COLLEGE OF HEALTH SCIENCE

SCHOOL OF PUBLIC HEALTH

PREVALENCE OF SHARP INJURY AND ASSOCIATED FACTORS AMONG HEALTH CARE WASTE HANDLERS IN PRIVATE HOSPITALS, ADDIS ABABA, ETHIOPIA,2019.

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BY: ALEMAYEHU GETAHUN (BSC.) SIGNATURE: _____ DATE_____

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LIST OF ACRONYMS

AAU	Addis Ababa University
AAFMHACA	Addis Ababa Food Medicine and Health Care Administration and Control Authority
BSc	Bachelor of Science
CDC	US Communicable Disease Center
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
IP	Infection Prevention
SI	Sharp injury
NSI	Needle stick sharp injury
HCWM	Health care waste Management
HCWH	Health Care Waste Handlers
AOR	Adjusted Odd Ratio
OR	Odd Ratio
IRB	Institutional Research Board
MOH	Ministry of Health
WHO	World Health Organization
DC	Data Collector
EPI-DATA	Epidemiological Data
SPSS	Statistical Package for Social Sciences
SD	standard deviation

ABSTRACT

Background: - A sharps injury is a penetrating stab wound from a needle, scalpel, or other sharp object that may result in exposure to blood or other body fluids. Wastes containing sharp materials may affect not only health workers who produce them, but also waste collectors and laundry personnel who handle and collect them. In addition, if not managed properly, it carries a substantial risk to the hospital staff, the patients, the community, public health and environment.

Objective: - To assess the prevalence of sharp injury and associated factors among health care waste handlers in private hospitals found in Addis Ababa, Ethiopia 2019.

Methodology: - An institutional based cross sectional study was conducted from January 01, 2019 to February 30, 2019 among private hospital found in Addis Ababa, Ethiopia. A total of 437 health care waste handlers working in 25 private hospitals found in Addis Ababa were involved in this study. Data were collected using structured questionnaire adapted from previous similar literatures. The results were described by frequency, percentage, odds ratio, range and mean and presented using tables and graphs. The multi variable logistics regressions analysis were performed to see the association and control the potential confounders.

Results: -The prevalence of sharp injury experienced among private hospital health care waste handler was 55 (12.8%) in the past 12 months. Age, educational status, working department, total service year, and training on health care waste management were significantly associated with sharp injury. Health care waste handlers working in emergency room had increased the odds of getting sharp injury by 8.7 times compared to inpatient ward (AOR= 8.7; 95% CI= 1.3-60) and health care waste handlers who clean operation room were 8 times (AOR=7.7, CI=1.07-56.3) more affected than inpatient ward. Meanwhile, taking training about health care waste management and infection prevention decreases the odd of getting sharp injury by 3 times than those who do not take training (AOR=2.8, CI= 1.14-6.8). The odds of sharp injury among participant doing overtime were 3 times (AOR= 3.3; 95% CI= 1.117-10) higher than that does not.

Conclusion: - The prevalence of sharp injury among private hospital health care waste handler was high. Age, educational status, working department, total service year, training, and doing overtime were significantly associated with sharp injury. Remedial actions need to be considered at individual and institutional level.

Key Words: - sharp, sharp injury, Private hospitals, healthcare waste handlers, Addis Ababa

1. INTRODUCTION

1.1 Background

Maintaining a clean environment and proper disposal of medical waste are social obligations of hospitals. Health care waste also termed biomedical waste contains infectious, toxic, harmful, carcinogenic, contaminated and hazardous waste like discarded sharps, non-sharps, blood, body parts, toxic chemicals, pharmaceuticals, medical devices and radioactive substances(1). A sharps injury is a penetrating stab wound from a needle, scalpel, or other sharp object that may result in exposure to blood or other body fluids. Wastes containing sharp materials may affect not only health workers who produce them, but also waste collectors and laundry personnel who handle and collect them(2,3).

Health care waste handlers who are engaged in collecting, transporting and disposal of wastes in the health institutions such as hospitals, health centers and clinics faced serious exposure to hazardous wastes and occupational accidents as a result of manual handling of waste and working under unfavorable conditions (4). These accidents include injuries caused by sharp materials such as hypodermic needles, broken glasses, and hard plastics. This type of injury could represent an infectious pathway for many infectious microorganisms such as Hepatitis B, Hepatitis C and HIV/AIDS are at most concern because they can cause significant morbidity or death (4).

Health care waste handling is a physically demanding job that includes numerous and varied tasks. Waste handlers spend a considerable amount of their time standing and lifting or pushing fixtures and equipment. Those workers are at high risk of acquiring disease and injury resulting from exposure to various work hazards(5).

By its nature, health care waste handling is a hazardous activity which requires a high standard of training. It calls for specific training that depends on the nature of the work in the hospital, the

hazards and possibility of worker exposure, and the responsibilities of individual workers(6). At the same time, these injuries create an unequal burden on the workers in rate greater than those who are working in similar work settings. The long term psychosocial burden due to fear of acquiring infection can also have major impacts on the lives of affected individuals (2).

1.2. Statement of the problem

Poor health care waste practices management poses a direct and indirect health risks to health care workers, waste handlers, and patients in hospitals (5). Professional related risk assessment in British Columbia, showed that health care waste handlers had the third highest needles stick injury rate (18.4 per 1000 person-year) and the second highest other sharps injury rate (7.1 per 1000 person-year) comparing with healthcare workers (7). Improperly collected and segregated Sharp materials are considered to be an occupational hazard for medical waste handlers. About 47% of medical waste handlers had at least one accidental Sharp injury because of improperly discarded needle and sharp materials and more than half of them reported receiving no training on proper medical waste handling and infection prevention, poor waste segregation and poor utilizations of personal protective equipment were the cause of the injury(8).

Health care waste should be collected and transported in a safe way to avoid unnecessary exposure. But about 58.8% and 41.2% of waste handlers were exposed to blood and body fluids due to carrying over filled waste bags which increase the risk of infection for different pathogens like HBV, HCV and HIV/AIDs (8).

In Ethiopia, at the national level, health facility policies, laws and regulations about health care waste management were absent. Furthermore, less attention was given to health care waste management by health administrators at health facility level in terms of resource allocation (8,9). At the individual level, most waste collectors didn't have proper on job-trainings and had a low level of education (5). Moreover, their income was low and living conditions were very poor (10). Above all, waste handlers usually do not wear appropriate personal protective equipment (PPE) such as protective gloves (11–13). The most common reason for not using proper personal protective devices (PPD) were unavailability or shortage of PPD. The lack of PPD can aggravates the risk of acquiring infection.

Even though the impact of healthcare wastes on healthcare workers is well described globally (10), limited attention was given for waste collectors and countrywide official statistical data did not address the health and working condition of waste handlers (7). Previous studies in Ethiopia

focused on waste handler from public health facilities so the findings may not reflect the situation in private health facilities. This is because there is significant difference in payment, rules and regulation, waste handling practice, working condition and training on how to handle medical waste between the public and private health facilities. Furthermore, in Ethiopia, studies done in some parts of the country were mainly focused in public hospital and a few studies have been done regarding this topic (11,14) and less attention was given to see the overall working conditions and factors exposing waste collectors for possible injuries and accidents. Therefore, the objective of this study was to assess the prevalence of sharp injury and associated factors among health care waste handlers in private hospitals found in Addis Ababa, Ethiopia.

1.3. Rationale of the study

Though much attention is paid to the safety of healthcare workers and their protection from sharps injury, the welfare and safety of those in the waste handling, collection, transportation and disposal sector has received very little attention.

Globally health care waste handlers in the healthcare sector were found to be at an elevated risk of occupational injury compared with other healthcare workers. In Ethiopia, studies on sharp injury are-limited and the prevalence varies from setting to setting. Above all little is known about the prevalence of sharp injury among private hospital healthcare waste handlers. Moreover, contributing factors to the occurrences of occupational sharp injury among private hospital healthcare waste handlers was not yet well addressed. Therefore, it is an important to determine and document the prevalence of sharps injuries, and associated factors among private hospital healthcare waste handler in Addis Ababa, Ethiopia.

1.4. Significance of the Study

This study can provide essential information about the prevalence and associated factors of sharp injuries among private hospital health care waste handlers in Addis Ababa, for concerned bodies such as health policy makers, safety and health practitioners and owners of the hospital. It will also create awareness among health care waste handlers about risk of sharp injuries from health

care waste. In addition to this, the study will suggest possible prevention strategies to reduce the sharp injuries to promote worker's health. It can also serve as a baseline data for future study.

2. LITERATURE REVIEW

To assess the different experiences of sharp injury among healthcare waste handlers, a literature search was conducted based on agreed research questions. A relevant paper was found through computerized literature search engines of scholarly articles. They included MEDLINE, EMBASE, Science Direct and Google Scholar. Furthermore, hand search was done.

2.1. The magnitude of sharp injury among health care waste handlers.

Healthcare wastes, comprising the detritus of human or veterinary healthcare, are highly variable in composition. A substantial proportion may comprise relatively innocuous packaging and other nonhazardous materials, though some fractions may be contaminated with blood or body fluids that may contain potentially harmful microorganisms(9).

Occupational injury and illness assessments monthly review of US Bureau of Labor Statistics shows that private industry hospital workers exhibit a higher incidence of injury and illness 6.0 cases per 100 full-time workers than employees working in other industries traditionally considered dangerous, such as manufacturing and construction. Hospital workers routinely face hazards related to lifting, moving, or otherwise physically interacting with patients. Workplace injuries and illnesses among hospital workers reflect common risks of hospital jobs and differ by type of hospital(10,12).

A cross-sectional study of sharp injuries among hospital support personnel (laundry workers, cleaners, porters and central supply workers) demonstrated that cleaners sustained the majority (66%) of injuries and that inappropriate disposal was associated with 55% of all injuries(13).

The study conducted among forty-three waste handlers' by Olaitan et al, in shows that eleven (25.6%) of them have been injured with sharps. The result also shows that finger of the workers was the most injured in 93% of them. It also shows that as training and re-training of health care

waste is important, pre-employment immunization against Hepatitis B, C as well as other before commencing on their jobs and should be encouraged(15).

The percentage of staff suffering one or more sharps exposure incidents was 42.1%; the areas and activities that were recognized as high risk for SIs and BBF exposure included persons working in on-site. Almost 68% of staff experienced one or more BBF exposures; the leading incident of exposure occurred among those working in delivery rooms, operating rooms and laboratories (75%) followed by inpatient wards (71.1%) of MWHs experienced multiple SIs to similar sites, i.e. fingers and palms during collection, transportation, and decantation and disposal of sharps; the rest experienced injuries on their legs, shoulders and heads (14).

Over the 3.5 years for which comprehensive group-wide data were available, 40 sharps injuries were recorded among waste handlers. With staffing levels varying between 58 and 85 individuals, sharps injury occurred at a frequency of approximately 1 per 29 000 man hours, most often as waste handlers attended producer sites to collect wastes for onward disposal among 36 (9).

Study done in Hawassa city of south Ethiopia showed that MCWs had experienced needle-stick injuries at least once in their life at the different HCFs ranged from 25-100% (11). Exposure to both SI and BBF will results to acquire blood borne pathogens such as Hepatitis B and C and HIV (16).

According to the study done among medical waste collectors in Eastern Ethiopia 30% of waste collectors were exposed to any sharp materials while handling medical waste. The number of waste collectors who were exposed to blood and body fluid were also 43.8%, out of those experienced sharp injury 85.2% had needle stick injury due to improper handling, poor waste segregation and poor utilizations of personal protective equipment (PPE) (8).

2.2 Factor related to Sharp injury among healthcare waste handlers

2.2.1 Socio demographic factors

Socio demographic factors include age, marital status, religion, educational level and monthly income. The study done on healthcare waste handlers of tertiary care hospital of south India showed that 41.9% of them had accidental exposure to health care waste were >45years, illiterate, and above 5 years work experience in waste handling (17).

2.2.2 Work related Factors

The two most common causes of NSIs are recapping of needles, and the unsafe collection and disposal of sharps waste (18). Many studies have been conducted among healthcare workers responsible for generating waste like doctors, nurses, laboratory technicians, but there are only a few studies which focus on healthcare waste handlers responsible for handling and collection of healthcare wastes. This group of waste handlers is vulnerable to the hazards of occupational exposure to sharp injury as a consequence of improper disposal practices of the waste generators (19).

The research done on Cleaners 47 (47%) (1.56-5.45) and Nurses 7.45 (2.89-19.15) shows the association was highly significant in both groups. Statistically, there is no significant difference among study participants with regard to variation in age, service year, additional responsibilities, working more than 40 h/week, and difference in knowledge status, gloving practice, as well as whether they think that they are always following standard procedure or not(20).

In this study 47 % of health care cleaners reported that they percutaneous injured and regression model indicated that regularly following standard precautions has no significant relation with percutaneous injury. About 83.3 % of the participants reported dissatisfaction by the provision of infection prevention materials, 73 % of whom cited lack of supply (scarcity) as the main reason (20).

Lack of infection prevention supplies seriously affects prevention efforts and puts patients, visitors and HCWs at greater risk of infection and adds to the dissatisfaction of HCWs with their work environment. Furthermore, 73.6% of the HCWs perceived their work place to have put them at higher risk of acquiring HBV, HCV and HIV infections and 41.1% preferred treating(21).

Another Contributing factors for NSSIs include needle type, recapping activities, collisions between HCWs and sharps during clean-up, manipulating needles in patient's areas, passing and handling various devices, and failure to dispose of the needle in puncture proof containers(22).

Health care workers may also incur injuries from improper procedures, such as passing sharps hand-to-hand between team members, placing sharps in a disposal container, or failing to use a safer sharps device. A report from the Exposure Prevention Information Network (EPINet) found that nearly half of all sharps injuries occurred during use of the sharp, and of the nearly 40% of needle injuries which involved a safety designed needle, the majority occurred before activating the safety device(23).

According to World Health Organization report and Pruss-Ustun finding, Overuse of injections and unnecessary sharps, Lack of supplies such as disposable syringes, safer needle devices, and sharps-disposal containers, Lack of access to and failure to use sharps containers immediately after injection, Inadequate or short staffing, Lack of engineering controls such as safer needle devices, and lack of awareness of hazard and training were the major factors related to Sharp injuries among health care waste handlers and health care workers(24,25)

The recent work of literature by Amina Kandeel and Abdel-Hady El-Gilany also shows that housekeeping staff suffer from high rates of NSSIs associated with inappropriately disposed sharps(26).

Research done among Hospital Healthcare Workers in Bale Zone, South east Ethiopia shows that, availability of safety guidelines in the working department, use of personal protective equipment's, access to safety guidelines and experience seem to be important factors related to sharp injury(27).

Medical Waste Collectors (MWCs) faced massive exposure to hazardous wastes and occupational accidents as a result of manual handling of waste and working under unfavorable conditions. These accidents include injuries caused by sharp materials such as hypodermic needles, broken glasses, and hard plastics. This type of injury could represent an infectious pathway for many infectious microorganisms such as hepatitis and HIV (28).

2.2.3 Organizational factors

Although housekeepers have no direct contact with patients and do not use sharp objects to perform their jobs, they are frequently exposed to NSSIs as they are responsible for closing and disposal of sharps containers. Effective segregation at source and the correct use of waste

containers provide the most effective safeguards. The incidence of sharps injury in healthcare workers is well described and much attention is given to prevention through education and training, product design and changes to clinical practice(29). However, a significant risk of sharps injury to waste handlers responsible for the onward disposal of healthcare wastes may have been overlooked(30).

Study conducted among Forty-three waste handler's shows that about 65.8% of them received training before commencing on the job while 32.5% never received any training. The study also indicates that 90.7% of them always use hand gloves before carrying wastes and among all participants only 7.0% of the respondents have been screened for Hepatitis B, 44.2% for HIV, while 23.3% were screened for Hepatitis B, C, and HIV(31).

Healthcare waste handlers who may be exposed to needles are at increased risk of sharp injury. Injuries result from improper sharp object disposal or items protruding from the containers in which they are putted. Previous studies indicate that knowledge about of sharp injury health hazards is lacking among the housekeeping staff, compared to other Health Care Workers, re-emphasizing the need for further education about appropriate handling of sharps(17).

Injuries can best be reduced when the use of improved engineering controls is incorporated into a comprehensive program involving workers which includes workplace to identify hazards and injury trends, examining local and national information about risk factors for needle stick injuries and successful intervention efforts, properly training in the safe use and disposal of sharps, encourage the reporting and timely follow up of all sharps-related injuries(30).

The work of literature also shows that ongoing surveillance, education, close supervision and placement of sharp containers close to the point of use reduced the incidents amongst them. However continuous monitoring, periodic training on safe practices, adequate staffing levels, maintaining experienced staff in busy areas and resource adequacy are required to maintain such improvement. Sharps disposal-related practices should be given high priority in any intervention program. It was found that their, should be national guidelines and HCW should be trained about sharp injury(26).

2.3.2 Behavioral factors

A study in Bangladesh capital Dhaka showed that 73% of waste collectors working in health facilities studied did not regularly wear sufficient Personal Protective Equipment's (PPE) like hard glove and armored gloves during waste handling(32). Research conducted in United Kingdom on sharp injuries among health care waste handle shows that 6 of 40 (15%) sharps injuries are caused due to incorrect and inadequate closure of sharps containers as a causative factor, while sharps carelessly discarded into waste sacks intended only for soft wastes were responsible for 34 injuries (85%)(9).

Conceptual framework

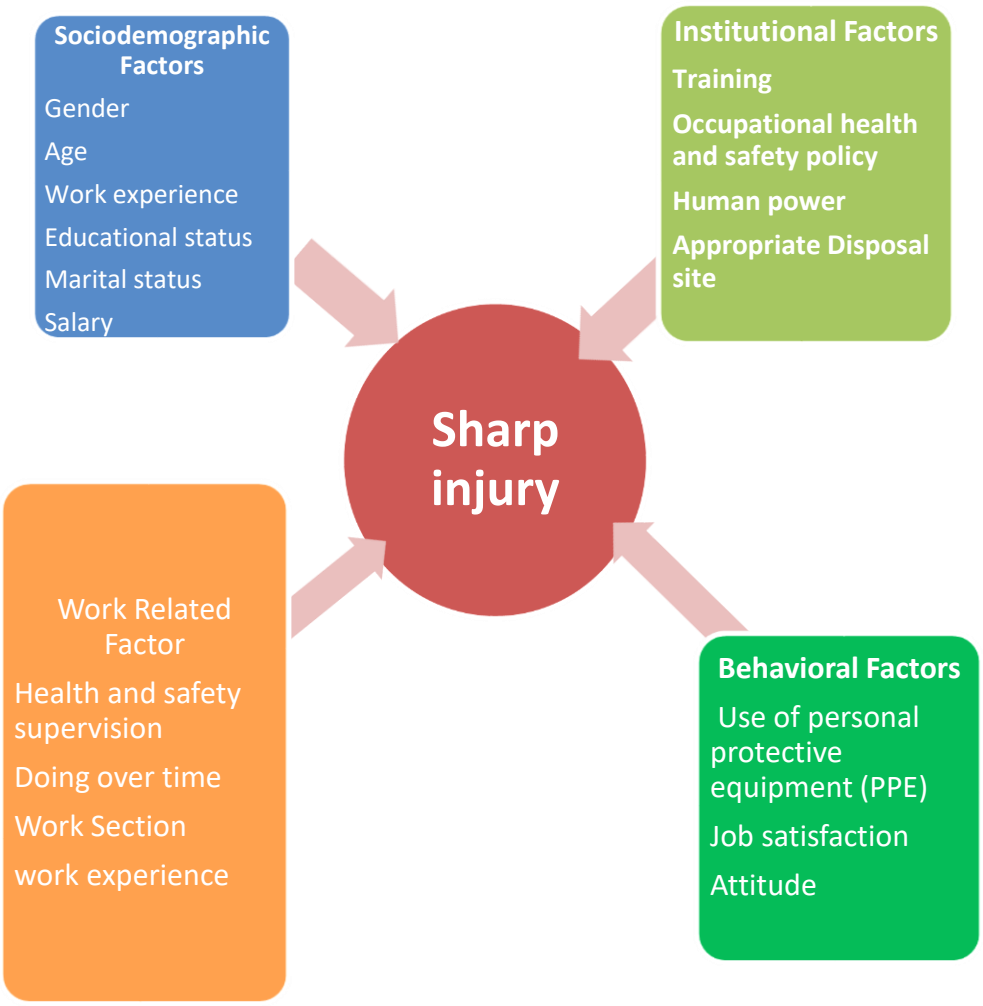

Figure .1 Schematic description showing the sharp injury and its associated factors

2.4 Research questions

- What is that the prevalence of sharp injury among private hospital health care waste handlers in Addis Ababa?

- What are the factors that are associated with sharp injury among health care waste handlers in private hospitals found in Addis Ababa?

3. OBJECTIVES OF THE STUDY

3.1 General objective

To assess the prevalence of sharp injury and associated factors among health care waste handlers in private hospitals of Addis Ababa, Ethiopia,2019.

3.2 Specific objective

- To assess the prevalence of sharp injury among health care waste handlers in Addis Ababa private hospitals.
- To identify factors associated with sharp injury among health care waste handlers in Addis Ababa private hospitals.

4. METHODS AND MATERIALS

4.1 Study area

The study was conducted in Addis Ababa, the capital city of Ethiopia. In Addis Ababa there were 10 governments and 25 private general hospitals governed by Addis Ababa city administration and controlled by Addis Ababa Food Medicine and Health Care Administration and Control Authority. The major common services given by those general hospitals are maternal and child health services, prevention and control of major communicable disease, non-communicable disease prevention and control, emergency services, laboratory services, OR services, etc. According to EDHS 2016 the city had high population density with a total of approximately 3,515,678. The city had been divided in to 10 sub-cities and 117 woredas. Generally, in Addis Ababa hospital there were approximately 491 waste handlers working in private hospitals.

4.2 Study design and period

Institution based cross-sectional study was conducted from January 01, 2019 to February 30, 2019.

4.3. Populations

4.3.1. Source populations

All health care waste handlers working in private hospitals of Addis Ababa

4.3.2. Study populations

All health care waste handlers working in private hospitals found in Addis Ababa were taken as study population for this study.

4.4. Inclusion and Exclusion Criteria

4.4.1. Inclusion criteria: -

All healthcare waste handlers working in private hospitals involved in collection of medical waste and who was on duty for at least one year and those workers who had direct involvement in health care waste handling were included in the study.

4.4.2. Exclusion criteria: -

Workers who clean dining rooms, sanitary supervisor and those who handle non-health care waste generated from these areas such as paper, dust particles, leftover foods, dead plant tissues

and those who had not engaged in health care waste handling were excluded during the data collection period.

4.5. Sampling technique and sample size determination

4.5.1. Sample Size Determination.

A samples size was calculated using a single population proportion formula by assuming 5% marginal error and 95% confidence interval (σ = 0.05).

- ✓ Assumptions: there is no prior data in similar setting on the prevalence of the sharp injury was taken as. p= 0.50 q=0.50

$$n = \frac{(z_{\alpha/2})^2 \times pq}{d^2}$$

Where: n = Sample size d = Margin of error
Z = Level of Confidence P= Population proportion

q= Degree of accuracy desired

The sample size was determined by directly substituting values for inductions as: -

n=? d=0.05 z= 1.96 (Z^2 = 3.48)

P=0.50 q=0.50

To the formula $\frac{n = Z^{2*}p*q}{d^2}$

$\frac{3.84*0.50*0.50}{(0.05)^2}=384$

Using correction factors for the population less than 10,000

$n=\frac{384}{1+\frac{384}{491}}$ == 215.7 ~216

- ♣ 10% of anticipated non-respondent rate will be added and the sample size becomes: -
  - ➢ 216 x10% = 21.6

216+22= **238**

From sample size calculation a total sample of 238 was calculated. However, it's better to deploy A full cross sectional survey because the number of health care waste handlers found in private hospitals in Addis Ababa is small and manageable to conduct the study.

The total number of private hospitals in Addis Ababa are 25 and in whole over of these 25 private hospitals there are a total 491 health care waste handlers.

- Using inclusion and exclusion criteria of 491 health care waste handlers 437 meets sated criteria. Data was collected from 437 of study participants. 8 participants refused to respond.

4.5.2. Sampling technique and procedures

In order to ensure representativeness of samples, all private hospitals in Addis Ababa were considered. From these hospitals found in Addis Ababa healthcare waste handlers who had fulfill inclusion criteria was taken as parts of study.

4.6. Data collection tools and techniques

The questionnaire was developed by principal investigator after reviewing WHO, FMOH infection prevention guide line and different literatures with modification based on research objectives. Two days training were given to all data collectors' and supervisors prior to pretesting. Ten data collectors who had completed environmental health/occupational health and safety professional were recruited. One data Collector assigned to two/three private hospitals based on size of organization and collect data.

Observational checklists were used to assess work related factors such as presence protocol for reporting the sharp injury, safety box, PPE usage practice and guideline.

4.7. Data processing and analysis

The collected data was coded, cleaned and entered into Epi-Data version 3.1 and transferred to Statistical Package for Social Sciences (SPSS) version 22.0 for cleaning and analysis. Binary logistic regression analysis was carried out to identify predictors for Sharp injury and multivariable logistic regression model were used to identify the relative importance of each predictor to the dependent variable by controlling for the effect of other variables. In order to avoid an excessive numbers of variables, unstable estimates, separate exposure effects due to another variable only variable that reached a P-value less than 0.2 was included in the subsequent analysis (multivariable logistic regression analysis model).

4.8. Data management

The data was organized and coded and lastly, the data was validated and an appropriate conclusion was drawn from findings.

4.9. Data quality Assurances

Original questionnaire was prepared in English and then translated in to Amharic and translated back to English to check its consistency. A pretest was conducted prior to the actual data collection on 5% of the total sample size. Confusing or misleading questions/concepts was modified after the pretest. Each data collector was checked the questionnaires for completeness before leaving each study participant. All filled questionnaires were reviewed at the end of the day by the supervisor.

4.9.1 Study Variables

- **Dependent variables**-----Sharp injury
- **Independent variables**: -

A. Socio demographic factor

- Gender
- Age
- Educational status
- Marital status
- Monthly salary

B. Behavioral factor

- Use of personal protective equipment (PPE)
- Attitude, job satisfaction

C. Work related and organizational factor

- Availability of supply
- Appropriate disposal site and work site
- Health and safety supervision
- Doing over time
- Taking training and work experience

4.11. Ethical Consideration

The ethical clearance was obtained from Addis Ababa University, College of Health Sciences, School of Public Health Institutional Research Board (AAU -IRB) and Addis Ababa Food, Medicine Health Care Administration and Control Authority. Written consents were taken from each participant. Study identification numbers were used instead of participant names and the information collected were kept confidential. Participation is completely voluntary and participants may choose to withdraw at any time and refuse to participate.

4.12. Dissemination of Results

The final copy of the report with appropriate recommendation will be submitted to Addis Ababa University, School of Public Health. It is hoped that the result of the study will disseminated to Ethiopian Private Hospital Association, Ministry of Health, Addis Ababa Food Medicine Health Care Administration and Control Authority and other concerned bodies. Finally, effort will be made to publish in national or international journal for dissemination worldwide.

4.13. Operational Definition

- **Healthcare waste:** Is the total waste that includes sharps, non-sharps, blood, body parts, chemicals, pharmaceuticals, medical devices and radioactive materials from a healthcare establishment, research facilities, laboratories, and emergency relief donations(16).
- **Sharps:** These are items that could cause cuts or puncture wounds, including needles, hypodermic needles, scalpel and other blades, knives, infusion sets, saws, broken glass, and nails. Whether or not they are infected, such items are usually considered as highly hazardous healthcare waste.
- **Sharp injury:** is a penetrating stab wound from a needle, scalpel, or other sharp objects that may results exposure to blood or other body fluids(8).
- **Health care waste handlers**: for this study, HCWHs are defined as those have contact with HCW; blood and other body fluids, syringes, medical devices, radioactive materials, needles and other sharps by virtue of their duties.
- **Risky**: Dirty and potential contamination of any sharps syringe and needle with blood or other body fluids (16).
- **Availability of sufficient human power**: - according to FMHACA standard in one hospital greater than 30 health care waste handlers.
- **Personal protective equipment (PPE):** barriers and filters between the worker and the hazard. Examples include eye goggles, face shields, gloves, masks, and gowns.
- **Deep sharp injury**: - injury to sub-cutaneous tissue under intact skin
- **Superficial sharp injury**: - injury that affects only skin

5. RESULTS

5.1 Socio-Demographic and behavioral characteristics

Of the 491 available individuals, 429 (3 males and 426 female), waste handlers of the private hospitals in Addis Ababa Ethiopia were participated making the response rate 98%. Out of the study subjects, 8 were non respondent. The mean age of the study subjects was 32.07 years with age range 18 to 63 years with standard deviation ± 8.066. One hundred seventy-four (40.6%) participants were married.

The majority of respondents 304 (70.9%) had 1-5 years working experience and 104 (24.2%) of the respondents had 6-10 years' work experience. Most participants 201 (46.9%) attended primary education and only 46 (10.7%) participants had College/Higher education.

Table.1 socio-demographic characteristics of health care waste handlers in private hospital Addis Ababa,Ethiopia,2019

Variables	Categories	Frequency (N=429)	Percentage(%)
Age group	18-28 years	162	37.8
	29-39 years	189	44
	40 years and above	78	18.2
Marital status	Married	174	40.6
	Single	176	41
	Separated	15	3.5
	Divorced	45	10.5
	Widowed	19	4.4
Educational status	Did not attend formal education	42	9.8
	Primary(1-8)	201	46.9
	Secondary(9-12)	140	32.6
	College/higher	46	10.7
Years of service	1-5 yrs.	304	70.9
	6-10 yrs.	104	24.2
	11-15 yrs.	19	4.4
	>16 yrs.	2	0.5
Monthly salary	1-999 birr	16	3.7
	1000-1999	319	74.4
	2000-2999	91	21.2
	>3000	3	0.7

Work department	Emergency	48	11.2
	Surgical	33	7.7
	Medical	103	24
	MCH unit	35	8.2
	Laboratory	23	5.4
	Intensive care unit	42	9.8
	Operation room	38	8.9
	Laundry	72	16.8
	Inpatient	35	8.2

5.2. Prevalence of sharp injury.

Of the total of 429 respondents, the prevalence of sharp injury among of private hospital health care waste handler was 55 (12.8%, CI= 9.8-16.1) in the past 12 months.

Prevalence of sharp injury varies from work department to department. 34 (62%) of sharp injury was occurred; among waste handlers working in emergency, delivery rooms, operating rooms and laboratories room. Twenty-two percent (22%) of health care waste handlers in the emergency department had risk of sharp injury in the past 12 month (Figure 2).

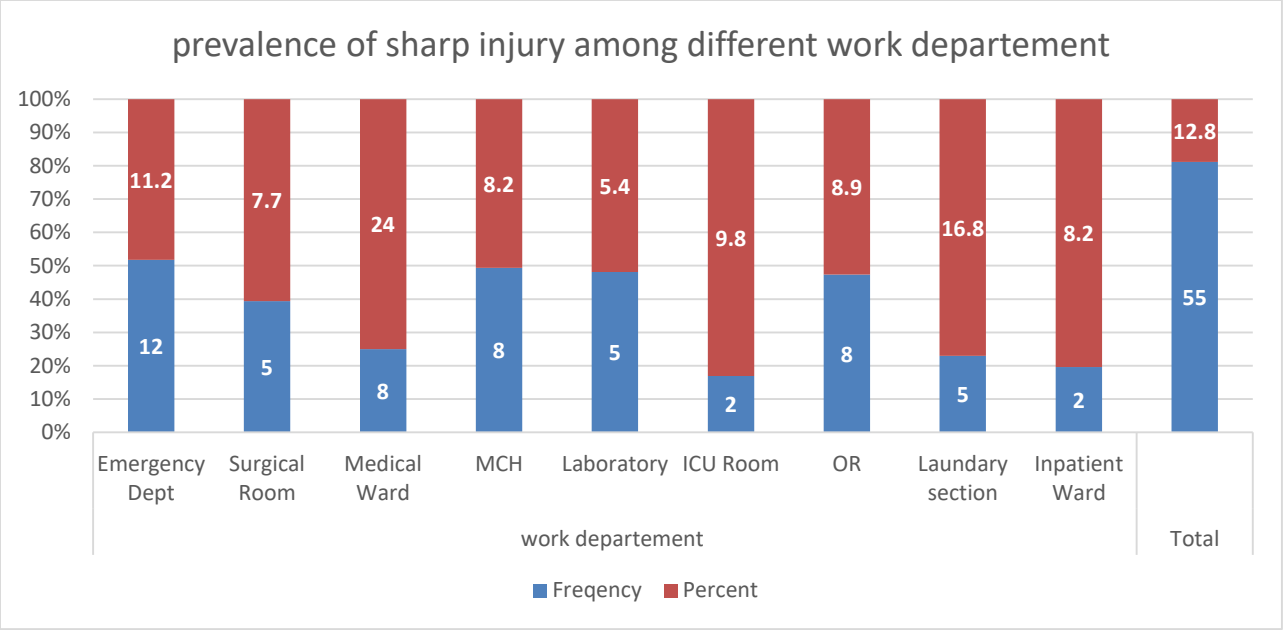

Figure 2 Prevalence of sharp injury among private hospital health care waste handlers in Addis Ababa, Ethiopia, 2019

Among 55 injured respondents, 25 (45.5%) had deep injury while 30 (54.5%) of the respondents had superficial sharp injury.

5.3. Sharp injury and Individual factors.

Assessment about the examination of medical waste handlers with regard to transmission routes of HIV and HBV revealed that among injured respondents, 80% and 56.36% of them were checked for HIV and hepatitis viruses respectively. However, from direct observation the majority of medical waste handlers did not apply the safe handling techniques in line with infection prevention precaution. Nearly 338 (79%) of the respondents rate the risk of sharps injuries as high risk.

5.4. Sharp injury and institutional factors

Among 55 injured respondents, (56.36%) for Hepatitis B&C, (80%) for HIV%, and (56.36%) for Hepatitis B, C and HIV were diagnosed after sharp injury in Addis Ababa Private hospitals.

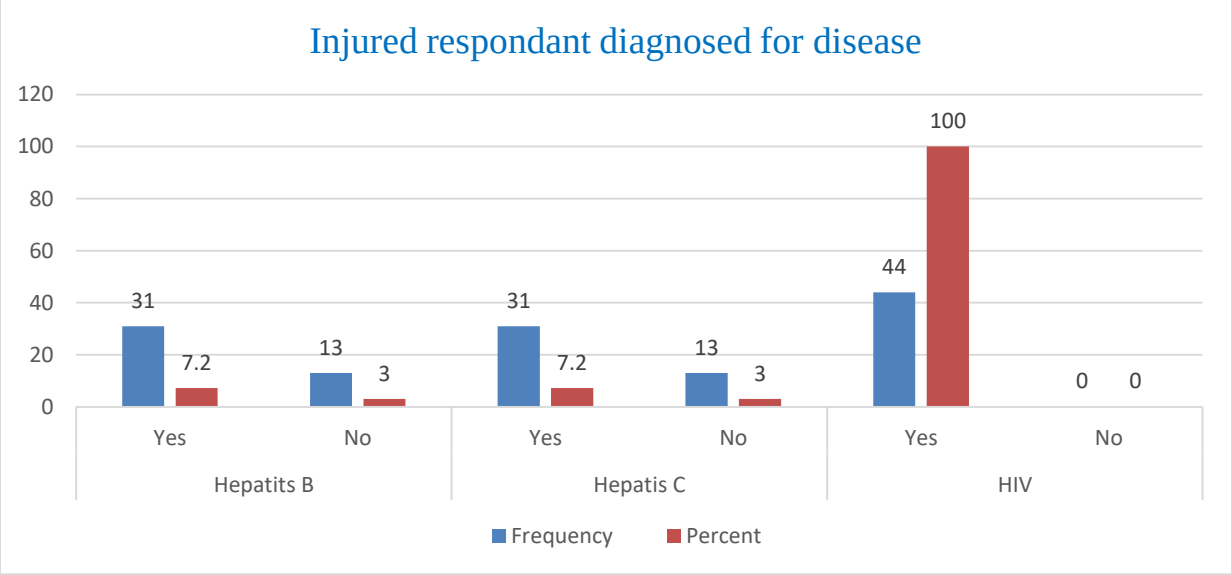

Figure 3 Private hospital health care waste handlers who had examined for transmitted diseases in Addis Ababa, Ethiopia, 2019

Finding showed that all private hospitals in Addis Ababa have safety and health supervisors. The finding indicated that 359 (83.7%) of the participants got training in the past 12 months on how to handle and dispose of medical waste. However, the observational survey indicated that hand-washing practices were poor following glove removal. Above all, the finding showed that almost all of study participants 398 (92.8%) were not vaccinated.

5.5 Sharp injury and work related factors

Assessment showed that 28 (6.52%) of the participants had additional work out of their work institution and of those participant working in different work institution, 10 (35.7%) had experienced sharp injury. In same fashion majority 340 (79.2%) of participants had 1-9 years' work experiences and of those participants the prevalence of sharp injury was 45 (13.2%).

5.6 Results of the Logistic Regression Analysis

5.6.1 Bivariate logistic regression

Binary Logistic regression was performed to assess the association of each independent variable with sharp injury. The factors that showed a p-value of 0.2 and less were added to multi**v**ariable regression model. The variables entered into the bi variate analysis were twenty-four variables. Those are age group, marital status, educational status, monthly salary, job category, work section, work experience in work section, years of total service, rotation, work in shift, risk of sharp injury, rate the risk of sharp injury, disease can be transmitted by sharp injuries, disassemble used sharps with your hands, training, vaccinated, enough waste handlers, disposal site, regularly use personal protective equipment, time interval to use PPE and doing overtime time , interval of using PPE and health and safety supervision.

Socio demographic factor

The bivariate analysis of socio-demographic variables; age group, marital status, educational status and work section showed statistically significant association with sharp injury.

Table.2 socio-demographic factor of bivariate logistic regression among health care waste handlers in private hospital Addis Ababa,Ethiopia,2019

Variables	Categories	Risk of sharp injury		COR(95%CI)
		Yes	No	
Age group	18-28 years	156	6	1
	29-39 years	166	23	3.6(1.49-9)**
	40 years and above	52	26	13(5-33.3)***
Marital status	Married	151	23	1
	Single	164	12	0.48(0.23-0.99)
	Separated	11	4	2.4(0.7-8)
	Divorced	35	10	1.8(0.8-4.2)
	Widowed	13	6	3(1.048-8.7)*
Educational status	Did not attend formal education	30	12	5.7(1.5-22)*
	Primary(1-8)	170	31	2.6(0.21-0.98)
	Secondary(9-12)	131	9	0.98(0.25-3.8)
	College/higher	43	3	1
Work department	Emergency	36	12	5.5(1.14-26.4)*
	Surgical	28	5	3(0.5-16.3)
	Medical	95	8	1.4(0.28-6.9)
	MCH unit	27	8	4.8(0.9-25)
	Laboratory	18	5	4.6(0.8-26)
	Intensive care unit	40	2	0.8(0.1-6.1)
	Operation room	30	8	4.4(0.86-22.3)
	Laundry	67	5	1.2(0.22-6.68)
	Inpatient	33	2	1

*p≤0.05; **p≤0.01; *** p≤0.001, COR, crude odds ratio; CI, confidence interval, MCH, maternal care health

Institutional and work related factors

Among the institutional and work related factor**:** work department rotation, training, and vaccinated years of total service and doing overtime time were significantly associated with sharp injury.

Table.3 Institutional and work related factor of bivariate logistic regression among health care waste handlers in private hospital Addis Ababa,Ethiopia,2019

Variables	**Categories**	**Risk of sharp injury**		**COR(95%CI)**
		Yes	No	
Work department rotation	No	202	21	1
	yes	172	34	1.9(1.064-3.39)*
Training	No	63	17	2.2(1.173-4.16)*
	Yes	311	38	1
Vaccinated for HVs	No	352	46	1
	Yes	22	9	3.13(1.4-7.2)**
Years of total service	1-9yrs	340	41	
	10-19yrs	31	14	3.74(1.84-7.6)***
Doing overtime	No	356	45	1
	Yes	18	10	4.4(1.9-10.1)***

*p≤0.05; **p≤0.01; ***p≤0.001;COR, crude odds ratio; CI, confidence interval,

Individual factors

Among the individual factor**:** Disassemble used sharp with your hands and How often do you use PPE were significantly associated with sharp injury

Table.4 Individual factor of bivariate logistic regression among health care waste handlers in in private hospital Addis Ababa, Ethiopia, 2019

Variables	Categories	Risk of sharp injury		COR(95%CI)
		Yes	No	
Disassemble used sharp with your hands	No	360	47	1
	yes	14	8	4.37(1.74-10.9)**
How often do you use PPE	Always	339	38	1
	Sometimes	10	10	4.41(1.94-10.23)***
	Occasionally	15	7	4.41(1.6-10.85)**

*p≤0.05; **p≤0.01; ***p≤0.001;COR, crude odds ratio; CI, confidence interval, PPE, personal protective equipment

5.6.2. Multivariable logistic regression

To determine independent factors of sharp injury multivariable analysis was used. All variables (P<=0.2) which are associated in the bi variable analysis were entered into a multivariable analysis using an Enter method.

According to the multivariable analysis age, educational status, work section, total service year, training, and doing overtime were significantly associated with sharp injury. Participant in the age group of 40 and above years were 9 times (AOR= 8.7; 95% CI=2.68-28) more likely to develop sharp injury compared to those in the range 18-28 years. Moreover, health care waste handlers working in private hospitals in Addis Ababa emergency room had increase the odds of getting sharp injury by 9 times compared to inpatient room (AOR= 8.7; 95% CI= 1.3-60) and respondents who cleaned operation room the odd of getting sharp injury is 8 times higher than inpatient room (AOR=7.7,95% CI=1.07-56.3). Participants who had 10-19 years' of work experience were about 3 times (AOR= 2.6; 95% CI= 1.056-6.5) more likely to sharp injury than those participants who had 1-9 years' of work experience. Meanwhile, taking training about health care waste management and infection prevention decreases the odd of getting sharp injury by 3 times than those who did not take training (AOR=2.8, CI= 1.14-6.8). The odds of sharp injury among participant doing overtime were 3 times (AOR= 3.3; 95% CI= 1.117-10) higher than that does not. The detail multivariable logistic regression information of the respondents is presented in Table 5.

Table.5 Multivariable logistic regression information of the respondents among health care waste handlers in private hospital Addis Ababa, Ethiopia, 2019

Variables	Categories	Risk of sharp injury		COR(95%CI)	AOR(95%CI)
		Yes	No		
Age group	18-28 years	156	6	1	1
	29-39 years	166	23	3.6(1.49-9)	2.6(0.9-7.8)
	40 years and above	52	26	13(5-33.3)	**8.7(2.7-28)*** **
Educational status	Did not attend formal education	30	12	5.7(1.5-22)*	**6.2(1.15-33.3)***
	Primary(1-8)	170	31	2.6(0.21-0.98)	3.7(0.8-17)
	Secondary(9-12)	131	9	0.98(0.25-3.8)	1.17(0.2-6)
	College/higher	43	3	1	1
Work department	Emergency	36	12	5.5(1.14-26.4)*	**8.7(1.3-60)***
	Surgical	28	5	3(0.5-16.3)	2.5(0.3-19.3)
	Medical	95	8	1.4(0.28-6.9)	2(0.3-14.4)
	MCH unit	27	8	4.8(0.9-25)	5(0.7-36)
	Laboratory	18	5	4.6(0.8-26)	3.8(0.4-33)
	Intensive care unit	40	2	0.8(0.1-6.1)	1.4(0.13-14.3)
	Operation room	30	8	4.4(0.86-22.3)	**7.7(1.07-56)***
	Laundry	67	5	1.2(0.22-6.68)	1.6(0.2-12.6)
	Inpatient	33	2	1	1
Years of total service	1-9yrs	340	41	1	1
	10-19yrs	31	14	3.74(1.84-7.6)***	**2.6 (1.056-6.5)***
Training	No	63	17	2.2(1.173-4.16)	**2.8(1.14-6.8)***
	Yes	311	38	1	1
Doing overtime	No	356	45	1	1
	Yes	18	10	4.4(1.9-10.1)***	**3.34(1.117-10)***

*p≤0.05; **p≤0.01; ***p≤0.001; COR, crude odds ratio; CI, confidence interval, MCH, maternal care health

6. DISCUSSION

The prevalence of sharp injury among health care waste handlers in private hospital in Addis Ababa was 12.8%. Age, educational status, work section, total service year, training, and doing overtime were the significantly associated factors with sharp injury.

In this study, findings indicate that the prevalence of sharp injuries among HCWHs during previous one year was 12.8%, which was nearly in line with the studies reported in Delhi, 14.6% (17) and Saudi Arabia Public hospital (9.6%) (26). In contrast, findings from different studies conducted in Addis Ababa public hospitals (42.1%) (14), Eastern Ethiopia (30%) (8), and Hawassa city (40.2 %) (16) revealed that low prevalence of SI, compared to this study. The reason for the lowest prevalence in this study may be due to study setup, quick response/correction for given feedback from regulatory bodies and external supervision, budgeting for infection prevention and self-internal quality control practice. For example, the supervision and control given by AAFMHACA for private hospitals is strict and accompanied by regular and emergency inspections than public hospital. Moreover, private hospitals improve their internal regulation system by recruiting environmental health officers, to control quality service of the hospital and have safety supervisors/coordinators that control the health care waste handlers. Staff efficiency also plays a significant role: higher pay and less job security in the private facility may increase staff efficiency that of public hospital. Furthermore, during observation it was noted that, all type of wastes (general, infectious, sharps and chemical/pharmaceutical) produced in the institution were managed correctly. The type and color of container used for storing wastes was separated and wastes were sorted on site. In line with the National Code (30) clearly stipulates different color-coded containers for use, three (yellow for infectious, safety box for sharps and black for general) are currently used in many private hospitals in Addis Ababa. This depicts that the knowledge and practice of waste handling among health care waste handlers in private hospitals were better than public hospitals.

In similar fashion with this, higher prevalence of sharp injury reports has been disclosed in UK public hospital (47.1%) (9) having quality service and medical waste collectors with high educational status. This difference might be due to the study period which is carried out on July 2008 and data were evaluated for 3.5-year period, study design and the proportion of waste handlers in their studies is much smaller (85), therefore a correct comparison cannot be drawn.

Unlike study conducted in Bangladeshi capital, Dhaka, which showed that 73% of waste collectors did not regularly wear personal protective equipment during waste handling (7), the number of waste collectors who reported using gloves (of any kind) in this study were very high (95%). This might be because all private hospitals in Addis Ababa have their own health and safety coordinators who do follow up hygiene and safety issues in hospitals. Unlike other, PPE such as gloves including puncture and cut-resistant ballistic gloves for handling raw wastes are also adequately available. This might be due to availability of worker's association in most hospitals and regular follow up from regulatory bodies. However, further protection equipment's such as safety boots or shoes, poly cotton trousers with cut-resistant ballistic pads to the lateral aspect of the lower leg and lower part of the thigh are not fully provided for all workers (9). These types of protective clothing are highly required for safeguarding waste collectors as there is a high chance of sharp injuries because of indiscriminate disposal of used sharp objects by patients, and their relatives and health personnel themselves.

In this study participants in the age group 40 and above years were 9 times more exposed to sharp injury compared to those who are in the age group 18-28 years. This may be another commitment at home and low job control. Unlike in the other study, age was not associated with sharp injury (8,14,26).Why the older age group are risky than the younger age group in this study may be due to additional responsibility, is waiting them in their home which make them more fatigue due to lack of enough rest. Even though their body is at work during the working days; their mind may think about the health of their children, during that time accident may happen. As a result, injury of waste collectors at older age can have a lifelong negative impact on health, psychosocial and psychological aspects of their family.

On the other hand, in this study participants who had 10-19 years' of work experience were 3 times more exposed to sharp injury than those participants who had 1-9 years' of work experience. This finding was in line with studies conducted in southern Ethiopia (33) in which medical waste handlers with greater than 10 years of service appeared to be more affected compared to those with 1-5 years of service. In contrast to this study many studies revealed that waste collectors with low work experience reported a higher rate of needle stick injuries whereas experienced ones reported significantly lower rate of needle-related accidents (7,8,12). The reason why the experienced one are at risk in this study might be related with lack of concentration to their job and they can be resulted with carelessness, fatigue and assigned to clean high risk room. Moreover; the reason why this result differs from this study might be the age categorization

given on studies are quite different and special chances such as giving education, motivating the workers with incentives may be applied in other studies. Regarding the low injury rate among the experienced one this study shares the idea of Hasanat Alamgir and Shicheng Yu. They said that the reason for the lower injury rate among experienced workers might also explained by the healthy worker effect, i.e. workers with a history of frequent or severe injury may stop working in this occupation or sector with only healthy workers remaining in the workforce (7).

In this study being uneducated is risky for sharp injury than being educated. Meaning that, for those respondents attended diploma and above education the odd of having sharp injury is lower by 6 times compared to those not attending formal education. This result is consistent with other studies. Works of literature in eastern and southern Ethiopia depicts that being uneducated were found to be associated with having sharp injury than those don't attend any formal education(8,16). In a similar study in Addis Ababa, higher percentage of SIs and BBF exposures among medical waste collectors was showed for those only reached to primary school level(14).

The study also revealed that health care waste handlers working in private hospitals in Addis Ababa emergency room and operation room had increased odds of sharp injury compared to inpatient room. Which means the odds of getting sharp injury among health care waste handlers with emergency room had 9 times higher than inpatient room and the odds of getting sharp injury among health care waste handlers with operation room had 8 times higher than inpatient room. Likewise, the study done in Saudi(26) revealed similar findings. That means needle stick sharp injuries were most frequent in emergency and operating theatres room. Contrarily, the study in Addis Ababa (14) revealed that high incidents of injury were observed among those working in on-site waste storage areas, delivery rooms and laboratories compared to emergency room. The reason why emergency room is risky than other working units might be related with threating the patient. That is; when a patient comes to hospital with an emergency case many professionals concentrate to heal the patient without worrying about the waste segregation. During that time wastes might be thrown in the floor and might be a factor for injury during waste handling.

In this study taking training about health care waste management and infection prevention decreases the odd of getting sharp injury by 3 times than those who did not take training. This finding is consistent with other studies(7,8,16) that reported lack of training was significantly associated with sharp injury. One of the studies in Ethiopia, Hawassa depicts that from the study participants nearly 55% of them had taken some kind of on - job trainings while almost all hospital health care waste handlers are still requiring

additional training regarding their job and waste management. However, majority of them do not have enough knowledge of the job they are doing and the potential health hazards associated with healthcare waste (16). Rather, in this study majority of them had taken training and those who didn't taken any training were exposed to sharp injury. Comparative to this study, literature shows that ongoing surveillance, education, having health and safety supervisor, periodic training on safe practices, adequate staffing levels, maintaining experienced staff in high risky areas and resource adequacy reduced the incidents among HCWHs (12,14,26).

Only in this study those working in private hospital during the working time and have additional part time work were 3 times more exposed to sharp injury compared to those who are doing their work in the private hospital only. This might be because of the nature of the job as it requires intensive energy those who did other additional work outside are more likely be liable to sharp injury than others.

Though sharp materials were stored on puncture proof containers in private hospitals of Addis Ababa, to reduce injuries related to handling of medical wastes, most of the injuries also occurred as a result of overflow of waste bins. In a walkthrough survey (observation) it was observed that over flow was a common phenomenon, waste containers were full, they were also stored in corridors which is similar with study conducted by Alamgir H (7). Even though, disassembling and recapping activities were another contributing factors for sharp injuries in other studies as sharps during clean-up, manipulating needles in patient's areas, passing and handling various devices, and failure to dispose of the needle in puncture proof containers increase the risk of sharp injuries. However, this is not significantly associated with in this study. Some other predictor variables such as marital status, rotation, vaccinated, time interval to use PPE were not significantly associated with sharp injury.

The study implies that awareness regarding the health care waste management and infection prevention methods of sharp injury among the study population and organization were high hence, the prevalence of sharp injury is low compared to other studies and the contributing factors were personal and organizational.

7. LIMITATIONS AND STRENGTH

This study has several limitations that should be noted,

- The study was conducted only in the private hospitals, which does not represent government hospitals.
- Information related to sharps injury was obtained by asking the respondents to recall whether they had faced it in the last one year, this may incur recall bias that may underestimate the prevalence of sharp injury among medical wastes handlers.

This study has the following strengths,

- This study used as a reference to other study in Ethiopia and provides information about the burden of occupational exposure related to sharp injury.
- High response rate and including of all HCWHs who are supposed to have direct contact with HCWHs.

8. CONCLUSION

Finding of the study concludes that the prevalence of sharp injury among health care waste handlers in Addis Ababa private hospitals is low (12.8%) when compared to other study conduct in different governmental hospital in different setting. Participants age 29 and above were victims of SI, compared to 18-28 age groups, and being un educated were more affected than educated. The study demonstrated that the highest prevalence of SI, were among emergency room.

Age, educational status, work section, total service year, training, and doing overtime were identified as significantly associated factors with sharp injury among health care waste handlers in Addis Ababa private hospitals. In addition, regular and appropriate training and awareness raising activities on the proper segregation of wastes and use of PPE should be undertaken, all health care waste handlers should be educated and trained on the proper use of sharps. Ongoing surveillance, education, close supervision and placement of sharp containers close to the point of use reduce the incidents of sharp injury.

9. RECOMMENDATION

From this study, the recommendation is going to Private hospital found in Addis Ababa, Ministry of Health, and the Medical waste handler.

1. Addis Ababa Food Medicine and Health Care Control Authority: -
    - ❖ Strength health and safety inspection and continuous supportive supervision for hospitals to identify the gaps.
    - ❖ It should empower the hospital by giving training and required inputs
2. Private Hospital Owners: -
    - ❖ On spot training should have to provide and strengthen for workers.
    - ❖ Examine workers after each injury and provide post exposure prophylaxis
    - ❖ Provide continuous professional support and personal protective equipment
3. Medical Health Care Waste Handler:
    - ❖ Wear personal protective equipment's.
4. Future researchers:
    - ❖ Deploy strong study design to clearly show associated factors, effect on workers and others e.g. follow up study
    - ❖ Have comparative study among private and public hospitals

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11. ANNEXES

Addis Ababa University,

School of Public Health

Survey questionnaire on prevalence of sharp injury and associated factors among health care waste handlers in private Hospitals, Addis Ababa, Ethiopia.

Questionnaire ID:----------Hospital name----------

I. Participant's information sheet

Greeting: Good morning/afternoon

My name is----------I am working on behalf of a Mr Alemayehu Getahum MPH Student in Addis Ababa University School of Public Health to pursue research entitled as "**Prevalence of Sharp Injury and associated Factors among Health Care Waste Handlers in Private Hospitals, Addis Ababa, Ethiopia"**. I would like to ask if you are voluntary to answer questions which take around 15-25 minutes about **Prevalence of Sharp Injury and associated Factors among Health Care Waste Handlers in Private Hospitals, Addis Ababa, Ethiopia.**The participants of this study will not gain any direct benefit for being they participated. Your genuine responses that you are going to give us is very important to identify problems related to occupational injuries among hospital healthcare waste handlers and design injury prevention and control programs for healthcare waste handers in hospitals and in general to our country. You are selected randomly to be participant of this study. The study has no any risk for the participants and interview will be private to make safe participants from any fear. You have full right in participating or not participating andyoucan also stop participating in the study at any time. You can also skip any question which you want to respond. You can ask any question which is not clear for you at any time. Any information you forwarded will be kept confidential and your name will not be specified.

II. Informed consent

I have read this form or it has been read to me in the language I comprehend and understand all conditions stated above. Are you willing to participate in this study?

1. No (Say Thank you) 2. Yes → continue your interview
2. Name of the participant _____
3. Signature _____ (if written consent)
4. Name of witness signature_____(Data collector, supervisor, any third person)

5. Signature _____ Date_____
6. Name of principal investigator: Alemayehu Getahun

Address: Cell phone:+251-9-13-39-04-97 E-mail: alemayehug82@gmail.com

Name of institution: Addis Ababa University, College Health Sciences School of Public Health.

Address: Addis Ababa, Ethiopia

Result of interview: 1. Completed 2. Refused.3. Partially completed

English version questionnaire

Part I: Socio-demographic characteristics of the participants

No.	Question	Choices	Remark
101	Working hospital?	Enter# _____	
102	Sex	1. Male 2. Female	
103	Age	In years _____	
104	Marital status	1. Married 2. Single 3. Separated 4. Divorced 5. Widowed	
105	Educational level?	1. Don't attend formal education 2. Grade (1-8th) Elementary 3. Grade (9-10th) High school 4. 10+2 College diploma or above	
106	Monthly income?	_____ ETB	

Part II. Work related information

No	Question	Choices	Remark
201	What's your job category?	1. Laundry worker 2. Waste handlers /cleaners 3. Other, describe_____	
202	What is your current working section/department?	_____	
203	For how long have you been in this working section?	_____ _____Years	
204	What is your total services year in health facility?	_____ Years	
205	Is their work place rotation in your organization	1.Yes 2. No	
206	If Q 205 is "Yes" within how long times	_____	
207	Do you work in shifts?	1. Yes 2. No	

208	How many hours do you work in the hospital per day?	_____	

Part III. Participants' Knowledge about needle stick and sharps injury

No.	Questions	Choices	Remark
301	Do you know about the risk of sharp injury?	1. Yes 2. No →	Go to Q302
302	How do you rate the risk of sharps injuries	1. Not risky 2. Low risk 3. Moderate risk 4. High risk 5. I do not know	
303	Do you think sharps injury is avoidable?	1. Yes 2. No →	Go to Q305
304	If "**Yes**" how?	_____	
305	Do you think in your hospital that risk of sharp injuries can be upend?	1. Yes 2. No →	Go to Q306
306	Which of the following factors do you think are contributing to sharp injury in your hospital?	1. Lack of personal protection equipment 2. Inadequate hand washing facility 3. Excess work load 4. Overcrowded work place 5. Other(specify)_____	

Part IV: - **In reference to your most recent sharp objects injury, please answer the following questions.**

401	Do you think that disease can be transmitted by sharp injuries?	1. Yes 2. No	
402	Have you ever experienced/ faced sharps injuries at your work place?	1. Yes 2. No →	Go to 416

403	If **Q 402** is "**Yes**" Did you diagnosed due to injury?	1. Yes 2. No →	405
404	If **Q 402** is "**Yes**" Have you ever been diagnosed for the following infectious disease?	1. I have been diagnosis hepatitis B 2. I have been diagnosis for hepatitis C 3. I have been diagnosis HIV 4. Other specify	
405	If Q 402 is "Yes" How many times have you been injured by sharp objects?	_____	
406	If **Q 402** is "**Yes**" when was the time you have experienced the recent injury?	1. In the past 6 months (**this year**) 2. In the past 12 months(**last year**)	
407	What were the **cause** for your sharps injury?	_____	
408	Where did the injury occur?	_____	
409	How deep was your sharp injury?	1. Deep 2. Superficial	
410	Have you taken any action by yourself after the injury?	_____	
411	What did you do immediately after the injury?	_____	
412	Have you ever reported the injury to infection prevention and control department?	1. Yes 2. No →	Go to Q414
413	If "**Yes**" to **Q 412**, When did you report the injury?	1. Immediately after the injury 2. Late before going off duty 3. The following days 4. More than two days after injury 5. Other specify_____	
414	If "**No"** to **Q 412** (NOT reported), **why**?	_____	
415	Did you receive medical care after injury?	1. Yes 2. No	
416	Do you disassemble used sharps with your hands?	1. Yes 2. No	

417	Have you received any form of training on infection prevention?	1. Yes 2. No	
418	Have you ever vaccinated against Hepatitis virus?	1. Yes 2. No	
419	Do you think that your institution had enough waste handlers	1.Yes 2. No	
420	Do you have another job out of this institution	1.Yes 2. No	
421	Do you have appropriate waste disposal site	1.Yes 2. No	
422	Do you regularly use personal protective equipment's?	1. Yes → 2. No	Go to Q423
423	If "Yes" to Q 422, How often do you use?	1. Always 2. Sometimes 3. Occasionally	
424	Is there any health and safety supervision in your institution	1. Yes 2. No	

I. Observational Checklist

No.	Question	Choices	Remark
101	Is there any protocol for reporting the sharp injury in your hospital?	1.Yes 2. No	
102	Is there safety **guidelines** available at working environment?	1. Yes 2. No	
103	Is safety box available at work place?	1. Yes 2. No	
104	Do you regularly apply universal precautions?	1. Yes 2. No	
105	Is health care produced was segregated accordingly?	1. Yes 2. No	
106	Does their known process and procedure exist for infection prevention?	1. Yes 2. No	
107	Is a facilities treats waste at site of generation?	1. Yes 2. No	
108	Does health care waste handler wear personal protective equipment?	1. Yes 2. No	
109	Does health care waste handlers trained on health care waste management,	1. Yes 2. No	
110	Do health care waste handlers know how to protect from sharp injury?	1. Yes 2. No	

THANK YOU!

Name and signature of data collector_____
Date of interview_____

Checked by supervisor_____
Name and signature_____

Annex III

Amharic version questionnaire

አዲስ አበባ ዩኒቨርሲቲ
ጤና ሳይንስ ኮሌጅ
የሕብረተሰብ ጤና ትምህርት ክፍል

የስለታማ ነገሮች ጉዳት በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የጤና ክብካቤ ቆሻሻ አንሺዎች /የጽዳት ሰራተኞች/ ላይ የሚያስከትላቸው ችግር መጠንና ተያያዥ የሆኑ ምክንያቶችን ጥናት፡፡

መግቢያ

ጤና ይስጥልኝ፡ ስሜ ---------- እባላለው የመጣሁት አቶ አለማየሁ ጌታሁን የተባሉት ለሁለተኛ ዲግሪ መመረቂ የሚሆን ጥናታዊ ጽሁፍ የስለታም ነገሮች ጉዳት በአዲስ አበባ የሚገኙ የግል ሆስፒታሎች የጤና ክብካቤ ቆሻሻ አንሺዎች (የጽዳት ሰራተኞች) ላይ የሚያስከትላቸው ችግር መጠንና ተያያዥ የሆኑ ምክኒያቶችን ለማወቅ የዳሰሳ ጥናት መረጃ ለመሰብሰብ ነው፡፡

ይህ ለመስራት ደግሞ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የሕብረተሰብ ትምህርት ክፍል ፍቃድ አግኝተዋል፡፤

የጥናቱ ዓላማ፡-
ይህ ጥናት የስለታማ ነገሮች ጉዳት በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የጤና ክብካቤ ቆሻሻ አንሺዎች /የጽዳት ሰራተኞች/ ላይ የሚያስከትላቸው ችግር መጠንና ተያያዥ የሆኑ ምክንያቶችን ለመለየት/ለማወቅ ተብሎ እየተሰራ ያለ ነው፡፡ በአሁኑ ሰዓት የስለታም ነገሮች ጉዳት የሚያስከትላቸው ችግር መጠንና ተያያዥ የሆኑ ምክንያቶችን በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የጤና ክብካቤ ቆሻሻ አንሺዎች /የጽዳት ሰራተኞች/ ላይ የሚያስከትላቸው ተጽኖ ተለይቶ አይታወቅም፡፡
እኔም ይህንን በመረዳት በዘርፉ ያለውን የእውቀት ቀዳዳ ለመሙላት ይህን ጥናት ላድረግ ተነሳስቻለው፡፡

በዚህም መሰረት በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች ላ የችግሩን መጠን ለማጥናት አቅጃለው፡፡
ይህም እንዴት ድርጅቱ ችግሩን እንደሚቋቋም፤የችግሩ ስፋት እስከምን እንደሆነ ለመረዳት ነው፡፡
የሚሰሩ ስራዎች፡
ይህ ጥናት የሰራተኛ ተጋላጭነትን ለማወቅ ከሁሉም ሰራተኞች የግለሰብ መረጃ ይሰበሰባል፡፡
ከእያንዳንዱ ሰራተኛ የግል መረጃ እና አስፈላጊ ቃለ መጠየቅ ለማከናወን በአማካኝ ከ15-25 ደቂቃ ሊወስድ ይችላል፡፡
መረጃ መሰብሰብ ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረተ ነው፡፡
በጥናቱ ላይ መሳተፍ የሚችሉ.
ከላይ ለመግለጽ እንደተሞከረው ተሳትፎ ሙሉ በሙሉ በፈቃደኝነት ላይ የተመሰረት ነው፡፡
ማንም ሰው በፈለገ ጊዜ ማቋረጥ ይችላል፤በሚያቋረጥ ሰዓት ላይ ግን መረጃ አይያያዝም፤የጥናቱ አካል አይሆንም፡ በጥናቱ ላይ አለመሳተፍ ምንም ዓይነት ችግር በሰራተኛው ላይ አያመጣም፡፡
የመረጃ አጠቃቀም
ይህ መረጃ ለመሰብሰብ የሆስፒታሉ ኃላፊ ስፈቀድን ሲሆን እርስዎ በፈቃደኝነት ላይ በተመሰረት የሚሰጡኝ መረጃ ሚስጢራዊነቱ የተጠበቀ እና ለጥናቱ ብቻ የሚውል ነው፡፡
የግል መረጃዎችን የሚያንጸባርቁ ይህ ጥናት እንዳለቀ እንደሚሰረዙ ሆኖ ነገር ግን ጥሬ ሀቆች የጥናቱን መለቅ ተከትለው ቢንስ እስከ 5 ኣመት እንደሚገለግል ስለዚህ ፍቃደኛ ከሆኑ አንድ አንድ ከጤና ጋር የተያያዙ መረጃዎች ከ 15-25 ደቂቃ ላልበለጠ እንጠይቆታለው፡፡

ጥያቄ ካለ፦

ማንኛውም ሰው በመጠየቁ ዙሪያ ጥያቄ ካለው ወይም ተጨማሪ ማብራሪያ ቢያስፈልጎ አለማየሁ ጌታሁን ብለው በስ.ቁ 0913390497 **ወይም በኢሜል አድራሻ** alemayehug82@gmail.com **በማንኛውም ጊዜ መጠየቅ ይችላሉ።።**

አዲስ አበባ ዩኒቨርሲቲ
ጤና ሳይንስ ኮሌጅ
የሕብረተሰብ ጤና ትምህርት ክፍል

ለተሳታፊዎች የስምምነት ሰነድ

የዳሰሳ ጥያቄ

የጥያቄው መለያ ---------- የሆስፒታሉ ስም----------

ጤና ይስጥልኝ፡ስሜ _____ እባላለሁ የመጣሁት አቶ አለማየሁ ጌታሁን የተባሉት ለሁለተኛ ድግሪ መመረቂያ የሚሆን ጥናታዊ ጽሁፍ የስለታም ነገሮች ጉዳት በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የጤና ክብካቤ ቆሻሻ አንሺዎች /የጽዳት ሰራተኞች/ ላይ የሚያስከትላቸው ችግር መጠንና ተያያዥ የሆኑ ምክኒቶችን ለማወቅ የዳሰሳ ጥናት መረጃ ለመሰብሰብ በአዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የሕብረተሰብ ትምህርት ክፍል ፍቃድ አግኝተዋል፡፡
መረጃ የሚሰበሰበው በአዲስ አበባ ውስጥ ከሚገኙ የግል ሆስፒታል ጽዳት ሰራተኞች ላይ ነው፡፡እርሶ አዲስ አበባ ውስጥ ከሚገኙ የግል ሆስፒታል ሰራተኛ በመሆኖ በጥናቱ ላይ ተሳታፊ ሆነዋል፡፡
ይህ መረጃ ለመሰብሰብ የሚመለከተውን ኃላፊ ያስፈቀድን ሲሆን እርስዎ በፍቃደኝነት ላይ በተመሰረተ የሚሰጡኝ መረጃ ሚስጥራዊነቱ የተጠበቀ እና ለጥናቱ ብቻ የሚውል ነው፡፡
የግል መረጃዎችን የሚያንጸባርቁ ይህ ጥናት እንዳለቀ እንደሚሰረዙ ሆኖ ነገር ግን ጥሬ ሀቆች የጥናቱ ማለቁ ተከትለው ቢያንስ እስከ 5 ዓመት ሊቀመጡ ይችላሉ፡፡ ስሊዚ ፍቃደኛ ከሆኑ አንድ አንድ ከጤና ጋር የተያያዙ መረጃዎች ከ15-25 ደቂቃ ላልበለጠ ጊዜ እጠይቆታለው፡፡ ጥናቱ ላይ ለመሳተፍ በፍቃደኝነት ከሆኑ ስጠይቆት በመሐል መጠየቅ፤ብሎም ማስቆም ይችላሉ፡፡ እርስዎ በጥናቱ ላይ ስለተሳተፉ የሚደርስቦት ችግር የለም፡፡ እስከ አሁን ከነገርኮት ወይም ጥናቱ ላይ በተመለከተ ሊብራራልዎት የሚፈልጉት አለ?
ይህንን ጥናት አስመልክቶ የተዘጋጀን መረጃን አንብቤ ስለምን እንደሆነ ተረድቻለው፡፡ ያሉኝ ጥያቄዎች ተመልሰውልኛል፡፡መጠየቅ ያለብኝ ጉዳይ ካለም በየትኛውም ጊዜ ወደፊት መጠየቅ እንደምችል ተረድቻለው፡፡

አሁን ጥናቱ ላይ ለመሳተፍ ፍቃደኛኖት? አይደለሁም (አመሰግናለሁ ይበሉ) አዎ----------››ጥያቄዉን ይቀጥሉ

የተጠያቂው/ተሳታፊዉ ስም----------ፊርማ----------ቀን----------ስ.ቁ----------

የጠያቂው ስም----------ፊርማ----------ቀን----------ስ.ቁ----------(መረጃ ሰብሳቢ፤ሱፐርቫይዘር፤ሌላ እማኝ)

ጥናቱ ላይ ስለተሳተፉ አመሰግናለሁ

የጥናቱ ባለቤት ፡ አለማየሁ ጌታሁን
አድራሻ በስቁ 0913 39 04 97ኢ-ሜል፡ alemayehug82@gmail.com

አዲስ አበባ ዩኒቨርሲቲ ጤና ሳይንስ ኮሌጅ የሕብረተሰብ ጤና ትምህርት ክፍል

የመጠየቁ ዉጤት፡1. ተሟልቷል 2. ፈቃደኛ አይደሉም 3. በከፊል ተሞልቷል

ክፍል አንድ፡-የተሳታፊዎች ከማህበራዊ ጉዳዮች ጋር ተያያዥ ያላቸው መጠይቅ

ተ.ቁ	ጥያቄ	ምርጫ	ምርመራ
101	የሚሰሩበት ሆስፒታል	ያስፍሩ_____	
102	ፆታ	1. ወንድ 2. ሴት	
103	ዕድሜ	በዓመት ያስቀምጡ_____	
104	የጋብቻ ሁኔታ	1. ያገባ/ች 2. ያላገባ/ች 3. የተለያየ/ች 4. የተፋታ/ች 5. የትዳር ጓደኛ የሞተበት/ባት	
105	የትምህርት ደረጃ	1. ምንም መደበኛ ትምህርት አልተከታተልኩም 2. ከ1-8 የመጀመሪያ ደረጃ 3. ከ9-10 መሰናዶ 4. 10+2 የኮሌጅ ዲፕሎማና ከዚያ በላይ	
106	የወር ገቢዎ ስንት ነው	_____ብር	

ክፍል ሁለት ፡- ከስራ ጋር ተያያዥየሆኑ መረጃዎች

ተ.ቁ	ጥያቄ	ምርጫ	ምርመራ
201	የስራ ክፍልዎ የት ነው	1. የልብስ እጥበት ሰራተኛ 2. ቆሻሻ ማንሳት / ፅዳት 3. ሌላ ካለ ይግለፁ _____	
202	አሁን የሚሰሩበት የስራ ክፍል የት ነው	_____	
203	ከላይ ጥያቄ ቁጥር 202 የመረጡት ክፍል ውስጥ ለስንት ዓመታት ሰርተዋል	_____ዓመት	
204	በአጠቃላይ ሆስፒታሉ ውስጥ ለስንት ዓመት አገልግለዋል	_____ዓመት	
205	በሆስፒታሉ ላይ ከአንድ ስራ ክፍል(ቦታ) ወደ ሌላ ክፍል ተዘዋውረው ይሰራሉ	1.አው 2.የለም _____	207
206	ለጥያቄ ቁጥር 205 መልሶ አው ከሆነ በምን ያህል ጊዜ ውስጥ	_____	
207	በፈረቃ ይሰራሉ(በአንድ ቀን ውስጥ በቀን በማታ ወይም በሰዓት)	1. አዎ 2. የለም	

208	ሆስፒታል ውስጥ በቀን ለስንት ሰዓታት ነው የሚሰሩት	_____	

ክፍል ሶስት ፡ - <u>ስለስለታም ነገሮች ጉዳት የተሳታፊዎች እውቀት በተመለከተ</u>

ተ.ቁ	ጥያቄ	ምርጫ	ምርመራ
301	ስለ ስለታም ነገሮች ጉዳት አደጋ ያውቃሉ	1.አዎ 2. አላውቅም →	መልሶ አላውቅም ከሆነ ወደ ጥያቄ ቁጥር 305 ይለፉ
302	የስለታምነገሮች አደጋ መጠኑ ምን ያህልነው	1. ምንም አደጋ የለውም 2. ትንሽ አደጋ አለው 3. መካከለኛ አደጋ 4. ከፍተኛ አደጋ 5. ምንም አላውቅም	
303	የስለታም ነገሮች ጉዳት አደጋ ማስቀረት ይቻላል ብለው ያስባሉ	1. አዎ 2.አላስብም →	መልሶ አላስብም ከሆነ ወደ ጥያቄ ቁጥር 305 ይለፉ
304	አዎ ካሉ እንዴት	_____	
305	በሚሰሩበት ጤና ተቋም ውስጥ የስለታም ነገሮች ጉዳት ሊደርስ ይቻላል ብለው ያስባሉ	1. አዎ 2. አላስብም →	መልሶ አላስብም ከሆነ ወደ ጥያቄ ቁጥር 401 ይለፉ
306	ለጥያቄ ቁጥር 305 መልሶ አዎ ከሆነ የትኛው የስለታም ነገሮች ጉዳት አስተዋፆ ያደርጋል ብለው ያስባሉ (**ከአንድ መልስ በላይ መመለስ ይቻላል**)	1. እራስን የሚከላከል መሳሪያዎች እጥረት 2. በቂ የሆነ የእጅ መታጠቢያ ዕቃዎች ያለመኖር 3. ከመጠን በላይ የስራ ጫና 4. የተጨናነቀ የስራ ቦታ 5. ሌላ ካለ ይግለጹ----------	

ክፍል አራት ፡-የቅርብ ጊዜ የስለታማ ነገሮች ጉዳትን ተንተርሰዉ የሚከተሉት ጥያቄዎችን ይመልሱ፡፡

ተ.ቁ	ጥያቄ	ምርጫ	ምርመራ
401	በስለታም ነገሮች ጉዳት ምክንያት የሚከሰቱ በሽታዎች አሉ ብለዉ ያስባሉ	1. አዎ 2. አላውቅም	
402	በስራ ቦታዎ ላይ የስለታም ነገሮች ጉዳት አጋጥሞት / ደርሶቦት ያውቃል	1. አዎ 2. አላውቅም →	መልሶ አላውቅም ከሆነ ወደ ጥያቄ ቁጥር416 ይለፉ
403	ለጥያቄ ቁጥር 402 መልሶ አዎ ከሆነ በጉዳቱ ምክኒያት ምርመራ አድርጓል	1. አዎ 2. አላውቅም →	405
404	ለጥያቄ ቁጥር 403 መልሶ አዎ ከሆነ ለእነኚህ ተላላፊ በሽታዎች ምርመራ አድርገው ያውቃሉ**(ከአንድ መልስ በላይ መመለስ ይቻላል)**	1.ሄፐታይተስቢ/ጉበት በሽታአምጪቢቫይረስ(Hepatits-B) 2. ሄፐታይተስሲቫይረስ 3.ኤች አይቪ ኤድስ(HIV-AIDS) 4. ሌላካለ (ይገለፅ)	
405	ለጥያቄ ቁጥር 402 መልሶ አዎ ከሆነ ስንት ጊዜ አጋጥሞታል	_____	
406	ለጥያቄ ቁጥር 402 መልሶ አዎ ከሆነ መች ነበር የቅርብ ጉዳትያጋጠመዎት	1. በባለፈው 6 ወር(በዚህ ዓመት) 2. ባለፈው 12 ወር(ባለፈው ዓመት)	
407	የስለታም ነገሮች ጉዳት መንስኤው ምንድን ነበር	_____	
408	የት ነበር ጉዳቱ የደረሰው (አካልን የሚገልጽ)	_____	
409	ምን ያህል ጥልቅ ነው የስለታም ነገሮች ጉዳቱ	1. ጥልቅ 2. ጥልቀት የሌለው/ከላይ	
410	ከጉዳቱ በኋላ በራሶ የወሰዱት እርምጃ ካለ ይግለጹ	_____	
411	ከጉዳት በኋላ ወዲያሁኑ ያደረጉት ምንድን ነው	_____	
412	ለተላላፊ በሽታዎች መካላከልና መቆጣጠር የስራ ክፍል ስለ ጉዳቱ ሪፖርት አድርገው ያውቃሉ	1.አዎ 2. አይደለም	

413	ለጥያቄ ቁጥር 412 መልሶ አዎ ከሆነ መች ነው ለጉዳቱ ሪፖርት ያደረጉት	1. ወዲያውኑ ከጉዳት በኃላ 2. ስራ ከመውጣቱ በፊት ዘግይቼ 3. በሚቀጥለው ቀን 4. ከ2 ቀን በኃላ ከጉዳቱ በኋላ 5. ሌላ ካለ ይግለጹ----------	
414	ለጥያቄ ቁጥር 412 (ሪፖርት ካልተደረገ) ለምን	_____	
415	ከጉዳት በኋላ ህክምና አግኝተዋል	1. አው 2. የለም	
416	ስለታማ ነገሮችን በሚያስወግዱበት ጊዜ በእጅ ይፈቱታል	1. አዎ 2. የለም	
417	ለተላላፊ በሽታዎች መከላከል ሰልጠና ወስደው ያውቃሉ	1. አዎ 2. የለም	
418	ለጉበት አምጭ በሽታ መከላከያ ክትባት ተከትበዉ ያውቃሉ	1. አዎ 2. የለም	
419	ተቋሞ በቂ ቆሻሻ አንሺ ወይም ጽዳት ሰራተኛ አለው ብለው ያምናሉ	1. አዎ 2. አላምንም	
420	ከዚህ ተቋም ውጭ ስራ አልዎት	1. አዎ 2. የለም	
421	ተቋሞ ውስጥ ተገቢ የሆነ ቆሻሻ ማስወገጃ ቦታ አለ	1. አዎ 2. የለም	
422	እራስን የሚከላከል መሳሪያ ይጠቀማሉ	1. አዎ 2. የለም →	424
423	ለጥያቄ ቁጥር 422 አዎ ከሆነ መልስዎ በምን ያህል ጊዜ ይጠቀማሉ	1. ሁልጊዜ 2. አንዳንዴ 3. አልፎ አልፎ	
424	በተቋሞ ውስጥ የጤና ደህንነት ተቆጣጣሪዎች አሉ	1. አው 2. የለም	

<u>አመሰግናለሁ::</u>

መረጃ የሰበሰበው ስምናፊርማ_____
መጠይቁ የተደረገበት ቀን_____
መረጃውን ያረጋገጠው ስምናፊርማ _____
ቀን_____

1. <u>የምልከታ ቼክሊስት</u>

ተ.ቁ	ጥያቄ	ምርጫ	ምርመራ
101	በሆስፒታሉ ውስጥ ስለ ስለታም ነገሮች ጉዳት ሪፖርት የሚደረግበት መመሪያ አለ	1. አዎ 2. የለም	
102	በስራ አካባቢው ላይ የስራ ደህንነት መመሪያ አለዎይ	1. አዎ 2. የለም	
103	ስራ ቦታው ላይ የቆሻሻ መሰብሰቢያ ሳጥኖች ይገኛሉ	1. አዎ 2. የለም	
104	በቋሚነት በሽታን ለመከላከል ቅድመ-ጥንቃቄዎችን (standard precautions) ይተገብራሉ?	1. አዎ 2. የለም	
105	የጤና ተቋሞ ቆሻሻ በአግባቡ ነው የሚለዩት	1. አዎ 2. የለም	
106	የታወቁ የተላላፊ በሽታ መከላከያ ሂደትና አሰራር አለ	1. አዎ 2. የለም	
107	ተቋሙ ቆሻሻዎችን ከምንጫቸዉ ላይ ያክማል	1. አዎ 2. የለም	
108	የጤና ክብካቤ የጽዳት ሰራተኞት ተገቢዉን የመከላከያ ልብሶች ይለብሳሉ	1. አዎ 2. የለም	
109	የጤና ተቋሙ የጤና ክብካቤ /ቆሻሻ አንሺሆች ወይም ጽዳት ሰራተኞች ስለ ቆሻሻ አወጋገድ ሰርዓት ሰልጥነው ያውቃሉ	1. አዎ 2. የለም	መረጃ ማየት
110	የጤና ተቋሙ የጤና ክብካቤ /ቆሻሻ አንሺሆች ወይም ጽዳት ሰራተኞች ስለ ስለታማ ነገሮች ጉዳት እንዴት መከላከል እንደለባቸው ያውቃሉ	1. አው 2. የለም	

<u>አመሰግናለሁ::</u>

መረጃ የሰበሰበው ስምናፊርማ_____
መጠይቁ የተደረገበት ቀን_____
መረጃውን ያረጋገጠው ስምናፊርማ _____
ቀን_____

DECLARATION

I, the undersigned, senior master of public health student declare that this research thesis is my original work in partial fulfillment of the requirement for the degree of Master of Public Health.
Name: Alemayehu Getahun
Signature: _____
Place of submission: Department of Preventive Medicine, College of Health Sciences school of public health, Addis Ababa University.
Date of Submission: _____

This research thesis has been submitted after approved by my advisors

Advisors: Name	Signature	Date
D/r Girma Taye	_____	_____
D/r Samson Wakuma	_____	_____