatitis B is viral were 208 representing 74%. One hundred and forty two respondents (51%) correctly knew that hepatitis B is not hereditary. One hundred and one respondents representing 36% correctly stated the infection cannot be gotten from air. One hundred and ninety two respondents (68%) correctly stated the condition could transmit via unprotected sex intercourse. One hundred fifty two respondents representing 54% correctly stated a child could get the condition from the mother during childbirth. Eight five respondents representing 30% correctly indicated it cannot transmit via sharing bowls or spoons for food. Also, 181 respondents representing 64% knew correctly that a person cannot get infected by eating food cooked by positive person. In addition, 207 respondents representing 74% correctly stated one could get the condition from sharing needles or syringes among drug users. More so, 223 respondents correctly indicated it is transmittable from using same toothbrush with infected individual. Furthermore, 150 respondents (53%) correctly knew that a person cannot get infected by holding hands with infected individual. Moreover, 29 respondents representing 10% correctly knew that hepatitis B does not always present with symptoms. One hundred and eighty three respondents representing 65% correctly stated the condition has the possibility of leading to cancer of the liver. Lastly, 234 participants (83%) correctly indicated that infected individual who appears well may still infect others.

Table 4.2. Respondents' distribution on correct answers regarding Hepatitis B**.**

KNOWLEDGE ITEM	Correct(T) False (F)	Frequency*	%
Is Hepatitis B a Viral Infection?	T	208	74
Do persons get Hepatitis B from genes (heredity)?	F	142	51
Do persons acquire Hepatitis B from air-cough and/or staying together?	F	101	36
Do people get Hepatitis B from unprotected sexual intercourse?	T	192	68
Can the condition be gotten by child from mother during birth?	T	152	54
Can persons get Hepatitis B by using same spoons and bowls in eating?	F	85	30
Can persons acquire Hepatitis B by consuming food cooked by an infected person?	F	181	64
Do individuals get Hepatitis B by sharing needles and syringes among drug users?	T	207	74
Can persons acquire the condition through using same toothbrush with infected individual?	T	223	79
Can persons acquire Hepatitis B by shaking hands with an infected individual?	F	150	53
Does hepatitis B always have symptoms?	F	29	10
Does Hepatitis B cause liver cancer?	T	183	65
If individual is infected with the condition but appear well, do you believe the individual can transmit the condition?	T	234	83

* The participants who gave correct answers

Table 4.2 below illustrates participants' distribution of correct answers among males and females. Out of the 74% of the participants who stated correctly the condition is caused by virus, 39.5% were males and 34.5% were females. No significant difference was observed on gender on this (P=0.425). Also, out of the 51% who correctly knew that hepatitis B is not genetic, 27.4% were males and 23.1% were females. No significant difference was observed on gender (P=0.442). Additionally, out of the 36% who correctly knew that hepatitis cannot be transmitted through air, 21.4% were males and 14.6% were females. No significant difference was observed on gender (P=0.061). More so, out of the 68% who correctly knew it can be gotten from unprotected sexual intercourse, 35.6% were males and 32.7% were females. There was no significant difference between males and females on this

(P=0.950). Moreover, out of the 54% who knew correctly the condition is gotten by child from the mother during birth, 29.2% were males and 24.9% were females. No significant difference was seen on gender (P=0.496). In addition, out of 30% who correctly knew that the condition cannot be gotten from using same bowls or spoons for food with an infected person, 16% were males and 14.2% were females. No significant difference was observed on gender (P=0.828). Furthermore, out of the 64% who correctly knew that one does not get infected by consuming food cooked by positive individual, 33.1% were males and 31.3% were females. No significant difference was seen on gender females on this (P=0.795). In furtherance, out of 74% who indicated the condition could be gotten from sharing needles or syringes and drug users, 39.9% were males and 33.8% were females. No significant difference was seen on gender (P=0.228). Out of 79% respondents who correctly indicated the condition could be gotten from using same toothbrush with infected individual, 41.3% were males and 38.1% were females. No significant difference was observed among gender on this (P=0.968). Out of 53% who correctly indicated the condition does not transmit by shaking hands with infected individual, 29.2% were males and 24.2% were females. No significant difference was seen on gender (P=0.331). Out of 10% who correctly knew that hepatitis B does not always present with symptoms, 5.7% were males and 4.6% were females. No significant difference was observed on gender (P=0.714). Out of 65% who correctly indicated the condition could lead to cancer of the liver, 35.2% were males and 29.9% were females. No significant difference was observed on gender on this (P=0.326). Lastly, out of 83% who knew correctly infected individual who appears well could still transmit the virus to others, 44.1% were males and 39.1% were females. No significant difference was observed on gender (P=0.439).

Table 4.3. Correct answers on level of knowledge of hepatitis b among genders.

ITEM	Male (%)* %	Female (%)* %	X^2	P value
1	39.5	34.5	0.636	0.425
2	27.4	23.1	0.592	0.442
3	21.4	14.6	3.505	0.061
4	35.6	32.7	0.004	0.950
5	29.2	24.9	0.525	0.496
6	16	14.2	0.047	0.828
7	33.1	31.3	0.068	0.795
8	39.9	33.8	1.454	0.228
9	41.3	38.1	0.002	0.968
10	29.2	24.2	0.964	0.331
11	5.7	4.6	0.134	0.714
12	35.2	29.9	0.964	0.326
13	44.1	39.1	0.599	0.439

*Percentage of correct responses

Table 4.4. Total knowledge level between males and females (n=281).

		KNOWLEDGE LEVEL			Total	P value
		Poor knowledge	Fair knowledge	Good knowledge		
		No* (%)	No* (%)	No* (%)	No** (%)	
Gender of Participants	**Male**	29 (20.0)	32 (22.0)	85 (58.0)	146 (52)	0.093
	Female	28 (20.7)	44 (32.6)	63 (46.7)	135 (48)	
Total		57 (20.3)	76 (27)	148 (52.7)	281 (100)	

*Note: * row, ** column*

Table 4.3 above shows the total knowledge level between males and females on Hepatitis B. Generally, out of 281 respondents, 57 respondents (20.3%) had poor knowledge, 76 respondents (27%) had fair knowledge, and 148 respondents (52.7%) had good knowledge. Of the 146 male respondents, 29 respondents (10.3%) had poor knowledge, 32 respondents (11.4%) had fair knowledge, and 85 respondents (20%) had poor knowledge, 32 respondents (22%) exhibited fair level of knowledge and 85 respondents (58%) exhibited good level of knowledge. Also, of the 135 female respondents, 28 respondents (20.7%) had poor knowledge, 44 respondents (32.6%) had fair knowledge, and 63 respondents (46.7%) had good knowledge. Pearson chi

square on the knowledge on the condition with genders was 0.093. This means no significant difference was observed between gender and the knowledge level.

Table 4.5. Distribution of correct answers on knowledge among educational levels.

ITEM	Illiterate (%)* %	Primary Education (%)* %	High School (%)* %	Tertiary Education (%)* %	X^2	P value
1	0.7	0.7	19.6	53	25.215	<0.001
2	0.4	0	14.2	35.9	11.061	0.011
3	0	0	7.5	28.5	18.483	<0.001
4	1.1	1.1	17.8	48.4	16.683	0.001
5	0.4	0.7	15.7	37.4	7.616	0.055
6	0.4	0	10.3	19.6	2.236	0.525
7	1.1	0.7	19.9	42.7	2.468	0.481
8	1.1	0.7	19.9	52	17.022	0.001
9	1.4	1.1	26.3	50.5	2.955	0.399
10	1.1	0	15.7	36.7	6.133	0.105
11	0	0	4.3	6	2.019	0.568
12	0.4	0.7	19.6	44.5	10.872	0.012
13	1.1	0.7	24.6	56.9	18.126	<0.001

*Percentage of correct responses

Table 4.5 above illustrates the correct answers among various educational levels. Out of the 74% participants who indicated the condition is caused by virus, 0.7% were Illiterates, 0.7 had Primary education, 19.6% had High school education, 53% had Tertiary education. Significant difference was observed among educational levels (P<0.001). People with Tertiary education were more aware that Hepatitis is viral. Also, out of the 51% who correctly knew that hepatitis B is not genetic, 0.4% were Illiterates, 14.2% had High school education, 35.9% had Tertiary education. There was significant difference among various educational levels (P=0.011). Respondents with Tertiary education were more aware that hepatitis B is not genetic compared to other educational levels. Additionally, out of the 36% who correctly knew that hepatitis cannot be transmitted through air, 7.5% had High school education and 28.5% had Tertiary education. Significant difference was observed among educational levels (P<0.001). People with Tertiary education were more

aware the condition does not transmit via air. More so, out of the 68% who correctly stated the condition may be gotten from unprotected sexual intercourse, 1.1% were illiterates, 1.1% had Primary educational background, 17.8% had High school education and 48.4% had Tertiary education. No significant difference was observed among the various educational levels. (P=0.001). People with Tertiary education had more awareness that it could be gotten from unprotected sexual intercourse. Moreover, out of the 54% who knew correctly it can be gotten by a child from the mother during birth, 0.4% were illiterates, 0.7% had Primary education, 15.7% had High school education and 37.4% had Tertiary education. No significant difference was observed among the educational backgrounds (P=0.055). In addition, out of the 30% who correctly stated the condition does not transmit by using same bowls or spoons for food with an infected individual, 0.4% were illiterates, 10.3% had High school education and 19.6% had Tertiary education. No significant difference seen among educational backgrounds (P=0.525). Furthermore, out of the 64% who correctly knew that one cannot get infected through consuming food cooked by an infected individual, 1.1% were illiterates, 0.7% had Primary education, 19.9% had High school education and 42.7% had Tertiary education. No significant difference was seen between among educational levels (P=0.481). In furtherance, out of the 74% who correctly knew that hepatitis B can be transmitted through sharing needles and syringes and drug users, 1.1% were illiterates, 0.7% had Primary education, 19.9% had High school education and 52% had Tertiary education. Significant difference was seen on gender (P=0.001). Out of the 79% respondents who correctly sated the condition could be gotten through using same toothbrush with an infected individual, 1.4% were illiterates, 1.1% had Primary education, 26.3% had High school education and 50.5% had Tertiary education. No significant difference was observed among educational backgrounds (P=0.399). Out of the 53% who correctly knew that hepatitis B cannot be transmitted through shaking or holding hands with an infected person, 1.1% were illiterates, 15.7% had High school education and 36.7% had Tertiary education. No significant difference was observed among the various educational background (P=0.105). Out of the 10% who correctly indicated the condition does not always present with symptoms, 4.3% had High school education and 6% had Tertiary education. No significant difference was seen among educational levels (P=0.568). Out of the 65% who correctly indicated it could lead to cancer of the liver, 0.4% were illiterates, 0.7% had Primary education, 19.6% had

High school education and 44.5% had Tertiary education. Significant difference was seen among educational backgrounds (P=0.012). People with Tertiary education had more knowledge that hepatitis B could lead to liver cancer compared to other educational levels. Lastly, out of the 83% who knew correctly that an infected individual who appears healthy could transmit the virus to others, 1.1% were illiterates, 0.7% had Primary education, 24.6% had High school education and 56.9% had Tertiary education. Significant difference was observed among the educational levels (P<0.001). People with Tertiary education were more aware people with the condition who appear well can still transmit the condition to others compared to the other educational levels.

Table 4.6. Total knowledge level among various educational levels.

		KNOWLEDGE LEVEL			Total	P value
		Poor knowledge	**Fair knowledge**	**Good knowledge**		
		No (%)*	No (%)*	No (%)*	No (%)*	
Level of Education	Illiterate	4 (57.1)	2 (28.6)	1 (14.3)	7 2.5%	< 0.001
	Primary School Education	1 (33.3)	2 (66.7)	0 (0.0)	3 (1.1)	
	High School Education	29 (31.5)	31 (33.7)	32 (34.8)	92 (32.7)	
	[a]Tertiary education	23 (12.8)	41 (22.9)	115 (64.2)	179 (63.7)	
Total		57 (20.3)	76 (27.0)	148 (52.7)	281 (100)	

*Note; * row, ** column; [a]Tertiary education includes certificate program, Diploma Program and Bachelor Degree program*

The above Table 4.6 illustrates the total knowledge on hepatitis B of respondents on various educational levels. Generally, out of 281 respondents, 57 respondents (20.3%) poor knowledge, 76 respondents (27%) fair knowledge, and 148 respondents (52.7%) good knowledge. Out of the 7 respondents (2.5%) who are illiterates, 4 respondents (57.1%) had poor knowledge, 2 respondents (26.8%) had fair knowledge, and 1 respondent (14.3%) had good knowledge. Also, out of the 3 respondents (1.1%) who had primary education, 1 respondent (33.3%) had poor knowledge, 2 respondents (66.7%) exhibited fair knowledge, no respondent

exhibited good knowledge. In addition, out of the 92 respondents (32.7%) who had High school education, 29 respondents (31.5%) had poor knowledge, 31 respondents (33.7%) had fair knowledge and 32 respondents (34.8%) had good knowledge. Furthermore, out of the 179 respondents (63.7%) who had Tertiary education, 23 respondents (12.8%) had poor knowledge, 41 respondents (22.9%) had fair knowledge and 115 respondents (64.2%) had good knowledge. Pearson chi square between knowledge of hepatitis B and educational levels was P<0.001. Significant difference was seen between educational levels and knowledge level. People with Tertiary education had better knowledge on hepatitis B compared to other educational levels.

Table 4.7. Distribution of correct answers on knowledge of hepatitis b among ages.

ITEM	18-24years (%)* %	25years and above (%)* %	X^2	P value
1	44.1	29.9	2.415	0.120
2	26.3	24.2	12.626	<0.001
3	17.8	18.1	10.949	0.001
4	40.9	27.4	1.646	0.226
5	33.8	20.3	0.007	0.933
6	15.7	14.6	5.733	0.017
7	36.7	27.8	6.247	0.012
8	45.2	28.5	0.286	0.593
9	50.9	28.5	1.571	0.210
10	30.6	22.8	3.348	0.067
11	7.1	3.2	0.616	0.433
12	40.2	24.9	0.062	0.803
13	52	31.3	0.008	0.929

*Percentage of correct responses

Table 4.7 above shows the distribution of correct answers among age groups. Out of the 74% of participants who c knew that hepatitis B is cause by virus, 44.1% aged 18-24years and 29.9% aged 25years and above. No significant difference was seen between the ages (P=0.120). Also, out of the 51% who correctly knew that hepatitis B is not genetic, 26.3% aged 18 to 24years and 24.2% aged 25years and above. Significant difference was seen between age groups (P<0.001). Respondents aged 18years to 24years were more aware that hepatitis B is not genetic when compared to the others. Additionally, of the 36% who correctly knew the condition

cannot be gotten from air, 17.8% aged 18 to 24years and 18.1% aged 25years and above. Significant difference was seen between the ages (P=0.001). Respondents aged 25years and above were more aware it cannot be gotten via air compared to other age group. More so, out of the 68% who correctly indicated the condition can be gotten via unprotected sexual intercourse, 40.9% participants age ranges from 18 24 and 27.4% aged 25years and above. No significant difference was seen on the ages on this (P=0.226). Moreover, out of the 54% who knew correctly a child could get the condition from mother during birth, 33.8% aged 18 to 24years and 20.3% age 25years and above. No significant difference was seen between the age groups (P=0.933). In addition, out of the 30% who correctly stated that it cannot be gotten from using same bowls or spoons for food with an infected individual, 15.7% aged 18 to 24years and 14.6% aged 25years and above. Significant difference was seen between the age groups (P=0.017). Respondents aged 18 to 24years were more aware it cannot be gotten by using same bowls or spoons for food with infected individual. Furthermore, out of the 64% who correctly knew that one cannot get infected by consuming food cooked by an infected individual, 36.7% aged 18 to 24years and 27.8% aged 25years and above. Significant difference was seen between the age groups on this (P=0.12). Respondents aged 18 to 24years had more awareness it cannot be gotten by consuming food cooked by an infected individual. In furtherance, out of the 74% who correctly indicated that the condition could be gotten by using same needles and syringes and drug users, 45.2% aged 18 to 24years and 28.5% aged 25years and above. No significant difference was seen between the age groups (P=0.593). Out of the 79% respondents who correctly knew one can get infected by using same toothbrush with an infected individual, 50.9% aged 18 to 24years and 28.5% aged 25years and above. No significant difference was seen between the age groups on this (P=0.210). Out of the 53% who correctly indicated the condition cannot be gotten through shaking hands with an infected individual, 30.6% aged 18 to 24years and 22.8% aged 25years and above. No significant difference was seen between the age groups (P=0.067). Out of the 10% who correctly knew that hepatitis B does not always present with symptoms, 7.1% aged 18 to 24years and 3.2% aged 25years and above. There was no significant difference between the age groups (P=0.433). Out of the 65% who correctly knew the condition could lead to cancer of the liver, 40.2% aged 18 to 24years and 24.9% aged 25years and above. There was no significant difference between the age groups on this

(P=0.803). Lastly, out of the 83% who knew correctly that an infected individual who appears well may still infect others with the virus, 52% aged 18 to 24years and 31.3% aged 25years and above. No significant difference was seen between the age groups (P=0.929).

Table 4.8. Total level of knowledge among the age groups (n=281).

		KNOWLEDGE LEVEL			Total	P value
		Poor knowledge	Fair knowledge	Good knowledge		
		No (%)*	No (%)*	No (%)*	No (%)**	
Age of Participants	**18-24 years**	40 (23.0)	51 (29.0)	84 (48.0)	175 (62.3)	0.123
	25 years and above	17 (16.0)	25 (23.6)	64 (60.4)	106 (37.7)	
Total		57 (20.3)	76 (27.0)	148 (52.7)	281 (100)	

*Note; * row, ** column*

Table 4.8 above shows the total knowledge level between the age groups. Generally, out of 281 respondents, 57 respondents (20.3%) had poor knowledge, 76 respondents (27%) had fair knowledge, and 148 respondents (52.7%) had good knowledge. Out of the 175 respondents (62.3%) aged 18 to 24years, 40 respondents (23%) had poor knowledge, 51 respondents (29%) had fair knowledge, and 84 respondents (48%) had good knowledge. Also, of the 106 respondents (37.7%), 17 respondents (16%) had poor knowledge, 25 respondents (23.6%) had fair knowledge, and 64 respondents (60.4%) had good knowledge. Pearson chi square on knowledge and age groups was p=0.123. No significant difference was seen on age groups and the knowledge level.

4.3. Attitude towards hepatitis B infection

Table 4.9 below illustrates respondents' positive attitude on Hepatitis B infection. Two hundred and twenty-one respondents representing 79% believed getting infected with hepatitis B when exposed. Two hundred and twenty-seven respondents (81%) knew the place to go for vaccination. One hundred and seventy-eight respondents representing 63% believed that children less than two years need to

take the vaccination. Two hundred and forty-nine respondents representing 89% believed that healthy people need to go for the vaccination. One hundred and ninety-two respondents representing 68% got screened for hepatitis B before. One hundred seventy-nine respondents (64%) took the vaccination.

Table 4.9. Distribution of participants about positive attitude towards hepatitis b.

Item	**Yes(Y)***	**No.**	**%****
Do you believe you can get infected with the infection?	Y	221	79
Do you know hepatitis B vaccination centre?	Y	227	81
Do you think if children less than 2 years old need to be vaccinated against hepatitis B?	Y	178	63
Do you think if healthy people need a hepatitis B vaccination?	Y	249	89
Have you tested for hepatitis B before?	Y	192	68
Have you taken the hepatitis B vaccine?	Y	179	64

*yes is positive attitude
**Percentage of positive attitude

Table 4.10. Number of times respondents took the hepatitis b vaccination (n=177).

Number of Times	**Frequency**	**%**
Once	31	17.5
Twice	20	11.3
Thrice	126	71.2
Total	177	100

Table 4.10 above illustrates the times participants took the Hepatitis B vaccine. A total of 177 respondents representing 63% of the total respondents took the vaccination. Out of 177 participants who took the vaccination, 31 respondents (17.5%) took one dose, 20 respondents (11.3%) took two doses, and 126 respondents (71.2%) took the complete dose (3 doses). Among the participants who took the

vaccination, majority of them (71.2%) completed three does, 31 respondents took one dose and the other 20 respondents took two does.

Table 4.11. Distribution of positive attitude towards hepatitis b among genders.

ITEM	MALE (%)** %	FEMALE (%)** %	X^2	P value
1	41.6	37	0.401	0.526
2	43.4	37.4	2.318	0.314
3	34.9	28.5	9.765	0.008
4	46.6	42	1.784	0.410
5	32%	36.3	7.362	0.025
6	31	32.7	3.576	0.167

**Percentage of positive attitude

Table 4.11 above illustrates positive attitude on the condition among males and females. Out of the 79% who thought they could be infected when exposed, 41.6% were males and 37% were females. No significant difference was seen (P=0.526). Also, out of the 81% of the respondents who knew where to go for hepatitis B vaccination, 43.4% were males and 37.4% were females. No significant difference was seen on this (P=0.314). In addition, out of the 63% of the respondents who believed that children below two years need to be vaccinated against hepatitis B, 34.9% were males and 28.5% were females. Significant difference was seen on gender (P=0.008). Males had more positive attitude towards this compared to females. More so, out of the 89% of participants who believed that healthy individuals need to take the vaccine, 46.6% were males and 42% were females. No significant difference observed (P=0.410). Furthermore, out of the 68% who tested for hepatitis B, 32% were males and 36.3% were females. Significant difference was observed between this (P=0.025). Females had better attitude towards hepatitis B testing compared to males. Lastly, out of the 64% who took the hepatitis B vaccine, 31% were males and 32.7% were females. There was no significant difference observed on this (P=0.167).

Table 4.12. Number of times respondents took the vaccination between genders.

		NUMBER OF TIMES			Total	P value
		Once	Twice	Thrice		
		No. (%)	No. (%)	No. (%)	No. (%)	
Gender of participants	Male	16 (18.6)	13 (15.1)	57 (66.3)	86 (48.6)	0.242
	Female	15 (16.5)	7 (7.7)	69 (75.8)	91 (51.4)	
Total		31 (17.5)	20 (11.3)	126 (71.2)	177 (100)	

Table 4.12 above illustrates the times males and females took the Hepatitis B vaccine. Out of the 177 who took the vaccine, 86 respondents (48.6%) were males and 91 respondents (51.4%). For the males, 18.6% took a single dose, 15.1% took 2 doses and 66.3% took the complete dose (3 doses). For the females, 16.5% took a single dose, 7.7% took 2 doses and 75.8% took the complete dose (3 doses). There was no observation on significant difference on gender in relation to the number of time they had the vaccine (P=0.242).

Table 4.13. Distribution of positive attitude towards hepatitis b among educations.

ITEM	Illiterate (%)** %	Primary Education (%)** %	High School (%)** %	Tertiary Education (%)** %	X^2	P value
1	0.7	0.4	24.6	53	17.098	0.001
2	0.4	0	24.9	55.5	40.375	<0.001
3	0.7	0.4	22.4	39.9	11.941	0.063
4	1.4	0.7	26.3	60.1	31.077	<0.001
5	0.4	0	16.7	51.2	88.230	<0.001
6	0.4	0	14.9	48.4	74.301	<0.001

**Percentage of positive attitude

Table 4.13 above shows the distribution of positive attitude towards Hepatitis B among various educational levels. Out of the 79% who believed they can get infected when exposed, 0.7% were illiterates, 0.4% had Primary education, 24.6% had High school education, and 53% had Tertiary education. Significant difference was observed between this (P=0.001). People with Tertiary education had positive attitude compared to other educational levels. Also, out of the 81% of the respondents who knew where to go for hepatitis B vaccination, 0.4% were illiterates,

24.9% had High school education, and 55.5% had Tertiary education. Significant difference was observed between this (P<0.001). People with Tertiary education had positive attitude compared to other educational levels. In addition, out of the 63% of the respondents who thought children below two years should take vaccine against hepatitis B, 0.7% were illiterates, 0.4% had Primary education, 22.4% had High school education, and 39.9% had Tertiary education. There was no observation on significant difference among the education levels (P=0.063). More so, out of the 89% of the respondents who believed people who are healthy need to take the vaccine, 1.4% were illiterates, 0.7% had Primary education, 26.3% had High school education, and 60.1% had Tertiary education. Significant difference was observed between this (P<0.001). People with Tertiary education had positive attitude compared to other educational levels. Furthermore, out of the 68% who tested for hepatitis B, 0.4% were illiterates, 16.7% had High school education, and 51.2% had Tertiary education. Significant difference was seen on this (P<0.001). People with Tertiary education had positive attitude on hepatitis B testing compared to other educational levels. Lastly, out of the 64% who took the hepatitis B vaccine, 0.4% were illiterates, 14.9% had High school education, and 48.4% had Tertiary education. Significant difference was seen on this (P<0.001). People with Tertiary education had positive attitude on hepatitis B vaccination compared to other educational levels.

Table 4.14. Number of times respondents took the vaccination among educations.

		NUMBER OF TIMES			**Total**	**P value**
		Once	**Twice**	**Thrice**		
		No. (%)*	No. (%)*	No. (%)*	No. (%)**	
Education Level	No formal Education	0 (0)	0 (0)	1 (100)	1 (0.6)	0.010
	High School Education	13 (31.7)	8 (19.5)	20 (48.8)	41 (23.2)	
	Tertiary education	18 (13.3)	12 (8.9)	105 (77.8)	135 (76.3)	
Total		31 (17.5)	20 (11.3)	126 (71.2)	177 (100)	

** row, ** column; [a]Tertiary education includes certificate program, Diploma Program and Bachelor Degree program*

Table 4.14 above illustrates the times respondents with different educational background who took the Hepatitis B vaccine. Out of the 177 who took the vaccine, one respondent (0.6%) had no formal education, no respondent had Primary education, 41 respondents (23.2%) had High school education, and 135 respondents (76.3%) had Tertiary education. For the one respondent who was illiterate, he/she took the complete dose (3 doses). For the High school education, 31.7% took a single dose, 19.5% took 2 doses, and 48.8% took the complete dose (3 doses). For the respondents with Tertiary education, 13.3% took a single dose, 8.9% took 2 doses and 77.8% took the complete dose (3 doses). Significant difference was observed among various educational levels (P=0.010). People with Tertiary education had better attitude on hepatitis B vaccination compared to other educational levels.

Table 4.15. Distribution of positive attitude towards hepatitis b between age groups.

ITEM	18-24years (%)** %	25years and above (%)** %	X^2	P value
1	48.8	29.9	0.036	0.849
2	49.5	31.3	2.476	0.290
3	42	21.4	3.331	0.189
4	54.4	34.2	2.382	0.304
5	39.5	28.8	5.181	0.075
6	35.9	27.8	9.454	0.009

**Percentage of positive attitude

Table 4.15 above illustrates the positive attitude on the condition among the various age groups. Out of the 79% who thought they can be infected with the condition when exposed, 48.8% aged 18 to 24years and 29.9% aged 25years and above. No significant difference between this (P=0.849). Also, out of the81% of the respondents who knew where to go for hepatitis B vaccination, 49.5% aged 18 to 24years and 31.3% aged 25years and above. No significant difference was seen on this (P=0.290). In addition, out of the 63% of the respondents who believed that children below two years need to be vaccinated against hepatitis B, 42% aged 18 to 24years and 21.4% aged 25years and above. There was no significant difference observed on the ages (P=0.189). More so, out of the 89% of the respondents who

believed that healthy individuals need to take the vaccine, 54.4% aged 18 to 24years and 34.2% aged 25years and above. No significant difference observed (P=0.304). Furthermore, out of the 68% who tested for hepatitis B, 39.5% aged 18 to 24years and 28.8% aged 25years and above. No significant difference between this (P=0.075). Lastly, out of the 64% who took the hepatitis B vaccine, 35.9% aged 18 to 24years, and 27.8% aged 25years and above. Significant difference was observed between this (P=0.009). Respondents aged 18 to 24years had better attitude towards hepatitis B vaccination compared to people aged 25years and above.

Table 4.16. Number of times respondents took the vaccination between the ages.

		NUMBER OF TIMES			**Total**	**P value**
		Once	Twice	Thrice		
		No. (%)*	No. (%)*	No. (%)*	No. (%)**	
Age of Participants	18-24 years	25 (25.3)	11 (11.1)	63 (63.6)	99 (55.9)	0.009
	25 years and above	6 (7.7)	9 (11.5)	63 (80.8)	78 (44.1)	
Total		31 (17.5)	20 (11.3)	126 (71.2)	177 (100)	

*row, **column

Table 4.16 above illustrates the times respondents with different ages took the Hepatitis B vaccine. Out of the 177 who took the vaccine, 99 respondents (55.9%) aged 18 to 24years, and 78 respondents (44.1%) aged 25years and above. For respondents aged 18 to 24years, 25.3% took a single dose, 11.1% took two doses, and 63.6% took the complete doses (3 doses). For respondents aged 25years and above, 7.7% took a single dose, 11.5% took 2 doses, and 80.8% took the complete dose (3 doses). There was observation on significant difference on the ages (P=0.009). People aged 25years and above had more positive attitude towards the vaccination compared to the other age group.

Table 4.17. Reasons why some respondents did not take the hepatitis b vaccine.

REASONS	Frequency	Percentage (%)
Yet to vaccinate	10	9.6%
Nothing(No reason)	40	38.5%
Wont vaccinate because there are no symptoms	6	5.8%
Financial problem	26	25%
Do not know where to go for the vaccine	6	5.8%
Fear of testing positive	2	1.9%
No adequate time	4	3.8%
No adequate knowledge on the vaccination	3	2.9%
Opportunity not available to vaccinate	5	4.8%
Not important	1	1%
Cannot vaccinate because tested positive	1	1%
Total	104	100%

Table 4.17 above shows the reason why some participants did not take the hepatitis B vaccine. One hundred and four respondents representing 37% stated they have not taken the vaccine. The respondents who did not take the vaccine were asked why they have not taken it. Out of the 104 participants, 40 participants (38.5%) indicated that they have no reason for not taking the vaccine, 26 respondents (25%) indicated the cost of the vaccine, 10 participants (9.6%) indicated they are yet to vaccinate, 6 participants (5.8%) indicated their ignorance on place of vaccination, 5 participants (4.8%) indicated there are no opportunities available for them to vaccinate, 6 respondents (5.8%) indicated that they will not vaccinate because they do not have hepatitis B symptoms, 4 participants (3.8%) indicated that they do not have time to go for the vaccine, 3 respondents (2.9%) indicated that they do not have adequate knowledge on the vaccination, two respondents (1.9%) indicated fear of testing positive, one respondent (1%) indicated that it is not important to vaccinate and the remaining one respondent (1%) indicated that he/she cannot vaccinate because he/she tested positive for hepatitis B.

Table 4.18. Why some respondents did not take the vaccine among genders (n=104).

REASONS	GENDER			P value
	Male	Female	Total	
	No. (%)*	No. (%)*	No. (%)**	
Yet to vaccinate	7 (70.0)	3 (30.0)	10 (9.6)	0.273
Nothing(No reason)	18 (45.0)	22 (55.0)	40 (38.5)	
Wont vaccinate because there are no symptoms	5 (83.3)	1 (16.7)	6 (5.8)	
Financial problem	17 (65.4)	9 (34.6)	26 (25.0)	
Do not know where to go for the vaccine	2 (33.3)	4 (66.7)	6 (5.8)	
Fear of testing positive	2 (100)	0 (0)	2 (1.9)	
No adequate time	3 (75.0)	1 (25.0)	4 (3.8)	
No adequate knowledge on the vaccination	2 (66.7)	1 (33.3)	3 (2.9)	
Opportunity not available to vaccinate	4 (80.0)	1 (20.0)	5 (4.8)	
Not important	1 (100)	0 (0)	1 (1.0)	
Cannot vaccinate because tested positive	0 (0)	1 (100)	1 (1.0)	
Total	61 (58.7)	43 (41.3)	104 (100)	

**Row, ** column*

Table 4.18 above shows the reasons why some respondents did not take the Hepatitis B vaccine among males and females. Out of the 104 respondents who did not vaccinate, 58.7% were males and 41.3% were females. Out of the males who did not vaccinate, 70% indicated they are yet to vaccinate, 45% indicated that they had no reason for not vaccinating, 83.3% indicated they will not vaccinate because there is no hepatitis B symptom, 65.4% stated the cost of the vaccine, 33.3% indicated that they did not know where to go for the vaccine, 100% fear of testing positive, 75% said they do not have adequate time, 66.7% indicated they do not have enough knowledge on the vaccine, 80% indicated there are no opportunities available, 100% indicated that the vaccination is not important. Also out the females who did not vaccinate, 30% indicated they are yet to vaccinate, 55% indicated they have no

reason, 16.7% indicated he/she will not vaccinate because there are no symptoms, 34.6% indicated the cost, 66.7% indicated they do not know where to go for the vaccine, 25% indicated inadequate time, 33.3% indicated that he/she had no adequate knowledge on the vaccination, 20% indicated that opportunities are not available, 100% indicated that he/she cannot vaccinated because she tested positive.

Table 4.19. Why some respondents did not take the vaccine among educations.

REASONS	**EDUCATION LEVEL**					**P value**
	Illiterate	**Primary Education**	**High School**	**Tertiary Education**	**Total**	
	No* (%)	No* (%)	No* (%)	No* (%)	No** (%)	
Yet to vaccinate	0 (0)	0 (0)	2 (20)	8 (80)	10 (9.6)	0.008
Nothing(No reason)	1 (2.5)	0 (0)	19 (47.5)	20 (50.0)	40 (39)	
Wont vaccinate because there are no symptoms	0 (0)	0 (0)	5 (83.3)	1 (16.7)	6 (5.8)	
Financial problem	2 (7.7)	1 (3.8)	15 (57.7)	8 (30.8)	26 (25)	
Do not know where to go for the vaccine	2 (33.3)	2 (33.3)	1 (16.7)	1 (16.7)	6 (5.8)	
Fear of testing positive	0 (0)	0 (0)	1 (50.0)	1 (50.0)	2 (1.9)	
No adequate time	0 (0)	0 (0)	1 (25.0)	3 (75.0)	4 (3.8)	
No adequate knowledge on the vaccination	0 (0)	0 (0)	3 (100)	0 (0)	3 (2.9)	
Opportunity not available to vaccinate	0 (0)	0 (0)	3 (60.0)	2 (40.0)	5 (4.8)	
Not important	0 (0)	0 (0)	0 (0)	1 (100)	1 (1.0)	
Cant vaccinate because tested positive	0 (0)	0 (0)	1 (100)	0 (0)	1 (1.0)	
Total	5 (4.8)	3 (2.9)	51 (49)	45 (43.3)	104 (100)	

**Row, ** column*

Table 4.19 above shows the reasons why some respondents did not take the Hepatitis B vaccine among various educational backgrounds. Of the 104 participants who did not vaccinate, 4.8% of the respondents were illiterates, 2.9% had high school education, 49% had primary education, and 43.3% had tertiary background. Out of the participants who were illiterates, 2.5% indicated they have no reason, 7.7% indicated the cost, and 33.3% indicated that they do not know where to go for the vaccine. Out of those who had Primary education, 3.8% indicated the cost, and 33.3% indicated they do not know where to go for the vaccination. Out of the respondents who had High school education, 20% indicated they are yet to vaccinate, 47.5% indicated they have no reason, 83.3% indicated they will not vaccinate because there are no symptoms, 57.7% indicated the cost, 16.7% indicated they do not know where to go for the vaccination, 50% indicated fear of testing positive, 25% indicated they do not have adequate time, 100% indicated they do not have adequate knowledge on the vaccination, 60% indicated there are no opportunities available, 100% indicated she tested positive so she cannot vaccinate. Lastly out of the respondents with Tertiary education, 80% indicated they are yet to vaccinate, 50% indicated they have no reason, 16.7% indicated they will not vaccinate because there are no symptoms, 30.8% indicated the cost, 16.7% indicated they do not know where to go for the vaccination, 50% indicated fear of testing positive, 75% indicated inadequate time, 40% indicated that there are no opportunities available, and 100% indicated that the vaccination is not important. There was significant difference among the various educational backgrounds (P=0.008). More respondents with High school education background did not vaccinate with the above reasons compared to other education background.

Table 4.20. Why some respondents did not take the vaccine between the age groups.

REASONS	AGE			P value
	18-24years	25years and above	Total	
	No. (%)*	No. (%)*	No. (%)**	
Yet to vaccinate	7 (70.0)	3 (30.0)	10 (9.6)	0.640
Nothing(No reason)	31 (77.5)	9 (22.5)	40 (38.5)	
Wont vaccinate because there are no symptoms	5 (83.3)	1 (16.7)	6 (5.8)	
Financial problem	20 (78.0)	6 (22.0)	26 (25)	
Do not know where to go for the vaccine	4 (66.7)	2 (33.3)	6 (5.8)	
Fear of testing positive	2 (100)	0 (0)	2 (1.9)	
No adequate time	3 (75.0)	1 (25.0)	4 (3.8)	
No adequate knowledge on the vaccination	1 (33.3)	2 (66.7)	3 (2.9)	
Opportunity not available to vaccinate	3 (60.0)	2 (40.0)	5 (4.8)	
Not important	0 (0)	1 (100)	1 (1.0)	
Cannot vaccinate because tested positive	1 (100)	0 (0)	1 (1.0)	
Total	77 (74)	27 (26)	104 (100)	

**Row, ** column*

Table 4.20 above shows the reasons why some respondents did not take the Hepatitis B vaccine between the age groups. Out of the 104 respondents who did not vaccinate, 74% of the respondents aged 18 to 24years, and 26% aged 25years and above. Out of the respondents aged 18 to 24years who did not vaccinate for various reasons, 70% indicated they are yet to vaccinate, 77.5% indicated they have no reason, 83.3% indicated they will not vaccinate because they do not have symptoms of hepatitis B, 78% indicated the cost, 66.7% did not know where to go for the vaccination, 100% indicated fear of testing positive, 75% indicated they do not have enough time, 33.3% indicated they do not have adequate knowledge on it, 60% indicated there are no opportunities available, and 100% indicated she cannot vaccinate because she tested positive. Also out of the respondents aged 25years and

above who did not vaccinate for various reasons, 30% indicated they are yet to vaccinate, 22.5% indicated they had no reason for not vaccinating, 16.7% indicated they will not vaccinate because there are no symptoms, 22% indicated the cost, 33.3% indicated they do not know where to go for the vaccination, 25% indicated inadequate time, 66.7% indicated inadequate knowledge, 40% indicated that opportunities are not available, and 100% indicated that the vaccination is not important. No significant difference was seen (P=0.640).

Table 4.21. What respondents will do if they realize they have hepatitis b infection.

What respondents will do if they realize they have hepatitis B	**Frequency**	**Percentage (%)**
(I will take self-treatment)	10	3.6
(I will go to health centre)	264	94
(I will go to a traditional healer)	5	1.8
Others	2	0.7
Total	281	100

Table 4.21 above illustrates what respondents will do if they realise they have hepatitis B infection. Ten respondents representing 3.6% indicated they will resort to self-treatment if they are infected, 264 respondents representing 94% indicated they will visit health facility for treatment in case they are infected, 5 respondents representing 1.8% indicated they will visit the traditional healer for healing if they realise they are infected, and 2 respondents representing 0.7% indicated they will explore other options like prayer camps in case they are infected for treatment.

Table 4.22. Who participants will talk to first if they realize they are infected.

Who participants will talk to first if they realize they are infected	Frequency	Percentage (%)
Doctor/Physician	142	50.5
Spouse(Husband/wife)	26	9.3
Parents	100	35.6
Child/Children	2	0.7
Friends	7	2.5
No one	4	1.4
Total	281	100

Table 4.22 above shows who participants will talk to first if they realize they are infected. One hundred and forty two respondents representing 50.5% indicated they will first discuss it with a physician/doctor, 100 respondents (35.6%) indicated they will discuss it with their parents, 26 respondents (9.3%) indicated their spouse, seven respondents (2.5%) indicated friends, two respondents (0.7%) indicated discussing it with the child/children and four respondents (1.4%) indicated that they will not discuss it with anyone.

Table 4.23. What respondents will worry about most if infected.

What partcipants will worry about most if they are infected	Frequency	Percentage (%)
(Fear of dying)	102	36.3
(Fear of disease spread to family and friends)	119	42.3
Cost of treatment	48	17.1
will not worry	10	3.6
Stigmatization	2	0.7
Total	281	100

Table 4.23 above illustrates what respondents will worry about most if they are diagnosed with Hepatitis B. One hundred and two respondents (36.3%) indicated that their most worry will fear of death, 119 respondents (42.3%) indicated their most worry is the fear of spreading the infection to family and friends, 48 respondents (17.1%) is the cost of treatment, 10 respondents (3.6%) indicated that they will not worry while the remaining two respondents (0.7%) indicated stigmatization as their most worry.

5. DISCUSSION

In this chapter, the findings of the study presented in Chapter four are discussed. These findings are analysed to draw logical conclusions based on the objectives set for the study in relation to previous studies conducted.

5.1. Demographic Data

Total number of 281 people took part in the research with about half being males (52%) and the remaining 48% being females. Participants' age ranged 18 to 61 years with mean age of 24years. The study also revealed over half (63%) of the respondents had Tertiary education (Certificate, Diploma, Higher National Diploma, Degree, Masters and PhD), 33% had high school education (JHS, SHS), 1% had primary education and 3% were illiterates.

5.2. Knowledge on Hepatitis B

This research revealed all 281 participants (100%) had heard of hepatitis B infection, in line with the finding by Ul Haq et al (2012) in Pakistan that showed that about 98% had awareness on hepatitis B. This however contradicts study finding by Ngaira et al (2016) in Kenya conducted among pregnant women which revealed that only 50% had heard of this infection (32).

Also, the research showed majority of participants (74%) correctly indicated the causative organism of the infection is virus. There is no significant difference among the genders and various age groups on whether the infection is viral or not (P=0.425 and P=0.120) respectively. However, there was significant difference among the various educational levels which showed that people with higher education was more aware the infection is caused by virus (P-value<0.001). This is similar to the study findings by Adjei et al (2016) among clinicians in the Eastern region of Ghana which showed that 93.7% of the participants knew that hepatitis B is cause by virus (14). The very high knowledge among physicians and midwives may however be due to the fact that they may have better knowledge on medical conditions compared to non-health professionals. A study finding by Sami et al

(2015) in Egypt among school children aged 11 to 17 years however contradicts the current study which revealed that only 26.3% knew that hepatitis B is caused by virus (29).

More to the above, the study showed that about 51% correctly knew hepatitis B cannot transmit through genes. This implies that about half of participants have misconception that the condition is genetic. There was no significant difference seen between males and females with regards to genes as a means of transmission (P=0.442). However significant difference was seen among various educational levels and ages groups (P=0.011 and P=<0.001) respectively. Participants with higher education had more awareness that hepatitis B is not genetic. Also, respondents aged 18 to 24 years were more aware that it is not genetic. The finding is in line with study finding by Bladh F & Ohlson E. (2015) carried out in Vietnam among students which showed that only 38.2% knew correctly the condition cannot transmit through genes (47).

In addition, the study showed that only 36% knew hepatitis B does not transmit via air. This means most of respondents believed hepatitis B can be transmitted through air. No significant difference was seen between the genders (P=0.061). However, significant difference was seen among various educational levels and ages group (P=<0.001 and P=0.001) respectively. Participants with tertiary education and people aged 25years and above were more aware that hepatitis B is not air-borne compared to others. The study finding is similar to the results by Abdulai et al (2016) on the condition on knowledge among pregnant ladies in Kintampo, Ghana which showed about 77% of the participants thought hepatitis B is air-borne (37).

More so, most participants (68%) correctly knew hepatitis B can transmit through unsafe sex activities. There was no significant difference observed on genders and various age groups on whether hepatitis B is transmitted sexually or not (P=0.950 and P=0.266) respectively. However, there was significant difference among various educational levels (P=0.001). Participants with tertiary education were more aware that hepatitis B is transmitted through unsafe sexual practices compared to the other educational levels. The results are similar to the results by Brouard et al (2013) about the condition in France which showed that 69.7% of the

respondents knew the condition is gotten via unprotected sexual activities. The study findings contradict the findings by Hyun et al (2017) in USA which showed that only 23.3% knew the infection can be gotten from unsafe sexual intercourse (20).

Furthermore, about half of participants (54%) correctly believed hepatitis B can transmit from mother to child during birth. No significant difference was observed between genders, various age groups and the educational backgrounds on whether the condition can transmit from mother to baby or not (P=0.496, P=0.933 and P=0.055) respectively. This study finding is in line with the findings by Ganczak et al (2016) in Poland which showed that 50% correctly indicated hepatitis B can transmit from mother to baby during birth. The study finding contradicts the finding by Han et al (2017) in China which indicated that only 20% indicated correctly the condition can transmit from mother to baby during birth (11).

Additionally, only 30% participants correctly knew hepatitis B does not transmit by using same bowls or spoons for food. There was no significant difference seen among genders and educational levels (P=0.828, and P=0.525) respectively. However there was significant difference among the age groups (P=0.017). Respondents aged 18 to 24years had better knowledge on this compared to the other age group. The result of this study is in line with study finding by Mtengezo et al (2016) in Malawi showed only 13.5% correctly indicated hepatitis B does not transmit via using same spoons or bowls for food. This result is also in line with the finding by Hyun et al (2017) in USA which revealed that only 28.7% correctly hepatitis B cannot be transmitted through sharing of spoons and bowls for food (20).

In furtherance, most participants (64%) correctly indicated one cannot get infected by consuming food cooked by infected individual. There was no significant difference observed between genders and various educational backgrounds (P=0.795 and P=0.481) respectively. However, there was significant difference among ages (P=0.012). Respondents aged 18 to 24years were more aware that one does not acquire the infection by consuming food cooked by an infected person than respondents aged 25years and above. The study finding is similar to the finding by Shah et al (2013) in New York among West African immigrant women which showed that 62% of the respondents correctly knew that one does not acquire the infection by consuming food cooked by hepatitis B positive patient. The study finding however contradicts the finding by Sami et al (2015) in Egypt which showed

that only 11% knew correctly that one cannot get infected by consuming food cooked someone who is infected (29).

Moreover, majority (74%) correctly indicated using same needles and syringes among injecting drug users can transmit hepatitis B. There was no observable significant difference between genders and various age groups (P=0.228 and P=0.593). However, there was significant difference among various educational levels (P=0.001). Respondents with tertiary education had more awareness the condition can transmit via using same needles or syringes compared to other educational background. The study result is similar to the study by Ganczak et al (2016) in Poland that showed that 86.6% knew that sharing needle can transmit hepatitis B. The study finding however contradicts the finding by Abongwa et al (2015) in Cameroon which showed that only 25.8% correctly indicated that hepatitis B could transmit via sharing of sharp items (30).

To add to the above, majority of the respondents (79%) correctly indicated using same toothbrush with an infected can transmit hepatitis B. No significant difference was observed among genders, educational levels and the various age groups (P=0.968, P=0.399 and P=0.210) respectively. This study result is similar to finding by Shah et al (2013) in New York among West African immigrant women which revealed that 67% of the respondents correctly indicated the condition can be gotten from using same toothbrush with infected person (34). The research however contradicts the findings by Sami et al (2015) in Egypt that showed that only 47.6% correctly indicated hepatitis B can be gotten via using same toothbrush with infected person (29).

About half of respondents (53%) correctly indicated hepatitis B cannot be gotten by holding or shaking hands with hepatitis B infected individual. No observable significant difference was seen among genders, the various age groups and educational backgrounds (P=0.331, P=0.067 and 0.105) respectively. This finding is similar to finding by Yuan et al (2017) among newly recruited military in China which revealed that 60.2% correctly indicated hepatitis B infection cannot be gotten through handshake (22). This study finding however contradicts the finding by Sami et al (2015) in Egypt which revealed that only 30% correctly indicated hepatitis B virus does not transmit via handshake (29).

Only few respondents (10%) correctly knew that hepatitis B does not always present with symptoms. No observable significant difference was seen between males and females, various age groups and the educational backgrounds respectively (P=0.714, P=0.433 and P=0.567). The study result is similar to finding by Ul Haq et al (2012) in Pakistan which showed that only 18.4% correctly knew that hepatitis B does not usually present with symptoms (23).

Most respondents (65%) correctly stated hepatitis B could lead to cancer of the liver. No observable significant difference was seen among genders and various age groups (P=0.326 and P=0. 803) respectively. There was significant difference among the various educational levels (P=0.012). Respondents with tertiary background had more awareness hepatitis B can cause liver cancer compared to others. The research result is similar to finding by Baig et al in India that revealed that 72.3% believed the infection could lead liver cancer (49). The study finding contradicts the finding by Ul Haq et al (2012) in Pakistan which revealed only 27.9% believed that this infection could lead to liver cancer (23).

This study again revealed 83% of the respondents correctly knew that an infected individual who appears well can still transmit virus to others. No observable significant difference was recorded among genders and the various age groups (P=0.439 and P=0.929) respectively. There was significant difference among the various educational backgrounds (P<0.001). People with tertiary education background were more aware that infected individuals who appear well may still transmit the infection compared to the other educational backgrounds. The study result however contradicts the finding by Shah et al (2013) in New York among West African immigrant women which revealed that only 57% knew correctly infected individual who appear well can still transmit the virus to others (34).

Generally, the study revealed that 52.7% participants exhibited good knowledge on the infection. Out of this, 30.2% were males and 22.4% were females. Also, out of the 52.7%, 0.4% was illiterate, 11.4% had high school education and 40.9% had tertiary education. In addition, out of the 52.7%, 29.9% aged 18 to 24 years, and 22.8% aged 25years and above. No observable significant difference was recorded between knowledge levels and genders, and various age groups (P=0.093 and P=0.123) respectively. There was however significant difference between

knowledge levels and various educational levels (P<0.001). The study shows individuals with higher education background are likely to be more aware and knowledgeable of hepatitis B. This is not surprising since people who are more educated are in a better position to access more sources of information and learn more about the condition. Despite the relatively good knowledge among about half of respondents, some knowledge gaps were detected: about 90% of the respondents was ignorant of potential asymptomatic nature of hepatitis B infection; 49% had misconception the condition is genetic; more than half of the respondents had the misconception it can be gotten via air; about 70% of participants had misconception that hepatitis B can transmit through using same bowls for food; and more than 40% thought the condition can transmit via handshake. The relatively high knowledge level of hepatitis B among the respondents in the research is similar to findings by Ganczak et al (2016) in Poland that revealed that 76.6% of the respondents had good knowledge on hepatitis B infection with some knowledge gaps related to the asymptomatic nature and not aware of the complications (19). This research is also similar to study by Gürakar et al (2014) on public awareness of the condition in Turkey conducted among hepatitis B infected patients that showed that 60% of participants exhibited good knowledge on hepatitis B modes of transmission and 72% knew the consequences of hepatitis B infection (27). The findings of this study however contradict the study findings by (48) in Upper West Region of Ghana, (38) in Obuasi, Ghana and (35) in Nigeria which showed that knowledge level on hepatitis B among respondents was low.

5.3. Attitude towards Hepatitis B among participants

Majority (79%) believed they can acquire the infection when exposed. No observable significant difference was recorded between this relating to genders and various age groups (P=0.526 and P= 0.849) respectively. However, there was significant difference between this and various educational levels (P= 0.001). People with tertiary education background was more aware that they can get infected when exposed compared to other educational backgrounds. The study finding is similar to the finding by Baig et al (2015) on hepatitis B among health workers and medical students in India which showed that 59.9% of the respondents believed they can get infected when exposed (49). The finding of the study however contradicts the finding

by Ul Haq et al (2012) on knowledge and attitude towards hepatitis B infection in Pakistan that revealed 79.7% of the participants thought they cannot acquire the infection even when exposed (23).

Also most of the respondents (81%) indicated that they knew where to go for the hepatitis B vaccine. No observable significant difference was recorded between this relating to genders and various age groups (P= 0.314 and P= 0.290) respectively. However, there was significant difference between this and various educational levels (P<0.001). Respondents with tertiary education were more aware of where to get the hepatitis B vaccine compared to other educational backgrounds. The result is similar to the finding by Bladh & Ohlson (2015) on the knowledge and attitude towards hepatitis B infection in Vietnam that showed that 82% of the respondents knew where to go for the vaccination (47).

Majority of the participants (63%) believed that children less than two years need hepatitis B vaccination. Also, about 89% participants knew healthy people need hepatitis B vaccine. The research results are similar to the study findings by Bladh & Ohlson (2015) in Vietnam which revealed that 64.8% and 97.9% of the respondents respectively believed that children less than two years and healthy people need hepatitis B vaccine (47).

Additionally, majority of the respondents (68%) tested for hepatitis B. Significant difference was seen among genders, and various educational levels (P = 0.025, and P < 0.001 respectively. Females exhibited better attitude towards hepatitis B testing compared to males. People with tertiary education had better attitude towards hepatitis B testing compared to other educational backgrounds. However, no significant difference was seen between the ages (P = 0.075). This study finding is in line with the results by Hyun et al (2017) which showed 75% of respondents had gone for hepatitis B screening (20). The result however contradicts the finding by Abdulai et al (2016) in Kintampo, Ghana which revealed that only 9.2% knew their hepatitis B status (37).

In furtherance, most respondents (64%) took the hepatitis B vaccination. Most of participants took the complete dose (3 doses) and few others took one or two doses. No observable significant difference was recorded on hepatitis B vaccination

and genders (P = 0.167). However, there was significant difference between various educational levels and age groups (P < 0.001 and P = 0.009) respectively. Participants with tertiary education and people aged 18 to 24years had better attitude towards the vaccination compared to other educational background and the other age group respectively. The study result is similar to the finding by Adekanle et al (2015) on the condition in Nigeria which revealed that 65% participants vaccinated against hepatitis B vaccine (36). This result is in line with the finding by Brouard et al (2013) on knowledge, perceptions and practices of hepatitis B in France which revealed that people with higher education and people aged 18 to 30 years had better attitude towards hepatitis B vaccination (18). The study finding however contradicts the finding by Mutocheluh & Kwarteng (2015) on knowledge of hepatitis B among barbers in Kumasi, Ghana which revealed that only 2% had taken the hepatitis B vaccine (12).

Additionally, 37% of the respondents indicated that they did not take the hepatitis B vaccine for various reasons. Majority of the respondents who did not take the vaccine indicated that they had no reasons for not vaccinating and also cost of vaccine. Other reasons they indicated were that they do not have the opportunity to vaccinate, will not vaccinate because there are no symptoms, yet to vaccinate, no adequate knowledge on vaccination, do not know where to get the vaccination, not important, tested positive so cannot vaccinate and no enough time. The finding is similar to result by Abongwa et al (2015) in Cameroon which revealed majority of participants indicated the cost as the main barrier for not going for the vaccine (30).

Furthermore, 94% of respondents indicated visiting a health centre for treatment if diagnosed of hepatitis B. This is similar to finding by Vaseem (2015) in India that revealed 90.7% of the respondents will visit health facility when diagnosed of hepatitis B (49). It is also in line with the study by Abongwa et al (2015) in Cameroon which showed that 76.3% of the respondents will seek treatment from health facility when they realise they are infected (30).

About half of the respondents (50.5%) indicated they will first discuss with a doctor if they realise they are infected. The study finding is similar to the finding by Vaseem (2015) in India which revealed 63.8% of respondents will discuss their condition with the physician if they realise they are infected (49). The study finding

however contradicts the finding by Ul Haq et al (2012) that revealed approximately half of participants (47.1%) will first discuss it with their spouse if they realise they are infected (23).

Lastly, majority of the respondents (42.3%) indicated fear of transmitting the diseases to family and friends and fear of death (36.3%) as their most worry when diagnosed of hepatitis B. The study finding is similar to the result from Ul Haq et al (2012) in Pakistan that revealed 31.5% of the respondents indicated fear as what they will worry most when they realise they have hepatitis B (23).

6. CONCLUSIONS AND RECCOMMENDATIONS

This chapter presents conclusion, recommendations limitations and of the study.

6.1. Conclusion

The study was conducted to investigate the level of knowledge and the attitudes towards hepatitis B infection among adults in Tamale, Northern Region of Ghana. The research indicated approximately half of participants exhibited good knowledge on the condition. There was however some knowledge gaps especially in relation to some of the routes of transmission and majority of participants were ignorant the condition does not always present with symptoms. This research also indicated 64% participants had good attitude towards hepatitis B vaccination by vaccinating against hepatitis B. Those who did not vaccinate against hepatitis B indicated the cost and other reasons as the barrier for not vaccinating. Almost all participants indicated visiting health centre for treatment in case they are diagnosed of the condition. This means that approximately half of the respondents do not have good level of knowledge on the condition and 36% have also not taken the hepatitis B vaccine.

6.2. Recommendations

There is the need to create more public awareness on the condition since approximately half of respondents did not have good level of knowledge on the disease. Ministry of Health-Ghana, other health agencies and the media should put up educational campaigns on hepatitis B in schools, hospitals, other public places, radio stations and Television stations to educate people on the infection. National Commission on Civic Education (NCCE) can take up the mandate to organise educational programmes on hepatitis B at vantage points to inform the general public on the importance of this infection prevention and the need to go for vaccination.

There is also the need for government and other related agencies like Non-Governmental Organisations (NGOs) to help in subsidising the cost of hepatitis B vaccination if not free. This is because some respondents indicated that they cannot

take the vaccine because of the cost involved. If the cost of the vaccination is free or subsidised, it will help increase the vaccine uptake among the general public.

There is also the need for further researches to be conducted on hepatitis B infection especially among the adults in other parts of Ghana to find out what needs to be done to drastically bring down the prevalence and incidence rate of the condition in Ghana since it is very endemic in West Africa where Ghana is located.

6.3. Research Limitations

Various limitations exist in this research. Firstly, it is a descriptive study design and was limited to evaluating cause-and-effect associations. Because this study was conducted using as self-administered questionnaires, there could be information bias. The bias might occur because questionnaires often generate biased and preconceived answers. Another limitation is the sample size used for this study. Due to relatively small research sample size selected, the results of the study cannot be generalized. These limitations, notwithstanding, the findings of the study are truly representative of level of knowledge and the attitudes on hepatitis B virus among the adults in Tamale, Ghana.

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8. APPENDICES

APPENDIX 1. Questionnaire

PUBLIC HEALTH DEPARTMENT
INSTITUTE OF HEALTH SCIENCES
ANKARA YILDIRIM BEYAZIT UNIVERSITY, TURKEY

QUESTIONNAIRE

Dear participant,

I am a final year Masters student in Public Health at Ankara Yildirim Beyazit University, Turkey conducting a research on the topic: ***Knowledge and attitude towards hepatitis B infection among Adults in Tamale in the Northern Region of Ghana.***

Your participation is voluntary and you are free to withdraw from the study at any point in time. The information that will be provided will remain anonymous and treated with confidentiality and use for only academic purposes. In view of this, you don't have to write your name on any part of the questionnaire. The researcher is very grateful for your participation in this study.

PART A: DEMOGRAPHIC CHARACTERISTICS

1. Age (years): ……..

2. Gender:

[ ] Male

[ ] Female

3. Level of education

[ ] No formal education

[ ] Primary education

[ ] High school (SHS or JHS)

[ ] Tertiary education

PART B: KNOWLEDGE OF HEPATITIS B INFECTION

1. Have you ever heard of hepatitis B infection?

[ ] Yes [ ] No

2. Is Hepatitis B caused by virus ?

[ ] Yes [ ] No [ ] Do not know

3. Do people get Hepatitis B from genes (heredity)?

[ ] Yes [ ] No [ ] Do not know

4. Do people get Hepatitis B through the air (coughing or staying in the same room)?

[ ] Yes [ ] No [ ] Do not know

5. Do people get Hepatitis B from unprotected sexual relationships?

[ ] Yes [ ] No [ ] Do not know

6. Can hepatitis B transmit from mother to child during birth?

[ ] Yes [ ] No [ ] Do not know

7. Do people get Hepatitis B by sharing spoons or bowls for food?

[ ] Yes [ ] No [ ] Do not know

8. Do people get Hepatitis B by eating food prepared by an infected person?

[ ] Yes [ ] No [ ] Do not know

9. Do individuals get Hepatitis B through sharing needles and syringes among drug users?

[ ] Yes [ ] No [ ] Do not know

10. Do people get Hepatitis B by sharing a toothbrush with an infected person?

[ ] Yes [ ] No [ ] Do not know

11. Do people get Hepatitis B by holding/shaking hands with an infected person?

[ ] Yes [ ] No [ ] Do not know

12. Does hepatitis B always have symptoms?

[ ] Yes [ ] No [ ] Do not know

13. Does Hepatitis B cause liver cancer?

[ ] Yes [ ] No [ ] Do not know

14. If someone is infected with hepatitis B but they look healthy, do you think that person can spread hepatitis B?

[ ] Yes [ ] No [ ] Do not know

PART III: ATTITUDE TOWARDS HEPATITIS B INFECTION

1. Do you believe you can acquire Hepatitis B?

[ ] Yes [ ] No

2. What will you do if you think that you have symptoms of Hepatitis B?

[ ] Will take self-treatment

[ ] Will go to health facility

[ ] Will go to a traditional healer

[ ] Others (please specify)……..

3. What will worry you most if you are diagnosed with Hepatitis B?

[ ] Fear of death

[ ] Fear of disease spread to family and friends

[ ] Cost of treatment

[ ] will not worry

[ ] Others (please specify)…….

4. Who would you talk to first about your illness (Hepatitis B)?

[ ] Physician/Doctor

[ ] Spouse (Wife or husband)

[ ] Parents

[ ] Child

[ ] Friends

[ ] No one

5. Have you tested for hepatitis B before?

[ ] yes [ ] No [ ] Do not know

6. Have you taken the hepatitis B vaccine?

[ ] Yes [ ] No [ ] Do not know

If yes, how many times?

[ ] once [ ] twice [ ] thrice

If no, why……

7. Do you think if healthy people need a hepatitis B vaccination?

[ ] Yes [ ] No [ ] Do not know

8. Do you think if children less than 2 years old need to be vaccinated against hepatitis B?

[ ] Yes [ ] No [ ] Do not know

9. Do you know the place where one can get hepatitis B vaccination?

[ ] Yes [ ] No

Thank you for your participation

APPENDIX 2. Ethical Clearance-Ghana

GHANA HEALTH SERVICE

OUR CORE VALUES:
1. People-Centered
2. Professionalism
3. Team work
4. Innovation
5. Discipline
6. Integrity

Regional Health Directorate
Ghana Health Service
P.O. BOX 99
Tamale

My Ref No: GHS/NR/ [illegible] / 7 11

Your Ref No: .....

Thursday, 05 July 2018

Tel: (233) (03720) 22912, 22710, 22146
Fax: (233) (03720) 22941
Email: rdhs.nr@ghsmail.org

PERMISSION TO COLLECT DATA FOR RESEARCH PURPOSE

I would be very grateful if Mr.Abdul-Ghaffar Donkor, an MSc student in Public Health Science of AnkaraYildirim Beyazit University be granted permission to collect data from some facilities in the Tamale Metropolis to address his project work on the topic:

"*Knowledge and attitude towards hepatitis B infection among the general population in Tamale in the Northern Region of Ghana*".

He will administer a structured questionnaire to collect the data.

The data so collected will be treated as confidential and it is only for research purpose.

Thank you.

Mr.Jeremiah Masa Tiimob
Dep.Director – Administration
For: Reg.Director of Health Services
Northern Region

Distribution

The Metro Director of Health Services
Tamale Metropolis

Cc:
Mr.Abdul-Ghaffar Donkor

APPENDIX 3. Ethical Clearance-Turkey

ANKARA YILDIRIM BEYAZIT ÜNİVERSİTESİ (AYBÜ)
ETİK KURULU
PROJE ONAY BELGESİ

Ankara Yıldırım Beyazıt Üniversitesi **Sağlık Bilimleri** Fakültesi/Enstitüsü

Halk Sağlığı bölümü öğrencilerinden **Abdul-Ghaffar DONKOR**'in, **Gana'nın Kuzey Bölgesi'nde bulunan Tamale şehrindeki halkın hepatit B enfeksiyonuna karşı bilgi ve tutumu** adlı araştırması değerlendirilmiştir.

Proje etik açısından uygun bulunmuştur. ☑
Proje etik açısından geliştirilmesi gerekmektedir. ☐
Proje etik açısından uygun bulunmamıştır. ☐

AYBÜ ETİK KURULU KARARI (Etik Kurul tarafından doldurulacaktır)	
Araştırma kodu (Yıl – Araştırma sıra no)	2018 – 388
Başvuru formunun Etik Kurula ulaştığı tarih	05.11.2018
Etik Kurul Karar toplantı tarihi ve karar no	21.11.2018 – 62
Yer	Yıldırım Beyazıt Üniversitesi, Esenboğa Külliyesi
Katılımcılar	Formda imzası bulunan üyelerimiz toplantıya katılmıştır.

KURUL BAŞKANI, BAŞKAN YARDIMCISI VE ÜYELER:

		İMZA
Prof. Dr. Cem Şafak ÇUKUR	**Başkan**	
Prof. Dr. Tekin AKDEMİR	**Bşk. Yrd.**	
Prof. Dr. Seldağ GÜNEŞ PESCHKE	**Üye**	
Doç. Dr. Özge GÖKBULUT ÖZDEMİR	**Üye**	
Dr. Ögr. Üyesi Fatma DOĞAN GÜZEL	**Üye**	
Dr. Ögr. Üyesi Behlül TOKUR	**Üye**	
Dr. Ögr. Üyesi Şule KAYA	**Üye**	
Dr. Ögr. Üyesi Birgül ÖZKAN	**Üye**	

APPENDIX 4. Curriculum Vitae

PERSONAL INFORMATION	
Name, Surname	: Abdul Ghaffar DONKOR
Date of Birth	: 16/01/1991
Place of Birth	: Salaga
Marital Status	: Single
Nationality	: Ghanaian
Adress	: Ankara Yıldırım Beyazıt University, Institute of Health Sciences, Department of Public Health, Ankara
Tel	: 05439796989
E-mail	: Abdulghaffardonkor@yahoo.com
EDUCATION	
High School	: Tamale Senior High School
Undergraduate	: University of Ghana, Legon, College of Health Sciences, Department of Paediatric Nursing
FOREIGN LANGUAGE	
English	: Advanced