SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

KNOWLEDGE OF SAFETY PRACTICES AMONG BARBERS ON HEPATITIS B & C TRANSMISSION IN MADINA

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

JULY, 2018
DECLARATION

With the exception of the references and quotations from other sources which have all been duly acknowledged, I do hereby sincerely declare that this study is the result of my own original research done under the supervision of my academic supervisor devoid of plagiarism. I further declare that this study has never been submitted either in part or in whole, for the award of a degree in this institution or any other university elsewhere.

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DEDICATION

With a heartfelt gratitude I dedicate this entire work to my father, Mr. Edward Acquah for his remarkable support in my life; Ms. Sophia O. Agyei for her sacrifices, my brother, Yaw Agyei Appaw; and to Ms. Belinda Amankwah, my better half. I pray we grow to attain higher heights and touch more lives positively.
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I am sincerely grateful to Almighty God for His sustenance. An academic work of this nature could not be smoothly done without advice and guidance from significant others. I wish to mention some people whose diversely contributed to help me come out with this work. My sincerest gratitude goes to my supervisor, Prof. Philip Baba Adongo for his immersurable contributions and careful scrutiny of my work in spite of all other equally important assignments he had.

I am also thankful to Mr. Robert Kingsley Baffoe for all his encouragements and assistance during the entire course. I am indebted to Ms. Belinda Amankwah, my personal person, for her thoughtful contributions. I wish to acknowledge the SOBS family and friends in SPH 2018 graduating class. In spite of the assistance given, I must admit that any errors, omissions and deficiency that may be found in this research work are purely mine.
ABSTRACT

To make a fine gentleman, several trades are required chiefly, a barber. The contraction of infections from barbershops remain a largely unaddressed and underestimated route of disease infection. Prevalence of Hepatitis B and C have been established among some barbers in Kumasi and Obuasi in the Ashanti Region of Ghana whereas the prevalence rate of the diseases in other parts of the country and other areas call for more attention than is currently offered.

This study employed a qualitative research approach with the use of a structured interview guide through in-depth interviews with participants to provide exhaustive knowledge of twenty purposively selected barbers in Madina on health safety practices in their profession with focus on Hepatitis B and C transmission. Data were grouped into themes and emerging patterns were discussed. The study revealed that majority of barbers knew how Hepatitis B & C were transmitted however, the participants were not stringent in ensuring that their customers were protected from contracting the diseases in their shops. It is recommended that people who patronize barbershops consider acquiring their personal full shaving kit and insist on barbers’ adherence to strict health safety measures to prevent disease contraction and promote good health of the general public.
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<table>
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<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<td>CI</td>
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<td>LANMMA</td>
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<td>NHIS</td>
<td>National Health Insurance Scheme</td>
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<td>PLWHA</td>
<td>People Living With HIV/AIDS</td>
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<td>UV</td>
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CHAPTER ONE: INTRODUCTION

1.0 BACKGROUND OF THE STUDY

Hepatitis B and C virus accounted for 96% of Hepatitis caused deaths in 2015 (WHO, 2017). The danger of contracting blood borne viral infections such as Hepatitis B Virus (HBV), Hepatitis C Virus (HCV) and Human Immunodeficiency Virus (HIV) through poor health and safety practices does exist. These diseases have been identified to have almost similar modes of transmission. HBV and HCV are preventable viral infections that attack the liver of infected people.

The diseases are most commonly spread by exposure to infected body fluids and transmitted through physical or unprotected sexual contact. Infected mothers can pass it on to their unborn babies during pregnancy, labour or nursing. Symptoms of the attack are various and include yellowing of the eyes, abdominal pain and dark urine. In severe cases, liver failure or cancer can occur. The situation is a little different in children because they do not usually show any symptoms (Walana, Hokey, & Ahiaba, 2014).

According to WHO (2017), there is an estimated 257 million people living with the viral infection worldwide; most of whom are in the Sub-Saharan Africa Region. Hepatitis is a major global health problem and an important occupational hazard for many health workers. The World Health Organization envisions to eliminate viral hepatitis as a public health threat by the end of the year 2030 – reducing new infections which currently stands at 1.75 million new cases each year by 90% and mortality by 65% (using 2015 data as the baseline data).

Overwhelmingly, sexual activities remain one major route of blood-borne viral infection worldwide, however in many developing countries including Ghana, HBV and HCV continue to spread because of the contribution of non-sexual risk factors such as contact with contaminated
items in barbershops – a blood-borne viral disease transmission route that is underestimated and largely unaddressed (Khaliq & Smego, 2005).

The contraction of blood-borne viral diseases is largely known to occur through unprotected sexual contacts with infected persons however, viral contraction through other equally susceptible means including barbershops is underrated. The disease contraction in barbershops is reliant on barbers’ health safety practices and their perception about the diseases and their transmission routes. Exploring the in-depth knowledge of barbers on health safety practices during their work brought much to bare (Arulogun & Adesoro, 2009).

1.1 PROBLEM STATEMENT

In many parts of the world, a widespread cultural practice among men especially is to visit community barbershops. This practice remains an underestimated and largely unaddressed route of contracting blood-borne viral diseases (Khaliq & Smego, 2005). Many barbers do not know that they could be transmitting blood-borne viral diseases to their cherished customers. Barbershops are common in many communities in the world and like in Ghana, they are assessed by a lot of people including men and children of school-going age. As people clamor to look more attractive, they may forget that they are exposed to the risk of being infected with some diseases from their favorite barbershops via the implements used on them (Khumalo, Gantsho, Gumedeze, & Mthebe, 2013).

Adoba et al., (2015) reported that out of 200 barbers sampled, a 15% prevalence rate of HBV and HCV was recorded in Obuasi in the Ashanti Region of Ghana. More than half of them did not know how the virus was transmitted; nor considered themselves to be at risk of contracting the virus through their profession. In Kumasi, only 7.5% of 120 barbers were sure that they could
transmit the HBV and HCV through their profession (Akumiah & Sarfo, 2015). These low knowledge levels leave the public a high risk of contracting HBV and HCV from barbers.

HBV and HCV have similar transmission routes like HIV, except that hepatitis can be transmitted through specific bodily fluids like sweat. According to WHO, (2017) Viral Hepatitis accounted for 1.34 million deaths in 2015. The virus is known to be able to survive on surfaces for up to 7 days or more within which time it can cause an infection to anybody that comes into contact with it.

Everyday transmission route of the viruses have received little or no attention by a lot of people, especially infection acquired from barbers and barbershops. Averagely customers visit barbershops at least once every month; which makes them as frequently exposed to the risk of acquiring HBV and HCV whenever they visit to get a haircut (Adesoro & Arulogun, 2009).

According to Archampong, Nkrumah, Darko, & Archampong, (2014) infestation of Hepatitis virus causes Hepatocellular Carcinoma (HCC), a liver cancer which is known to be a major cause of death among men in Ghana. Close to 1,600 cases of HCC was recorded in Ghana in 2016 more than half of whom were men and children (GHS, 2017).

Due to ignorance on the part of the barbers in Ghana, the same set of instruments are used on clients, usually without undergoing any rigorous procedure to sterilize them before use on another person. This poses a high risk of HBV and HCV contraction by people who patronize barbershops. The ignorance and lack of health safety adherent practices by barbers have public health implication because everyone who is served by a commercial barber is at risk of acquiring HBV and HCV. More vulnerable are children and people with compromised immunity such as PWLA (Adoba et al., 2015).
Knowledge and awareness of HBV and HCV transmission routes among barbers coupled with correct practices and adherence to health safety standards in their profession will aid in the prevention of the needless disease contractions and complications leading to death among people in the country.

1.2 RESEARCH OBJECTIVES

1.2.1 General Objective

To investigate knowledge of safety practices among barbers on HBV and HCV transmission in Madina

1.2.2 Specific Objectives

1. To assess the knowledge of barbers about the modes of transmission of HBV and HCV
2. To investigate barbers’ practices of ensuring the health safety of their customers
3. To find the relationship between barbers’ health and safety practices and their education level

1.3 RESEARCH QUESTIONS

1. What do the barbers know about HBV and HCV transmission?
2. What practices do the barbers employ to ensure health safety of their customers?
3. What is the relationship between the barbers’ health safety practices and their level of education?

1.4 JUSTIFICATION OF THE STUDY

The health seeking behavior of many Ghanaians have a more curative orientation than preventive one. This is evidenced in the National Health Insurance Scheme (NHIS) of Ghana for instance, as it does not cover regular/routine checkup for its subscribers – a preventive measure. Health
professionals advise that a more proactive way of identifying forthcoming diseases in a person is through routine checkups. This study brought to light some common aspects of daily lives that receive little or no attention, that is, the contribution barbers make to the transmission of HBV and HCV. By assessing barbers’ knowledge about the risks of transmitting HBV and HCV to their cherished customers, the public would become more cautious and more proactive by protecting themselves from contracting the viruses.

Adoba et al., (2015) reported a 15% prevalence rate of HBV and HCV among barbers in Obuasi in the Ashanti Region. They added that majority of the barbers operate in the informal sector of the economy and a lot more have little or no formal education beyond the Senior High School (SHS) level. They added that although more than 90% of the 200 sampled barbers had heard about the diseases, almost 65% of them neither knew how the viruses were transmitted nor perceived themselves to be at risk of contracting the virus. This study assessed the knowledge of barbers in Madina about health safety practices they adhere to with regards to preventing the transmission of HBV and HCV vis à vis their educational level.

Knowledge of the findings of this study will not only enlighten barbers on some wrong practices, it will also create public awareness especially people who patronize the service of barbers and other cosmetologists to become more health safety conscious and hence request the right practices to be adhered to.

Findings from this study would inform health policy for regulatory bodies to make clearly known to the general public some basic health safety standards especially regarding the barbering profession; and strictly ensure that barbers adhere to health safety standards.
1.5 CONCEPTUAL FRAMEWORK

FRAMEWORK ON BARBERS’ KNOWLEDGE OF SAFETY PRACTICES ON HBV & HCV TRANSMISSION

The knowledge of transmission of the Hepatitis B and C viruses in barbershops, the dependent variable is largely influenced by a number of independent variables. Some socio demographic factors like the age, education, religion, gender, length of training the barber received and the model of the barber shop largely determines the cost of the service rendered. Similarly, the customers’ preference of hair style informs how much they pay.

The socio demographic factors like education, age, religion and length of training of the barber also has influence on the knowledge of the barber on general infections, types of instruments used,
belief system and practices of peer and mentors of the barber. The variables like practices of the peers and mentors of the barber, their belief systems, types of instruments used as well as their knowledge on general infection largely determines their hygiene practices and knowledge of safety standards. The barbers’ knowledge on right safety standards is interrelated with their hygiene practices.

The cost of service rendered at the barbershop, the customers’ preferences, the hygiene practices and the knowledge on right safety standards altogether influenced by their demographic factors and professional culture determine the barbers’ knowledge of HBV and HCV transmission to their customers.
CHAPTER TWO: LITERATURE REVIEW

2.0 INTRODUCTION

In this chapter, the etiology of Hepatitis virus accessed from the WHO is presented. Also, some articles and empirical researches related to barbers and blood-borne diseases, especially Hepatitis is reviewed and pertinent issues from the literatures are discussed. The discussions in this chapter are largely influenced by the research questions posed in the previous chapter. Findings on barbers’ knowledge on HBV and HCV with their prevalence is also presented in this chapter. Practices of barbers to ensure health safety of their customers is discussed as well as the relationship between barbers’ educational level and health safety practices in their profession.

2.1 ETIOLOGY OF HEPATITIS

The agent causing HBV (formerly known as the ‘Australian Antigen”) was discovered in 1965 by Dr. Baruch Blumberg for which he won a Nobel Prize in 1976 (Zanetti, Voeten, De Zwart, & Richards, 2005). The virus is a major public health problem with its associated risk factors including poor sterilization technique and direct contact with infected body fluids (Fry, 2007). The Hepatitis B virus is mostly associated with cancer on the liver of its victims. The disease is 50 to 100 times more infectious than HIV and can remain on the human body for several days (Zanetti, VanDamme, & Shouval, 2008).

In highly endemic areas, the HB virus is commonly spread from mother to child at birth – referred to as perinatal transmission, or through horizontal transmission that is, exposure to infected blood, especially from an infected child to an uninfected child during the first 5 years of their lives. The
development of chronic infection is very common among infants infected by their care givers before attaining 5 years (WHO, 2017).

The HB virus can survive outside the human body for at least 7 days. During this time, the virus can still cause infection if it enters the body of a person who is not protected by the vaccine. The incubation period of the HB virus is 75 days on the average, but can vary from 30 to 180 days depending on some circumstances. The virus could be detected within 30 to 60 days after infection and can persist and develop into chronic HBV (WHO, 2017).

HBV is also spread by percutaneous or mucosal exposure to infected blood and various body fluids, as well as through saliva, menstrual, vaginal and seminal fluids of infected persons. Sexual transmission of HBV and HCV may occur, particularly in unvaccinated men who have sex with men and heterosexual persons with multiple sex partners or unprotected sexual contact with sex workers. Infection in adulthood leads to chronic hepatitis in less than 5% of cases. Transmission of the virus may also occur through the reuse of needles and syringes either in health-care settings or among persons who inject drugs (Khaliq & Smego, 2005). In addition, infection can occur during medical, surgical and dental procedures, through tattooing, or through the use of razors and similar objects that are contaminated with infected blood (WHO, 2017).

2.2 IMPACT OF HEPATITIS IN GHANA

Currently, the prevalence of Hepatitis in the whole country is unknown however, some studies conducted in different location have provided some information that the prevalence of the infection is on the rise. Customers of barbershops stand a risk of acquiring HBV or HCV through exposure of their skin to possibly infected equipment used in the barbershops (Khumalo et al., 2013). The Hepatitis B and C viruses reside in body fluids and blood of infected people. One of the main
exposure pathways the hepatitis virus can get into the body is through dermal contact. Cracks on the skin is a very common experience in barbershops due to their use of sharp objects. More than 70% of barbers sampled in Accra did not know that HBV and HCV could be transmitted through contaminated sharp objects (Acheampong, 2011). Sharing contaminated hair brushes, hair trimmers, razors, scissors and other sharp objects have been identified by Akumiah & Sarfo, (2015) as some of the major routes through which people contract the HBV and C viruses.

McBride, (2008) assert that viral hepatitis has been identified to be ten times common than HIV. He adds that there is however no prevention and control program for hepatitis that can be compared to that of HIV/AIDS among many people living in poor countries. Viral Hepatitis accounted for 1.34 million deaths in 2015, this is comparable to deaths caused by tuberculosis and is higher than deaths caused by HIV in the same period. Unlike Malaria Tuberculosis and HIV, the trend in mortality caused by Viral Hepatitis has been increasing from the year 2000 onwards (WHO, 2017).

Studies in hospitals conducted among blood donors show that HBV is endemic with prevalence rates ranging from 6.4% to 10% among blood donors (even higher among replacement donors), 6.4% among pregnant women and 16% among children (Abdulai, Baiden, Adjei, & Owusu-Agyei, 2016; Dongdem et al., 2012).

In Jirapa and Tumu (all in the Upper West Region of Ghana), the GHS (2009) report showed that majority of 128 patients aged between 30 and 34 years who were admitted tested positive for HBV. Boakye, (2014a) cited another hospital based study in Accra that estimated the prevalence of HBV as 2.5% while the prevalence rate among 2 regional prisons was 19%. He explained that prison inmates were known to share many personal items together and were very dependent on one another which accounted for the higher rate from the results.
According to GHS, (2017) the prevalence rate of HBV and HCV was between 10% and 15%. The Vice President of the Hepatitis Society of Ghana, Dr. Nii Anum Ayerh in a durbar at Sekondi (in the Western Region) to mark World Hepatitis Day (July 28) reported that out of every 100 Ghanaians, 13 may test positive for HBV, which according to him was far more prevalent than HIV/AIDS. He made the claim based on the hepatitis prevalence from Sekondi in that year. He stated that 719 HBV cases were recorded out of 5,895 people tested.

2.3 BARBERS KNOWLEDGE AND PREVALENCE OF HBV AND HCV

This section examines some studies conducted in Ghana especially and the rest of the world on knowledge barbers most especially have on HBV and HCV. Barber is a word that originates from the Latin word ‘Barba’ which literally means ‘beard’. The word ‘barber’ today as it is implied is a person whose occupation it is to cut any type of hair, trim beard and give a shave (Waheed, Safi, & Qadri, 2011).

The exact prevalence rate of HBV and HCV for the whole of Ghana is not known, however several segments of the country have been on the radar of some researchers to determine the prevalence rate of the infection. Although there is relatively low prevalence of HIV as compared to HBV and HCV in Ghana, more of Ghana Health Service’s (GHS) attention as well as other Non-Governmental Organizations (NGOs) are focused on HIV prevention through health awareness programmes (Abdulai, 2017).

Adoba et al., (2015) in a study conducted in Obuasi, Ghana observed that while barbers are serving their customers, they could accidentally be exposed to infected bodily fluids and thereby stood a chance of contracting HBV or HCV. They conducted a cross-sectional study with 200
conveniently sampled barbers. The prevalence of HBV and HCV among the sample was 14.5% and 0.05% respectively. More than 58% of the infected people were between the ages of 20 and 29 years. They reported that 181 (approximately 91%) of the 200 participants had heard about HBV. However 129 of them (approximately 65%) did not know how the virus was contracted or how it could be transmitted from one person to another. They reported that radio, among others was their main source of information on the disease condition. More than half of the participants (64%) did not perceive themselves as people who could be at risk of contracting the HBV. In the same study, 122 of the participants (61%) had neither heard about Hepatitis C infection nor were aware of how it could be transmitted from one person to another. Based on the data on knowledge levels presented, the participants’ knowledge on HB&C virus and their transmission is low.

Adoba et al., (2015) in affirmation to Boakye, (2014) reported that, apart from the sexual modes of transmitting the Hepatitis virus, tattooing and body piercing have been discovered as contributors to the spread of the disease. Incidence of reported Hepatitis infection among specific age groups in many areas including the United States suggests a risk behavior link. Adolescents of ages 15 to 19 years and especially young adults between 20 and 29 years were identified to be engaging in sexual misconducts, tattooing, body piercing and intravenous drug injection. He indicated that in less developed countries, reusing of unsterilized or improperly sterilized needles and syringes were estimated to cause millions of cases of blood-borne viral infection including HIV, HBV and HCV (Kane, 2012).

In Accra, Acheampong (2011) found that some roadside barbers did not know that HBV and HCV could be transmitted by the use of contaminated sharp objects. He reported that only 26.7% of barbers sampled knew that HBV and HCV could be transmitted through the barbering profession.
He observed that the barbers were rather particular about providing decoration, air conditioning and mostly entertainment in their shops. All these, he explained was in a bid to attract more customers to their shops. The data on low level of knowledge on HBV and HCV in Accra could be likened to that which was found in Obuasi by Adoba et al., (2015).

Agyeman, Ofori-Asenso, Mprah, & Ashiagbor, (2016) believed that in order to fully understand the disease burden of HBV and HCV, there was the need for accurate estimates. They suggested that such figures could be used to inform appropriate preventive measures by the Ghana Health Service (GHS) and other NGOs in health. They reported a meta-analysis conducted on a sum of 24 researches conducted in Ghana between 1995 and 2015 from 9 regions in Ghana except the Upper West Region where there was no data available on any related research.

The prevalence of HCV in Greater Accra Region was the highest as compared to the rest of the 8 regions. From a meta-analysis of 8 researches combining 4,063 study participants Greater Accra recorded 6.4% with a 95% confidence interval ranging from 4.2% to 8.6%. This was followed by Ashanti Region which recorded a prevalence rate of 1.5%. Prevalence rate data from other regions however, could not be pooled due to unavailability of enough data to present results. The prevalence rate herein presented was accumulated from 8 different researches all conducted at different periods and thus may not be comparable to the 15% which was reported by Adoba et al., (2015).

According to Averhoff, Glass, & Holtzman, (2012) the prevalence rate of developed countries like Australia and the United States are estimated to be less than 2%. Unfortunately, unlike HBV, there is currently no known vaccine for Hepatitis C which implies that interruption of infection
transmission through risk reduction, our best bet, would rest mainly on education to improve knowledge and awareness of the transmission dynamics (Agyeman et al., 2016).

Agyeman et al., (2016) explained that horizontal transmission of HCV was linked to some factors like age, socioeconomic or living conditions as well as some behaviors including sharing towels or using the same capes in barbershops, chewing gum, etc. They added that a group of people who lived together and or shared common personal items like toothbrushes and towels were very likely to contract HBV and HCV. They identified sex workers, people living with HIV/AIDS (PLWHA) and people who had lived in custodial settings (such as prisons) as more prone to spread the virus due to sharing of common items and compromised immunity in the case of PLWHA. By extension, people who share personal items and use common instruments in barbershops are also likely to contract HBV and HCV.

In a study conducted among 504 women living in Kintampo, Ghana it was reported that 33.5% of them were able to correctly mention the transmission routes of HBV while the rest named incorrect means like airborne transmission and mosquito bites as causes of Hepatitis infection. Knowledge on the Hepatitis infection was found to be higher among respondents who were less than 26 years old as compared to those who were older – 43.2% and 38.5% respectively. (Abdulai, Baiden, Adjei, & Owusu-Agyei, 2016) These data are comparable to that presented by Acheampong, (2011) as roadside barbers did not know the correct transmission routes of Hepatitis virus.

Dongdem et al., (2012) in a study conducted in Tamale, Ghana reported that transmission of HBV through infected blood was one of the major ways by which people got infected with the virus. They found that 22.4% of 6,454 sampled participants at Tamale tested positive for the HBV (HBsAg+). They found that participants between the ages of 20 and 29 years inclusive were twice
more likely to be tested positive for HBV than the respondents between 40 and 60 years inclusive. They explained that he high prevalence among the youth could be attributed to their risky lifestyles of unprotected sexual contacts and exposure to infected objects. The reported age range with the highest prevalence of the viral infection, that is 20 – 29 years is consistent with that which was reported by Adoba et al., (2015).

In neighboring Abidjan, Coté d’Ivoire, the prevalence of HBV and HCV among 1801 sampled participants were reported to be 30.9% and 5.3% respectively. However the virus was identified among more males than females. They explained that according to their data, men in the area had a 1.8 times the odds of contracting HBV and HCV than women in the study area (Kouassi-M’Bengue et al., 2017). Again more young people between the ages of 16 and 55 accounted for most of the infected age range. This is consistent with data presented by Adoba et al., (2015) and Dongdem et al., (2012).

In a study conducted in Kumasi, it was reported that barbers’ inattention during their use of sharp instruments such as razors and hair clippers posed a major risk for blood borne infections such as HBV and HCV that could cause serious health problems for the barbers themselves and their clients as well (Akumiah & Sarfo, 2015). They asserted that there was a strong evidence that instruments such as scissors and razors used by barbers in their profession were risk factors for transmitting HBV and HCV. Out of a total of 120 barbers (aged 18-44years) sampled in Kumasi, the results showed that 51 of them had heard about and knew the mode of transmission of HBV and HCV. As much as 87% of the respondents interviewed did not know that HBV and HCV could be transmitted by the instruments they used for their work; only 7.5% were sure that they could transmit the HBV and HCV through their work (Akumiah & Sarfo, 2015).
Among 372 commercial barbers interviewed in Ibadan, Nigeria, Adesoro & Arulogun, (2009) reported that 65% of the barbers thought that only visibly stained instruments were infectious. 83% of them did not know that they stood a chance of being at risk of direct infection from their customers. They added that their respondents with higher education had more knowledge on blood-borne viral infection than those with little or no education (p<0.05).

According to Janjua & Nizamy (2004), out of 192 barbers sampled in Rawalpindi and Islamabad (two cities in Pakistan) in a cross-sectional survey only 13% could describe some signs of hepatitis, suggesting that they knew about the disease. They could also tell some routes by which the disease could be transmitted, identifying that their work could pose a risk to their customers regarding hepatitis transmission. The researchers physically observed 192 clients being shaved by the 96 sampled barbers. They observed that only 11% of the customers got new razors used on them whereas 46% of the customers had razors that had already been used by previous customers (thereby posing a risk of contracting viral hepatitis and perhaps other blood-borne viruses). They thus concluded that the level of awareness among the barbers was very low as most of them posed serious risk to their customers of contracting hepatitis virus.

In a similar study conducted in Nagpur (India), 375 barbers were randomly selected. It was found that 81% did not know any mode of transmission of HBV or HCV. Practices such as inadequate disinfection of tools and reusing same blades were very common especially among roadside barbers (Khaliq & Smego, 2005).

El-Sadawy, Ragab, & El-Toukhy (2004), found in a study in Egypt that shaving at community barbershops was a major risk factor to HCV seroprevalence and an exposure characteristic that added significance to the disease’s epidemiological model of transmission. Among people
identified to be living with sexually transmitted diseases in Ethiopia, shaving at barbershop was identified as a major risk factor with positive association. Using multiple regression logistic analysis, Sawayama, Hayashi, & Kakuda (2000) identified razor shaving as the most significant risk factor associated with HCV infection among 196 institutionalized patients in Japan. In Italy, Mele, Corona, & Tosti (1995) also identified shaving in barbershops as significantly associated with HBV infection. Prevalence of HBV caused by shaving in barbershops was 23.5%. They also identified HBV and HCV as very likely occupational hazard of barbers in developing countries.

Walana, Hokey, & Ahiaba, (2014) concluded that the presence of HBsAg+ (HBV surface antigen) found in blood samples of donors in Kintampo, was relatively high. They added that the results could be generalized to apply for the population in the area which meant a public health concern for the municipality and a wakeup call for all blood samples to be properly screened for quality and safety before transmitting to any person. They reported that the probability of HBV infection was dependent on age and gender. More males less than 40 years old donated more blood than females within the same age range and hence were identified to be more likely to be infected with the virus. In contrast to the conclusion drawn by Walana et al., (2014), Abdulai et al., (2016) argued that women in Kintampo’s knowledge level on Hepatitis virus was low as presented by their study results. They argued further that knowledge on Hepatitis infection was found to be higher among respondents less than 26 years old as compared to those above 26 years. This is most likely so because people less than 26 years old formed majority of people in the school-going age range.

2.4 HEALTH SAFETY ASSURANCE PRACTICES

Arun, Virendra, & Chawala, (2015) reported that the HBV and HCV are inactivated by 70% isopropylalcohol at 11°C for 2 minutes or a combination of beta-propriolactone and ultraviolet
(UV) irradiation. The challenge with the 70% alcohol mode of sterilization as observed by Mutocheluh & Kwarteng, (2015) in Kumasi, was that most barbers over diluted the alcohol with water so as to save some money, thereby reducing the sterilization ability of the alcohol. They also observed at least one UV radiation sterilizer cabinet in all barbershops visited for their study. However, they noticed that majority of the sterilizer cabinets were merely storage cabinets rather than UV radiation sterilizers. They explained that the sterilizers observed were just to show off to their customers – they either used mercury bulbs in place of UV bulbs or did not have any light source in them. They also observed that some of the barbers due to workload did not allow enough time for the radiation to completely destroy the viral DNA. According to them, none of the barbers neither reported of washing their hands before or after attending to each customer nor changing their aprons after attending to each customer (Mutocheluh & Kwarteng, 2015).

Arulogun & Adesoro, (2009) assessed some precautionary measures of prevention of HIV among commercial barbers in Ibadan, Nigeria and reported that out of 90 barbering procedures observed in 45 shops randomly selected, clippers were sterilized in 10% and disinfected in 72% of the observations. There was no decontamination carried out in almost 18% of the sessions. 52% of the disinfections involved the use of kerosene, an inappropriate disinfectant. 48% of the disinfectants could not be identified because they were not in their original containers. 53% of the sessions involved the use of the same brush for cleaning the hair clippers and for brushing customers’ hair. Ultraviolet light sterilizer was used in half of the sterilization processes. Blade-to-skin contact was observed in all 90 instances while accidental cuts occurred in 3 of which none was properly managed.
A great contrast was reported in a study conducted among 308 barbers in Egypt. Their knowledge level was recorded to be high because more than 80% of the participants answered at least 51% of the questions on knowledge about HBV and HCV correctly. Nearly 40% of the respondents knew about the existence of HBV vaccines. 25% knew that there were no vaccines for HCV. 59% of the barbers were concerned about the status of the shaving instruments used, as positive attitudes towards antiseptic use was observed among them. Changing blades for each client was observed as a common practice among 94% of the barbers observed. Disinfection of used instruments was practiced by 77% and handwashing by 63% while 62% of them wore personal protective clothes, especially gloves. These were commonly observed among urban barbers than among those in the rural areas (Shalaby et al., 2010). These observations made by Shalaby et al., (2010) are quite opposite the observations made by Mutocheluh & Kwarteng, (2015).

According to Janjua & Nizamy (2004), 64% of their sampled barbers reported to use new blades for each customer they attend to whereas 19% of them reported to sterilize their instruments. All the sampled barbers disposed off their used blades in the waste bins or threw them away in the open. They observed that out of 192 customers shaved, one blade was used on more than one person in 46% of the instances. 11% of the respondents washed the razors in antiseptic solution and reused them; 13.5% washed the razors with only tap water before use on the next customer; 10.4% wiped the razor with a cloth before use on next customer and 16.6% used the razors uncleaned.

Waheed et al., (2011) discovered that in 79% of 508 barbershops visited in Pakistan, the barbers rubbed potash alum stone on the facial cuts or used it as an after-shave. Some barbers were observed to have applied the same stone on as many as 100 clients they attended to in one day.
Applying the same stone on the multiple customers increased the risk of blood-borne viral disease transmission among the customers (Wazir, Mehmood, Ahmed, Jadoon, & Ayub, 2008).

Khumalo, Gantsho, Gumede, & Mthebe, (2013) reported that in South Africa, clean-shave haircut, popularly known in Ghanaian parlance as ‘sakora’ (rear among females but popular in males) was related to high number of haircut-associated bleeding which posed a high risk of transmitting blood-borne viral infection via haircut. This information agrees with the findings of Kouassi-M’Bengue et al., (2017) that there were more males with HBV and HCV than females. This is probably due to men’s behavior including that more males visiting barbershops than female counterparts.

Breakwell, Tevi-Benissan, Childs, Mihigo, & Tohme, (2017) suggested some ways of controlling Hepatitis infection including: treating infected persons, interrupting the spread of the infection and reducing the mortality associated with HCC. They added that HBV vaccine had been available since 1982 and is 95% safe and effective in preventing the infection. Information from other West African countries like Senegal and The Gambia attest to the effectiveness of the vaccine. The vaccination was introduced in Ghana in 2002 and became compulsory for babies from 6 weeks and above to be immunized. Ghana has since then recorded the highest number of HBV immunization in children older than 6 weeks in the West Africa Sub Region (Owusu-Ansah, 2011).

Ghana’s NHIS was introduced in 2003 with the aim of improving access to health service by eliminating financial burden conversely does not cover Hepatitis screening and vaccination. This may be contributing to the prevalence rates recorded in certain parts of the country (Abdulai, 2017). Epidemiological studies have named rapid urbanization, overpopulation, congestion and

2.5 EDUCATIONAL LEVEL AND HEALTH SAFETY PRACTICES

Khan et al., (2010) observed that in Asia and other parts of the world, it is a common culture to find people visiting barbershops to get their haircut almost weekly. The risk of contracting blood born viral diseases such as HBV, HCV and HIV through poor health and safety standards has been brought to light due to their similar modes of transmission. In low income and developing countries, the transmission of the diseases by non-sexual routes such as use of contaminated sharp objects by intravenous drug users and others remain a problem as is infection through unprotected sexual contact (Simonsen, Kane, Lloyd, Zaffran, & Kane, 1999). Another particular risk of infection is one caused by barbers.

Among the 120 barbers sampled in a research in Kumasi by Akumiah & Sarfo, (2015) a cross-tabular analysis of their responses disclosed a statistically significant difference in the level of awareness of barbers on HBV and HCV with regards to their age (p=0.002); educational status (p=0.017) and work experience (p=0.013). It was reported that more barbers aged 26 to 35 years had better knowledge about HBV and HCV transmission through their profession than any other age group. They reported having observed better knowledge level among the barbers who had formal education as compared to those who had no formal education. A significant difference of p<0.05 was observed on the knowledge and awareness on HBV and HCV transmission through their profession among those who had attained up to secondary school level education than those who had no formal education.
In contrast to the findings presented by Akumiah & Sarfo (2015), Chao, Chang, & So, (2010) conducted a study to investigate the knowledge on HBV among 250 health workers in China. They found that knowledge on Hepatitis infection among highly educated health professionals was deficient. About a third of them did not know that hepatitis could lead to liver cancer (HCC). This research was however conducted in China and may however not be comparable to data observed in Ghana.

Although Hepatitis has several means through which it can be transmitted, unprotected sex has been framed as the only means of transmitting the infection among many Ghanaians. This misconception is due to lack of proper education. The stigmatization from such mistaken belief has prevented many patients from finding proper ways to care for and subsequently reduce infectivity (Owusu-Ansah, 2011).

Boakye, (2014) in a study conducted among high school students in Dunkwa-on-Offin, Ghana to assess their perception on the Hepatitis found high level of knowledge on the disease condition. 92% of the respondents had heard about and could correctly answer at least 7 out of 11 questions asked about HBV and its transmission. He concluded that people with at least senior high school education in Dunkwa-on-Offin had high knowledge on Hepatitis. The findings as presented by Boakye, (2014) put side by side with other studies conducted on knowledge of HBV and HCV outside school environments reiterates Adesoro & Arulogun, (2009)’s assertion that high school education translate into higher knowledge of HBV and HCV.

Kouassi-M’Bengue et al., (2017) reported that out of 1801 participants tested for HBV in Abidjan, 186 were illiterates of whom 26% tested positive. Similarly, 32% of 1545 literates tested positive for same. They concluded based on the odds ratio of 1.3 and p value of 0.12 that there was no
significant difference in literacy and the contraction of HBV. Similar comparison was done for HBV test results between those who had basic education and secondary education. It was found that there was no significant difference between them based on the odds ratio of 1.2 and a p value of 0.8. All the results were stated with a 95% confidence.

However, same cannot be said for the comparison of test results for Hepatitis C virus. They found a difference between literacy and the contraction of the virus. It was reported with 95% confidence that the odds of contracting HCV among illiterates was 3.5 times more than those who had some education. Similarly, they reported that the odds of contracting HCV among people with only basic education was 2.5 times more than those with secondary school education; this was also reported with a 95% confidence (Kouassi-M’Bengue et al., 2017).

In the analysis of the study conducted by Abdulai et al., (2016) in Kintampo, it was reported with a 95% confidence (CI = 2.5 to 7.0) that after adjusting for other factors, respondents who had attained at least secondary school education had 4.2 times the odds of knowing the correct means of hepatitis transmission. They also found that civil servants and students had 3.8 times the odds of knowing about the correct means of Hepatitis transmission as compared to petty traders and farmers. This was also reported with a 95% confidence (CI = 1.7 to 8.5).

From the review of literature on studies conducted in Ghana and other parts of the world about the relationship between barbers and blood-borne diseases such as HIV and Hepatitis, no mention is made in all searched literature of the relationship between barbers’ educational level and knowledge on Hepatitis transmission in their practice. Also a knowledge gap exists between the length of training acquired by the barbers and their knowledge on Hepatitis virus. This study seeks to bridge this gap in knowledge.
CHAPTER THREE: METHODOLOGY

3.0 INTRODUCTION

This chapter explains the methods and procedures used to collect and analyze field data for the study. This section consists of description on the study area, research design, procedure for selection of participants, research instrument, data collection process, ethical considerations and data analysis process.

3.1 STUDY AREA

This study was based in Madina, a suburb of Accra in the La-Nkwantanang-Madina Municipal area of the Greater Accra Region of Ghana. According to the 2010 population census conducted in Ghana, Madina has a population of 111,962 people representing 2.8% of the population of Greater Accra Region. Females constitute 51.5% of the population. About 70% of the population are economically active with 35.5% of them engaged in sales and services. Close to 43% are self-employed. Common languages spoken in the area include but are not limited to Akan, Ga-Dangme, Ewe, Guan, Dagomba and Hausa. 79.2% of the population are Christians (with majority of them being females) while Moslems constitute 17.5% - majority of whom are males (GSS, 2014).

3.2 STUDY DESIGN

This study employed a qualitative research approach. A descriptive design was conducted using a structured interview guide to gather information from the study participants about their knowledge on HBV and HCV transmission and on their professional safety practices in the study area. Observation of some barbers’ practices were also made. The reason for the choice of this study design was to help obtain in-depth information on the research questions and to assess the respondents’ detailed perspectives on the issues discussed.
3.3 SELECTION OF PARTICIPANTS

This involved the procedure followed to select participants for the study. The participants of the study constituted 20 barbers who operated in Madina (Creswell, 1998). Madina is comprised of smaller communities like Libya Quarters, Zongo, Market, Nkwantanang, Tantana and Estate. The choice of 20 participants (comprising of barbers with shops and mobile barbers) was large enough to obtain feedback for all opinions sought for which led to the attainment of saturation in the data collection (Glaser & Strauss, 1967). The 20 study participants comprised of four barbers from each of the areas mentioned above except Tantana and Estate where two barbers each were selected.

Maximum variation purposive sampling technique was used to select the participants (Patton, 2001). This sampling technique considered some variation on the samples that were selected. In that case, no more than four study participants in each community possessed similar characteristics. The purpose was to explore shared dimensions and central themes that cut across the selected participants from the smaller communities in Madina. Two research assistants were engaged to help in the data collection and transcription of voice recordings that were gathered from the field. The assistants were all residents in the study area.

3.3.1 Inclusion Criteria

The study participants included:

1. Barbers who were willing to and fully consent to participate in the study
2. Crude barbers who did not operate in barbershops

3.3.2 Exclusion Criteria

The study participants did not include:

1. Barbers who did not operate in Madina
2. Barbers who were below 18 years old at the time the data were being collected
3. Barbers who were still under training (apprenticeship)

3.4 DATA COLLECTION METHOD
The data collection exercise was done within a month. The method involved in-depth interviews (IDI) with the selected participants only. The principal researcher led the discussions with the aid of an interview guide. Each theme on the interview guide was used as pointers to lead in oral discussion of the points. The discussion pattern was followed exactly as the points appeared on the guide. Probing was done whenever more information were required on a discussion topic or when further understanding was needed. In instances during the data collection where the discussion ensued naturally following the pattern as written in the guide, the discussion was not interrupted. However, when the discussions derailed outside the pointers in the guide, efforts were made to bring it back to adhere to the guide.

3.5 RESEARCH INSTRUMENT
This study used only a designed interview guide to gather information from the respondents on the field. The interview guide consisted of pointers to initiate conversation between the interviewer and the respondents in each case. The interview guide also served as a monitor for the conversations to avoid digression or swaying from the issues discussed. The interview guide consisted of 4 sections including: socio-demographic information, professional information, knowledge on HBV & HCV and hygiene & health safety sections.

A Samsung voice recorder was used to record the entire conversation from the beginning to the end of the conversation with permission from the respondents.
3.6 DATA COLLECTION PROCEDURE

The principal researcher, the respondent and two research assistants were seated in a circular form with the respondent and the lead researcher facing directly opposite each other. This encouraged eye contacts which enhanced the conversation. The two research assistants sat on each side of the principal researcher facing the respondent for each of the interviews conducted. The interviews were held inside the barbershops and any other convenient place the respondents chose. With the help of the interview guide in hand, the conversations were initiated and moderated by the principal researcher. After discussing each point on the interview guide, the principal researcher ticked the points on the tool to signify its completion.

Self-introduction was done by the research team before each interview began. This was followed by an explanation on the need for the study to the participants. Verbal consent of the respondent were sought for at this moment. Before the points on the interview guide were referred to, ice breakers were introduced to allow for the tension in the atmosphere to ease up. A maximum of 5 minutes break was allowed intermittently when required.

Structured interview guide was used to lead the interviews in the barbershops while a Samsung voice recorder was used to record all the conversations from start to finish, with the respondents’ consent. The two research assistants wrote notes in their field notebooks that were provided while the interviews were on-going. The same interview guide was used for all 20 selected participants in the study area. All research assistants engaged were trained to support data collection and transcription of all 20 interviews. The research assistants were trained by the principal researcher to understand their specific roles which exclusively involved helping to set up and record interviews with both a voice recorder and field notebooks. They also assisted in the field data transcription under the lead researcher’s supervision. The length of each interview session was
averagely 40 minutes but not more than 80 minutes (Camic, Rhodes, & Yardley, 2003). A total average of 800 minutes of conversation was realized by the end of data collection exercise from all 20 participants.

3.7 ETHICAL CONSIDERATIONS

Ethical approval for the conduction of this study was sought from the Ghana Health Service Ethical Review Board (GHS-ERB) before conducting the study. Permission was sought from the La Nkwantanang Madina Municipal Assembly (LANMMA) to conduct the research in the area. The participants of the study were informed about the objectives of the study and were made to understand that they held the right to refuse to begin or continue the interview at any point. A verbal consent was required from each participant.

Barbers’ informed consent was sought before beginning the interview especially with the use of the voice recorder during the conversation. The respondents’ identity including every data that were collected from them was held in confidence and used only for research purpose as intended.

3.8 DATA ANALYSIS

The field data was saved unto a windows 10 Toshiba laptop computer after each day’s interview. No more than two interviews were conducted on each day of data collection. This was to prevent fatigue on the part of the researcher and assistants from interfering with the quality of data to be collected from the field. Transcription of the field data was done in the evenings of the data collection days using Microsoft Word 2013 Edition. The barbers interviewed were not pre-informed about the interview. They were interviewed the same moment as their informed consent were sought. Local dialect was be used with respondents who were not comfortable with English Language. Research assistants under the strict supervision of the lead researcher transcribed all the voice recordings verbatim using Microsoft 2013 Word processor. Translation to English was done
for instances where the interviews were conducted in local dialect. The lead researcher was responsible for interpretation of field data to make meaning of them. The responses were grouped according to themes.

3.9 VARIABLES OF THE STUDY

The variables investigated from the study participants involved dependent and independent variables. The dependent variable was the barbers’ knowledge of HBV and HCV transmission. The independent variables included demographic factors (such as age, gender, educational level, religion, length of training, model of shop); cost of service rendered, hygiene practice, instruments used, knowledge of infection, knowledge of right safety standards, belief systems and practices of peers.

3.10 INTERPRETATION OF RESULTS

Measurement of knowledge on HBV and HCV transmission by the respondents was categorized into two distinct levels – high level knowledge and low level knowledge. The cut-off for a high level knowledge was defined as respondents’ ability to state two or more correct ways of contracting and transmitting HBV & HCV with at least two methods of protecting self from contraction of the disease. Any respondent who was not able to provide up to two correct answers on the mode of contracting and transmitting Hepatitis B & C or unable to correctly state how to prevent transmission and contraction was considered having low level knowledge on the viral infections. Similarly, barbers who reported of not sterilizing or disinfecting their instruments/tools before attending to the next customer were regarded as not practicing health safety standards.
3.11 STRENGTH AND LIMITATION OF THE STUDY

3.11.1 Strength

Most studies investigating the knowledge of barbers on HBV in and out of Ghana were done using quantitative data collection methods and analysis, without giving the respondents a chance to express themselves. This study however used qualitative methods and involved probing which allowed the respondents in most cases to fully express themselves by explaining their responses well.

3.11.2 Limitation

An additional data collection method that could be used to complement the IDIs employed for this study would be focus group discussion (FGD). However, organizing the FGD among barbers in the study area was nearly impossible due to their work schedule. Again, due to the absence of a binding group or an association for barbers in the study area, it would be difficult to arrange for barbers to be gathered together for such a purpose.
CHAPTER FOUR: RESULTS

4.0 INTRODUCTION

This chapter presents data that were collected from the study site in Madina. The purpose of this research was to assess the knowledge of the participants (barbers) on Hepatitis B and C and find out what their safety practices were regarding the transmission of the diseases. This chapter brings to light practices of barbers interviewed in the light of HBV & HCV transmission at their respective workplaces. This is done by presenting data gathered from the field using the interview guide.

This chapter consists of qualitative description of findings. In all, twenty (20) in-depth interviews were conducted with purposely selected barbers across Madina from 6th to 15th June, 2018 with not more than two interviews conducted each day of the data collection. It must be noted however that the words ‘machine’ and ‘clipper’ are used interchangeably to refer to the same thing – the barbering machine. All the names presented in this study are pseudonyms. Any similarity to actual persons is purely coincidental.

4.1 SOCIO DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

All the 20 barbers interviewed were males and were exclusively between the ages of 24 and 41. Out of the number interviewed, 8 were not married, 10 of them were married while the remaining 2 had lost their wives. There were 6 Muslims and 14 Christians. On their educational background, 17 of the barbers interviewed had either completed basic education or dropped out before completing basic school. Precisely, 11 of them reported that they had completed basic school; whereas 6 dropped out before completing basic school. Two (2) of the participants reported having completed secondary school; whereas only 1 barber reported having dropped out of polytechnic due to financial problems, he explained.
4.2 PROFESSIONAL INFORMATION

On the type of shops the twenty (20) participants operated in, it was observed that eight (8) of the barbers interviewed operated in metal molded shops (containers). Six (6) worked in wooden structures, four (4) had their shops built with cement blocks attached to the fence wall of houses, while the remaining two (2) did not have any shop they operated in – they were mobile, they roamed about each day, looking for customers.

The range of experience among all barbers interviewed was from 6 years to 21 years with each of them at some points in their career being apprentices or at least working under supervision for at least 6 months before moving out to be on their own. This suggests that some of their professional practices were adopted from their respective masters during training. This was confirmed by Asante (not his real name) when he said “…all that I am practicing today are exactly what my master taught me.”

It is very unusual for the barbers to go to their masters purposefully for professional advice; rather they would observe how others’ work is done to imitate. This was explained when Martin (not his real name) said:

...As for that one it’s a must. As the world keeps advancing, we see new things every day and everyone wants to advance also. You definitely need to at one time or another observe someone else’s work to improve on your own. Someone you think is advancing the way you want to go. Observation and imitation is a good thing to do (40 years old).

On the contrary, another respondent thought it was not necessary for them to observe other barbers’ work to emulate their style. He said:
Oh no! As for me I don’t go looking at other barbers’ work to copy. I just listen to what the customers want and I am able to do it for them. If it is a new style that I don’t know, I make sure I listen to them well as they describe and that is it. I will say my own is a blessing (30 year old).

4.3 HAZARDS ASSOCIATED WITH BARBERING

4.3.1 Hazards Barbers Face

In explaining the hazards associated with the barbering profession, most of the participants had something to say. Only four (4) of them spoke about the danger of being exposed to certain diseases that may be carried by their customers who visit their shops for a haircut. One of the respondents said:

As for the hazards we face in this profession, I will say it is very serious, I swear, it is very serious. You don’t know the person that comes to sit here to get a haircut. You don’t even know the kind of breath in the person, whether the person is coughing TB or any other sickness you don’t know. Again we don’t have anything to protect ourselves from the hairs. There may be a disease in someone’s hair, I may not know, I don’t have any protective gear to protect myself from contracting any such illness (Barber #16).

Another barber spoke about the possibility of contracting a disease from any customer that visited his shop for a haircut. He said:

I would mostly talk about the cuts due to the sharp edges that we use here. If you’re not very careful you will cut yourself easily. Some people’s hair is very hard and uneasy to tend, so while you’re working on them, if you’re not steady, you will get hurt... You know there are many diseases that can be contracted through cuts on the skin both for me and
my customers. There are HIV/AIDS and all other blood related sickenesses (Barber #7, 12th year barbering).

Another barber narrates:

_The blades that we use. Sometimes if you make a little mistake, pah! It can cut you and if the person you are shaving has any sickness, it can be transferred to me through the blood._

_So always I’m very very careful (Barber #5, 30 years old)._ 

One barber made mention of the risk of chemical infection that could be caused by the chemicals he uses for his job. He explained that:

..._Again, the creams and other liquids that we use, especially the one for the spotting waves contain some harmful chemicals that I know I’m not supposed to handle or touch with my bare fingers. I’m supposed to use hand gloves which I don’t. So as for hazards there are a lot of them regarding this profession ... (Tertiary educated)._ 

Six of the participants also reported of the risk of electric shock due to their use of electricity in their shops for their daily activities. One of the respondents reported that:

..._Also I work with electric gadgets. Anything can happen. Anything can shock me. The machine I use to work can shock me at any time and can hurt or maim me. So as for God, He protects me all the time. Accidents are liable to happen, but I believe God can avert some of these things from happening to me (40 year old widower)._ 

Another respondent also recounted a personal experience of a hazard he faced in his shop. He narrated that:
One thing I can confidently talk about is the electricity I use here. There are times that the machines I use here backfired and shocked me. It happens when there is a fault with it. It can spark fire which can hurt me. There are safety precautions that we barbers must adhere to, however most of us, if I’m not afraid, I’ll say all of us don’t adhere to (Tertiary educated barber).

Narrating how security was an issue for him as a hazard faced in his profession. He said:

...however the few that comes to mind include security. If not for God on my side all the time, someone can suddenly come in here and harm me. Have you observed how quiet this neighborhood is? If something is happening to me while I’m here alone, by the time I scream for someone to come out to help the harm would already have been caused (Barber #15).

When asked about the hazards they faced in their profession, the mobile barbers reported of frequently falling sick due to their prolonged exposure to the sun due to the nature of their profession. They explained that because they walked under the scorching sun each day looking for customers, they fell sick very regularly. The mobile barbers interviewed expressed no knowledge of the possibility of transmitting any disease to their customers due to their profession.

4.3.2 Hazards Customers Face

The participants were asked what hazards they thought their customers were likely to face when they visit their shops for a haircut. Eight (8) of the barbers interviewed opined that their customers are liable to the similar risks as they themselves faced. That is, they stood the chance of electric shock when electrical gadgets became faulty; they also were liable of contracting diseases or other infections if the barbers did not adhere to health safety standards. One of them said:
Yeah... my customers can also get hurt when I use a faulty machine on them. That is, they can also be electrocuted. You know it is an electronic gadget so anything can happen. Besides, I use sharp tools on them when they come in here. This could also pose as a hazard for them. (Barber #11, 40 years old).

In as much as many of the participants could mention some hazards their customers could encounter in their shops, few of the barbers who thought there was no hazard in their profession for them were of the opinion that their customers were absolutely hazard-free also. One of such reported that:

“I don’t even see any hazards that they are likely to face. I don’t know whether I feel this way because I have been in this job for such a long time, but I honestly don’t see any hazard for my customers” (18th year barbering).

4.4 COST OF SERVICE

Each barber was asked how they determined their charges or the cost of their service. There were a variety of things they considered before charging a certain amount.

There are some few things that I consider. For instance the area that I operate in. Also the caliber of barbers in the neighborhood also counts. You know some barbers are far advanced than others. Some have very sophisticated shops and all. When you enter their shops, you can get everything there – including air conditioners and these kinds of television sets that they place on the wall. Some even have DSTV in their shops. Those kind of barbers are far ahead of me. I can’t compare what I have here to theirs. I consider some of these things to put a price on my service. Because I own this place, I sometimes charge C7.00 other times I charge C5.00 (Barber #10).
Another barber specified that:

*It depends on the cost of electricity that we use and the small small things – the products I’m using. I increase my charges when I realize that the cost of running this place has increased. But it is not all the time that I do that.* (Barber #6, 25 years old).

In trying to explain how he determined his prices at his shop, the respondent narrated:

*...we are in the Zongo. Many things determine the prices. This price list you see here pasted there on the wall is just there for the sake of it (laughs). Many people come here already knowing in their minds how much they will pay which is sometimes lower than the prices I’ve quoted on the sheet there... Some people don’t even consider that this barbering thing is a business that I’m running and that I have costs that I need to cover and make profits. They come to you seeking that you shave their hair for free* (Barber #7, 12th year barbering).

Another barber also reported that:

*For the sake of mercy, some people come here and tell me they have C3 or C4, I don’t turn them away. I still accept it and offer them my service. There have been times that I’ve accepted C1 from some customers for my service. I will never turn away a customer because they don’t have the amount I’m charging. I will never turn them away* (Barber #19).

Some of the barbers explained that they needed to consider the area and progress of the work and by that determine the cost of their service to their customers.
We look at where we work, the area. How it moves and then in a way, keep up. Because sometimes when you fix your price at a higher rate just because of things you have in your shop and what you use, it becomes a problem. People will not patronize it. They will run away because of the price, and you too you don’t get what you want (Barber #4, 6th year).

Most of the respondents spoke about the need for an association that would help to regulate or control the charges barbers placed on their services among other things. They indicated that there used to be a barbers’ association in Madina however, as the years went by, many barbers lost interest in attending meetings.

4.5 KNOWLEDGE ON HEPATITIS B & C

The barbers were assessed on their knowledge on Hepatitis B and C viruses. Probing was done to find out more information on what they knew about Hepatitis – especially how the disease could be contracted and transmitted as well as information on how the barbers protected themselves and their respective customers from contracting the diseases. Out of twenty (20) barbers interviewed, two (2) had never heard nor knew anything about Hepatitis B or C; six (6) of them out rightly admitted they knew nothing more about Hepatitis B and C except that they were diseases.

4.5.1 Contraction and Transmission of Hepatitis B & C

In expressing their knowledge on Hepatitis B and C, twelve (12) respondents explained that Hepatitis B was an illness that was contracted through body fluids especially through sweat of an infected person. They added that it was from sweat that one could contract the disease.

One respondent emphasized:
Sweat! Mostly sweat causes Hepatitis B and C. I’ve heard it is sweat that causes them. Also I heard that it can be transmitted through contaminated blood. So for instance if someone comes here and the person has the Hepatitis disease and gets a cut on the skin while I shave them, I also stand a chance of contracting it (Barber #12, 35 years old).

On the contrary, another respondent had this to say about Hepatitis B and C: “Hepatitis B? I don’t know anything about it. But I know it’s a disease. It is caused by sugar.” One of the respondents at Tantaana stated that: “Hepatitis B... I’ve heard that it is like when you engage in hard work for a long time and you don’t take enough rest that is what causes it. Yeah, I think so. That is my opinion.” (30 year old barber).

None of the respondents reported any knowledge of the signs and symptoms of Hepatitis B and C neither could either of them tell which part of the body the disease affects or the effects of the diseases thereof. All the 12 respondents who knew some information about Hepatitis B and C credited their source of information on the disease to television and mostly radio programmes, precisely Oman FM and Adom FM.

4.5.2 How Barbers Protect Themselves from HBV & HCV

Since barbers attend to many different people on daily bases, it was essential to enquire how they protected themselves from contracting any disease especially HBV and HCV from their clients. Kwame reported that:

I usually go to the hospital for check-up. Sometimes within 6 months, I go there about once to get a check-up. I normally go to Alpha, that Pentecost Hospital over there, it is not far from here. I go there to find out whether I am ok. I know there are vaccines for Hepatitis B. (smiles) I’m aware its taken once a year or so but I have not yet been inoculated. Again,
I’m also aware the disease can be transmitted through sexual contact so I’m also very careful over there. (Tertiary educated barber).

Another respondent narrated:

As for that, I always pray that I don’t get any disease. But I use the tissue to clean up my customers and ensure that I clean and disinfect my tools and other things that I use to make them safe for use again (Barber #6, 25 years old).

In an elaborate manner, another respondent recounted that:

There are several ways to protect myself from the disease. One, it is God that protects us from getting sick. Two, whatever I do I make sure I’m vigilant. I’m extra careful. I know that when someone gets a cut I must not wipe it with my bare hands, not even when it’s a little cut... I also need to ensure that I wash my hands properly all the time especially with soap and water and even sometimes when the need arises, with spirit. I ensure that my sterilizer here is always in good shape (Barber #7, 12th year barbering).

Another respondent reported:

I intentionally let those customers who come in here sweating to relax for a while so that their sweat will dry up with the help of the air conditioner here. Otherwise, I use tissues to wipe them dry before wrapping the cape around their necks. Also I ensure that I do not directly come into contact with their fluids, be it blood or sweat. That is how I protect myself. I have been doing this for a very long time so I’m quite sure it’s a best practice because I’ve not fallen sick all these years that is why I’m sure it is a good practice (Barber #9).
4.6 HYGIENE & HEALTH SAFETY PRACTICES

It was observed that in some of the barber shops visited, the sterilizers were not switched on. They were only plugged in the power outlets with some of the barbers’ tools put in them as though they were being sterilized. Some barbers admitted their sterilizers were faulty at the time of visit.

The respondents were asked how they ensured the overall safety of their clients they attend to. Precisely how they ensured their shops and tools were hygienically safe for their customers. Altogether, the barbers named some tools/instruments used by them for their profession including: hair clippers/barbering machine, combs, blade, sterilizer, clipper spray, foam, scissors, hair brush, assorted hair creams, talcum powder, neck tissues, towels, capes and aprons.

4.6.1 Hygiene and Safety of Tools

The respondents were asked how they ensured their tools were hygienically safe for the next customer who walked into their shops to get a haircut.

First of all, for the barbering machine, we use a sterilizer machine. The sterilizer machine kills any germs that are on the barbering machine before I use on another person. I clean it with a brush before putting it in the sterilizer. If the machine cuts anyone while I’m using it, the sterilizer machine will neutralize any virus that may be in the person’s blood that has touched the machine... the barbering machine stays inside the sterilizer for about an hour before I touch it again. (Barber #17).

Four of the respondents indicated that they did not put their combs and hairbrushes into the sterilizer because they thought they did not need any sterilizing. The paid particular attention to sterilizing the hair clippers and sometimes their scissors.
(laughs) as for the hair brush frankly speaking, I used to put it in the sterilizer including the combs and others. But as time went on I observed that the combs and especially the bristles of the brush become very hardened and they break off easily. I’m sure it is caused by the medicine in the bulb of the sterilizer. So since then, I stopped putting the brushes and the combs in the sterilizer. The only instruments I put in the sterilizer are the hair clippers and sometimes the scissors (Barber, 6th year barbering).

The barbers were asked how they managed disinfecting their tools on busy days. Their responses centered on the same technique as notably reported:

Sometimes I use the brush to clean the machine, other times I use the rubbing alcohol. When I observe that blood is on the machine I use the alcohol otherwise I just use the brush to clean it off the hair and then place it in the sterilizer. I’m very careful about that (Barber #14).

One respondent narrated:

On my busy days... err... as you can see, I don’t have only one machine here. I have like err... 8 clippers here that are all functioning. So for instance when I use one on a customer, I won’t use it again for a while. At least, not on the next customer that comes to sit in my chair. So I clean the blade of the one I use and then place it inside the sterilizer. I leave it there for about an hour before I use it on another person (Barber #18).

Another respondent added that:
After using one of the machines I put it down, I make sure I spray it and put it in the sterilizer so that when another person comes, it will be ok to use again. Let’s say in a
matter of 10 or 5 minutes, it should be ready for the next person. (Barber #4, 6th year barbering).

Finally they were asked how often they washed their capes and aprons. The responses given ranged from every day to once every week. They all reported using washing powder and antiseptic to wash their capes and aprons. Five of the barber shops visited reported of using warm towels to clean up their customers before shaving them to disinfect their heads. Such barbers were the ones who washed their capes and aprons with those towels every day after close of work or before they began each working day. All the others admitted to washing their capes and aprons once every week.
CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0 INTRODUCTION

This chapter presents the findings from the field in comparison to literature and the research objectives. Reference is made to the conceptual framework presented in the first chapter of this study to explain the findings. Hepatitis B and C virus remains a public health problem in developing countries including Ghana, as having caused 96% of Hepatitis related deaths in 2015 worldwide (WHO, 2017). Possessing similar modes of transmission, HBV and HCV can be transmitted through contact with infected person’s body fluids including sweat. HBV and HCV is 50 to 100 times more infectious than HIV (Zanetti et al., 2008). Infections contracted from barbershops remain a largely unaddressed and underestimated route of disease infection for most men and children who are regular visitors of barbershops. The contraction of disease is largely due to improper sterilization of tools and disobedience to health safety standards by the barbers.

With the use of in-depth interviews conducted among 20 barbers in Madina, the research aimed at assessing the knowledge of barbers on HBV and HCV transmission and to find out the practices they engaged in to ensure the safety of their customers. Also, the research sought to find the relationship between barbers’ health and safety practices and their level of education.

5.1 KNOWLEDGE OF HBV & HCV

Quite contrary to the findings of Acheampong, (2011) which advanced that 70% of barbers interviewed in Accra did not know how HBV and HCV were transmitted; and the findings of Adoba et al., (2015), which suggests that more than 60% of barbers interviewed in Obuasi did not know how HBV and HCV were contracted or transmitted, this study found that among the barbers interviewed in Madina, majority expressed appreciable level of knowledge about HBV and HCV by rightly mentioning that they could be transmitted through physical contact with contaminated
body fluids including blood and sweat. In reference to the conceptual framework presented in chapter one of this research, it is confirmed that barbers’ knowledge of infection influenced their hygiene practices.

One of the respondents expressed higher knowledge of Hepatitis by adding that, it could also be transmitted through unprotected sexual contact with an infected person. He made mention of the availability of a vaccine for Hepatitis B. Among all respondents interviewed, neither of them knew any sign or symptom of Hepatitis nor were vaccinated against the Hepatitis B virus.

5.2 SAFETY OF CUSTOMERS

It was found that all the participants knew that it was very necessary to disinfect their tools, especially the sharp implements before using them on the next customer. Eighteen (18) of them reported using rubbing alcohol and or sterilizer to disinfect their tools whereas the 2 mobile barbers explained that they used only rubbing alcohol to disinfect their tools since they did not have a sterilizer.

It was also observed that all but 2 of the respondents reported of using tissue paper to wrap around the necks of their customers before putting the capes on them. This, they explained was to prevent the sweat from previous customers deposited on the cape from touching the neck of the next customer. Further, some barbers cleaned up the sweat on their customers with a tissue paper or allowed it to dry off before attending to them. This, they explained was an effort to protect themselves and subsequent customers from any disease transmission. The participants reported washing their capes and aprons at least once every week with soap, water and disinfectant.

The study however found that all the barbers but one did not put their hair brushes, scissors and combs into the sterilizer to be disinfected, neither did they use rubbing alcohol or any other
disinfectant to clean their combs, scissors and brushes after each use. They only hit the hair brushes and combs on a hard surface, usually a table to remove hairs that were stuck inside them. This finding suggests that, although barbers may seem cautious in preventing the transmission of diseases such as HBV and HCV via the use of their sharp implements, the diseases could still be transmitted through other tools like hair brushes and combs which are not accorded equal sanitary attention regarding disinfection as compared to the hair clippers. This finding is similar to the findings of a study in Kumasi by Mutocheluh & Kwarteng, (2015). Also it was found that none of the barbers cleaned their working surfaces with disinfectant. They kept their tools on those surfaces, but did not disinfect them.

The study also found that, none of the barbers interviewed reported of washing their hands before or after attending to each customer. By implication it could be said that, if such barbers’ hands picked up an HBV from a customer via dermal contact, it is highly possible to transmit the virus to the next customer. This finding is similar to the finding of a study conducted in Ibadan, Nigeria by Adesoro & Arulogun, (2009). According to WHO, (2017) the Hepatitis B Virus is known to be able to survive on surfaces for up to 7 days or more within which time it can cause an infection to any susceptible person who comes into contact with it.

As shown by the conceptual framework in chapter one, the hygiene practices employed by the barbers interviewed were acquired though apprenticeship, customer preferences, observed practices of peers and mentors.

5.3 EDUCATION LEVEL AND SAFETY PRACTICES

Out of the 20 participants interviewed, 11 of them reported that they had completed basic education; whereas 6 of the 20 dropped out before completing basic school. Two (2) of them had
completed secondary school while one (1) barber explained that he dropped out of tertiary (polytechnic) due to financial problems.

The study revealed that only the participant who had partial tertiary level of education reported the highest level of knowledge of HBV & HCV and better safety practices as compared to the other barbers interviewed. He was the only participant who stated that apart from blood and sweat, unprotected sexual contact could also lead to the contraction of HBV by a susceptible person. In addition, he expressed knowledge of the availability of a vaccine for HBV. Further, he was the only participants who mentioned that he sterilized all tools used for barbering including all hair clippers, scissors, combs and hair brushes. He added that at the close of business each day, he ensured that all the capes and aprons were washed and made ready for the next day. He however did not report of washing his hands before or after attending to each customer nor disinfecting his working surfaces for example the table in his shop.

It was observed that respondents with secondary school and higher education possessed sophisticated items in their shops including separate sterilizers for combs and clippers, air conditioners, towel warmers, flat-screen television with Satellite TV connection. These items in some shops visited influenced the cost of service to customers as shown by the conceptual framework.

The respondent who dropped out of tertiary expressed the highest level of knowledge on HBV and HCV contraction and transmission as well as safety measures. Also, there was no distinction in the knowledge levels of HBV and HCV among respondents who had basic education compared to those with secondary education. However, those who reported having dropped out before completing basic education expressed low or no knowledge of HBV and HCV contraction and transmission. Similar to the findings of a study by Adesoro & Arulogun, (2009) in Nigeria, the
respondents (barbers) with higher education had more knowledge on blood-borne viral infections than those with little or no education.

Similarly, Boakye, (2014) found that, there was high level of knowledge on Hepatitis disease condition among secondary school students in Dunkwa-on-Offin, Ghana. He concluded based on his results that people with at least senior high school education in the study area had high knowledge on Hepatitis.
CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.0 INTRODUCTION

This chapter provides a summary of the findings arrived from this study and offers a conclusion to the results based on the findings. It also provides recommendations to appropriate authorities and targeted bodies on how to improve the knowledge levels and health safety practices among barbers relating to Hepatitis B and C transmission. Finally, this chapter proposes an area for further research among barbers and disease transmission.

6.1 KEY FINDINGS

1. Majority of respondents expressed appreciable level of knowledge on HBV and HCV transmission modes
2. Barbers neither washed their hands before or after attending to customers nor disinfected some of their tools and working surfaces
3. Sterilizers in some barbershops visited were not functioning. They were being used by the barbers as though they were in good working condition
4. Barbers with higher education level reported of employing more health safety practices to prevent disease transmission

6.2 CONCLUSION

The main aim of the study was to investigate knowledge of safety practices among barbers on HBV and HCV transmission in Madina. The study specifically sought to assess the knowledge of barbers about the modes of transmitting HBV and HCV; to investigate barbers’ practices of ensuring the health safety of their customers and to find the relationship between barbers’ health and safety practices and their education level.
Knowledge levels among purposely selected participants in the study area on HBV and HCV contraction and transmission was high – 12 out of 20 participants could mention at least 2 correct methods of transmitting and contracting the viruses. The respondents, all males were exclusively between the ages of 24 and 41 years old. They reported of sterilizing and or disinfecting some of their tools before attending to their customers. Also, they used tissue paper to wrap around the necks of their customers before using their capes on them to prevent disease transmission through sweat from one customer to another.

The study found that the respondent with some tertiary education expressed the highest level of knowledge on safety practices on transmitting HBV and HCV. There was no distinction in the knowledge of safety practices on Hepatitis B and C transmission among respondents who had basic education compared to those with secondary education. However, respondents who dropped out before completing basic education expressed low or no knowledge of safety practices regarding the transmission of HBV and HCV.

The study revealed that barbers’ knowledge of modes of transmitting HBV and HCV did not fully translate into hygiene practices of ensuring their customers’ health safety thereby posing risk of Hepatitis B&C infection to their customers. Barbers’ practices to ensure their customers’ safety from viral infection in their salons had more room for improvement.

6.3 RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to improve barbers’ knowledge on HBV & HCV and practices to ensure customers’ health safety.
1. Customers should consider sending their full personal shaving kit to the barber shops anytime they need to get a shave and insist on barbers washing their hands and properly disinfecting all tools and working surfaces before attending to them.

2. The MoH should educate the general public on Hepatitis via radio programs by experts, emphasizing on how to prevent, contract and transmit the viruses. This will improve the health of the public in general.

3. Healthcare benefits under the NHIS should include Hepatitis vaccine. This will encourage more people to patronize and improve their health.

4. There is the need for a revival of well patronized barbers’ associations in the area to organize educational sessions to sensitize barbers on health safety practices.

6.3.2 Recommendation for Further Studies

This research was conducted to investigate the knowledge of barbers on HBV and HCV transmission in Madina. Another area of research that could also be extensively looked into is how barbers dispose off waste generated from their shops.
References:


Camic, P. M., Rhodes, J. E., & Yardley, L. (2003). *Qualitative research in psychology: Expanding


APPENDICES
Appendix 1

INTERVIEW GUIDE FOR BARBERS

KNOWLEDGE OF SAFETY PRACTICES AMONG BARBERS ON HEPATITIS B AND C TRANSMISSION IN MADINA.

Respondent’s Identification: ………………………………

Section 1: Socio-Demographic Information

i. Gender

ii. Age

iii. Marital Status

iv. Religion

v. Educational Background

Section 2: Professional Information

i. Model of shop (blocks, container, wooden, mobile, etc.)

ii. How long have you been barbering?

iii. How long did it take you to learn?

iv. How often do you contact your mentor (master) for professional advice?

v. How often do you observe other barbers’ work to imitate?

vi. What are some hazards associated with barbering for you?

vii. Can you tell me about your clients’ hazards also?

viii. What informs your cost of service?
Section 3: Knowledge on HBV and HCV

i. Tell me what you know about Hepatitis B and/or C

ii. What are the symptoms of the illnesses?

iii. How can one contract Hepatitis B or C?

iv. How are HBV and HCV transmitted?

v. How can you be protected from HBV and HCV?

vi. What is your source of information on HBV and HCV?

Section 4: Hygiene & Health Safety Practices

i. What tools/instruments do you use for your job?

ii. How do you ensure each of the tools/instruments is hygienically safe for the next client?

iii. How do you manage disinfecting on your busy days?

iv. Which of your tools/instruments do not need disinfecting?

v. How often do you wash your aprons and capes?
Appendix 2

CONSENT FORM FOR PARTICIPATION IN THE STUDY

Study Title: Knowledge of Safety Practices Among Barbers On Hepatitis B & C Transmission In Madina

Principal Investigator: Kwadwo Berko Appaw

Address: School of Public Heath, University of Ghana, Legon

Greetings, my name is Kwadwo Berko Appaw, an MPH student of the School of Public Health (University of Ghana) and I am conducting this interview to find out the out the health safety practices of barbers in the performance of their work in light of Hepatitis B and C transmission. You are being invited to participate in the study because of your profession.

I would like to request you to be part of the study. If you agree to participate, I would spend about 40 minutes of your time to engage in a conversation about what you know about Hepatitis B and C among others. Participation in this study is entirely voluntary. You have the right to refuse to participate. You are also at liberty to withdraw from this study at any stage during our discussion. However, I would like to have you participate to the end.

There are no direct benefits or risks in your participation, you will not be paid or compensated for your participation. However, the information the study will come out with will help us to know some barbers perspectives on health safety. The questions are not very sensitive. However, if you feel uncomfortable answering some of them and you can choose not to answer them.

All the information collected from you will be treated with strict confidentiality and will be used only for research purpose. You will not be identified by name in any dissemination reports or publications resulting from this study.
The Ghana Health Service Ethical Review Board has reviewed and given approval for this study to be conducted. The La Nkwantanang Madina Municipal Assembly is also aware of this study.

Do you have any questions for clarifications?

Should you have any further questions regarding this study, which I could not satisfy you with the appropriate answer, you may contact Prof. Philip Adongo, Social and Behavioral Science Department at the School of Public Health or e-mail: adongophilip@yahoo.com
Participant Consent Form

I have been adequately informed about the purpose, procedure, potential risks and benefits of this study. I have had the opportunity to ask questions and have been provided answers to my satisfaction. I know that I can refuse to participate in this study without any implication. I understand that even if I agree or as I have agreed, I can withdraw my consent at any time. I also understand that the information collected will be kept in confidence and will be used only for the purpose informed. Finally, findings/results could assist in policy development.

I freely agree to participate in this study.

ID of participant………………………………………………

Signature or Right Thumb Print of Participant ……………………………………………

Date…………………………………………
Appendix 4

Witness Form

*If participant cannot read the form themselves, a witness must sign here:*

WITNESS

I was present while the benefits, risks and procedures were read to and/or interpreted to the understanding of the volunteer. All questions were answered and the volunteer agreed to take part in the research.

Date………………………………………

Signature……………………………………

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been well explained to the understanding of the above individual

Date…………………………

Signature or right thumb print ……………………………………………………


Appendix 5

GHANA HEALTH SERVICE ETHICS REVIEW COMMITTEE

In case of reply the number and date of this letter should be quoted.

MyRef. GHS/RDD/ERC/Admin/App 13/029
Your Ref. No.

Kwadwo Berko Appaw
University of Ghana
School of Public Health
Legon, Accra

The Ghana Health Service Ethics Review Committee has reviewed and given approval for the implementation of your Study Protocol.

<table>
<thead>
<tr>
<th>GHS-ERC Number</th>
<th>GHS-ERC: 132/12/17</th>
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<td>Project Title</td>
<td>Knowledge of Safety Practices among Barbers on Hepatitis B &amp; C Transmission in Madina</td>
</tr>
<tr>
<td>Approval Date</td>
<td>16th March, 2018</td>
</tr>
<tr>
<td>Expiry Date</td>
<td>15th March, 2019</td>
</tr>
<tr>
<td>GHS-ERC Decision</td>
<td>Approved</td>
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</tbody>
</table>

This approval requires the following from the Principal Investigator:

- Submission of yearly progress report of the study to the Ethics Review Committee (ERC)
- Renewal of ethical approval if the study lasts for more than 12 months,
- Reporting of all serious adverse events related to this study to the ERC within three days verbally and seven days in writing.
- Submission of a final report after completion of the study
- Informing ERC if study cannot be implemented or is discontinued and reasons why
- Informing the ERC and your sponsor (where applicable) before any publication of the research findings.

Please note that any modification of the study without ERC approval of the amendment is invalid.

The ERC may observe or cause to be observed procedures and records of the study during and after implementation.

Kindly quote the protocol identification number in all future correspondence in relation to this approved protocol.

SIGNED...................................................
DR. CYNTHIA BANNERMAN
(GHS-ERC CHAIRPERSON)