

Knowledge Attitude and Practice about Hepatitis C Virus and Associated Factors among Waste Handlers at Public Hospitals of Sidama Region, Ethiopia: Facility Based Cross Sectional Study

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Abstract

Background: Hepatitis C (HCV) is worldwide community health problem that gives rise to liver cancer. Even though prevalence of HCV is higher and waste handlers being at high risk for HCV, there is scarcity of information on knowledge, attitude and practice (KAP) concerning HCV among waste handlers.

Methods: Quantitative cross-sectional study from Oct 2021 to 30 July 2022 in different public Hospitals of Sidama Region aimed to evaluate KAP of HCV among randomly selected waste handlers was undertaken amongst 282 respondents. KAP regarding HCV were assessed using standardized structured questionnaire. Descriptive summary measures were done. Multivariate logistic regression was accompanied with 95% confidence interval and P-value < 0.05 was confirmed statistically significant. To assess the association between the KAP, Spearman's rho correlation were used.

Results: Mean scores for KAP were 22.24 ± 8.15 , 46.75 ± 10 and 4.19 ± 1.72 respectively. Educational level (OR = 2.427; 95% CI = [1.116–37.89], P = 0.042), monthly income (OR = 1.001; 95% CI = [1.000–10.002], P = 0.029), use of media (OR = 2.461; 95% CI = [2.688–8.799], P = 0.006), marital status (OR = 22.961; 95% CI = [1.203–38.157], P = 0.037) and residence (OR = 6.332; 95% CI = [1.703–23.544], P = 0.006) contributed significantly to the prediction of knowledge. Spearman rank correlation revealed significant positive correlations between knowledge-attitude ($r = 0.57$, $P < 0.037$), knowledge-practice ($r = 0.265$, $P = 0.00$) and attitude-practice ($r = 0.72$, $P = 0.02$).

Conclusions: Although the study highlighted optimal KAP with regards to several aspects of HCV, educational campaigns should emphasize the necessity of continued education about HCV in order to more improve attitudes, knowledge and practices of waste handlers regarding HCV.

Keywords: Hepatitis C, KAP, Waste Handler

1. Introduction

Inflammation of the liver has historically been regarded as hepatitis, and eleven viruses are associated with hepatitis in humans with nine being hepatotropic and two, transient in nature [1]. Hepatitis B (HBV) and C viruses' infection pose a major public health challenge globally and has been reported by [2] to be more prevalent in the developing countries. Globally, it has been reported that about two billion people are infected with hepatitis C virus and approx-

imately 350-400 million others suffer from the chronic form [3].

The way of transmission of the infection is largely via insecure sex, mama-to-child transmission, polluted blood and blood products and use of polluted tools, contact with infected body solutions such as blood, semen, and percutaneous injuries [4]. Wrong management of wastes created in the course of healthcare activity carries a great risk of environmental threats and community health

risks [5]. Work-related contacts to percutaneous needle sticks hurts during isolation, causes a risk of work-related transmission of blood borne pathogens such as hepatitis B virus (HBV) and hepatitis C virus (HCV) particularly among waste handlers [6].

WHO estimates that there are 350 million people with chronic HCV infection worldwide? HBV is estimated to result in 563,000 deaths annually [7]. Hepatitis B virus infection is the major global health problem. About 60,000 deaths occur globally every year as a result of HBV. Chronic Hepatitis B is leading causes of cirrhosis and Hepatocellular carcinoma (HCC) which is considered as the third Cancer associated cause of deaths worldwide. WHO estimated that the prevalence of infection in Africa is on average more than 10%. However, a study conduct on Addis Ababa showed that the mean prevalence of HBsAg was 6.1 percent [8]. Hepatitis has no symptoms, so infected people pass it on other without knowing. The majority of infected persons might not be aware of their infection because it mimics a typical illness and the co-infected stigma attached to the disease prompts secrecy resulting in no treatments.

Waste handlers are greatly participate in health care waste management including waste segregation, transportation, storage, treatment, and final disposal of all types of waste generated in the health care facilities that require a high standard of training [9, 10]. High prevalence of HBV infection occurred in public health center cleaners and exposure increased with the amount of waste generated that increase [11].

Regardless of nationwide and worldwide efforts to lessen or reduce professional hazard via raising awareness and looking for solutions to the complications associated with healthcare waste management for several years, health care waste management was unsuccessful and health care workers particular waste handlers are continuing to be at increased risk of HCV infection [12]. Studies from developed countries have shown that professional exposure to waste may result in HCV infection [13]. Recently a study from the UK reported 40 incidents of sharps injuries associated with waste handling [14]. In Africa, some investigators accept 5% of all HIV infections are due to unsafe injections of which unsafe waste disposal is a component [15]. There is limited data about level of knowledge, attitude and practice of waste handlers toward HCV and its associated factors in Sidama region, Ethiopia. Therefore, this study was conducted to identify level of knowledge, attitude and practice (KAP) among waste handlers in different public hospitals of Sidama National and Regional State (SNRS) and identify associated factors.

2. Methods and Materials

2.1 Study Design and Setting

A facility-based cross-sectional quantitative study was conducted in different governmental hospitals found in SNRS, Ethiopia from Oct 2021 to 30 July 2022. According to the information found from the respective health offices, there were around 4 hospitals.

2.2 Data Collection and Data Quality Control

A pretested structured questionnaire was used for data collection from waste collectors. The questionnaire was settled after studying diverse literature and pretested on 8% of sample size working at hospitals, which were not included in the study. The questionnaire was converted to local language (Sidamic and Amharic). In data collection, the data was checked for its completeness each day by supervisors and investigators after it was collected.

2.3 Sampling Design

The sampling technique used for this data collection was stratified sampling where stratification was based on the geographical proximity/location of hospitals and the strata uses for this study was hospitals in selected cities of Sidama region administrations.

2.4 Target Population

Waste handlers from different public hospitals in SNRS including workers who clean the class rooms, administrative staffs, dining room, residence house, and handle non clinical wastes generated from this compounds like: dusts particles, leftover foods dead plant tissues and other non-clinical wastes. Participation in this study was based on voluntary base and all the respondents were given informed written consent.

2.5 Sample Size Determination

The appropriate sample size used for this study was obtained using the following formula [16].

$$n = \frac{\sum_{i=1}^j \frac{N_i^2 P(1-P)}{W_i}}{\frac{N^2 d^2}{Z_{\alpha/2}^2} + NP(1-P)}$$

The probability of successes is considered 0.2. The level of precision preferred for this study was 3%. The desired sample size from the target population was 256 study subjects. With additional assumption of 10 percent non-response rate, the total sample size becomes 282.

2.6 Data processing and Analysis

Gathered data was go in to SPSS version 20 statistical packages for analysis. Descriptive statistics were made using frequency table, percentage, mean and standard deviation. Pearsons chi-square and likelihood ratio test were used to assess factors of association.

The variables with a p-value of less than 0.05 in the bivariate analysis were included in the multivariable analysis. Multivariable logistic regression (adjusted odds ratio with 95% confidence interval) analysis was used to find explanatory variables associated with knowledge adjusting for other variables. Model fitness was checked using Hosmer Lemeshow goodness of fit and variables with P-value < 0.05 at 95% CI was professed statistical significance.

2.7 Ethical Consideration

Ethical clearance (IRBH/258/2022) was obtained from Institutional Review Board at Hawassa University College of Medicine and Health Sciences. The purpose and importance of the study was explained and informed written consent was secured from each participant.

3. Result

3.1 Socio-Demographic Characteristics of the Study Participants

A total of 282 (100%) waste collectors have participated in this study. 246 (87.2%) participants were females. The mean age of the study participant was 37.13 years with standard deviation of 14.42. The majority (60.3%) of the study participants were married whereas the mean years of service was 8.01 years with standard deviation of 4.59 (Table 1).

Variables	Category	Frequency	Percentage (%)
Age in year	18-28	106	37.6
	29-39	48	17.0
	40-50	65	23.0
	51 and above	63	22.3
Sex	Male	36	12.8
	Female	246	87.2
Educational level	Unable to read and write	5	1.8
	Elementary and less (1-8)	83	29.4
	High School (9-12)	113	40.1
	Certificate and above	81	28.7
Marital status	Single	60	21.3
	Married	170	60.3
	Widowed	40	14.2
	Divorced	12	4.3
Religion	Orthodox	73	25.9
	Catholic	23	8.2
	Protestant	144	51.1
	Muslim	20	7.1
	Other	22	7.8
Accommodation	Living alone	35	12.4
	not alone	247	87.6

Table 1: Socio Demographic Characteristics the Study Participants in Public Hospitals in Sidama region, Ethiopia, 2022 (n=282)

The average hepatitis C knowledge score was 22.24 (SD = 8.15, min = 0, max = 35). Out of 282 participants, 97.2% heard about hepatitis and 94.3% heard about hepatitis C virus. Almost more than eighty-one percent of the total participants (81.6%) knew that hepatitis is epidemic. 85.8% knew that hepatitis C could affect any age group. About 74.8% of the respondents knew that nausea, jaundice, vomiting, joint pain and abdominal pain are symptoms of hepatitis C virus. More than 70% of the respondents knew that loss of appetite and dark urine are symptoms of hepatitis C virus. Only 65.2% of the respondents knew that though someone is in-

fectured with the diseases, symptoms might not be seen. More than 75.9% of the respondents knew that the diseases are transmitted by contaminated blood. The misconception that close personal contact for example living in the same house hold, sharing foods and drinks can spread hepatitis C is shared by 62.4% of the respondents and 200 (70.9%) of the participant wrongly believe that hepatitis B vaccine can prevent hepatitis C transmission. About 64.9% of the respondents were aware that hepatitis C infections are curable or treatable (Table 2).

Questions	Category	Frequency	Percentage
Have you ever heard about hepatitis?	Yes	274	97.2
	No	2	0.7
	don't know	6	2.1
Have you ever heard about hepatitis C virus?	Yes	266	94.3
	No	8	2.8
	don't know	8	2.8
Is hepatitis epidemics?	Yes	230	81.6
	No	27	9.6
	don't know	16	5.7
Is hepatitis viral disease?	Yes	225	79.8
	No	26	9.2
	don't know	22	7.8
Can hepatitis C affect any age group?	Yes	242	85.8
	No	18	6.6
	don't know	13	4.8
Is hepatitis C curable/treatable?	Yes	183	64.9
	No	66	23.4
	don't know	24	8.5
Is there vaccination available for hepatitis B?	Yes	221	78.4
	No	25	8.9
	don't know	27	9.6
Hepatitis C causes liver cancer.	Yes	199	70.6
	No	31	11.0
	don't know	43	15.2
Hepatitis C virus can be found in semen or vaginal fluid of an infected person?	Yes	185	65.6
	No	44	15.6
	don't know	44	15.6
Hepatitis C virus mainly affects the liver.	Yes	204	72.3
	No	38	13.5
	don't know	31	11.0
Are you aware that hepatitis C kills faster than HIV?	Yes	184	65.2
	No	51	18.1
	don't know	38	13.5
Can hepatitis C transmitted via hand shake?	Yes	105	37.2
	No	140	49.6
	don't know	28	9.9
Hepatitis C can be transmitted through unprotected sex.	Yes	154	54.6
	No	87	30.9
	don't know	32	11.3
Hepatitis C can be transmitted through blood transfusion?	Yes	221	78.4
	No	29	10.3
	don't know	23	8.2
Hepatitis C can be transmitted through sneezing or coughing.	Yes	117	41.5
	No	110	39
	don't know	46	16.3
Hepatitis C can be transmitted through from mother to her child at birth.	Yes	194	68.8
	No	41	14.5
	don't know	38	13.5
Hepatitis C can be transmitted through from eating or sharing food/utensils with hepatitis infected Patient	Yes	138	48.9
	No	103	36.5
	don't know	32	11.3

Hepatitis C can be transmitted by contaminated blood and body fluid?	Yes No don't know	214 46 13	75.9 16.3 4.6
Hepatitis can be transmitted by unsterilized syringes, needles, and surgical instruments.	Yes No don't know	231 31 11	81.9 11.0 3.9
Can hepatitis C be transmitted by contaminated water/food prepared by person suffering with these infections?	Yes No don't know	157 93 23	55.7 33.0 8.2
Can hepatitis C transmitted through sharing of a toilet with an infected person?	Yes No don't know	91 133 49	32.3 47.2 17.4
Clean and cook food thoroughly can prevent hepatitis C transmission	Yes No don't know	130 108 35	46.1 38.3 12.4
Can hepatitis C transmission be prevented by not reusing or sharing needles/syringes?	Yes No don't know	187 73 13	66.3 25.9 4.6
Avoid sharing food/utensils with hepatitis C infected person can prevent transmission.	Yes No don't know	176 79 18	62.4 28 6.4
Use a condom can prevent hepatitis C transmission.	Yes No don't know	191 53 29	67.7 18.8 10.3
Can the hepatitis B vaccine prevent Hepatitis C transmission?	Yes No don't know	200 64 9	70.9 22.7 3.2
Can a use of hand glove prevent transmission of hepatitis C?	Yes No don't know	228 28 17	80.9 9.9 6.0
Wash hands with soap or disinfectant after each waste disposal procedure can prevent hepatitis C.	Yes No don't know	222 43 8	78.7 15.2 2.8
Is there a cure for hepatitis C?	Yes No don't know	187 66 20	66.3 23.4 7.1
Waste handlers should be tested for hepatitis C.	Yes No don't know	224 45 4	79.4 16.0 1.4
Family members of those who have hepatitis C should be tested for hepatitis C.	Yes No don't know	213 33 27	75.5 11.7 9.6

HIV-infected people should be tested for hepatitis C.	Yes No don't know	209 27 37	74.1 9.6 13.1
Hepatitis C infected person may be asymptomatic for a long time	Yes No don't know	184 53 36	65.2 18.8 12.8
Is jaundice one of the common symptom of hepatitis C?	Yes No don't know	211 37 25	74.8 13.1 8.9
Are losses of appetite and dark urine the common symptoms of hepatitis C?	Yes No don't know	202 45 26	71.6 16 9.2
Are nausea, vomiting, Joint pain, abdominal pain, common symptoms of hepatitis C?	Yes No don't know	202 33 38	71.6 11.7 13.5
Is Ascities the symptoms for hepatitis C?	Yes No don't know	215 27 31	76.2 9.6 11

Table 2: Waste Handlers Responses to Questions Regarding Knowledge of Hepatitis C in public Hospitals in Sidama region, Ethiopia, 2022 (n=282)

There is low level (44%) of testing/screening practice among the respondents. Only 40.4% of the study participants' changes glove during waste collection. Although 70.9% of the participants reported they were exposed to blood, only 50% take immediate action

after blood exposure. Although more than 78% of the respondents reported that they faced needle stick injury, only 49.3% report for needle stick injury and only 34.8% are tested after needle stick injury.

Statement	Category	Frequency	Percentage
Have you ever screened for hepatitis C?	Yes	124	44
	No	133	47.2
	don't know	24	8.5
Do you always change gloves during waste collection?	Yes	114	40.4
	No	146	51.8
	don't know	21	7.4
Have you ever faced needle stick injury?	Yes	221	78.4
	No	44	15.6
	don't know	16	5.7
If your answer is Yes for question number 3, do you always report for needle stick injury?	Yes	139	49.3
	No	123	43.6
	don't know	19	6.7
If your answer is Yes for question number 3, have you tested after needle stick injury?	Yes	98	34.8
	No	79	28
	don't know	12	4.3
Are there sharp-proof containers at your clinic for disposing needles and sharp objects?	Yes	144	51.1
	No	40	14.2
	don't know	8	2.8
Have you ever exposed to blood?	Yes	200	70.9
	No	74	26.2
	don't know	7	2.5
If your answer is Yes for question number 7, Do you take immediate action after blood exposure accidents(Soap washing, Disinfection)	Yes	141	50
	No	122	43.3
	don't know	7	2.5

Table 3: Waste handlers practice towards hepatitis C in public Hospitals in Sidama region, Ethiopia, 2022 (n=282)

We employed eighteen questions to assess attitude of respondents toward hepatitis C. Each of the respondents was asked to give ratings for each question (measures). From the results we can see that among respondents included in this study, 126 (44.7%) of them strongly agree that their job put them at greater risk of hepatitis infection while 10 (3.5%) them strongly disagree that their job put them at greater risk of hepatitis C infection. 83 (29.4%) of the respondents strongly agree that hepatitis B vaccine is very effective to prevent hepatitis C and none of the respondents disagree that hepatitis B vaccine is effective to prevent the infection. Among

the respondents in this study 30 (10.6%) strongly disagree and 27 (9.6%) disagree that wearing gloves is important to prevent transmission of hepatitis C while 162 (57.4%) agree and 19 (6.7%) strongly agree that wearing glove can prevent transmission of hepatitis C infection. Among the study subjects 73 (25.9%) of them strongly disagree and 73 (25.9%) disagree that working with hepatitis infected person in the same working place dangerous while 39 (13.8%) strongly agree and 88(31.2%) agree that working in the same place with hepatitis C infected person is dangerous (Table 4).

Statement		Ratings			
		Strongly disagree	Disagree	Agree	Strongly agree
Your job puts you at greater risk of hepatitis C infection	Frequency	10	40	97	126
	Percentage	3.5	14.18	33.3	44.7
Hepatitis B vaccine is very effective to prevent hepatitis C	Frequency	0	23	167	83
	Percentage	0	8.2	59.2	29.4
Wearing gloves is important to prevent transmission of hepatitis C	Frequency	30	27	162	54
	Percentage	10.6	9.6	57.4	19.1
Infection with viral hepatitis C is shameful	Frequency	116	75	63	19
	Percentage	41.1	26.6	22.3	6.7
Working with hepatitis C infected person in the same working place dangerous?	Frequency	73	73	88	39
	Percentage	25.9	25.9	31.2	13.8
Training programs about hepatitis should be offered for all waste handlers	Frequency	62	31	101	79
	Percentage	22	11	35.8	28
Hepatitis B vaccination must be mandatory for all waste handlers	Frequency	7	6	176	84
	Percentage	2.5	2.1	62.4	29.38
I have no concern about being infected with hepatitis C	Frequency	33	86	89	65
	Percentage	11.7	30.5	31.6	23.0
Changing gloves during waste collection is a waste of time	Frequency	64	109	92	8
	Percentage	22.7	38.7	32.6	2.8
Following infection control guidelines would protect from being infected with hepatitis C at work	Frequency	14	32	216	11
	Percentage	5.1	11.3	76.6	3.9
After exposure to contagious fluid/material, washing hand reduces the likelihood of being hepatitis C positive	Frequency	66	23	148	36
	Percentage	23.4	8.2	52.5	12.8
A healthcare worker can infect waste handlers with hepatitis C	Frequency	13	44	198	18
	Percentage	4.6	15.6	70.2	6.4
Poor management of infectious medical waste predisposes me to hepatitis C infection	Frequency	9	69	174	21
	Percentage	3.2	24.5	61.7	7.4
Hepatitis C infection is very severe	Frequency	1	31	136	105
	Percentage	0.4	11	48.2	37.2
I am willing to receive hepatitis B vaccination ones offered a chance	Frequency	4	22	182	65
	Percentage	1.4	7.8	64.5	23
We wear gloves and gowns only to prevent the spread of disease from one patient to another.	Frequency	72	92	74	35
	Percentage	25.5	32.6	26.2	12.4
If we use gloves, we do not need to wash our hands.	Frequency	146	52	56	19
	Percentage	51.8	18.4	19.9	6.7

It is not appropriate to dispose of garbage in an open pit.	Frequency	76	42	103	52
	Percentage	27	14.9	36.5	18.4

Table 4: Waste handlers attitude toward hepatitis C at different government hospitals of Sidama region, Ethiopia, 2022 (n=282)

Spearman rank correlation revealed significant positive correlations between knowledge-attitude ($r = 0.57$, $p = 0.037$), knowledge-practice ($r = 0.265$, $p = 0.00$) and attitude-practice ($r = 0.72$, $p = 0.02$) Table 5.

Variable	Correlation coefficient	P-value*
Knowledge-Attitude	0.57	0.037
Knowledge-Practice	0.265	0.00
Attitude-Practice	0.72	0.02

Table 5: Correlation between KAP

Variable	Category	OR (95%CI)	P-Value
Age in years	18 – 28	Reff.	0.224
	29 – 39	0.467(0.023-9.378)	0.619
	40 – 50	0.397(0.026-6.018)	0.505
	51 and above	0.132(0.011-1.639)	0.115
Educational Level	Unable to write and read	Reff.	0.029
	Elementary and less (1-8)	2.427(1.116-37.89)	0.042
	High school (9-12)	2.751(3.22-12.551)	0.006
	Higher education(certificated and above)	3.676(4.559-15.028)	0.027
Monthly income in Birr		1.001(1.00-10.002)	0.029
Marital status	Single	Reff.	0.004
	Married	22.96(1.203-38.157)	0.037
	Widowed	1.412(0.122 -16.298)	0.710
	Divorced	0.635(0.058 -6.965)	0.782
Total family size		1.065(0.871-1.304)	0.539
Residence	Urban	Reff.	0.006
	Rural	6.332(1.703-23.544)	
Reading Habit	Never	Reff.	0.694
	Rarely	0.734(0.228-2.360)	0.604
	Sometimes	0.888(0.359-2.195)	0.797
	Frequently	2.908(0.317-26.65)	0.345
Use of mass media	Never	Reff.	0.005
	Rarely	2.461(2.688-8.799)	0.006
	Sometimes	2.013(0.516-7.848)	0.314
	Frequently	83.172(6.932-99.9)	0.000
Year of experience		1.094(0.934-1.280)	0.265

Table 5: Association of Explanatory Variables with Knowledge Level of Waste Handlers at Government Public Hospitals at Sidama Region, Ethiopia, 2022 (n=282)

Odds of knowledge of waste handlers whose educational level was elementary and less are increased by the factor 2.427 times as compared with reference category with $P = 0.042$ which was statistically significant. And odds knowledge was increased by the factor 2.751 times and 3.676 times for respondents whose educational level was high school and higher education with $P = 0.006$ and 0.027 respectively which were statistically significant (Table 5).

4. Discussion

HCV is one of the most significant occupational infection that waste handlers may face, as they are repeatedly exposed to blood and blood products, body fluids, saliva, and even suffer needle stick injuries [17]. Accordingly, in order to reduce or stop the distribution of such infection to waste handlers, infection control strategies should be practical. This study was conducted to assess the level of knowledge, attitudes, and practice among waste handlers at different governmental hospitals in SNRS.

Overall, waste handlers in this study showed adequate knowledge (63.5%), positive attitude (54.3%) and good practice (69.5%) toward hepatitis C. Comparable results were also reported in other studies [18]. Based on the results of this study, we can deduce that waste handlers have a satisfied level of knowledge regarding HCV infection above 63%. This is in an agreement with some other studies that showed satisfied level of knowledge among waste handlers regarding HCV infection [19].

In a study conducted by [20] about 81.7% of the study subjects knew about the likelihood of HCV transmission via contaminated blood and body fluid, while in our study the figures were lower 75.9%. The vast majority of our study subjects knew vaccination availability for hepatitis B (78.4%). This result is much lesser than the result (95.1%) Among waste handlers in Al Jouf province in. This may reflect the importance of constant medical education programs in improving the health behaviors of waste handler workers [20].

The result of the this study showed a low rate (44%) of HCV screen practice for hepatitis C. which could be an indication to, HCV screening is not mandatory requirement by the waste handlers in public hospitals in different part of SNRS. This rate is much lower to that reported by other studies in UAE (98.8%), Brazil (90.8%) and Canada (100%) and Saudi Arabia (90%) [21]. However, this rate is higher than that reported in other studies reported in India (38%) [22].

The positive correlations between knowledge-attitude, knowledge-practice and attitude-practice in this study confirm the relationship between knowledge attitude and practice with infection control measures. It is concluded that satisfactory knowledge can bring about a positive attitude, which leading to good practices. The findings are consistent with the results of some other studies [23].

The present results showed that 157 (55.7%) of the participants thought incorrectly that HCV can be transmitted by contaminated water/food prepared by person suffering with these infections, similarly another study conducted on Vietnamese Americans on knowledge and the prevalence of hepatitis C showed that there was an inadequate knowledge about HCV, 32.9% thought incorrectly HCV transmitted by contaminated water/food prepared by person suffering with these infections. The results also showed that there was a lack of knowledge regarding the treatment, 42.7 % knew that there was treatment for HCV [24]. Contrary, the current study found that the majority of the respondents 183 (64.9%) knew that there was treatment for HCV.

Another study done by Gürakar, Idilman, Keskin and Malik in Turkey reported that 60% of the study subjects had knowledge that hepatitis C was a transmissible infection and a major cause of serious liver cancer. This study showed more knowledge that 199 (70.6%) of respondents knew that HCV was a major cause of serious liver cancer and had adequate knowledge 230 (81.6%) that

hepatitis is epidemics. This may be because the hospitals deliver different training for waste handlers at different time [25].

The study findings posited that the level of knowledge was not significantly associated with age and gender but it was significantly associated with education level of an individual. A study conducted among waste handlers in two maternity hospitals in Khartoum, Sudan on the contrary showed that the level of knowledge was not significantly associated with educational level [26]. The differences may be due to the inclusion of a wider range of education level from illiteracy to tertiary in the current study compared to mentioned study, which focused on waste handlers, which have all attained tertiary education.

In this study, 86 (30.5%) of the study participants showed bad practice and 196 (69.5%) showed good practice. 124 (44%) had screened for hepatitis C, 114 (40.4%) always change gloves during waste collection and 139 (49.3%) report for needle stick injury. The findings were much higher than the findings reported by which showed that 20.3% of study participants had good practice and 85.9% had not screened for HCV. Another study conducted in Honiara, Solomon Islands, in 2015 showed that 26.3% of study participants had good practice [27, 28]. This good practice in the current study could be as results of adequate knowledge of respondents on HCV 179 (63.5%).

The results of this study showed that the respondents that had positive attitude towards hepatitis C is 153 (54.3%) and 129 (45.7%) of the respondents had negative attitude. In this study 220 (78.01%) of the respondents reported that they believe that they were at risk of contracting HCV by virtue of their work as waste handlers. 247 (87.5%) were approved to receive hepatitis vaccination ones offered a chance. These findings were slightly lower than a study findings done by which found that the respondents had good attitude (91%) and 82.7% were willing to get vaccinated [26].

The findings of the current study was consistence with study conducted in Ethiopia on pregnant women attending antenatal care at the University of Gondar comprehensive specialized hospital which reported 54% had positive attitude [27]. In addition, a study conducted in Bangladesh in 2012 showed that 50% of study participants had positive attitude. Having a positive attitude means that respondents may be willing to take preventive measures to help combat HCV infection. This willingness was seen in this study as 180 (63.8%) of the respondents proved to take training about HCV.

4.1 Limitations of the Study

Besides, data on knowledge, practice and attitude were self-reported; it could be subject to individual bias. Although this study provides some very useful information on hepatitis C to waste handlers, the limitations include; lack of focused group discussion and in-depth interviews may diminish the transferability of the findings. Further research in this respect could be very useful.

5. Conclusions

There was adequate knowledge, attitude and practice among waste handlers at different government hospitals of Sidama region, Ethiopia compared to other studies. Educational level, monthly income, use of media, marital status and residence were significant factors associated with knowledge of waste handlers toward HCV. HCV related inadequate of knowledge on mode of transition and prevention can be contributory towards increasing frequency of HCV. Hence, educational campaigns among waste handlers should be intensified with focus being on attitude change and behavior modification. There was less level of screening practice among the participants, thus governments should make screening programs for the infection free of charge. The result of this study showed the majority of the participants had more than average knowledge on hepatitis C virus. The result showed a significant difference between the knowledge with attitude. Those who had knowledge had good attitude and practice. The practice aspect of HCV was generally good and this was as a result of respondents had adequate knowledge about how to fully protect oneself from acquiring HCV. Therefore, improving more than the knowledge obtained in this study about HCV can contribute to improve the waste handlers' health by getting lower rate of cases with HCV. HCV practices as a performed conduct were influenced by the attitude of the waste handlers towards HCV. Therefore, it is concluded that adequate knowledge leads positive attitude, which in turn results in a positive change in the practices of waste handlers.

Authors' Contributions

B.B conceived the study and drafted the proposal and had substantial contributions to the study design and development of the data collection checklist. M.B drafted the manuscript, wrote, and corrected the manuscript. All authors read the manuscript and approved it.

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Availability of Data and Materials

Most of the data analyzed during this study are included in this article. The full datasets used and/or analyzed during the current study is available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

The study protocol was approved by Institutional Health Research Ethics Review Committee (IHRERC) of Hawassa University, College of Health and Medical Sciences (CHMS) (Reference number: IHRERC/127/2021) and permission for study proceeding was accepted by respective health institutions. All methods were carried out in accordance with relevant guidelines and regulations of Hawassa University. Thus, informed, written and signed consent was obtained from each participant. Consent to participate from study subjects were written and signed individually on hard copy.

Competing Interests

The authors declare that they have no competing interests.

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