KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING THE RISK OF HEPATITIS E VIRUS AMONG THE RESIDENTS OF HAVANA INFORMAL SETTLEMENT IN WINDHOEK, NAMIBIA

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ABSTRACT

Globally, every year there are an estimated 20 million Hepatitis E virus infections worldwide, leading to an estimated 3.3 million symptomatic cases of hepatitis E. The 237 probable and confirmed cases at health facilities in Windhoek district are mostly from Havana informal settlement. These areas are characterized by overcrowded, poor living conditions and residents have limited access to safe drinking water, sanitation, and hygiene. The aim of this study was to determine the knowledge, attitudes and practices of the residents of Havana informal settlement regarding the risk factors contributing to the hepatitis E virus in Windhoek district, Khomas region Namibia. In this study, a quantitative and cross – sectional analytical study design was employed. The target population of this study was adults aged group 18- 60 years. A stratified sampling method was used. In this study, a structured questionnaire was developed to collect data from the participants. The data were collected through a questionnaire. The responses from each questionnaire were entered into a data entry template of the SPSS statistics software and the Chi square method was used. The study revealed that the majority of the participants 83.3% had sufficient knowledge while the least participants 16.8% had low level of knowledge regarding the risk factors of Hepatitis E virus. Majority number of participants 93.3% had a positive attitude which covers total population in the study while the fewer number of the participants 6.8% were negative attitude which was the least in the study. Study revealed that majority of the number of the participants 66.3% had poor practice while a small number of the participants 33.8% had good It is therefore recommended that the Ministry of Health and Social Services and the Ministry of Urban and Rural Development train and employ health care assistants who could help the affected residents in the community on how to implement control measures that will minimize the risk of Hepatitis E virus among residents in the Havana informal settlement.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATION

AIDS – Acquired Immune Deficiency Syndrome

FDA – Food and Drug Administration

HEV – Hepatitis E virus

HIV – Human Immunodeficiency Virus

WHO – World Health Organization

DECLARATION

I, **Nangolo Risto Ndawedapo,** hereby declare that this study is a true reflection of my own research and that this research report or parts thereof have not been submitted for a degree at any other institution.

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Risto N.H Nangolo	.....	08/04/21
Name of student	Signature	Date

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DEDICATION

I dedicate this study to my one and only son Nangolo Isaac Mateya for making me happy all the time in my everyday life and knowing that I am his father and I love him so much.

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION OF THE STUDY

Hepatitis E is a liver disease spread by contaminated food and water. The Hepatitis E virus is transmitted via the fecal-oral route and rarely through person-to-person transmission. The Hepatitis E virus is recognized as a common source of waterborne outbreaks, involving fecally contaminated water (WHO, 2015). Infections due to hepatitis A virus and Hepatitis E Virus are very similar. They are clinically characterized by an icteric phase, with discoloration of sclera, jaundice, and occasionally dark urine. They are both self-limiting, with a low mortality rate in the general population (WHO, 2015).

However, probably the most striking difference between the infections is the high mortality seen among pregnant women with HEV infection, especially those in the third trimester. The first documented hepatitis E outbreak occurred in Delhi, India, in 1955–1956 (Labrique, Thomas, Stoszek & Nelson, 2015). Additional outbreaks have been reported among civilians in Democratic Republic of Congo in 2010 (Rab, Bile and Mabanik, 2014) and military populations (Clayson, Shrestha, & Vaugh, 2013). In previous studies, only two cases have been reported among refugees in DRC in the year 2010 (Isaacson, Frean, Seriwatana & Innis, 2014).

1.2 BACKGROUND OF THE STUDY

Globally, every year there are an estimated 20 million Hepatitis E virus infections worldwide, leading to an estimated 3.3 million symptomatic cases of hepatitis E. The World Health Organization (WHO) estimates that hepatitis E caused approximately 44 000 deaths in 2015 (accounting for 3.3% of the mortality due to viral hepatitis). Moreover,

Hepatitis E is found worldwide, but the prevalence is highest in East and South Asia. The Hepatitis E virus (HEV), a non-enveloped, positive-sense, single-stranded RNA virus, is recognized as the principal cause of enterically transmitted non-A, non-B hepatitis HAV can be spread through certain sex practices while HBV can be transmitted from infected mothers to infants at the time of birth or from family member to infant in early childhood, which occurs worldwide although rarely in industrialized countries (Labrique et al 2015).

	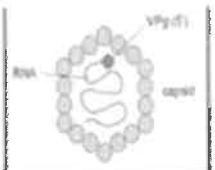	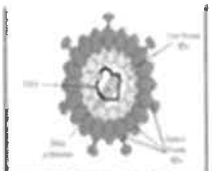
Name of Virus	**Hepatitis A Virus (HAV)**	**Hepatitis B Virus (HBV)**
Classification	Picornavirus	Hepadnavirus
Viral genome	ssRNA	dsDNA
Transmission	Enteric	Parental
Incubation period	15-45 days	45-160 days

Figure 1 A comparison of Hepatitis A and Hepatitis B

Evidence for the existence of a new epidemiologically distinct virus has been available since the early 1980s, but the virus has only recently been identified (Lhomme, Abravanel, Dubois, Sandres, Rostaing, 2014). Infections due to hepatitis A virus and HEV are very similar. They are clinically characterized by an icteric phase, with discoloration of sclera, jaundice, and occasionally dark urine. They are both self-limited, with a low mortality rate in the general population (WHO, 2014). Case-fatality ratios range from 10% to 42% (Shrestha, Shikata, Purcell & Uchida, 2013).

Although hepatitis A, B, and C are common in Namibia, hepatitis E is rarely diagnosed in the country. As a result, the country has limited capacity for hepatitis E laboratory diagnosis. Additionally, during the rainy season, people often use rainwater or other surface water for drinking and domestic purposes. This likely increases the risk of hepatitis E infection, therefore, the above-mentioned factors might lead to the propagation of the cases from this area to other informal settlements and its distribution to other towns or districts, with similar poor environmental health conditions (Ministry of Health and Social Services, 2018). Thus, the overall risk is assessed as high at the regional level and low at national and global levels (WHO, 2016). The first identified case was admitted to a public hospital in Windhoek district, with signs and symptoms of hepatitis E virus (Ministry of health and social services 2017). A total of 237 probable and confirmed cases have been seen at various health facilities in Windhoek district with the same signs and symptoms. A total of 41 of the 237 cases in 2018 were sent for further testing, and the results showed 21 were IgM positive for hepatitis E. There was one confirmed deceased case in the year 2018, a 26-year-old female. The majority of the 237 cases were from Windhoek district, Khomas region.

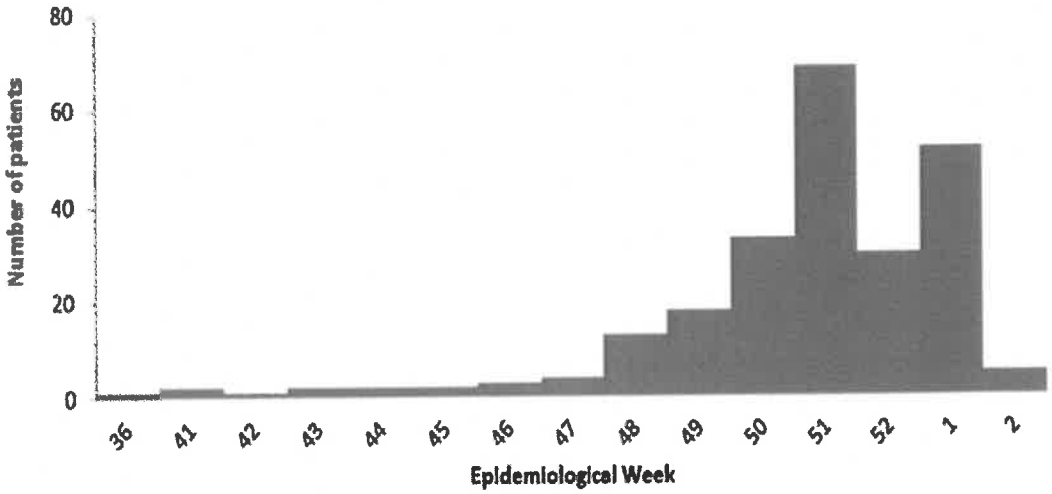

Figure 2 Epidemiological rates of the first case of Hepatitis E

Figure 2 indicates the epidemiological rates of the first case of Hepatitis E virus recorded the year 2017 in Havana informal settlement during the second week of October in the same year. A study conducted in the USA by Berenguer (2014) noted that both mono-infected and co-infected individuals had limited knowledge of the Hepatitis E virus, scoring less than 50% of the variables correctly. Approximately one-fourth to one-third of patients endorsed attitudes reflecting shame, stigma or indifference towards the Hepatitis E virus treatment and infection and over 50% indicated fears about having the Hepatitis E virus. Prior studies have shown that the major reasons for not seeking Hepatitis E treatment are fears about the Hepatitis E virus or its treatment, limited Hepatitis E knowledge, fear related to the Hepatitis E virus infection and lack of symptoms.

In Namibia Hepatitis E has claimed 10 lives so far as it was announced to the media on 22 of March 2018 (MOHSS, 2018).

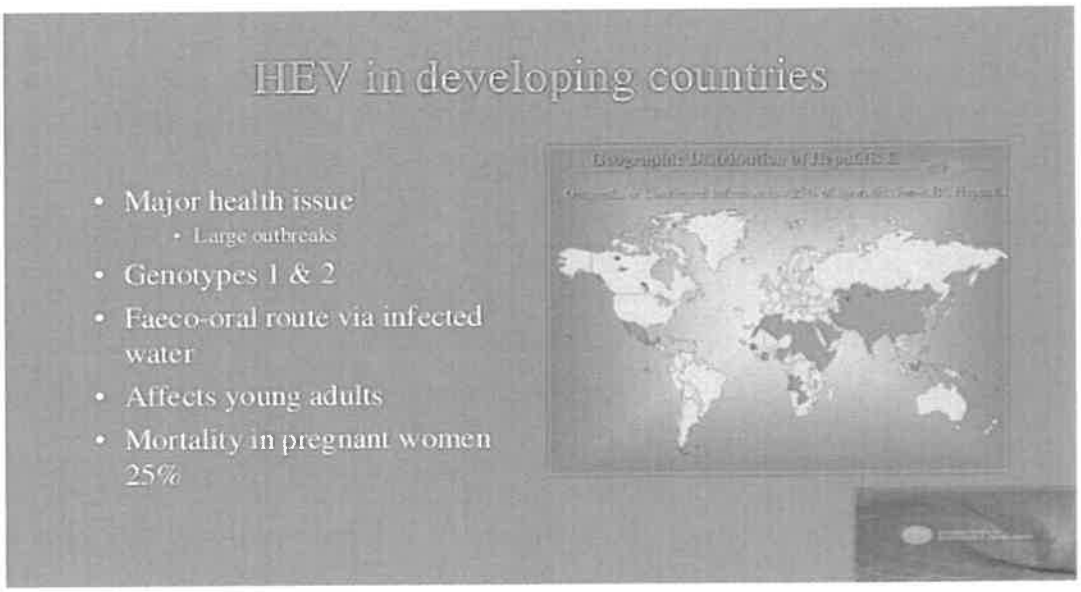

Figure 3 Indicates the occurrences of hepatitis e virus in developing countries

The geographic distribution rate of Hepatitis E virus in developing countries including Namibia. As shown in figure 3, the Hepatitis E virus affects mostly the African continent and Asia, this is because these two continents had not yet developed and possibly do not have the necessary medical resources for proper eradication of the epidemic among these two continents. There is a lack of understanding of pathogenesis and the treatment of hepatitis E virus in developing countries such as Namibia, therefore this study may help improve the development of better understanding of the Hepatitis E pathogenesis and innovate more accurate diagnostic methods and new drugs. Collectively, the current and emerging knowledge will facilitate diagnosis and proper management, thereby improving prognosis and avoiding complications.

The incidence of acute hepatitis E is estimated at 3 million human cases per year worldwide, with around 44,000 deaths. Murail et al (2015) state that most cases occur in endemic countries, but the number of cases in low-endemic areas has increased. The Hepatitis E virus seroprevalence is high in developing countries, such as India and Southeast Asia, ranging from 27–80 %. (Murail et al. 2015).

1.3 PROBLEM STATEMENT

Due to the sudden increase of the Hepatitis E virus in the Khomas Region the study was interested in determining the knowledge, attitudes and practices of residents in the Havana informal settlements regarding the Hepatitis E virus outbreak. The 237 probable and confirmed cases at health facilities in Windhoek district are mostly from the Havana informal settlements (MoHSS, 2018). These areas are characterized by overcrowded, poor living conditions and residents have limited access to clean drinking water, sanitation, and hygiene (WHO, 2017). The Hepatitis virus incidence in Namibia claimed 10 lives in 2017 in the Khomas region (Ministry of Health and Social Service, 2018) Hepatitis has become a potential health hazard for the people living in Hepatitis E prone areas and this had infected and affected residents living in those areas (Smith, Clayson, Vaughn, Innis & Pandey, 2015).

The researcher is not aware of any study conducted in Namibia particularly in informal settlement that determined the knowledge, attitude and practice of residents regarding Hepatitis E virus. Therefore, this study aims to assess the knowledge, attitudes and practices of the residents of Havana informal settlements regarding the Hepatitis E virus?

1.4 AIMS OF THE STUDY

This study aimed to determine the knowledge, attitudes and practices of the residents of Havana informal settlement regarding the risk factors contributing to hepatitis E virus in Windhoek district, Khomas region Namibia.

1.5 OBJECTIVES OF THE STUDY

The objectives of the study were to:

- Determine the knowledge of residents of Havana informal settlement regarding the risk factors contributing to Hepatitis E virus.
- Determine the attitude among residents in Havana informal settlements that contributes to the risk factors of Hepatitis E virus
- Determine the practices implemented by Havana informal settlement residents on risk factors of Hepatitis E virus
- Assess the relationship between knowledge, attitudes and practices of Havana informal settlement regarding the risk factors of Hepatitis E virus

1.6 SIGNIFICANCE OF THE STUDY

The findings from this study will help prevent further infections among residents in the affected areas create awareness's among the residents in Havana informal settlements as well as other informal settlements in the Khomas region and might aid to save more lives.

Furthermore, the study findings might aid the Ministry of Health and Social Services in terms of how to develop strategies to support the residents affected by the risk's factors associated with Hepatitis E virus, not only Havana informal settlement but also other residents living in areas that are prone to Hepatitis E virus infections. This study might provide the Ministry of Health and Social Services with information about the latest trends regarding the Hepatitis E virus and the impact it has on the Namibia nation at large.

The findings from this study might encourage the public health officials and entire health professions staffs to be vigilant about Hepatitis E outbreak, in order for them to implement a quick surveillance to minimize the occurrences of Hepatitis E in affected areas. Therefore, these findings may be used in hospital set up and clinics to educate the nursing staff and students on the currents research results and outcomes on Hepatitis E so that proper care is provided to patients infected with the Hepatitis E virus.

1.7 LIMITATIONS

The findings of this study cannot be generalized to residents in other informal settlements in Khomas region other than residents in Havana informal settlements, because the study was conducted among residents in Havana informal settlements and therefore cannot be a representation of residents of informal settlements in other regions across the country.

1.8 DELIMITATIONS

The findings of this study were confined to assessing the knowledge, attitudes and practices of residents on risk factors of Hepatitis E virus and does not assess any other risk factors of virus. This study is also confined to the residents of Havana informal settlements in Windhoek district Khomas region only.

1.9 DEFINITION OF CONCEPTS

The key concepts and their use as applied in this research are defined as follows:

Attitudes – Is the way of feeling or acting toward a person, thing or situation (Wehmeier, et al., 2010). In the context of this research attitudes are the ways residents perceived Hepatitis E virus diagnosis and willingness to comply with the treatment involved.

Hepatitis E – Is inflammation of the liver caused by infection with the hepatitis E virus (HEV) is a viral hepatitis that has mainly a fecal – oral transmission route and it is found in the stool of an infected person (WHO, 2015)

Informal settlement – Any form of housing, shelter, or settlement which is illegal, falls outside of government control or regulation, or is not afforded protection by the state (Oxford English Dictionary, 2015)

Knowledge – Defined as the information, understanding and skills gained through education or experience (Wehmeier, Mclntosh, Turnbull & Asby, 2010). In the context of this research knowledge relevant to residents are the meanings of Hepatitis E infection, transmission, treatment and control, knowing reason for treatment, signs and symptoms and clinical presentation.

Practice – Refers to (action not idea) the way of doing something in a particular situation (Wehmeier, et al. 2010). In the context of this research practice includes the residents' proper hand washing of soap with clean water and consistence covering of their left-over food stuffs to prevent infection and further transmission of the disease

Residents – People who live or has their home in a certain place (Oxford English dictionary, 2016)

Risk – Is the chance or probability that a person will be harmed or experience an adverse effect if exposed to a hazard (Ministry of Health and Social Services, 2014)

1.10 SUMMARY OF THE CHAPTER

In this chapter, the introduction, background information about the knowledge, attitude and practice of residents on risk factors of Hepatitis E virus were discussed and the purpose of the study was described. The problem statement and objectives of the study which are the backbone of this study were also defined. The significance of the study was explained in detail, and key concepts were defined. The next chapter presents the literature review related to the knowledge, attitude and practices of residents in Havana informal settlement to contextualize the current study with the existing literature

CHAPETER 2: LITERATURE REVIEW

2.1 INTRODUCTION

In this study the researcher explored the work done by other researchers about risk factors of the hepatitis E virus. It is pivotal that the researcher acknowledged the work done by other researchers. Literature review is a critical evaluation of existing knowledge on a topic of interest, often prepared in order for the research problem to be placed in context of existing knowledge (Polit & Beck, 2008). This study investigated the knowledge, attitude and practices of the residents in Havana informal settlement had regarding the risk of Hepatitis E virus in the Khomas region, Namibia.

2.2 HEPATITIS E VIRUS

Hepatitis E is a liver disease caused by the hepatitis E virus (HEV): a small virus, with a positive-sense, single-stranded ribonucleic acid (RNA) genome. According to Aggarwal (2011) noted that the virus has at least 4 different types: genotypes 1, 2, 3 and 4. Genotypes 1 and 2 have been found only in humans. Genotype 3 and 4 viruses circulate in several animals (including pigs, wild boars, and deer) without causing any disease, and occasionally infect humans (Greg & Emily, 2015).

The Hepatitis E virus is a major cause of non-A, non-B hepatitis in developing countries. Factors influencing the sporadic spread of hepatitis E are unclear. Brittany, Nelson and Alain, (2015) examined anti-HEV seroprevalence and demographic data from 407 urban and 360 rural black South African adults living in formal housing, squatter camps, or mud hut (Shretha, 2013). A linear relation was found between seroprevalence and age, suggesting sporadic spread. The high prevalence in mud hut dwellers suggests that

contaminated water plays a major role in HEV spread in South Africa. According to Yansheng and Youchum (2016) state Routine chlorination or boiling of river drinking water before consumption may reduce HEV infection. The virus is shed in the stools of infected persons, and enters the human body via oral route. It is transmitted mainly through contaminated drinking water (Ahmed, 2015). Usually the infection is self-limiting and resolves within 2–6 weeks. Occasionally a serious disease, known as fulminant hepatitis (acute liver failure) develops, and a proportion of 40% people with this disease can die.

2.3 TRANSMISSION OF HEPATITIS E VIRUS

The hepatitis E virus is transmitted mainly through the faecal-oral route due to faecal contamination of drinking water. This route accounts for a very large proportion of clinical cases with this disease. The risk factors for hepatitis E are related to poor sanitation, allowing virus excreted in the faeces of infected people to reach drinking water supplies. Other routes of transmission such as ingestion of undercooked meat or meat products from infected animals, transfusion of infected blood products and vertical transmission from a pregnant woman to her baby have been identified, but appear to account for a much smaller number of clinical cases.

It is transmitted mainly through contaminated drinking water. Usually the infection is self-limiting and resolves within 2–6 weeks. Occasionally a serious disease, known as fulminant hepatitis (acute liver failure) develops, and a proportion of 40% people with this disease can die (Ahmed, 2015). These routes of transmission include: ingestion of undercooked meat or meat products derived from infected animals; transfusion of infected

blood products; and vertical transmission from a pregnant woman to her fetus. According to Greg and Emily (2015) the ingestion of raw or uncooked shellfish may be the source of sporadic cases in endemic areas. In the endemic areas, prevention strategies should include improving hygiene and sanitary practices.

2.4 CLINICAL PRESENTATION

The course and clinical presentation of hepatitis E is highly variable (WHO, 2010). The detailed mechanisms that lead to the different clinical outcomes in hepatitis E are only partially understood. It is known that both viral factors (genotype and dose of inoculum) and host factors (presence of previous liver disease, pregnancy and distinct genetic polymorphisms) determine the course of infection. In most cases, hepatitis E causes self-limited illness, lasting from a few days to weeks, with an average of 4–6 weeks, Wedemeyer, Rybczynska, Pischke, & Krowczynski (2013). However, in developed countries it can cause chronic disease with rapid progression to cirrhosis, patients who are been transplanted are more at risk of infection, have hematological malignancies requiring chemotherapy, or have infection with HEV, (Ahmed. et al 2015).

After an incubation period of 2 to 6 weeks, the common symptoms of hepatitis appear, such as fever, nausea, abdominal pain, vomiting, anorexia, malaise and hepatomegaly (Ahmed, et al 2015). Jaundice occurs in about 40% of symptomatic cases in developing countries and in up to 75% of symptomatic cases in developed countries (Kamar, Dalton, Abravanel, & Izopet 2014). The period of symptoms and jaundice may last from days to weeks. Additionally, hepatitis E can lead to acute liver failure and should be remembered in differential diagnosis1. One cohort showed that 8 of 80 cases of acute liver failure in

Europe appeared to be associated with hepatitis E, Piper – Jenks, Horowitz and Schwartz (2000) state with half of these cases being initially diagnosed erroneously as drug-induced liver damage. Another study in the United States also stated that a small number of suspected cases of drug-induced liver damage may actually be caused by hepatitis E. They suggest that hepatitis E screening tests should be considered when the pattern of the lesion is similar to viral hepatitis and when the clinical characteristics and latency are unusual (Kleiner et al 2011).

In hyper endemic regions, the majority of cases present with acute and self-limited jaundice, with spontaneous resolution (viral clearance within 1 to 3 months). This illness is often clinically and biochemically indistinguishable from that caused by other hepatotoxic viruses, such as hepatitis A virus or hepatitis B virus, except for its epidemiological features, such as occurrence in outbreaks, association with contamination of water sources, young age of patients and predilection for pregnant women, (Aggarwal, 2011). Some of these cases have prolonged cholestasis disease and few patients develop severe liver injury that manifests as sub - acute or acute (or fulminant) liver failure. In addition, asymptomatic infection is also common in these areas, with milder liver injury and with only non-specific symptoms resembling acute febrile viral illness without jaundice (anicteric hepatitis); liver involvement in these patients is recognized only if laboratory studies are done (Aggarwal, 2011). In patients with previous chronic liver disease, there is a greater risk for poor prognosis. In those cases, the underlying chronic disease is often unknown/silent and the diagnosis is only made when hepatitis E overlaps (Murail, 2015).

2.5 SIGNS AND SYMPTOMS OF HEPATITIS E

The incubation period following exposure to the hepatitis E virus ranges from 2 to 10 weeks, with an average of 5–6 weeks. The infected persons are believed to excrete the virus beginning a few days before to around 3-4 weeks after the onset of disease (WHO, 2002).

In areas with high disease endemicity, symptomatic infection is most common in young adults aged 15–40 years. In these areas, although infection does occur in children, they often have either no symptoms or only a mild illness without jaundice that goes undiagnosed (WHO, 2010). Typical signs and symptoms of hepatitis include: an initial phase of mild fever, reduced appetite (anorexia), nausea and vomiting, lasting for a few days; some persons may also have abdominal pain, itching (without skin lesions), skin rash, or joint pain. (Khuroo, 2015). Jaundice (yellow discolorations of the skin and sclera of the eyes), with dark urine and pale stools; and a slightly enlarged, tender liver (hepatomegaly). These symptoms are often indistinguishable from those experienced during other liver illnesses and typically last between 1–6 weeks.

In rare cases, acute hepatitis E can be severe, and results in fulminant hepatitis (acute liver failure); these patients are at risk of death. Fulminant hepatitis occurs more frequently when hepatitis E occurs during pregnancy. Pregnant women with hepatitis E, particularly those in the second or third trimester, are at an increased risk of acute liver failure, fetal loss and mortality. Case fatality rates as high as 20–25% has been reported among pregnant women in their third trimester (WHO, 2002). Cases of chronic hepatitis E

infection have been reported in immunosuppressed people, particularly organ transplant recipients on immunosuppressive drugs, with genotype 3 or 4 HEV infection.

2.6 DIAGNOSIS OF HEPATITIS E VIRUS

Hepatitis E is an underdiagnosed disease, partly due to the use of serological tests with low sensitivity (Kamar et al, 2014). Diagnosis can be made indirectly by detecting antibodies against HEV in the serum, or directly by detecting the genome of the virus in blood or other body fluids. (Dalton et al, 2014).There is no genotype-specific serological test (Kamar, et al 2014). One study that sought to determine the kinetics of anti-hepatitis E antibodies found that, at the symptom stage, anti-hepatitis E antibody levels peak, and then remain at these levels for 8 weeks. After, the IgM levels fall rapidly, being below the detectable level in most patients after 32 weeks. IgG levels were found to be rising already when patients were symptomatic, reaching the peak at 4 weeks after onset of symptoms and remaining at high levels for more than 1 year. The exact duration of IgG response remains unknown (Dalton al, 2014).

These tests for anti-hepatitis E antibody screening are commercially available, but none of them has been approved by the Food and Drug Administration (FDA). Unfortunately, the sensitivity and specificity of these tests vary greatly and this could explain the discrepancies in rates of anti-hepatitis E antibodies published for the various populations studied. Until tests are approved by the FDA, physicians will rely on locally available tests. The tests for viral RNA in serum and feces are confirmatory, but still experimental (Nelson et al, 2012). One study compared six tests for anti-hepatitis E IgM antibodies in the serum of immune competent patients infected with the four types of hepatitis E, with

sensitivity of tests between 72 and 98% and specificity between 78.2 and 95.6%. (Drobeniuc, Meng, Reuter, Greene – Montfort, Khudyakova & Dimitrova, 2010). Another study evaluated two anti-hepatitis E IgM antibody tests in immune competent and immune compromised patients and showed that the sensitivity was 97.7% in immune competent patients and 85–87% in immune compromised patients, with the two tests having high specificity (>99.5%). (Legrand – Abravanel, et al 2009).

Trials evaluating anti-hepatitis E IgG antibodies have shown variable performance, with most available studies using serum from patients with recent infection, so that their ability to detect old/established infections remains unknown. The detection limits of these tests vary greatly and the IgG is sometimes undetectable after infection. These factors should be considered when interpreting sero - prevalence data available in the literature (Kamar et al. 2014). Another important point is that the concentration of anti-hepatitis E IgG antibodies could be useful in determining which level of IgG would prevent infection after natural infection or administration of the vaccine. To this end, a vaccine study suggested that the antibody concentration of 2.5 IU/mL would be protective (Dalton et al, 2014).

Regarding viremia, the peak occurs during the incubation period and the initial symptomatic phase (Dalton et al, 2014). Hepatitis E RNA in the blood becomes undetectable about 3 weeks after the onset of symptoms but can be detected in the stool for another 2 weeks. There is no correlation between levels of viremia and intensity of symptoms (Kamar et al, 2014). Thus, the initial examination for diagnosis of hepatitis E should be the anti-hepatitis E IgM antibody, leaving the HEV RNA detection by RT-PCR for suspected cases with anti-hepatitis E IgM negativity, especially in the immune compromised (WHO, 2010).

Chronic hepatitis E is diagnosed by the detection of HEV RNA in feces or serum after a minimum of 3 to 6 months after the diagnosis of hepatitis E. Thus, IgM and IgG serological tests are not used to diagnose or exclude chronic disease. According to Murail et al (2015) Very recent data, in the context of transplanted patients, found that there is no spontaneous clearance of HEV between 3 and 6 months after acute infection and this suggests that chronic infection should be considered when replication lasts more than 3 months. According to Kamar et al, (2014) one study showed that at diagnosis, transaminases were lower in patients who progressed to chronic disease. The mean alanine aminotransferase was 300 IU/L in chronic disease and 1000 IU/L in acute disease. There was also no correlation found between viral serum concentration and risk of progression to fibrosis (Murail et al, 2015).

Hepatic biopsies from patients with acute hepatitis E show a typical pattern of portal and lobular inflammation associated with hepatocyte necrosis. Cholestasis and ductal proliferation may also be observed in varying degrees, and even cases of destructive lymphocytic cholangitis have been reported. Similar to hepatitis C, steatosis and plasma cells can also be found Murail et al (2015) state that In general, no distinct histological feature has been identified that allows for differentiation between hepatitis B and C, supporting the hypothesis that the cellular immune response largely determines the severity of the disease. The inflammatory cell infiltrate in uncomplicated acute hepatitis E is predominantly neutrophils (Murail et al, 2015).

An important differential diagnosis is drug-induced liver injury, especially in the elderly, for whom poly pharmacy is common. In a more recent study from the United States, 3% of patients with "drug-induced liver damage" were misdiagnosed as they had positive hepatitis E tests in subsequent research. Studies like this show the importance of excluding other causes of a hepatocellular lesion before making the diagnosis of drug-induced injury, especially in patients with elevated transaminases (Kama et al 2014 & Ahmed et al 2015).

2.7 TREATMENT OF HEPATITIS E VIRUS

Several stages of the HEV cell cycle may be potential targets for development of antiviral drugs. According to Ahmed, Holla, and Jameel (2011) state that acute infection usually does not require treatment, but chronic infection should be treated by reducing immunosuppression in transplanted patients or by using antiviral therapy (Kamar et al, 2014). Chronic hepatitis E may lead to spontaneous resolution in some cases, but may also lead to rapid progression to cirrhosis and death. Hence, it is important to consider the treatment. Kamar et al (2014) and Murail et al (2015) demonstrated that reducing T cells to target immunosuppression helped in eradicating hepatitis E spontaneously in transplanted patients, in up to 1/3 of the cases evaluated. They reported that in the remaining 2/3 of cases antiviral therapy would be indicated. All published data are based on small series and case reports, since no randomized study was performed (Kamar et al, 2014). Nevertheless, one risk of reducing immunosuppression is the increased risk of rejection (Ahmed et al 2015 & Fujiwara et al 2014).

A 3-month course of pegylated-interferon therapy at a dose of 135 g/week was conducted with 3 liver-transplanted patients and 1 hemodialysis patient who had received a kidney transplant. A sustained viro-logical response was obtained in 3 of the 4 patients. A 12-month course of pegylated-interferon therapy was also effective in treating chronic hepatitis E after liver transplantation. However, interferon cannot be used after kidney, heart and lung transplantation due to the risk of acute rejection (Kamar et al, 2014).

Ribavirin, a guano sine analog, inhibits the replication of various RNA and DNA viruses. Kamar et al. (2010) state that studies have shown that ribavirin alone at a dose of 600–800 mg/day for 12 weeks has led to sustained viro - logical response in at least 2/3 of chronic hepatitis E cases. In addition, success with ribavirin led to its use to treat severe acute hepatitis E, with promising results. Kamar *et al.* (2010) performed a study in which 59 transplanted patients (kidney, liver, heart, kidney, pancreas, and lung) were treated with ribavirin at an average dose of 600 mg/day for a median of 3 months (Kamar et al, 2014). Fifty-four patients were genotyped and all were found to have genotype 3 infections. The researchers found that 95% of patients at the end of treatment had viral clearance, while 78% had sustained viro logical response. About 60% of patients had hepatitis E recurrence and 40% of these patients had sustained virology response after prolonged treatment with ribavirin. This study demonstrated that ribavirin is a good initial treatment option for chronic hepatitis E. The main side effect of ribavirin was anemia, seen in 54% of patients, with 12% requiring blood transfusion (Murail et al, 2015).

A recent systematic review evaluated the efficacy and safety of ribavirin treatment in 105 patients and of PEGylated-interferon treatment in 8 patients with chronic hepatitis E. Sixty-four percent of patients treated with ribavirin had an undetectable virus level within 6 months after stopping treatment, while only 2 of 8 (25%) of the patients treated with paginated-interferon achieved a sustained viro logic response. The main side effect of ribavirin in that study was again anemia, with 35% of patients requiring erythropoietin and 10% requiring blood transfusion. On the other hand, in the pegylated-interferon group, 2 of the 8 patients developed acute transplant rejection (Van Ton, Gevers & Drenth, 2015).

Therefore, ribavirin mono therapy has been applied, with promising results in both adults and children. The mechanism of action of ribavirin against HEV is still unknown. Kamar et al. (2014) state that studies with the use of sofosbuvir (SOF), a nucleotide drug against hepatitis C virus, were effective in inhibiting the replication of genotype 3 HEV *in vitro*, and this effect was greater when SOF was combined with ribavirin. (Dao et al, 2016) However, to date, hepatitis E treatment is experimental, there are no guidelines, (Fujiwara et al, 2014) and neither ribavirin nor interferon have been approved for this use. Nelson et al. (2012) On the other hand, Murali et al. (2015) suggest, as an initial approach, immunosuppression reduction and, in case of no adequate response, ribavirin at 600–800 mg/day for 3 months (with anemia monitoring) should be started.

2.8 PREVENTION OF HEPATITIS E VIRUS

In the endemic areas, prevention strategies should include improving hygiene and sanitary practices. In non-endemic areas, an important measure is to avoid consumption of undercooked meat. Murail et al. (2015) and Kamar et al. (2013) state that two vaccines

have been developed to prevent hepatitis E infection. Zhang et al. (2010). Shrestha *et al.* (2007) performed a phase 2 study with a recombinant vaccine with 2000 healthy adults and found 95.5% efficacy after three doses. However, the vaccine did not progress from phase 2. Murail et al. (2015). Zhu *et al.* (2010) published results from a phase 3, double-blind, randomized study with more than 50000 participants in each arm. Three doses of hepatitis E vaccine were given at 0, 1 and 6 months to participants, and the vaccine showed 100% efficacy at 12 months after vaccination. In the extension of the follow-up period, for up to 4.5 years, the vaccine showed efficacy of 86.8%. Murail et al. (2015) & Zhang et al. (2015) to date, this hepatitis E vaccine garnered approval in China but has not yet been approved in other countries. (Nelson et al, 2012 & Zhang et al, 2013).

2.9 SUMMARY OF THE CHAPTER

This chapter has reviewed the relevant literature on knowledge, attitude and practice on risk Hepatitis E virus among residents in Havana informal settlement related to their risk Hepatitis E virus. In this chapter, the introduction to literature was discussed and all the sub objectives that fall under this chapter were all discussed and well explained in detail. In conclusion, this chapter summarized all the above sub objectives that were covered under this chapter. The next chapter will present the methodology that the researcher followed to carry out this study.

CHAPTER 3: STUDY DESIGNS AND METHODOLOGY

3.1 INTRODUCTION

This chapter focused on the type of research design that the researcher used in conducting the study namely the design, population, data analysis and sample size as well as sampling methods. It described all research approaches for this study from the design to the data collection tools and analysis.

3.2 RESEARCH DESIGN

Research design is defined as a plan that a researcher has follow to carry out the study (Polit & Beck, 2008). In this study, a quantitative and cross – sectional analytical study design was used, because this study aimed to determine the Knowledge, Attitude and Practices of residents in Windhoek's Havana informal settlement, Khomas Region. According to Leedy and Ormrod, (2010) quantitative approach is defined as a formal, objective, systematic process to describe and test the relationship and examine cause and effect interaction among the variables.

3.3 CROSS SECTIONAL

A cross-sectional study is a non-experimental research design that looks at data at one point in time, that is, in the immediately present (Brink, Walt & van Ransburg, 2013; LoBiondo-Wood & Haber, 2015). It involves examining a group of subjects simultaneously in various stages of development to describe the changes in a phenomenon across these stages (Grove et al., 2015). In this study the researcher utilized a cross sectional design as data were collected from the research participants during a certain point in time and the data was then used to assess their knowledge, attitude and practices related to the risk of Hepatitis E virus. This design was suitable as it allowed the researcher

to have a snapshot of the situation and had enabled planning for any possible intervention. This study was conducted presently in September 2019, to determine the current knowledge, attitude and practices of residents in Havana informal settlement regarding the risk of hepatitis E virus in Windhoek Khomas region and all data were collected on time.

3.4 POPULATION, SAMPLE AND SAMPLING METHODS

3.4.1 POPULATION

A research population is a well-defined collection of individuals or objects known to have similar characteristics (Burns & Grove, 2011) about whom the study is conducted. The total population of residents in Havana informal settlements is more than 14500 (Census, 2011) and the population has increased over the years but the latest total population is not yet known. The target population of this study is the residents staying in Havana informal settlements, adults aged group 18- 60 years (male and female) who are able to read and write and willing to participate in the study.

3.4.2 SAMPLE SIZE

According to Burns and Grove, (2011) the study sample is the sub set of the population that is selected to represent the population that is being studied.

The sample size for this study was calculated considering the 95 % confidence interval. The sample size of this study is obtained using the formula $\frac{Z^2 P(1-p)}{d^2}$. The $Z_{1-\alpha}$ = is the standard

normal variety (at 5% type 1 error (P>0.05) it is 1.96 and type 1% error (P<0.01) it is 2.58). P= is expected proportion in population based on previous studies or pilot study and d = is absolute error or precision, therefore the total population of the study is n=14500 and sample size is n=552.

= Sample size is 256 residents from Samora Machel. Sample size is = 266 residents from the Moses Garoeb.

3.4.3 SAMPLING METHOD

Sampling method is the process/way to select or draw a sample from the study population (Burns & Grove, 2013). In this study, a stratified sampling method was used. A stratified sampling method is a method in which the population is divided into subgroups or strata according to variables or characteristics of importance to research study (Palsy, 2013). The stratified sampling method was an appropriate method for this study because Havana informal settlement is divided into two subs - groups, namely Samora Machel constituency and Moses Garoeb constituency. All study participants were obtained from the two constituencies of Havana mentioned above.

3.5 LIMITATIONS AND DELIMATATIONS

3.5.1 LIMITATIONS

The findings of this study cannot be generalized to residents in other informal settlements in Khomas region other than residents in Havana informal settlements, because the study was conducted among residents in Havana informal settlements and cannot be a representative to residents of informal settlements in other regions across the country.

3.5.2 DELIMITATIONS

The findings of this study are confined to assessing the knowledge, attitudes and practices of residents on risk factors of Hepatitis E virus and does not assess any other risk factors of virus. This study had also been confined to the residents of Havana informal settlements in Windhoek district Khomas region only.

3.6 RESEARCH INSTRUMENT

In this study, a structured interview questionnaire was developed to collect data from the subjects. A questionnaire allows uniformity of questions asked as well as the response given, and the questionnaire consisted of four sections. Section A collects demographic data of the participants such as gender, age, home language, employment status educational attainment, and occupation. Section B constitutes 7 variables on knowledge – residents' basic information with regards to Hepatitis E virus infection and prevention and treatment, section C constitutes 7 variables on attitudes – residents' attitudes towards the Hepatitis E virus and section D constitutes 7 variables on practices - residents regarding the risk factors involved with Hepatitis E virus in Havana informal settlement. These questions were employed to enable residents to be assessed on positive and negative attitudes and practices such as their ability to practice proper food preparations and

storage, proper hand washing and proper precautions that prevents Hepatitis E virus infection.

Havana informal settlement is divided into two parts, namely Moses Garoeb constituency with a total number of 6 000 residents and Samora Machel constituency with a total of 8500 residents (Moses Garoeb constituency, 2018). Knowledge was determined by scoring the knowledge questions and summing up the score out of 100%, a scale of 0 - 3 (low), 4-7 (average) and 7 - 10 (high) was used to classify knowledge level. Attitude was determined by scoring the practice questions and summing up the score out of 100%, a scale of 0 - 2 (low), 3- 5 (average) and 6 - 8 (high) was used to classify the attitude level. Practice was determined by scoring the practice questions and summing up the score out of 100%, a scale of 0 – 3 (low), 4 – 7 (average), and 7 – 10 (high) were used to classify the practice level.

Research instrument was formulated by the researcher based on literature review and possibility that participants may interpret the questions differently giving different answers. A tool which contains questions that participants were required to provide a written response was administered. Participants were asked to sign an informed consent form as an agreement to conduct the questionnaire. Instructions were clearly provided before the commencement of data collection procedure in the language understandable to all the participants. An opportunity to ask questions was provided to the participants shortly after the instructions to allow participants to familiarize themselves with things they don't understand, and revision through the questionnaire paper was done with the participants to ensure that they understand every question. The questionnaires were read

to the participants individually while the researcher recoded. In the end, all the questionnaires were obtained from the participants at Havana informal settlement.

3.7 INCLUSION AND EXCLUSION CRITERIA

3.7.1 INCLUSION CRITERIA

Inclusion criteria are the set of conditions that need to be met in order to participate in a study (Greg & Emily, 2015). In this study, it has included the residents who are staying in Havana informal settlement, male and female aged 18 – 60 years old who are able to speak Oshiwambo, Herero, Okavango, Damara and the ones who were willing to participate in the study.

3.7.2 EXCLUSION CRITERIA

Polit and Beck (2014) stated that exclusion criteria are characteristics that the study participants must not possess to be eligible. Residents who were not staying in Havana informal settlement and children were excluded from this study. Residents who were not willing to participate in the study were also excluded.

3.8 DATA COLLECTION PROCEDURE

According to Desmond (1996), a data collection method refers to the process of gathering the data from the study sample (Burns & Grove, 2013). In this research, the data collection was done among the residents of Havana informal settlement regarding the risk factors of Hepatitis E virus in Windhoek, Khomas region. A quantitative data was collected on knowledge, attitudes and practices regarding the risk factors of Hepatitis E virus by the researcher, at Havana informal settlement during weekends when most residents of Havana informal settlements were at home and not very much busy so that proper attention had been paid to the questionnaires between August and September 2019. An interview questionnaire was used by the researcher where by the researcher recorded the responses from the participants in Oshiwambo, Okavango, Damara, Afrikaans and Herero and then all responses were translated to English. After completion, questionnaires were collected by the prime researcher and kept safe for analysis. The researcher was using an assistant researcher to assist the researcher with data collection and translation of responses from vernacular languages to English; the assistant researchers were trained by the main researcher in order to familiarize them on protocols in research. Data were collected from 8 o'clock to 12H00 PM during the month of September 2019.

3.9 VALIDITY AND RELIABILITY

3.9.1 VALIDITY

In this study, Content validity was used to measure the knowledge to determine whether the residents in Havana informal settlement in Khomas region know how to practice correct measures regarding the risk factors of Hepatitis E virus. To measure validity, the questions for the research questionnaire were constructed from relevant literature reviews.

The questions were framed to include items that covered the research objectives. Content validity was measured by giving the instrument to supervisors to judge if content is correct, adequate and appropriate with regards to information being elicited on Hepatitis E virus guidelines. Some adjustments were made especially on phrasing questions to avoid medical terms for better understanding. The odds items are measuring the same attribute as the even items, to ensure internal consistency (Polit & Beck, 2014).

3.9.2 RELIABILITY

Reliability is the degree of consistency with which the instrument measures the attitudes, that is getting the same reading of same objects at different times (Polit & Beck, 2014). Maree (2009) also described reliability as the extent to which a measuring instrument had given the same results consistently. Therefore, it implies that the reliability of the instrument is the same over time. The assistant researchers who helped in administering the questionnaire were trained in understanding the questionnaire and administering it consistently during the data collection. This ensured the reliability of the data collected. Piloting of the questionnaire assisted in refining terms to ensure the pareticipants easily understood the terms and responds correctly as it related to them. The researcher developed an instrument basing on (Hepatitis E virus Module, 2017). Reliability of this instrument was tested during a pilot study. This was ensured through a pilot study done preliminarily to the main study with the aim of testing elements of the questionnaire and correcting any inconsistencies. The researcher had used the Cronbach's alpha test α to assess the reliability or internal consistency.

3.10 PILOT STUDY

A pilot study is a small-scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size (statistical variability) in an attempt to predict an appropriate sample size and improve up on study design prior to performance of a full-scale research project (Susan & Groove 2013). It was the system that was intended to study whereby the researcher used resembling subject. The pilot study for this study was conducted at the Goregab dam informal settlements in the Khomas region among 10 residents. Same informal settlement, same data collection, and data analysis methods were used for the pilot study as well as the actual research itself. The response rate were 94 % (n=10) participants responded but participants brought it to the researcher's attention that residents could not understand some medical terminologies.

Therefore, the researcher took note and avoided including the same subjects for the pilot study in the major study to reduce bias. Adjustments were made to the instrument to ensure reliability and validity. Some of these adjustments had medical terms which the participants could not understand. These questions were rephrased with the assistance of the supervisor. The purpose for testing the instrument was to assess the feasibility of the research project, the practical responsibilities that come with carrying it out and for adequacy and correctness of errors. The researcher carried out the pilot study and the adjustments were made to the instrument to ensure validity and reliability. Some of these adjustments had medical terminologies which subjects (residents) could not understand at all.

3.11 DATA ANALYSIS

The researcher had used a statistical method to analyze data. Data analysis is the process of organizing and giving meaning to data (Burns & Groove, 1993). It involves organizing, categorizing and summarizing the information in order to establish the meaning and present evidence. The responses from each questionnaire were entered into a data entry template in SPSS statistic software version 25 of the year 2017 and the Chi square method was used. The association between knowledge, attitude and practice were analyzed, knowledge, attitude and the significance tested using Chi squared tested at alpha level of 0.05. The data were cleaned and coded and edited for discrepancies before carrying out descriptive and analytic statistical analyses. Descriptive statistics and inferential statistics were used for the analysis of data. The findings were described in frequencies and percentages and presented in table forms, pie charts and graphics. The tables were arranged to question sequence with the first table showing demographic data and the succeeding tables and charts showed the data relating to the information received from participants regarding the Knowledge, Attitude and Practices of residents of Havana informal settlement regarding the risk factors of Hepatitis E virus, Windhoek Khomas region respectively.

3.12 RESEARCH ETHICS

Permission had been granted by the Ministry of Health and Social Services and the Faculty of health sciences at the University of Namibia for the approval of this study. The researcher had complied with ethical aspects such as confidentiality, respect, and freedom of participation. Anonymity was maintained at all cost. To ensure anonymity participants were informed to not include their names on the questionnaire. The privacy of participants

was ensured by keeping participants information undisclosed by not requesting for name or personal details of participants on the questionnaire.

3.12.1 PRINCIPLE OF RESPECT

Showing respect for persons is a system for interaction in which one entity ensures that another has agency to be able to make a choice. The relationship between researchers and research participants had been the ground on which human research was conducted. In this study, the researcher had showed respect to Havana informal settlement participants by greeting them all before discussing with them about the research in details.

3.12.2 PRINCIPLE OF BENEFICENCE

The Researcher exercised beneficence by assessing and taking account of the risks of harm and the potential benefits of research to participants and to the wider community, being sensitive to the welfare and interests of people involved in the study, and by reflecting on the social and cultural implications of their work. In this study, the researcher did well and promoted good by staying positive with residents all the time despite the negative impact of Hepatitis E virus to the residents e.g. reassuring the residents on Hepatitis E outbreak in Havana informal settlement.

3.12.3 PRINCIPLE OF JUSTICE

In this study, participation was voluntary and participants could withdraw from the study without the risk of penalty or prejudicial treatment. Participants had the right to decide whether they wanted to participate or not. The researcher respected the decision of the participants who were not willing to participate and reassured them that it was their right and not an obligation.

3.12.4 PRINCIPLE OF ANONYMITY

To ensure anonymity the participants were not asked their names, they were allocated with numbers in order to protect their identity. The master list with the participants' names and code number were kept separately from the data collected in order to protect the participants' anonymity. While confidentiality was ensured by not sharing the information linked to the participants' names with other individuals (Butts & Rich, 2008).

3.13 SUMMARY OF THE CHAPTER

This chapter discussed the research methodology that was used in the study. A quantitative method was found to be the most appropriate approach for this study. The discussion in this chapter focused on the research design, population, sampling, research instruments, data collection procedure, data analysis, pilot study, validity and reliability as well as the issue of research ethics. The next chapter deals with the results of the analysis of the data and findings from the research.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

4.1 INTRODUCTION

In this chapter, data were grouped and arranged in a manner that they can be presented and interpreted. Data analysis is the process of organizing and giving meaning to data (Burns & Groove, 2015). It involves examining, categorizing and summarizing the information in order to establish the meaning and present evidence. Data analysis entails categorizing, ordering, describing, interpreting and summarizing the data in a meaningful manner. Tables and graphs as well as percentages are used to interpret the data. The descriptions and characteristics of the participants were presented in order to give the reader an understanding of the selected sample. Descriptive statistics and inferential statistics were used for the analysis of data.

4.2 DEMOGRAPHIC RESULT

Participant's age

Participants were asked to indicate their ages in the questionnaires as part of the demographic data obtained. The results are rated using the Likert scale.

Table 1 Participants Age

	N	Minimum	Maximum	Mean	Std. Dev
Participant Age	400	18	60	28.87	6.215

As seen in table 1, the minimum rate on the age was 18, maximum was 60 and the mean is 28.87. Participant's ages were scored and added into a range form which has put the ages into categories using the Likert scale. The results is presented in the table below.

Table 2 Participant's age in categories

	Frequency	Percent	Valid Percent	Cumulative Percent
18 – 26	172	43.0	43.0	43.0
27 – 36	189	47.3	47.3	90.3
37 – 46	31	7.8	7.8	98.0
47 – 60	8	2.0	2.0	100.0
Total	400	100.0	100.0	

As it appears in table 2, the majority of the participants in the study from both Moses Garoeb and Samora Machel constituencies were participants from aged 27 -36 years 47.3% (n=189), followed by participants aged 18- 26 years 43% (n=172) and then followed by participants aged 37 - 46 years (7.8%, n=31) and then the least represented were participants aged 47 – 60 years 2% (n=8).

Participants were asked to indicate their location during data collection in the questionnaires and the results were rated using Likert scale as shown in table 3.

Table 3 Participants location

	Frequency	Percent	Valid %	Cumulative %
Samora Machel	200	50.0	50.0	50.0
Moses Garoeb	200	50.0	50.0	100.0
Total	400	100.0	100.0	

As shown in table 3, a total number of 400 questionnaires were distributed equally among the two constituencies in Havana informal settlement and each had 200 and both had 50% out of 100% total population.

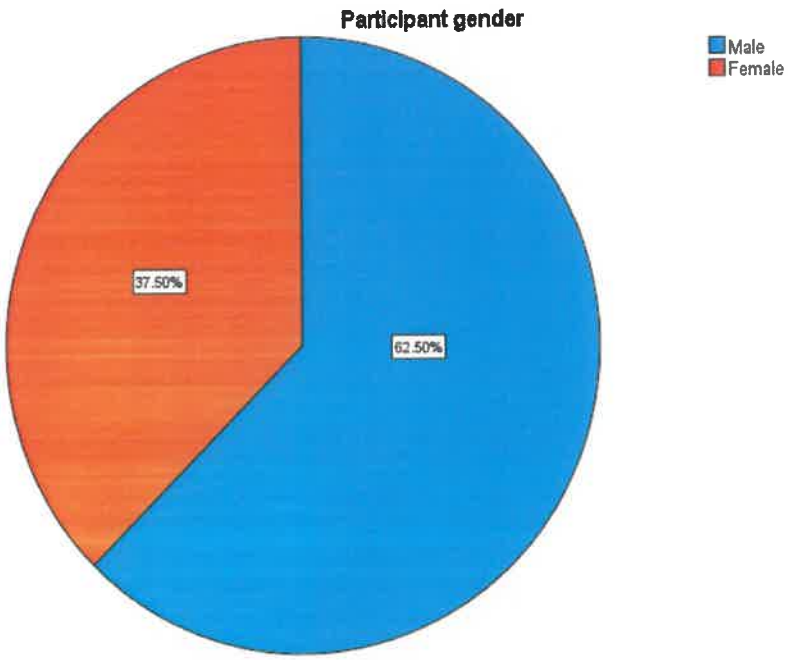

Figure 4 Participants Gender

As seen in figure 4, majority of the participants in the study from both Moses Garoeb and Samora Machel constituencies were male with 62.50% (n=250) of the total population

and female were 37.50% (n=150) of the total population from both constituencies. This means the majority of the participants who were willing to take part in the study were males and were willing to explore their knowledge, attitudes and practices on the risk factors of hepatitis E virus in Havana informal settlement.

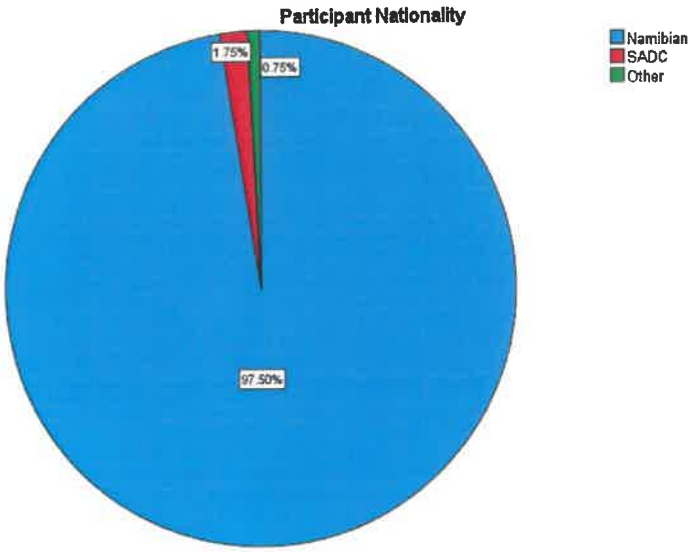

Figure 5 Participant's Nationality

As shown in figure 5, the majority of the nationality in the study from both constituencies of Havana informal settlement were Namibians with a huge number 97.50% (n= 390) of the total population of the study, then followed by SADC with the smaller number 1.75%, (n=7) of the total population and others with a smallest number of 0.75% (n=3) of the total population of the study.

Participant's highest qualification

Table 4 Summarized Participant highest qualification

Table 4 Summarized Participant highest qualification					
		Frequency	Percent	Valid %	Cumulative %
	Secondary Education	163	40.8	40.8	50.2
	Tertiary education	141	35.3	35.3	85.5
	No Education	58	14.5	14.5	100.0
	Total	400	100.0	100.0	

As shown in table 4. Majority of the participants in this study were people who have already reached secondary education with participants of the total number of 40.8% (n=163). Therefore, 35.3% (n=141) were from tertiary education and 14.5% (n=58) had never obtained any qualification.

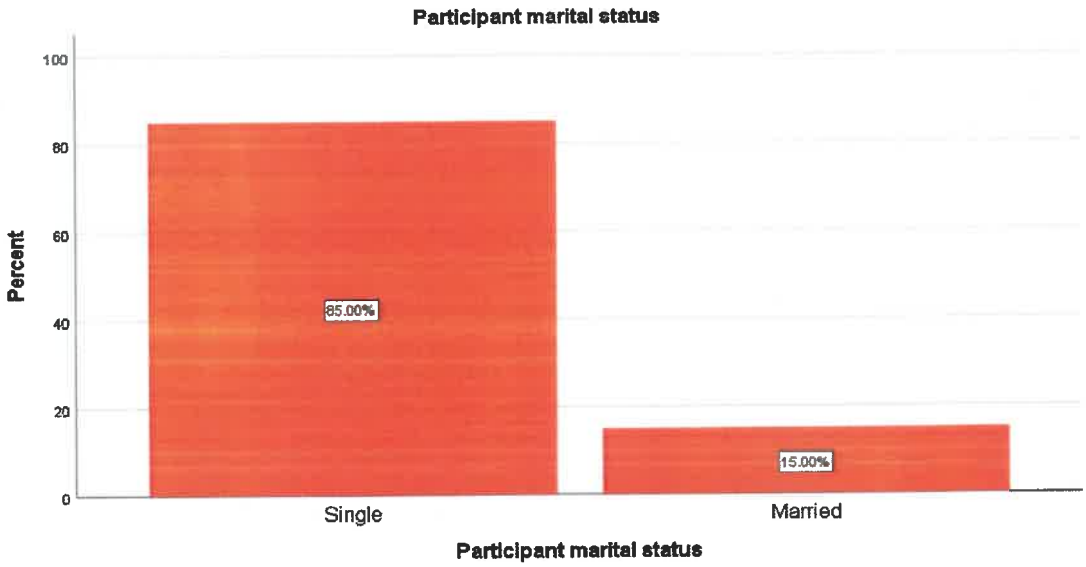

Figure 6 Participants marital status

The majority of the participants as shown in figure 6 in the study were single with the total number of 85% (n=340). However, a very little total number of 15% (n=60) participants out of the total number of the population in the study were married, though the population was little, proper responds were obtained from them.

Participant's ethnic group

The results are shown in the figure below.

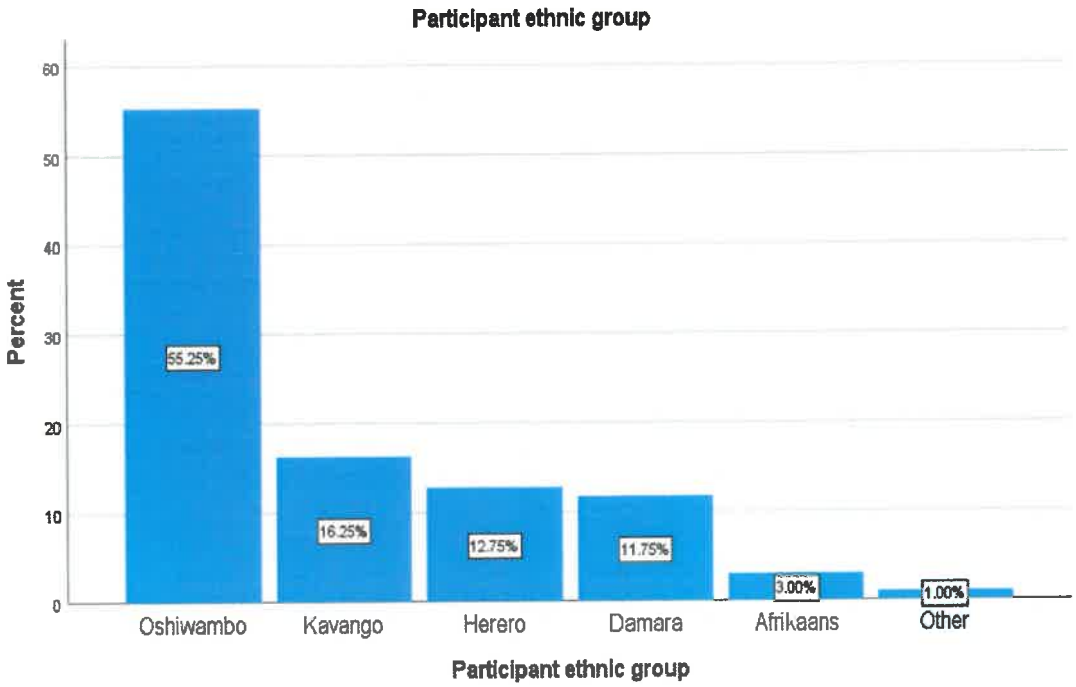

Figure 7 Participants ethnic group

The majority of the participants as shown in figure 7 in the study were the Oshiwambo speaking people with a total number of 55.25%, (n=221) participants out of the total number of population in the study. The second ethnic group was the Okavango speaking people who had 16.25% (n=65) participants out of the total population in the study then

followed by the Herero ethnic group who had 12.75% (n=51) participants out of the total number of population in the study. The fourth ethnic group were Damara speaking people who had 11.75% (n=47) participants out of the total population in the study, followed by a very little number of 3.0% (n=12) participants from the Afrikaans ethnic groups. Last but not least were other ethnic groups which had a total number of 1.0% (n=4) participants out of the total number of the study.

Participant's employment status

The figure below shows the results in details.

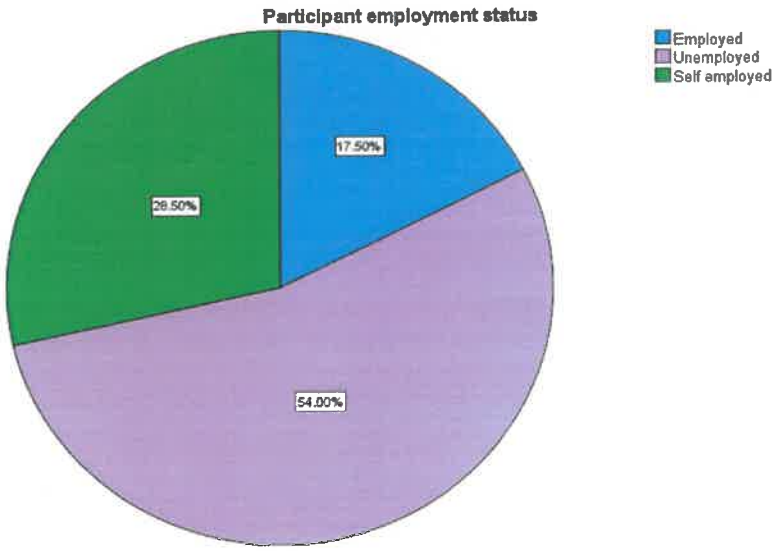

Figure 8 Participants employment status

The majority of the participants as shown in figure 8 in the study from both constituencies were unemployed with the highest number of 54% (n=216) participants out of the total population of the study. A few participants in the study were self-employed with small growing established businesses on their own with a total number of 28.50% (n=114) of the total number of participants in the study. Moreover, there were a few individuals from

the participants in the study who were employed with a total number of 17.50% (n=70) participants out of the total population in the study from both two Havana constituencies.

4.3 Participant's knowledge regarding the risk Factors of Hepatitis E virus.

Each participants was given questionnaires to answer individually and were rated using a Likert scale and table 4.5 illustrates the results in details.

Table 5 Participant's knowledge of residents regarding the risk Factors of Hepatitis E virus.

Variables : Knowledge	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
1.Hepatitis E is the infection of the kidneys	40 (10%)	110 (27.5%)	86 (21.5%)	76 (19.0%)	88 (22.0%)
2.Hepatitis E is the infection of the liver	124 (31.0%)	183 (45.8%)	81 (20.3%)	10 (2.5%)	2 (5%)
3.A person can get Hepatitis E through blood which has hepatitis E virus	87 (16.3%)	167 (41.8%)	90 (22.5%)	41 (10.3%)	35 (8.8%)
4.Poor living conditions and sanitation may make people to get Hepatitis E	160 (40.0%)	164 (41.0%)	65 (16.3%)	6 (1.5%)	5 (1.3%)
5.Everyone is in danger of Hepatitis E virus	136 (34.0%)	166 (41.5%)	77 (19.3%)	14 (3.5%)	7 (1.8%)
6.Diarrhea, coughing and stomach pain are the signs and symptoms of Hepatitis E virus	95 (23.8%)	176 (44.4%)	89 (22.3%)	22 (5.5%)	18 (4.5%)
7.Pain in the bones and swelling of the liver are signs and symptoms of Hepatitis E virus	92 (23.0%)	164 (41.0%)	105 (26.3%)	24 (6.0%)	15 (3.8%)

Variable 1

Data on participants knowledge regarding the risk factors of hepatitis E virus in Havana informal settlement were obtained from participants (400) from both Moses Garoeb and Samora Machel constituencies in Khomas region accordingly, 10% (n=40) participants had strongly agreed to hepatitis e virus is the infection of the kidneys, 27.5% (n=110) participants had agreed, 21. % (n=86) Participants had chosen neutral, 19.0% (n=76) participants had disagreed and 22. % (n=88) participants had strongly disagreed.

Variable 2

Moving on to the second variable, 31.0% (n=124) participants had strongly agreed that hepatitis e virus is the infection of the liver, 35.8% (n=183) participants had agreed, Therefore, 20.3% (n=8) participants had chosen neutral, 2.5% (n=10) participants had agreed and 5% (n=2) participants strongly disagreed.

Variable 3

Furthermore, 16.3% (n=87) Participants had strongly agreed to a person can get hepatitis e virus through blood which has hepatitis e virus, 41.8% (n=167) participants had agreed, 22.5% (n=90) participants had chosen neutral, 10.3% (n=41) participants had disagreed and 8.8% (n=35) participants strongly disagreed.

Variable 4

Moreover, 40% (n=160) participants strongly agreed to poor living conditions and sanitation may make people to get hepatitis E virus, 41% (n=164) participants had agreed,

16, 3% (n=65) participants had chosen neutral, 1.5% (n=6) participants disagreed and 1.3% (n=5) participants strongly disagreed.

Variable 5

Furthermore, 34% (n=136) participants had strongly agreed to everyone is in danger of Hepatitis E virus, 41.5% (n=166) participants had agreed, 19.3% (n=77) participants had chosen neutral, 3.5% (n=14) participants disagreed and 1.8% (n=7) participants strongly disagreed.

Variable 6

Furthermore, 23.8% (n=95) participants strongly agreed to diarrhea, coughing and stomach pain are the signs and symptoms of Hepatitis E virus, 44.4% (n=176) participants agreed, 22.3% (n=89) participants had chosen neutral, 5.5% (n=22) participants disagreed and 4.5% (n=18) participants strongly disagreed.

Variable 7

Last but not least, 23.0% (n=92) participants strongly agreed to Pain in the bones and swelling of the liver are signs and symptoms of Hepatitis E virus, 41.0% (n=164) participants agreed, 26.3% (n=106) participants had chosen neutral, 6.0% (n=24) participants disagreed and 3.8% (n=15) participants strongly disagreed.

4.4 Overall knowledge of residents regarding the risk factors of hepatitis e virus

Data on participant's knowledge were scored and then added together to come up with a final score and then the final scores were categorized in either high/low knowledge as it is summarized in the table below.

Table 6 Overall knowledge of the residents regarding the risk factors of hepatitis e virus

		Frequency	Percent	Valid Percent	Cumulative Percent
	High Level	333	83.3	83.3	83.3
	Low Level	67	16.8	16.8	100.0
	Total	400	100.0	100.0	

The study revealed that majority of the participants had high level of knowledge 83.3% (n=333) while the least participants had low level of knowledge 16.8% (n=67). This means participants had high level of knowledge regarding the risk factors of hepatitis E virus.

4.5 Resident's attitude regarding the risk factors of Hepatitis E virus.

Each participant was given a questionnaire to answer individually and separately and results were rated using the Likert scale. The table below illustrates the results in details.

Table 7 Attitudes of the residents regarding the risk factors of Hepatitis E virus.

Variables : Attitude	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
1.Protective ways of Hepatitis E virus is to drink more water	34 (8.5%)	56 (14.0%)	94 (23.5%)	85 (21.3%)	131 (32.8%)
2.Using of safe water may prevent Hepatitis E virus	148 (37.0%)	154 (38.5%)	84 (21.0%)	12 (3.0%)	2 (0.5%)
3.Hepatitis E can cause death and makes the liver not to function well	132 (33.0%)	216 (54.0%)	32 (8.0%)	16 (4.0%)	4 (1.0%)
4.Hepatitis E virus can cause heart problem	89 (22.3%)	189 (47.3%)	65 (16.3%)	36 (9.0%)	21 (5.3%)
5. You will get hepatitis E if you touch a person who has hepatitis E virus	80 (20.0%)	159 (39.8%)	84 (21.0%)	35 (8.8%)	42 (10.5%)
6.TB makes people to get Hepatitis E virus	92 (23.0%)	159 (39.8%)	77 (19.3%)	30 (7.5%)	42 (10.5%)
7.Yellowness of the skin is caused by Hepatitis E virus	104 (26.0%)	178 (44.5%)	89 (22.3%)	14 (3.5%)	15 (3.8%)

Variable 1

Data on attitudes regarding the risk factors of the hepatitis e virus in Havana informal settlement in Windhoek Khomas region were obtained from the participants 100% (n=400) from both two Havana constituencies Moses Garoeb and Samora Machel simultaneously. In the first variable of attitude 8.5% (n=34) participants had strongly agreed that a protective measure against the hepatitis E virus is to drink more water, 14.0% (n=56) participants had agreed, 23.5% (n=94) participants had chosen neutral, 21.3% (n=85) participants had disagreed and 32.8% (n=131) participants had strongly disagreed.

Variable 2

In the following variable had 37.0% (n=148) participants had strongly agreed to using of safe water may prevent Hepatitis E virus, 38.5% (n=154) participants had agreed, 21.0% (n=84) participants had chosen neutral, 3.0% (n=12) participants had disagreed and 5% (n=2) participants had strongly disagreed.

Variable 3

Therefore, 33.0% (n=132) participants had strongly agreed to hepatitis E virus could cause death and makes the liver not to function well, 54.0% (n=216) participants had agreed, 8.0% (n=32) participants had chosen neutral, 4.0% (n=16) participants had disagreed and then 1.0% (n=4) participants had strongly disagreed.

Variable 4

Furthermore, it was found 22.3% (n=89) participants had strongly agreed to hepatitis E virus can cause heart problem, 47.3% (n=189) participants had agreed 16.3% (n=65)

participants had chosen neutral while 9.0% (n=36) participants had disagreed and then 5.3% (n=21) participants had strongly disagreed.

Variable 5

Moreover in this variable, there were 20.0% (n=80) participants strongly had agreed to you will get hepatitis E if you touch a person who has hepatitis E virus, 39.8% (n=159) participants had agreed, 21.0% (n=84) participants had chosen neutral, while 8.8% (n=35) participants had disagreed and then 10.5% (n=42) participants had strongly disagreed.

Variable 6

However, there were 23.0% (n=92) participants who had strongly agreed to TB makes people to get hepatitis E virus, (39.8%, n=159) participants had agreed, 19.3% (n=77) participants had chosen neutral, while 7.5% (n=30) participants had disagreed and then 10.5% (n=42) participants had strongly disagreed.

Variable 7

Last but not least in the variables, 26.0% (n=104) participants had strongly agreed to yellowness of the skin is caused by hepatitis E virus, 44.5% (n=178) participants had agreed, 22.3% (n=89) participants had chosen neutral, 3.5% (n=14) participants had disagreed and then 3.8% (n=15) participants had strongly disagreed.

4.6 Overall attitudes of the residents regarding the risk factors of hepatitis e virus

Data on participants attitudes were scored and then added together to obtain a final score and then the final scores were categorized either positive/negative attitude.

Table 8 the overall attitudes of residents regarding the risk factors of hepatitis e virus

		Frequency	Percent	Valid Percent	Cumulative Percent
	Positive Attitude	373	93.3	93.3	93.3
	Negative Attitude	27	6.8	6.8	100.0
	Total	400	100.0	100.0	

The study revealed that the majority number of participants had a positive attitude 93.3%, (n=373) which covers almost the total population in the study while a fewer number of the participants were negative attitude 6.8% (n=27) which was the least in the study.

4.7 Practices of residents regarding the risk factors of Hepatitis E virus in Khomas region

All participants from both constituencies were given questionnaires to answer questions on practices and the results were rated in Likert scale. Table 9 illustrates the results obtained and interpreted.

Table 9 Practices of residents regarding the risk factors of Hepatitis E virus in Khomas region.

Variables: Practice	Always	Sometimes	Never
1. Do you drink boiled water at home?	67 (16.8%)	271 (67.1%)	62 (15.5%)
2. Do you wash your hands with boiled water at home?	75 (18.8%)	261 (65.3%)	64 (16.0%)
3. Do you go for a check up to see if you have Hepatitis E virus or not?	39 (9.8%)	218 (54.5%)	143 (35.8%)
4. Do you cover the food and food stuffs at home after you have eaten?	128 (32.0%)	192 (48.0%)	80 (20.0%)
5. Do you eat clean and well cooked food at home?	122 (30.5%)	132 (33.0%)	146 (36.5%)
6. Do you wash your hands with clean water before preparing food at home?	100 (25.0%)	94 (23.5%)	206 (51.5%)
7. Do you go for vaccination ii order for you not to get Hepatitis E virus?	13 (3.3%)	36 (9.0%)	351 (87.8%)

Variable 1

Participants were asked questions on their practices regarding the risk factors of hepatitis E virus and the respondents were noted. A total number of 16.8% (n=67) participants had chosen always to do you drink boiled water at home, 67.1% (n=271) participants had chosen Sometimes in the variable and then 15.5% (n=62) participants had chosen Never.

Variable 2

In this variable, 18.8% (n=75) participants had chosen always to 'do you wash your hands with boiled water at home?' in the questionnaire, 65.3% (n=261) participants had chosen sometimes and then 16.0% (n=64) participants had chosen Never.

Variable 3

In this item participants answered the questions accurately and honest, a least numbers of 9.8% (n=39) participants in the study had chosen always as answer to 'do you go for a check up to see if you have Hepatitis E virus or not? Therefore, 54.5% (n=218) participants in the study had chosen sometimes as an answer which was the majority and then 35.8% (n=143) participants had chosen Never.

Variable 4

In this item, participants had answered the questions correctly where by 32.0% (n=128) participants in the study had chosen always to 'do you cover the food and food stuffs at home after you have eaten?' while 48.0% (n=192) Participants in the study had chosen sometimes and then 20.0% (n=80) participants in the study had chosen Never in the questionnaire.

Variable 5

In this question, all of the variables were answered very well and correctly by the participants, 30.5% (n=122) participants had chosen always as an answer to 'do you eat clean and well cooked food at home?' However, 33.0% (n=132) participants in the study had chosen sometimes and then 36.5% (n=146) participants in the study had chosen Never.

Variable 6

In this question, participants had almost answered this question equally, 25.0% (n=100) participants in the study had chosen Always to 'do you wash your hands with clean water before preparing food at home?' Moreover 23.5% (n=94) participants in the study had chosen sometimes as an answer and then 51.5% (n=206) participants in the study had chosen Never.

Variable 7

In this question, a small number of 3.3% (n=13) participants in the study had chosen always to 'do you go for vaccination ii order for you not to get Hepatitis E virus?' Moving on, 9.0% (n=36) participants in the study had chosen sometimes and then a very large number of 87.8% (n=351) participants in the study had chosen never.

4.8 The summarized overall practice of residents regarding the risk factors of hepatitis E virus

Data on participants practice were scored and then added together to create a final score and then the final score was categorized either into good practice/poor practice as shown in the table below.

Table 10 summarized the overall practice of residents in Havana informal settlement regarding the risk factors of hepatitis E virus

		Frequency	Percent	Valid %	Cumulative %
	Good Practice	135	33.8	33.8	33.8
	Poor Practice	265	66.3	66.3	100.0
	Total	400	100.0	100.0	

As seen in table 10, majority of the number of the participants in the study had poor practice 66.3% (n=135) while the little number of the participants had good practice 33.8% (n=135).

4.9 The assessed relationship between knowledge and practice

Data on the relationship between the knowledge and practice were assessed and categorized in the table, high level of knowledge and low level of knowledge and the results are presented in the table below.

Table 11 the relationship between knowledge and practice

Knowledge Category * Practice Category Cross tabulation					
			Practice Category		
			Good Practice	Poor Practice	Total
Knowledge Category	High Level	Count	104	229	333
		% within Knowledge Category	31.2%	68.8%	100.0%
	Low Level	Count	31	36	67
		% within Knowledge Category	46.3%	53.7%	100.0%
Total		Count	135	265	400
		% within Knowledge Category	33.8%	66.3%	100.0%

P value=0.18

As shown in table 11, there was a significant difference between the knowledge and practices on the participants in Havana informal settlement. Therefore, 31.2% (n=104) participants of high level knowledge had good practice, while 68.8% (n=229) high level of knowledge participants had poor practice. However, 46, 3% (n=31) low level of knowledge participants had good practice while 53.7% (n=36) low level of knowledge participants had poor practice. Last but not least, a total number of 36.8% (n=135) participants had good practice while a total number of 66.3% (n=265) participants had poor practice.

4.10 Data on the relationship between the participant's attitude and practices were assessed and categorized in the table form. Positive and negative attitudes results were presented in the table below.

Table 12 indicates the assessed relationship between attitude and practices

Attitude Category * Practice Category Cross tabulation					
			Practice Category		
			Good Practice	Poor Practice	Total
Attitude Category	Positive Attitude	Count	120	253	373
		% within Attitude Category	32.2%	67.8%	100.0 %
	Negative Attitude	Count	15	12	27
		% within Attitude Category	55.6%	44.4%	100.0 %
Total		Count	135	265	400
		% within Attitude Category	33.8%	66.3%	100.0 %

P value =0.13

As shown in table 12, there is a significant difference between practices and attitude on participants in Havana informal settlement. There were 32.2% (n=120) participants with positive attitude had good practice while 67.8% (n=253) participants had poor practice. However, 55.5% (n=15) participants with negative attitudes had good practice while 44.4% (n=12) participants had poor attitudes. It is revealed that participants with positive attitudes had poor attitudes and participants with negative attitudes had poor practice respectively.

4.11 SUMMARY OF THE CHAPTER

This chapter had dealt with data analysis with respect to demographic data of sampled residents and the information from the participants regarding their knowledge, attitudes and practices regarding the risk factors of hepatitis E virus among the residents in Havana informal settlement in Windhoek, in Khomas region. The sources of information to residents were well explained and feelings of respondents regarding information obtained were described in tables and graphs. The next chapter deals with the discussion, limitations, recommendations and conclusions of the findings.

CHAPTER 5: DISCUSSIONS OF THE FINDINGS

5.1 INTRODUCTION

This chapter focused on the discussions of the findings regarding the knowledge, attitudes and practices regarding the risk factors of hepatitis E virus among residents in Havana informal settlement in Windhoek, Khomas region. The discussion had included demographic, knowledge, attitude and practices of residents in Havana informal settlement on risk factors of hepatitis E virus. The significance of the findings was highlighted and the findings from the study were compared to the findings of other research studies which were published on the subject which was reviewed from the literature (see in chapter two in the study).

5.2 DEMOGRAPHIC DATA

In this study the participants were 100% from age 18 – 60 years old and majority of the participants from both Havana constituencies were from 20 – 45 years old, that's why the majority of the participants in the study were younger age to middle age. The male participants were 62.50% and female participants were 37.50% in the study from both Moses Garoeb and Samora Machel constituencies.

The study indicated that males had dominated so much in the study over females and they had participated actively in the study compared to females. The study revealed that 97.50% participants in the study from both constituencies in Havana were Namibians while 1.75% participants in the study belonged to SADC and then 0.75% participants in the study were OTHER respectively. This study is very similar to the study conducted in Nigeria by Aggarwal (2011) which revealed that male participants were more than female with 75% males and 35% females in his study. Participants were divided into two

locations, namely Moses Garoeb and Samora Machel constituency and all questionnaires were equally distributed among the two constituencies. Study revealed that people living in rural areas are at great risk for contracting the hepatitis E virus due to poor sanitation, lack of clean water and lack of resources in their settlements.

The study revealed that the majority of 40.8% participants had attended the secondary school, 35.3% participants had attended tertiary education while 9.5% participants had attended primary school and the 14.5% participants had never attended any school at all. A study conducted in the United States of America by Greg and Emily (2015) reported the significant relationship between the highest qualifications participants and the practices of residents in preventing the risk factors of hepatitis E virus in rural areas with 78% of the study participants were people who were at tertiary institutions. Therefore, in the study, the researcher had found that the higher the qualification obtained by the participants the higher their practices in recognizing the risk factors of hepatitis E virus in the informal settlement.

The study had also revealed that 85% participants in both Moses Garoeb and Samora Machel constituencies were single and 15% participants were married, this means majority of the participants do not have combined income as married couples to afford a better living standard compared to participants who are married couples and help each other financially.

The study revealed 55.25% participant's ethnic groups were the Oshiwambo speaking people, 16.25% were Okavango speaking people, 12.75% participants were from Herero speaking people, 11.75% participants were Damara speaking people while 3% participants

were from the Afrikaans speaking people and 1% participants were from other ethnic groups. A study conducted by Moyo (2016) in Zimbabwe revealed that the Shona ethnic groups had 82% in the study compared to other ethnic groups in Zimbabwe and that means that Shona is the most populated indigenous people in that country. In this study, it was revealed that the majority of the participants in the study were from Oshiwambo ethnic groups, followed by the Okavango ethnic group, then Herero ethnic group, Damara ethnic group and the Afrikaans speaking people, last but not least the other ethnic groups in both Moses Garoeb and Samora Machel constituencies.

The study revealed 54% participants were unemployed, 28.50% participants were self – employed and 17.50% participants were employed. In comparison with the study conducted by Khuroo (2015) in Tanzania that revealed that 65% participants were unemployed and had a negative impact on the results obtained in his study. In contrast with this study, it was revealed that unemployment had affected the participant's knowledge, attitudes and practices capabilities in recognizing the risk factors of hepatitis E virus in the informal settlements. This means participants cannot afford to buy clean or proper food, flushing toilets and clean bathrooms as well as clean water due to unemployment and lack of funds.

The study had 35.3% participants out of the total population in Havana who are at tertiary education and this number is also huge and had contributed a lot to the study with more fissile responds from participants with tertiary education. A very little number of 14.5% participants of the total population who had never attended school at all and a very small number of 9.5% participants who had attended primary school out of the total population of the study in Havana informal settlement.

5.3 RESIDENTS KNOWLEDGE ON THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that the participants had poor of knowledge on hepatitis E is the infection of the kidneys such as strongly agree 10%, agreed 27.5%, neutral 21.5%, disagreed 19.0% and strongly disagreed 22.0%. This study revealed that the majority of participants lack knowledge that hepatitis E virus is the infection of the kidneys. In contrast to the study done by Ahmed (2015) in Ukraine which revealed that 87% participants had poor knowledge about the meaning of hepatitis E virus.

The study revealed that participants had good knowledge on hepatitis E is the infection of the liver such as 31.0% had strongly agreed, 45.8% participants agreed, 20.3% participants were neutral, and 2.5% participants disagreed and 5% participants strongly disagreed. The study revealed that there is a significant association between hepatitis E is the infection of the liver and academic qualification obtained.

The study revealed that participants had good knowledge on a person can get Hepatitis E through blood which has hepatitis E virus such as 16.3% participants strongly agreed, 41.8% participants agreed, 22.5% participants were neutral while 10.3% participants disagreed and 8.8% participants strongly disagreed. The study revealed that there is significant understanding between the gender and knowledge on person can get hepatitis E through blood contact. This revealed that males had more knowledge more than females.

The study revealed that there is good knowledge on poor living conditions and sanitation may make people to get Hepatitis E such as 40% participants strongly agreed, 41% participants agreed, 16.3% were neutral while 1.5% participants disagreed and 1.3% participants strongly disagreed. Study revealed that participants are more knowledgeable about the risk factors of Hepatitis E virus and are able to acknowledge them even though some of them have poor educational background. This means there is a significant association between location and knowledge of the participants, therefore a person should reside in a particular area with poor sanitation in order to have such knowledge about the risk factors of hepatitis E virus in the community.

The study revealed that there is poor knowledge on everyone is on risk of getting Hepatitis E virus such as 34.0% participants strongly agreed, 41.5% participants agreed, 19.3% participants were neutral, 3.5% participants disagreed and 1.8% participants strongly disagreed. Study revealed that the majority strongly agreed to everyone is in danger which shows poor knowledge among respondents due to poor educational attainment. A study conducted by Zhang (2013) in China reports that poor educational background has a significant relation to poor knowledge.

The study revealed that there is a good knowledge from participants on diarrhea, coughing and stomach pain are the signs and symptoms of Hepatitis E virus such as 23.8% participants strongly agreed, 44.4% participants agreed, 23.8% participants' neutral while 5.5% participants disagreed and 4.5% participants strongly disagreed. Good knowledge on diarrhea, coughing and stomach pain are the signs and symptoms of hepatitis E virus may be influenced by the fact that some residents might have experienced them already

or had seen them from their family members who were infected by hepatitis E virus or had died from the epidemic disease.

The study revealed good knowledge on pain in the bones and swelling of the liver are signs and symptoms of Hepatitis E virus such as 23% participants strongly agreed, 41% participants agreed, and 26.3% participants were neutral while 6% participants disagreed and 3.8% participants strongly disagreed. The majority of the participants had good knowledge on the signs and symptoms of hepatitis E virus except the few participants who had chosen disagree and strongly disagree. This revealed that there is a significant association between the highest qualification obtained and knowledge obtained through educational status of the participants to acknowledge the signs and symptoms of hepatitis E virus in Havana informal settlement.

5.4 RESIDENTS OVERALL KNOWLEDGE ON THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that majority of the participants had high level of knowledge 83.3% after the final scores were created while the least participants had low level of knowledge 16.8%. This means participants had high level of knowledge regarding the risk factors of hepatitis E virus. In comparison to a study done by Omalu (2013) in Nigeria reports that 81% participants had higher knowledge in his study and this is almost similar to the researcher's study conducted in Havana informal settlement, Namibia.

5.5 RESIDENTS ATTITUDES ON THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that participants had good attitudes on the risk factors of Hepatitis E virus and on protective ways of Hepatitis E virus is to drink more water such as 8.5% participants strongly agreed, 14% participants agreed, 23% participants were neutral while 21.3% participants disagreed and 32.8% participants strongly disagreed. The study revealed that there is a significant relationship between location and practices. That means the location of the participants has influenced their attitudes to acknowledge the risk factors of hepatitis e virus and make proper choices and judgments to know the protective measures against hepatitis E virus in the informal settlement.

The study revealed that participants had good attitude on the risk factors of hepatitis E virus and on using of safe water may prevent Hepatitis E virus such as 37.0% participants strongly, 38.5% participants agreed, 21% participants were neutral while 3.0% participants disagreed and 0.5% participants strongly agreed. A study conducted by Odeyele (2009) in Nigeria reported 87% of the participants had a good attitude towards preventing the risk the factors of hepatitis E virus through safe water consumption.

The study revealed that participants had good attitude on risk factors of hepatitis E virus and on hepatitis virus can cause death and make the liver not to function well such as 33% participants strongly agreed, 54.0% participants agreed, 8% participants were neutral whereas 4% participants disagreed and 1% participants strongly disagreed. The study revealed that the majority of the participants had strongly agreed and agreed on the damage that hepatitis E virus can cause to the human body. This revealed that there is a

significant relationship between experience and attitude on the risk factors of hepatitis E virus.

The study revealed that participants had poor attitude on the factors of hepatitis E virus and as well on the hepatitis E virus can cause heart problem variables such as 22.3% participants strongly agreed, 47.3% participants agreed, 16.3% participants were neutral while 9.0% participants disagreed and 5.3% participants strongly disagreed. The study also revealed that there was no significant relationship between participants understanding and attitude towards the risk factors of hepatitis E virus.

The study revealed that participants had good attitudes on the risk factors of hepatitis E virus as well as on you will get hepatitis E if you touch a person who has hepatitis E virus such 20% participants strongly agreed, 39.8% participants agreed, 21.0% participants were neutral while 8.8% participants disagreed and 10.5% participants strongly disagreed. This revealed that there was an equal relationship between understanding and attitude since participants had different views on whether a person may get hepatitis E virus when touching the infected person or not and there is no clear answer to the statement. A study conducted by Muller (2008) in South Africa revealed that a direct close contact with an infected person with hepatitis E virus may infect others. In contrast to this study, it is not clearly stated whether a direct close contact but it said when touching an infected person so there is an equal relationship.

The study revealed that participants had poor attitude on TB makes people to get hepatitis E virus such as 23.0% participants strongly agreed, 39.8% participants agreed, 19.3% participants were neutral while 7.5% participants disagreed and 10.5% participants

strongly disagreed. This revealed that there was a lack of attitude among the residents and majority of them had strongly agreed and agreed on the variable. A study conducted in China by Murail and Zhang (2015) reported that 73% participants had poor attitudes on hepatitis E virus and other co – infections involved. In contrast to this study, it revealed that 62% participants had strongly agreed and disagreed to the variables above and this indicates concrete evidence that residents in Havana informal settlement (both constituencies) had poor understanding on attitudes related to the risk factors of hepatitis E virus. This had revealed that there is no relationship between residents and the attitudes they had on risk factors of hepatitis e virus in Havana informal settlement.

The study revealed that participants had good attitudes on risk factors of hepatitis E virus on the variable yellowness of the skin is caused by hepatitis E virus such as 26% participants strongly agreed, 44.5% participants agreed, 22.3% participants were neutral while 3.5% participants disagreed and 3.8% participants strongly disagreed. This revealed that there is a significant relationship between experience and attitude because the majority of the participants were strongly agreed and agreed, and this means the majority had seen yellowness of the skin in patients infected by hepatitis E virus. A study conducted in Tanzania by Khuroo (2015) reported that 89% participants had recognized that yellowness of the skin as the common sign of liver infections as well as the main signs of hepatitis E virus in a human being. In contrast to this study, it was found that 70.5% participants were strongly agreed which means that residents in Havana informal settlement had good attitudes that may influence their knowledge and practices regarding the risk factors of hepatitis E virus.

5.6 RESIDENTS OVERALL ATTITUDES ON THE RISK FACTORS OF HEPATITIS E VIRUS

It was revealed that the majority number of residents in both Havana informal constituencies had positive attitude 93.3% which covers almost the total population in the study after the attitude data were scored and added together to create the final score while a fewer number of the participants had negative attitude 6.8% which was the least in the study. In contrast to a study conducted by Moyo (2015) in Zimbabwe which reported that 87% participants had high positive attitudes on risk factors associated with hepatitis E virus in their country.

5.7 RESIDENTS PRACTICES ON THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that there were good practices among participants regarding the risk factors of Hepatitis E virus on do you drink boiled water at home? Such as 16.8% participants had indicated always, 67.1% participants had indicated sometimes and 15.5% participants had indicated never in the variables. Majority of the participants do consume boiled water to prevent hepatitis E virus infections. This study is similar to a study conducted by Kamar (2013) which reported that the majority of 91% participants indicated that drinking boiled water in a hepatitis E virus prone areas may prevent hepatitis E virus infection.

The study also revealed that there are good practices of participants regarding the risk factors of hepatitis E virus on do you wash your hands with boiled water at home? Such as 18.8% participants indicated always, 65.5% participants indicated sometimes and 16% participants indicated never in the variable. The majority of the participants had chosen

sometimes and this showed that residents wash their hands with boiled water in relation to the practices on risk factors regarding hepatitis E virus as required by the residents to respond to questions.

The study revealed that there are poor practices among participants on do you go for a check up to see if you have Hepatitis E virus or not? Such as 9.8% participants had chosen always, 54.5% participants had chosen sometimes and 35.5% participants had chosen never. Study revealed that majority of residents they never went for a checkup since this procedure is expensive and not easily accessible for everyone in the community. In the same study done by Dalton (2014) reported that follow up checkups on hepatitis E virus is very rare because of lack of knowledge about the tests and machines used to diagnose hepatitis E virus among suspected individuals in the community.

The study revealed that there are good attitudes from participants regarding the risk factors of hepatitis E virus on do you cover the food and food stuffs at home after you have eaten? Such as 32% participants had chosen always, 48% participants had chosen sometimes and 20% participants had chosen never. The majority of participants had chosen always and sometimes and these shows that in most cases of their daily life they cover their foods and food stuffs at home after they had eaten. In a similar study conducted in South Africa by Nelson (2012) revealed that 86% participants in his study had covered their food stuffs and drinks whenever they had done with their meals at home. This means that residents in Havana informal settlement are aware of the epidemic and this variable had been put into practice and its one of the best practices to prevent the further spread of hepatitis E virus in the informal settlement.

The study revealed that there is good practice from participants regarding the risk factors of hepatitis E virus on do you eat clean and well cooked food at home, and participants had an equal view on this variable. Possible answers were 30.5% participants had chosen always and 33% participants had chosen sometimes and 36.5% participants had chosen never. It is revealed that participants had answered equally in all questions under this variable and this showed no significant relationship between resident's age and practices regarding the risk factors of hepatitis E virus.

The study revealed that there are good practices from participants on the risk factors of hepatitis E virus though majority of the participants had chosen never (n=206). Possible answers on do you wash your hands with clean water before preparing food at home were 25% participants had chosen always, while 23.5% participants had chosen sometimes and then 51.5% participants had chosen never respectively. In contrast to study conducted by Abravanel (2009) which reported that 90% of participants in his study practiced hand washing more often after the outbreak of hepatitis E virus in Congo due to poor sanitation and living conditions in rural areas.

The current study revealed that there were poor practices from residents regarding the risk factors of hepatitis E virus on this variable. Possible answers on do you go for vaccination ii order for you not to get Hepatitis E virus such as 3.3% participants had chosen always while 9% participants had chosen sometimes and 87.8% had chosen never. The study had shown that the majority of the participants had never got vaccinated due to certain issues such as lack of knowledge about the vaccine, lack of funds, lack of health facilities and long distance to work to the clinics. This may be some of the reasons why there were few participants that got vaccinated against hepatitis E virus amongst all the residents in

Havana informal settlement included in the study (n=400). In a similar study conducted by Kleiner (2011) revealed that only 7% participants in his study had got vaccinated and his study suggested that hepatitis E screening tests Vaccines should be considered when the pattern of the lesion is similar to viral Hepatitis and when the clinical characteristics and latency are unusual.

5.8 RESIDENTS OVERALL PRACTICES REGARDING THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that the majority of the number of the participants in the study after the final score were made had poor practice 66.3% from both Havana informal constituencies while the little number of the participants had good practice 33.8%. In a similar study done by Aggarwal (2011) revealed that 44% participants had good practices in his study, it further stated in his study that majority of participants failed to implement the practice technique in preventing the risk factors of hepatitis E virus. Similar in this study, it is revealed that the participants had struggled to apply the practice aspect in their daily lives to minimize the risk factors of Hepatitis E virus.

5.9 THE ASSESSED RELATIONSHIP BETWEEN KNOWLEDGE AND PRACTICE IN HAVANA INFORMAL SETTLEMENT REGARDING THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that there were poor practices among the majority number of participants in Havana informal settlement. Therefore, it showed in the results that 31.2% participants of high level knowledge had good practice, whereby 68.8% high level of knowledge participants had poor practice. However, 46, 3% low level of knowledge participants had good practice while 53.7% low level of knowledge participants had poor

practice. In the end, a total number of 36.8% participants had good practice while a total number of 66.3% participants had poor practice. In a similar study done by Mumba (2013) in Zambia reported that 82% participants had high level of knowledge but had poor practice. This helped the research prove that the majority of participants in Havana informal settlement had high level of knowledge with poor practice in preventing the risk factors of Hepatitis E virus.

5.10 THE ASSESSED RELATIONSHIP BETWEEN ATTITUDES AND PRACTICE IN HAVANA INFORMAL SETTLEMENT REGARDING THE RISK FACTORS OF HEPATITIS E VIRUS

The study revealed that there were participants with positive attitudes who had poor practice and participants with negative attitudes also had poor practice simultaneously. Therefore, it was found that there were 32.2% participants with positive attitude had good practice while 67.8% participants had poor practice. However, 55.5% participants with negative attitudes had good practice while 44.4% participants had poor attitudes. In a similar study done in Uganda by Majanja (2016) revealed that 71% participants with positive attitudes had poor practice while 29% participants with negative attitudes had poor practice respectively.

5.11 SUMMARY OF THE CHAPTER

This chapter has presented a discussion of the findings of the study. Discussions included that there are more males than females who took part in the study and were actively involved in asking the researcher more questions related to risk factors of hepatitis E virus. All the variable was answered accordingly and respectively, the significance of these finding was highlighted and the findings were compared to what other researchers have reported in the literature. The next chapter had presented the conclusions from the study, highlighted the study limitations and provided recommendations emanating.

CHAPTER 6: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter summarized the findings from the study, drew the conclusion as well as highlighted the limitations of the study. The chapter also covered the recommendations emanating for practice and future research. The summary of the finding was presented considering the research objectives of this study.

6.2 CONCLUSION

The first objective of the study was to determine the knowledge of residents of Havana informal settlement regarding the risk factors contributing to hepatitis E virus.

The study revealed that the residents had good knowledge on some aspects of the study such as the definition of hepatitis E virus, signs and symptoms of hepatitis E virus. However, some residents had poor knowledge and misconceptions regarding some common signs and symptoms of hepatitis E virus such as swelling of the bones and hepatomegaly (swelling of liver) while the majority of the residents only knew that hepatitis E virus signs and symptoms is yellowness of the eye. There was a significance different between the knowledge and practices on the participants in Havana informal settlement with P value=0.18

The second objective of the study was to determine the attitude among residents in Havana informal settlements that contributes to the risk factors of Hepatitis E virus.

The study revealed that participants had good attitudes on the risk factors of Hepatitis E virus with regard to factors such as on protective ways of Hepatitis E virus, the use of safe water at home and other protective ways residents knew on the risk factors of Hepatitis E virus. The study also revealed that there is a significant relationship from participants between experience and attitude on the risk factors of hepatitis E virus. Therefore, residents in Havana informal settlement had good attitudes that may influence their knowledge and practices regarding the risk factors of hepatitis E virus. It is revealed that participants with positive attitudes had poor practice and participants with negative attitudes had poor practice respectively with P value=13.

The third objective of the study was to determine the practices implemented by Havana informal settlement residents on risk factors of Hepatitis E virus.

The study revealed that the majority of the number of the participants in the study after the final score was obtained had poor practice from both Havana informal constituencies while the little number of the participants had good practice .The study had shown that the majority of the participants had poor practice since most of them never got vaccinated against Hepatitis E virus due to certain issues such as lack of knowledge about the vaccine, lack of funds, lack of health facilities and long distance to work to the clinics. These may be some of the reasons why few participants that got vaccinated against hepatitis E virus amongst all the residents in Havana informal settlement included in the study. There was a significant difference between the knowledge and practices on the participants in Havana

informal settlement and data for practices were analyzed both together with data for attitudes with P value=0.18

The fourth objective was to assess the relationship between knowledge, attitudes and practices in Havana informal settlement regarding the risk factors of hepatitis E virus.

Regarding this objective, it was found that there was a significant difference between practices and attitude on participants in Havana informal settlement, therefore the study had shown that the high level knowledge participants had poor practices while the low level knowledge participants had good practices. It is revealed that participants with positive attitudes had poor practice and participants with negative attitudes had poor practice respectively with P value =13 (as shown in table 4.12).

There were gaps highlighted in the study between knowledge and practice among residents who were on risk of Hepatitis E virus in Havana informal settlements. Factors such as lack of access to clean water, lack of clean bathrooms and flushing toilets, long distance to clinic or health Centre, poor health education and lack of proper food items. All these were factors that put residents on high risk of Hepatitis E virus in Havana informal settlement.

The association between knowledge, attitude and practice was assessed and significance tested using the Chi squared test at alpha level of 0.05 was used. The study revealed that the high level knowledge participants had poor practices while the low level knowledge participants had good practices with P value=0.18, and it was revealed that participants

with positive attitudes had poor practice and participants with negative attitudes had poor practice respectively with P value=0.13.

6.3 LIMITATION OF THE STUDY

The researcher identified the following limitations of the study:

- The study population was very large for combined two constituencies which constitutes n=522, therefore due to limited time frame for the study, the researcher could not manage to collect 522 questionnaires but had reduced the sample size to n=200 for Samora Machel and n=200 for Moses Garoeb which comprises n=400 for both constituencies. This is why the results of this study had not been generalized to all residents who are on risk of Hepatitis E virus in other informal settlements in Khomas region or any other informal settlements across the country because the circumstances in other informal settlements may differ with what prevails in Havana informal settlement.
- The study was limited to adult age groups (18 – 60) years old, hence the views of residents on risk of Hepatitis E virus who are under the age of 18 years and those who are above the age of 60 years were not captured and they might have contributed positively towards the study.
- The study employed a quantitative approach, therefore some questions in quantitative study such as closed ended questions may have misled the participants when attempting to answer the questions. That is why in the end some participants may choose an answer which is perceived to be correct or probably may had guessed some of the questions. In addition, there was no in depth exploration in the study and that is the reason why majority of the participants had poor practice.

6.4 RECOMMENDATIONS

The researcher provides the following recommendations on practice, education and further research

6.4.1 Practice

The following practice issues were recommended by the researcher based on the research findings:

- The researcher found that majority of the participants in the study had poor practice to implement control measures regarding the risk factors of Hepatitis E virus such as proper hand washing techniques, flushing toilets, clean water and sealed dumping sites. It is hereby recommended that the Ministry of Health and Social Services and the ministry of urban and rural development to train and employ health care assistants who can help the affected residents in the community on how to implement control measures that will minimize the risk of Hepatitis E virus among residents in the informal settlement.
- One of the challenges found by the researcher is that there is no health care facility or clinic in Havana informal settlement and residents had to travel a long distance to other places to sick for treatment. It is therefore recommended that the Ministry of Health and Social Services should consider building some health care facilities in Havana informal settlement so that residents get access to treatment easily. In addition, residents are able to receive demonstrations from health care providers on how one can protect themselves from Hepatitis E virus risk factors exposure.

6.4.2 Education

It was found by the researcher that majority of participants in the study had lack of education. It is hereby recommended that the Ministry of Health and Social Services in partnership with the Ministry of Education should develop educational programs or subjects in school that will teach children and residents at large on the risk involved with Hepatitis E virus. Programs in schools and community halls regarding the risk factors of Hepatitis E virus needs to be implemented such as workshops, seminars and awareness campaigns through radios and television may help to educate the community on what is all about Hepatitis E virus, risk factors involved and the prevention techniques. All this may help to minimize the Hepatitis E virus cases in the community and the country at large.

6.4.3 Further research

This is a quantitative study that was conducted by the researcher. In the future a qualitative study needs to be conducted for the same research topic that will explore the knowledge, attitudes and practices of residents in Havana informal settlements regarding the risk factors of Hepatitis E virus. The study needs to explore all the obstacles and problems associated with Hepatitis E risk factors as well as enhancing the resident's knowledge towards Hepatitis E virus and develop techniques to improve their attitudes and practice in order to implement the best practice that help them minimize hepatitis E virus cases in the informal settlement

6.5 SUMMARY OF THE CHAPTER

This chapter has presented the summary of the findings, limitations, conclusions and recommendation from the research. The study has revealed the poor practice that the majority of participants with high level of knowledge possessed and the good practice found in low level of knowledge participants in the study. The attitudes of residents towards the risk of Hepatitis E virus was positive and negative in relation to practice it turn out poor practice from participants. Further studies related to this study was also suggested by the researcher in order to expand and explore the study in other different research approaches which may further help in health care improvements.

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APPENDICES

APPENDIX 1: ETHICAL CLEARANCE

UNAM
UNIVERSITY OF NAMIBIA

ETHICAL CLEARANCE CERTIFICATE

Ethical Clearance Reference Number: SON /522 /2019 **Date: 13 November, 2019**

This Ethical Clearance Certificate is issued by the University of Namibia Research Ethics Committee (UREC) in accordance with the University of Namibia's Research Ethics Policy and Guidelines. Ethical approval is given in respect of undertakings contained in the Research Project outlined below. This Certificate is issued on the recommendations of the ethical evaluation done by the Faculty/Centre/Campus Research & Publications Committee sitting with the Postgraduate Studies Committee.

Title of Project: Knowledge, Attitudes And Practices Regarding The Risk Factors Of Hepatitis E Virus Among The Residents Of Havana Informal Settlement In Windhoek, Namibia

Researcher: RISTO NDAWEDAPO H, NANGOLO

Student Number: 201202940

Supervisor(s): *Dr E Kamenye (Main) Dr Shilunga (Co)*

Faculty: School of Nursing
Take note of the following:

(a) Any significant changes in the conditions or undertakings outlined in the approved Proposal must be communicated to the UREC. An application to make amendments may be necessary.
(b) Any breaches of ethical undertakings or practices that have an impact on ethical conduct of the research must be reported to the UREC.
(c) The Principal Researcher must report issues of ethical compliance to the UREC (through the Chairperson of the Faculty/Centre/Campus Research & Publications Committee) at the end of the Project or as may be requested by UREC.
(d) The UREC retains the right to:
(i) Withdraw or amend this Ethical Clearance if any unethical practices (as outlined in the Research Ethics Policy) have been detected or suspected,
(ii) Request for an ethical compliance report at any point during the course of the research.

UREC wishes you the best in your research.

Dr. J.E. de Villiers: Chairperson

Ms. P. Claassen: Secretary

APPENDIX 2: RESEARCH PERMISSION LETTER

CENTRE FOR POSTGRADUATE STUDIES

University of Namibia, Private Bag 13301, Windhoek, Namibia
340 Mandume Ndemufayo Avenue, Pioneers Park
☎ +264 61 206 3275/4662; Fax +264 61 206 3290; URL: http://www.unam.edu.na

UNAM
UNIVERSITY OF NAMIBIA

RESEARCH PERMISSION LETTER

Student Name: Risto NH, Nangolo

Student number: 201202940

Programme: Master in Nursing Science

Approved research title: Knowledge, attittudes and practices regarding the risk of Hepatitis e virus among the residents of Havana informal settlement in Windhoek, Namibia

TO WHOM IT MAY CONCERN

I hereby confirm that the above mentioned student is registered at the University of Namibia for the programme indicated. The proposed study met all the requirements as stipulated in the University guidelines and has been approved by the relevant committees.

The proposal adheres to ethical principles as per attached Ethical Clearance Certificate. Permission is hereby granted to carry out the research as described in the approved proposal.

Best Regards

Prof Marius Hedimbi
Director: Centre for Postgraduate Studies
Tel: +264 61 2063275
E-mail: directorpgs@unam.na

23 Oct 18
Date

Centre for Postgraduate Studies
Office of the Director
2018 -10- 23
University of Namibia
UNAM

APPENDIX 3: APPROVAL LETTER FROM MoHSS

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198
Windhoek
Namibia

Ministerial Building
Harvey Street
Windhoek

Tel: 061 – 203 2537
Fax: 061 – 222558
E-mail: btjivambi@mhss.gov.na

OFFICE OF THE EXECUTIVE DIRECTOR

Ref: 17/3/3 RN
Enquiries: Mr. B. Tjivambi

Date: 17 May 2019

Mr. Risto N. Nangolo
PO Box 1330
Rundu

Dear Mr. Nangolo

Re: Knowledge, Attitudes and practices regarding the risk factors of Hepatitis E virus among the residents of Havana informal settlement in Windhoek, Namibia

1. Reference is made to your application to conduct the above-mentioned study.

2. The proposal has been evaluated and found to have merit.

3. **Kindly be informed that permission to conduct the study has been granted under the following conditions:**

3.1 The data to be collected must only be used for academic purpose;

3.2 No other data should be collected other than the data stated in the proposal;

3.3 Stipulated ethical considerations in the protocol related to the protection of Human Subjects should be observed and adhered to, any violation thereof will lead to termination of the study at any stage;

3.4 A quarterly report to be submitted to the Ministry's Research Unit;

3.5 Preliminary findings to be submitted upon completion of the study;

3.6 Final report to be submitted upon completion of the study;

3.7 Separate permission should be sought from the Ministry for the publication of the findings.

4. All the cost implications that will result from this study will be the responsibility of the applicant and not of the MoHSS.

Yours sincerely,

PERMANENT SECRETARY
MINISTRY OF HEALTH & SOCIAL SERVICES

MR. BEN NANGOMBE
EXECUTIVE DIRECTOR

"Health for All"

APPENDIX 4: QUESTIONNAIRE

Questionnaire

Research Questionnaire to Havana Informal settlement Windhoek, Khomas region

Title : Knowledge, Attitudes and Practices regarding the risk of Hepatitis E among the residents of Havana informal settlement in Windhoek, Namibia.

Compiled by	: Nangolo Risto Ndawedapo H
Student number	: 201202940
Course	: Masters of Nursing Science (by thesis)
Institution	: University of Namibia (UNAM)
Main Supervisor	: Dr E Kamenye
Co - supervisor	: Dr Shilunga

SECTION A

Demographic Data

Instructions

1. Please complete the included questionnaire by making an X in the applicable column.

2. Answer all questions both in A and B.

3. Be open, honest and objective in your answers, as this will determine the results of this study and the recommended resulting from this research study.

4. Please do not write your name on the questionnaire to guarantee anonymity.

5. The results of this research study will be available towards the end of November 2019.

Your participation in this research study is highly appreciated.

Yours, Nangolo Risto Ndawedapo H

1. **Sex**

Male	
Female	

2. **How old are you?**

3. **Nationality**

Namibian	
SADC Region	
Other	

4. **Higher qualifications obtained**

Primary school	
Secondary school	
Tertiary education	
Never	

5. **Marital status**

Single	
Married	

6. **Ethnic group**

Oshiwambo	
Kavango	
Herero	
Damara	
Afrikaans	

7. **Employment status**

Employed	
Unemployed	
Self - employed	

SECTION B – Present knowledge of residents regarding the

Factors of Hepatitis E virus

Variables: Knowledge	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
1.Hepatitis E is the infection of the kidneys					
2.Hepatitis E is the infection of the liver					
3.A person can get Hepatitis E through blood which has hepatitis E virus					
4.Poor living conditions and sanitation may make people to get Hepatitis E					
5.Everyone is in danger of Hepatitis E virus					
6.Diarrhea, coughing and stomach pain are the signs and symptoms of Hepatitis E virus					
7.Pain in the bones and swelling of the liver are signs and symptoms of Hepatitis E virus					

SECTION C: Attitudes of residents in Havana informal settlement regarding the risk factors of Hepatitis E virus

Variables : Attitude	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly disagree (5)
1.Protective ways of Hepatitis E virus is to drink more water					
2.Using of safe water may prevent Hepatitis E virus					
3.Hepatitis E can cause death and makes the liver not to function well					
4.Hepatitis E virus can cause heart problem					
5. You will get hepatitis E if you touch a person who has hepatitis E virus					
6.TB makes people to get Hepatitis E virus					
7.Yellowness of the skin is caused by Hepatitis E virus					

SECTION D: Practices of residents of Havana Informal settlement regarding the risk factors of Hepatitis E virus in Khomas region.

Variables: Practice	Always	Sometimes	Never
1. Do you drink boiled water at home?			
2. Do you wash your hands with boiled water at home?			
3. Do you go for a check up to see if you have Hepatitis E virus or not?			
4. Do you cover the food and food stuffs at home after you have eaten?			
5. Do you eat clean and well cooked food at home?			
6. Do you wash your hands with clean water before preparing food at home?			
7. Do you go for vaccination ii order for you not to get Hepatitis E virus?			