



## **To Assess the Prevalence Rate of Hepatitis C among the Solid Waste Handler in Selected Areas**

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### **Authors' contributions**

*This work was carried out in collaboration between both. Both authors read and approved the final manuscript.*

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**Study Protocol**

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### **ABSTRACT**

**Introduction:** Solid waste handlers are subjected to a wide range of occupational hazards. Among these hazards is the infection from hepatitis A, B or C viruses (HAV, HBV or HCV). This relationship has been the study subject of many researchers around the world, given that the infection of hepatitis viruses is a significant cause of morbidity and a socio-economic burden. Viral hepatitis is a liver inflammation arising from viral infections. There are classes of viruses affecting the liver. The most popular forms are hepatitis B (HBV) and hepatitis C viruses (HCV).

**Objective:** this study is planning to assess the prevalence rate of Hepatitis C among solid waste handlers in selected areas.

**Methodology:** Cross-sectional study research designed will be used in this study conducted on a solid waste handler. The unlikely purposefully sampling technique was used to select a sample for this study to analyze the prevalence rate. The researcher's study included 100 population from the selected area and investigation of Hepatitis C will do at A.V.B.R.H Hospital Sawangi (M) Wardha. The population was selected according to inclusion and exclusion criteria.

**Expected Outcome:** In this research study expected outcome is solid waste handlers are may be suffering from Hepatitis C because of their working pattern and environment.

**Conclusion:** The conclusion will be drawn from the results.

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**Keywords:** Solid waste handler; municipal; hepatitis C; cross-sectional study; morbidity; purposefully sampling.

## 1. INTRODUCTION

Occupational employment with urban waste collection among others, poses risks of infection from blood-borne viruses (such as HBV and HCV), as municipal workers are exposed to biological agents through direct contact of skin or mucous membranes with the blood, infected needles, syringes or condoms as well as by accidental pricks from infected needles, syringes or other sharp objects. As far as hepatitis A is concerned, waste contaminated with HAV-infected fecal matter could facilitate the transmission of the virus. Hence practices, such as smoking, drinking or eating during work without adherence to safety precautions, could contribute to a higher HAV prevalence among the group of Municipal Solid Waste Handlers. The possibility of infection is not negligible if we consider that hepatitis viruses can survive on infected objects for, at least, seven days [1,2].

In specific, Organic household garbage, particular, poses a serious threat because it ferments, creating ideal conditions for the persistence and proliferation of pathogenic bacteria. Direct contact with solid garbage can exposes waste workers and rag pickers to a variety of infections and chronic disorders. Children are particularly vulnerable to hazardous waste emissions, which may have an impact on human health. Chemical poisoning is caused by the release of chemical waste into the environment, which can cause sickness by direct exposure. Many types of research have been conducted in different parts of the world to determine if there is an association between health and hazardous waste [3,4].

Waste managers are at greater risk of occupational morbidity in developing countries including India, as they are exposed to dangerous materials daily, ignorant of the dangers of solid waste, lack of any safety measures while at work, less access to health care. Since mostly they are from low socioeconomic backgrounds and their job mainly manual, the workers resort to separating the waste for personal use into sealable and eatable material [5,6].

### 1.1 Background of Study

Viral hepatitis is a significant global health issue that involves acute and/or chronic hepatitis that

can lead to severe liver scarring (cirrhosis), liver failure, cancer of the liver and death. Viral hepatitis is the world's tenth-largest cause of death and the leading cause of liver cancer worldwide. The development of cirrhosis and hepatic cancer can put an end to HBV and HCV. More than 500 million people around the world persistently infected with any of these two viruses face a significant global health problem. Since both hepatotropic viruses share the same transmission patterns, co-infection with both viruses is normal, particularly in places with a high prevalence of HBV infection and among people at high risk of infection. Worldwide, several million carriers have a large HBV and HCV reservoir. It can contribute to chronic liver disease (CLD) including hepatocellular carcinoma (HCC) [7].

It is estimated that about 2 billion people worldwide are infected with HBV, according to the World Health Organization (WHO), and over 350 million people have become chronic carriers and over one million die annually as a result of acute liver or HBV-induced cirrhosis and liver cancer. In developing nations in Asia and Sub-Saharan Africa, the burden of HBV infection is highest. The WHO reported HBV prevalence in Africa is more than 10% on average. However, the mean prevalence of HBsAg was 6.1%, a study performed in Addis Ababa. It is also estimated by the WHO that approximately 170 million people are infected with HCV and approximately 130 million are carriers and 3 to 4 million are newly infected every year and that more than 30,000 people worldwide are estimated to die of hepatitis C-related liver diseases. Worldwide the most prevalent HCV infections reported in Central Africa and South-East Asia range from 0.3 to 13 percent or higher. However, a survey in Addis Ababa found that 0.9% of the population and 1.3% of adults above 15 years of age are prevalent [8,9].

### 1.2 The need of the Study

Viral hepatitis is rapidly recognized as a public health issue in India. Acute viral hepatitis and acute liver failure (ALF) are majorly caused by HAV and HEV. The absolute disease burden for the nation is not determined because of the lack of data. However, available literature reveals a wide variety of cases and indicates that HAV is responsible for 10-30% of acute hepatitis and 5-

15% of acute liver failure cases in India. It is also stated that HEV accounts for 10-40 % of acute hepatitis and 15-45 % of acute liver failure [10].

Different regions of the country are classified as high ( $\geq 8\%$ ), intermediate (2-7%), or low HBV endemic according to the prevalence of hepatitis B surface antigen. India is listed as an intermediate endemic region (average of 4 %). The total population positive for hepatitis B surface antigen (HBsAg) ranges from 1.1% to 12.2%, with an average prevalence of 3-4%. It is estimated that the prevalence of anti-Hepatitis C virus (HCV) antibodies in the general population is between 0.09-15%. India accounts for a significant share of global HBV burdens since it has one-fifth of the world's population. India harbours 10-15% of the entire pool of HBV carriers of the world. It has been estimated that there are about 40 million HBV carriers in India. Around 15-25 % of carriers of HBsAg are expected to develop cirrhosis and cancer of the liver and may die prematurely [11,12].

### 1.3 Objective

This study planned to the prevalence rate of Hepatitis C among the solid waste handler in selected areas.

## 2. METHODOLOGY

Cross-sectional study research design will be used in this study conducted on a solid waste handler. The unlikely purposefully sampling technique was used to select a sample for this study to analyze the prevalence rate. The researcher's study included 100 population from the selected area and investigation of Hepatitis C will do at A.V.B.R.H Hospital Sawangi (M) Wardha. The population in this study was selected according to inclusion and exclusion criteria.

### 2.1 Criteria for Selection

**Inclusion Criteria:** The study includes, A solid waste handler who will present at the time of data collection and solid waste handlers who are willing to participate are included in this study.

**Exclusion Criteria:** The study excludes. Those solid waste handlers who had participated in the same study and those solid waste handlers who are suffering from Hepatitis C.

## 2.2 Outcome Measures

**Primary Outcome:** It includes assessing the prevalence rate of Hepatitis C among the solid waste handler.

**Secondary Outcome:** It consists of the prevalence rate of Hepatitis C among the solid waste handler and the aware health status of solid waste handlers.

## 2.3 Data Management and Monitoring

Data collection will be conducted for a single month span. This research will be carried out after receiving authorization from the authorities concerned.

## 2.4 Tool for Data Collection

**Section:** A Demographic Variable.

Demographic information gives baseline information obtained from a population such as age, sex, educational status, etc.

**Section:** Hepatitis C Rapid Test Results.

## 2.5 Statistical Analysis

The Cross-sectional study research was designed to use for collecting the population for the study. For analysis I will use SPSS 23 version will be going to used frequency, mean percentage, standard deviation, mode, medium.

## 2.6 Inferential Statistics

The association between risk factors that contribute will be used to assess the prevalence of hepatitis rate among solid waste handler Chi-square going to use.

## 3. EXPECTED OUTCOMES/RESULTS

In this present study, the output includes the prevalence rate of Hepatitis C among solid waste handlers are assess by Hepatitis C Rapid Test. The outcome of the study will find Hepatitis C among solid waste handlers.

## 4. DISCUSSION

This study will be conducted to assess the prevalence rate of Hepatitis C among solid waste handlers. There will be 100 populations in the selected area.

A Cross-sectional study was conducted at Penang Island from January to May 2018 were 184 samples of adult male municipal waste collectors to assess the prevalence of Hepatitis C infection. In this study, the samples were conveniently selected and blood samples were collected to test for antibodies to the Hepatitis C virus (anti-HCV). After the collection of a blood sample, the questionnaires were distributed to gathered information regarding knowledge, attitude and practice for the prevention of Hepatitis C. The data were analyzed by using descriptive and inferential statistics, and the results were interpreted in terms of the study's objective. This study concluded that the seroprevalence of hepatitis C infection was 0%. The knowledge of Hepatitis C prevention was lacking and their income appears to play a major role in determining their level of knowledge and attitude on prevention [13].

## 5. CONCLUSION

The conclusion will be drawn from the statistical analysis.

## CONSENT AND ETHICAL APPROVAL

This study will approve by the Institutional Ethics Committee of Datta Meghe Institute of Medical Sciences (Datta Meghe Institute of Medical Sciences. (Ref no:-DMIMS(DU)/IEC/DEC-2019/8672). All participants will be asked to read and sign informed consent. A proper explanation about the purpose of the study and the nature of the adjustment scale involved in the study will be given to the samples. Information about the samples will handle properly so that confidentiality and anonymity will maintain. Information will not use or release outside the terms of the agreement.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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