WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCIENCES, DEPARTMENT OF MIDWIFERY

ASSESSMENT OF KNOWLEDGE AND PRACTICE OF SHARP WASTE MATERIAL AMONG GRADUATE HEALTH SCIENCE STUDENTS IN WOLKITE UNIVERSITY, GURAGE ZONE, SOUTHERN, ETHIOPIA; 2020.

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A RESEARCH PAPER TO BE SUBMITTED TO DEPARTMENT OF MIDWIFERY, COLLEGE OF MEDICINE AND HEALTH SCIENCES, WOLKITE UNIVERSITY, IN PARTIAL FULFILLMENT FOR REQUIREMENTS OF BACHELOR OF SCIENCE IN MIDWIFERY

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WOLKITE, ETHIOPIA

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Acronyms and Abbreviation

AIDS ---------- Acquired Immune Deficiency

ART---------- ----------Anti Retro viral Therapy

CDC ----------Center of Disease control

ENT----------Emergency Neonatal Treatment

HBV----------Hepatitis B Vaccine

HCF----------Health Care Facilities

HCWs----------Health Care Wastes

HIV----------Human Immune virus

ICU----------Intensive Care Unit

MOHSS----------Minster of Health & Social Service

NICU----------Neonatal Intensive Care Unit

PPE----------Personal Protective Equipment

PHCU----------Primary Health Care Unit

SNNPR----------South Nation Nationalities and People Region

SPSS----------Statistical Package for Social Science

UNICEF----------United Nation Children Foundation

WHC---------- Waste Health Care

WHO ----------World Health Organization

WKU ---------- Wolkite University

Abstract

Background*: Health care generates tremendous amount of sharp waste materials as biomedical waste, a waste which has been generated during diagnosis, treatment and immunization of human beings and /or research activities pertaining there to or in the production or testing of biomedical materials. Inadequate management of sharp waste materials can be associated with risk to health students, health care workers, patients, communities and their environment. Management of sharp waste materials is a part of infection prevention in health care setting.*

Objective: *To assess the knowledge and practice towards sharp waste material among graduate health science students in wolkite university, Gurage, Southern Ethiopia; 2020 GC.*

Methods: *Institutional based cross sectional study was conducted in Wolkite University from December 20-23, among 129 graduate health science students who were selected by stratified random sampling technique and allocated to each department proportionally. The data was entered by using SPSS version 20 and the result presented in the form of table, figure and chart to describe variables.*

Results*: From the total population 63.56% of the respondents had a good knowledge and 36.43% had poor knowledge. And 29.45% of the respondents had a good practice , however; 70.54% of the respondents had poor practice.*

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Bio Medical Waste means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining there to or in the production or testing of biological. Medical students are going to be one of the important components of healthcare system; they should have proper and sufficient knowledge of bio medical waste management(1).

Health care without harm defines a sharp waste is a type of infectious waste that includes needles, syringes, lancets, broken glasses and any other materials that can pierce a skin. In addition, it includes the waste originating from minor or scattered sources, such as that produced in the course of health care undertaken in the home like, insulin injections. Unfortunately, not all needles and syringes are disposed safely. The potential to create injury, infection and damage is very high in low socioeconomic countries(2).

In waste management; health care wastes hold higher priority due to their hazardous nature. According to World Health Organization (WHO) some part of healthcare wastes are considered most hazardous that can affect human health and pollute the environment badly. In a working environment that have unsafe health care waste management practices may result an exposure to infectious wastes by Health care workers (HCWs), health students during their clinical attachments, patients, clients that could in turn create infection due to blood borne pathogens(3).

Since health care waste composition and nature of hazardousness (general or nonhazardous and hazardous) are different they need a special attention for collection, storage and disposal as it poses risk of transmitting infectious diseases such as Human Immune virus Acquired Immune Deficiency Syndrome(HIV/AIDS) and hepatitis B and C(4).

In the preceding time, many efforts have been directed toward proper and safe management of hazardous health care waste for less developed countries by different organizations, particularly WHO. However, inadequate management practices are often implemented in most healthcare facilities (HCFs) particularly in developing countries. A number of studies on healthcare wastes management reported that health and environmental risk posed by healthcare waste can be reduced by having careful planning, proper guideline and full participation of HCWs(4).

Occupational exposure to blood borne pathogens from needle sticks and other sharps injuries is a serious problem, but it is often preventable. Sharps 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(2).

Sharps may not only cause cuts and punctures but also infect these wounds if they are contaminated with pathogens. Injuries from needles and other sharp devices used in healthcare and laboratory settings are associated with the occupational transmission of more than 20 pathogens(5).

Health students should have the right to be able to protect them against infection, whether it is HIV, Hepatitis or anything else. And clients have also the right to get safe service [3]. Thus safe management of sharps represents the highest priority to prevent the risk of infection associated with injections and use of other sharps(5).

World health organization (WHO) suggests that in 2000 reuse of injection devices in developing countries accounts for 22 million new infections with hepatitis (HBV), 2 million infections of hepatitis c virus (HCV) and 260,000 HIV. Additionally, injection safety base line studies revealed that practices were un safe exposing patient, health care workers(HCW), health students and the community to transmission of HIV and other blood born infections. Health Care Acquired Infections, developing countries are hit hard by HIV/AIDS pandemic hepatitis B virus and hepatitis C virus infections. In resource-poor settings, rates of infection can exceed 20% (6).

Health students, planners and evaluators should not ignore this high morbidity and life threating infection situation. On top of these, unless appropriate sharp waste management is in practice health care facilities can be the source of infection and epidemic disease for the community at large. In addition to this even though health students are practicing in health institution, there is no study conducted towards Knowledge and Practice of health students concerning in sharp waste management in Ethiopia. In health institution nosocomial infection has a significant impact on the health of the health students as well as the clients. Therefore, this study is intended to assess level of knowledge and practice of health students towards sharp waste material.

1.2 Statement of the problem

People who provides or receives health care service whether in hospital, clinic, or any other health care setting are the risk of acquiring and transmitting potential life treating infectious through accidental exposure to blood and body fluids or contaminated objects. Unsafe use of sharp medical equipment's in medical setups in general and unsafe injection in particular is major public health problem in many areas of developing countries. Injuries from sharp devices have been associated with the transmission of more than 40 pathogens, including hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV (7).

Worldwide it has been estimated that in the years, 2015, alone contaminated needle stick injuries lead to 16,000 cases of hepatitis C viruses, lead to 66,000hepatitis unsafe (7). The prevalence of hospital acquired disease due to sharp waste material injury about 10% fatal life and life threatening disease in south East Asia(8).

To prevent the transmission of blood borne pathogens that result from unsafe injection use must be reduced and injection safe achieved. Safe injection does not harm the recipient, does not expose the health students, as well as health care workers to any risk and does not result in waste that is dangerous for the community(9).

A cornerstone of the program is to decrease Health Care Acquired Infections through improving management of sharp waste material among health students. While the WHO campaign has outlined a framework, sharp waste management adherence continues to be problematic even though it is a simple and highly selective measure to reduce Heath Care Acquired Infections (10).

So far, there is no study conducted in Ethiopia to assess frequency of exposure of medical students to occupational injuries and status of knowledge and practice of health students on preventive measures. Behavioral factors that frequently put health students at greater risk of

needle stick injuries and sharp object, including drawing blood, administering drug, or performing other procedures. This injury also commonly occurred during needle recapping and as result of failure to place used needles in approved sharp container.

The of sharp waste materials affected by knowledge and practice of health students especially in developing countries. The economic scarcity aggravated the adverse effect of hospital acquired disease associated with sharp material injury in health facilities.

In Ethiopia, where the health care services is largely covered by low and mid-level health professionals, assessing the necessary knowledge and practice or the skill on sharp waste management in health care facilities as early as possible to prevent the risk of infection associated with injections and use of other sharps(9).

1.3 Significance of study

Assessing the knowledge and practice towards sharp waste among health science student at higher education level will draw a clear picture on how much work is left to be done to awaken the health system at higher education.

The finding of study helps to design appropriate intervention strategies, providing a convenient programmatic approach to address the sharp waste management and to address a good level of awareness and practices of sharp waste management. It also helps for policy makers to target and tailor infection prevention programs and it is helpful in providing information as baseline for future studies and also recommend responsible bodies for actions to be taken.

Therefore, this study will help to identify practice of health students on safe precautions and would have a significant input for improving practice of preventive measures in the clinical areas.

CHAPTER TWO

LITRATURE REVIEW

The study conducted in India showed that 68% paramedical and 91% medical staffs have knowledge about sharp material waste injury and associated disease(10). Majority of Sharp waste materials (75- 80%) none infectious but 20- 25% of it is hazardous which is potentially infectious for health workers(12).

The amount of sharp waste material significantly increases the occurrence of injury with Sharp materials. The infectious diseases due injury of Sharp waste materials increases directly proportional to the amount of Sharp material in health institutions(12). Health care workers who had good knowledge in Sharp waste material management has significantly associated with safe waste material management in most health facilities(12).

Therefore, steps for sharp waste materials should be followed starting from sharp waste materials segregation to disposal. The basic steps in sharp waste material that should be followed are segregation, storage, transportation, treatment and disposal(13). The basic steps in sharp waste material that should be followed are segregation, storage, transportation, treatment and disposal(13). Poor sharp material waste is a problem due to lack of awareness and little attitude for safe sharp waste material disposal. The training on sharp waste material should be given for health care workers(14). Because such trainings given for health professionals equip health professional knowledge and skills on how to dispose sharp waste materials safely(14).

The segregation, collection, transportation and disposal of sharp waste materials using recommended colored containers are not satisfactory in developing countries without good knowledge, attitude and practice(15). Sharp waste materials have also detrimental effect on health unless personal protective equipment is available for health workers during sharp waste material disposal(15).

“injections with contaminated syringes caused 21 million hepatitis B infections (32% of all new infections), 2 million hepatitis C infections (40% of all new infections) and 2,60,000 HIV infections (5% of all new infections)(16). One of the causes for the increase in infectious diseases is improper waste management. Blood, body fluids and body secretions which are

constituents of bio-medical waste harbor most of the viruses, bacteria and parasites that cause infection. Studies now day showed tetanus is another common disease spread due to improper sharp waste material management. Therefor clear guides and instruction should be available to avoid risk of injury, trauma hospital acquired infections and tetanus(16).

According to world health organization (WHO) health workers mostly affected by sharp waste materials are doctors, nurses, laboratory technicians, midwives and non-medical staffs such as cleaners. They are routinely exposed to fatal infections and diseases. “The growing number of hospitals, clinics, and diagnostic laboratories across the world has caused a tremendous impact on public health and environment(16).

For public health reason all sharp waste materials shall be considered as infectious in all aspects(17). As result special awareness is needed for all sharp material in hospitals and other health facilities(17). Different showed that there is little knowledge about adverse effects of improper sharp material management starting from segregation to disposal. Many problematic waste management issues have been identified for healthcare clinics.

The study conducted involving health professionals to assess knowledge about sharp waste materials management in health facilities are limited in developing countries(17).

“Waste that is dangerous to a person’s health or the environment is referred to as Health Care Risk Waste (HCRW). Improper management of HCRW can have direct and indirect negative impacts on patients, health care workers (HCWs), health students, local communities and the environment (MOHSS, 2011). Ministry of Health and Social Services (MOHSS) Infection Prevention Control Guidelines state that color coded plastic bags that are being used to segregate wastes are red, yellow, green, black and clear transparent (MOHSS, 2010) (17). According to World Health Organization (WHO) guideline, it is expected that all health care workers possess knowledge, attitude and practice on waste segregation (WHO, 2014)(18).

No study was conducted on waste segregation in Namibian health facilities, hence there is no statistic found. However, a joint of World Health Organization (WHO)/United Nation Children’s Fund (UNICEF) assessment found that just over half (58%) of sampled facilities from 24 countries had adequate systems in place for the safe disposal of health care waste (WHO, 2015). According to WHO (2016), of the total amount of waste generated by health-care activities,

about 85% is general or non-hazardous waste and the remaining 15% is considered hazardous material. They further reported that high-income countries generate on average up to 0.5 kg of hazardous waste per hospital bed per day(18).

Although, the figure for low-income countries is only 0.2 kg per hospital bed per day, healthcare waste is often not separated into hazardous or non-hazardous wastes, making the real quantity of hazardous waste potentially much higher (WHO, 2015)(18). Meanwhile, an Infection Control Officer from one of the public training hospitals, (personal communication, March 18, 2014) confirmed that general and infectious wastes were found mixed and training and education of health care workers is not done regularly. Generally sharp waste material management important for better and safe life of heath care providers(18).

CHAPTER THREE

OBJECTIVES

3.1 General objective

To assess knowledge and practice towards sharp waste material among graduate health students in Wolkite University, Gurage zone, SNNPR, Ethiopia from December 20 to 23; 2020G.C.

3.2 Specific objectives

To assess level of knowledge towards sharp waste materials among graduate health student in Wolkite University, December 20 to 23; 2020G.C.

To determine practice towards sharp waste material among graduate health student in Wolkite University, December 20 to 23; 2020G.C.

CHAPTER FOUR

METHODOLOGY

4.1 Study Area

This study was done at Wolkite University of gurage zone, SNNPR, Ethiopia which is found 158kms west of Jimma, and 148kms from Addis Ababa the capital city of Ethiopia. The university has 9 colleges, 2 schools and 47 departments: the colleges were, college of medicine and Health sciences, Engineering and technology, Computing and Informatics, Business and Economics, Social sciences and Humanities, Natural and Computational sciences, Agriculture and Natural resource, Education and Behavioral sciences and schools were school of Medicine and School of law. College of medicine and health science includes department of medicine, public health officer, midwifery, nurse and medical laboratory. Wolkite University has a total of 168 graduate health science students. Data was collected from graduate students of Midwifery, Public Health Officer, Nurse, and Medical Laboratory departments.

4.2 Study Period

The study was conducted from December 20 to December 23, 2020.

4.3 Study Design

Institutional based cross sectional study was conducted

4.4 Population

4.4.1 Source population

All health science students in wolkite university.

4.4.2 Study population

Regular graduate health science students of Wolkite University.

4.4.4 Study unit

Those individual selected by stratified random sampling technique from four departments (midwifery, nursing, public health officer and medical laboratory) of graduate health students.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

- Graduate regular health science students who were available during data collection.

- Who gave consent to participate in the study was included.

4.5.2 Exclusion criteria

-Students, who were not willing to participate, not presented during data collection.

-Irregular (private) graduate health science students were excluded.

4.6 Sample size determination and procedure

4.6.1 Sample size determination

The sample for this study was calculated using Single population proportion formula for cross sectional study. Since we do not get study done on this topic in Ethiopia, the sample size for this study was calculated by assuming prevalence to be 50%. The sample size of the study was based on having 95% confidence interval and 5% of tolerable margin of error. The total sample size that was needed for this study.

$$n = \frac{(Z^2)\,(P)\,(1-P)}{d^2}$$

Where n= calculated sample size for this study.

Z = The 95% of confidence interval estimated value (Z=1.96)

P= population proportion which was 0.5

d= margin of error to be tolerated in statistical estimation (0.05 in human study).

$$n = \frac{(Z^2)\,(P)\,(1-P)}{d^2} = \frac{(1.96)2\,(0.5)\,(0.5)}{(0.05)^2} = 384$$

Since reference population is less than 10,000 hence we need correction formula. Let the first calculated sample size be ni and the minimum sample size that was calculated as

nf= ni/(1+ ni/N) where N is the total graduate health science students. N=51 midwifery students plus 42 nursing students plus 41 public health students plus 34 medical laboratory students. Total of 168 students are involved, who were regular students. Therefore,

= 384/ (1+384/168)

= 116.86~ 117 (any decimal point for human beings should be approximated to next higher integer so that it can give a hole number there is no a fraction of numbers for humans). The final calculated sample size is 117 plus 10%(12) of non-response rate, and becomes 129 for this study.

4.6.2 Sampling procedure

Stratified random sampling was taken to identify the participants. Proportional strata were obtained by nj= n/N×Nj where Nj = number of population in each strata and nj = the new proportion of peoples who was received questionnaires''. There are 51 midwifery students, 42 nursing students, 41 public health students, and 34 medical laboratory students, with total of 168.

Midwifery students =129/168×51=39, Nursing students =129/168×42=32, Public health students =129/168×41=32, Medical laboratory students =129/168×34=26. i.e. 39, 32, 32 and 26 students were received questionnaires from midwifery, nursing, public health, and medical laboratory students respectively.

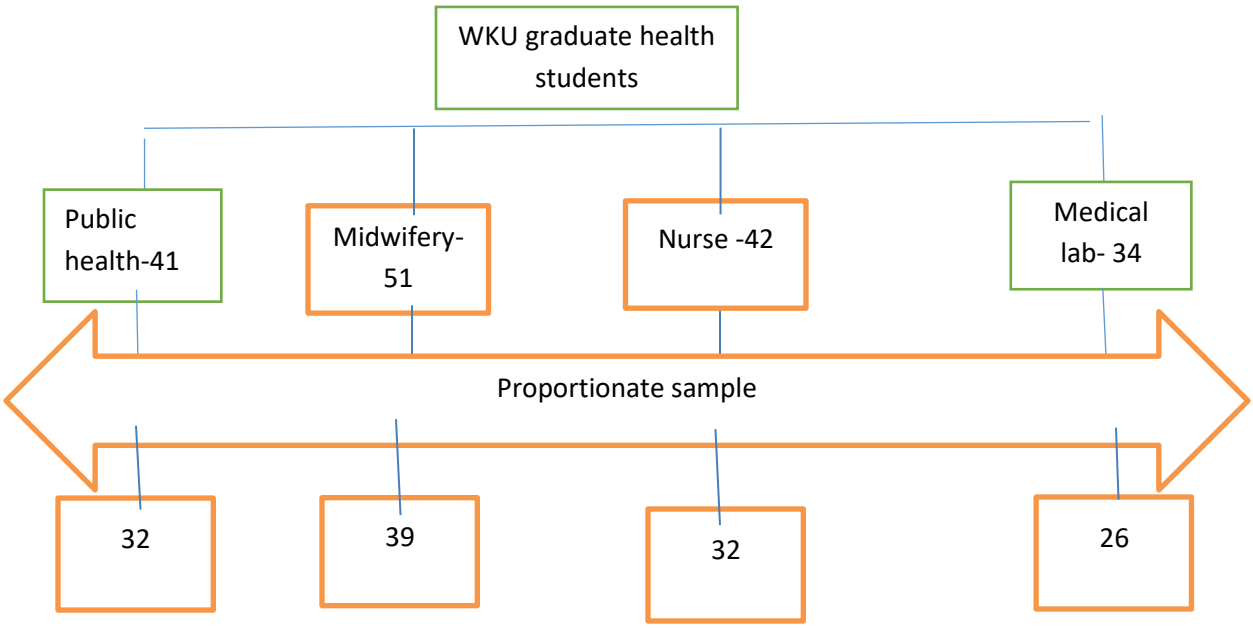


Figure 1 -The schematic presentations of sampling procedure to select study participant in Wolkite University Gurage zone, SNNPR, Ethiopia, 2020.

4.7 Variables

4.7.1 Dependent variable

- Knowledge and Practice.

4.7.2 Independent variable

- Age
- Sex
- Religion
- Residence
- Ethnicity
- Presence of waste disposal material
- Types of waste disposal material
- Type of waste
- Department

4.8 Operational definition

Good knowledge: is defined as knowledge score of greater than or equal to the mean knowledge score. Knowledge was assessed by 11 questions each correct response was given a score of 1 and wrong responses a score of 0. Total point to be scored will be 11 and minimum will be 0. The score for knowledge will be categorized in two groups good and poor. Good knowledge categorized for the value greater or equal to mean value and poor knowledge for the value less than mean value. [19].

Good Practice: The practice was assessed by looking on the respondent's action towards sharp waste. This practice assessed by 10 questions, if a respondent answer 6 and above of the question correctly were regarded as having good practice and those who answered less than 6 value of the question as having poor practice[20].

4.9 Data collection procedure

Data was collected from individual graduate health students by self-administered questionnaires. The questionnaire contains three(III) parts: socio demographic characteristics of study subjects, knowledge and practice parts to assess sharp waste material questions. Each part consists some question items. The data collector will be distributing this questionnaire, while the students attached to their team training program course at health centers.

4.10 Data quality assurance

Training: training was given for supervisors and data collectors for two days by principal investigators. The principal investigators have never participated in data collection process.

Pretest: Pretest was conducted on graduate health students in WKU. The pretest was conducted in 10% of total size (13 individuals). The result that was found from pretest was used to assess acceptability and difficulties during study. Those individual included in pretest does not participate in sample size.

4.11 Data analysis technique

Collected data is checked for quality after each day's data collection and entered in Statistical Package for Social Science software for computer (SPSS version 2020). Data was cleaned for any missed value, outliers and invalid.

4.12 Ethical consideration

Legal consent was founded from Wolkite University Research Ethical Review Board. Individual consent was obtained from each of study participants after informed decision made.

CHAPTER FIVE

RESULT

5.1 Socio demographic Characteristics of the Study Population

A total of 129 WKU graduate health science students included in the study with respondent rate of 100%. The participants were between the age group of 20-35 years. Majority of the respondents found on the age group of 20-25 which covers about 82(63.6%). Among the participant 82(63.6%) were male and 47(36.4%) were females. From total of 129 study participants 51 (39.5%) were Orthodox follower, 38(29.5%) were Muslims, 37(28.7%) were protestant, and 3(2.3%) were other religion follower. From study participants 53(41.1%) were Oromo in ethnicity, 31(24.0%) were Amhara, 17(13.2%) were gurage, 13(10.1%) were Wolaita and 15(11.6%) were other. From the study participants 32(24.8%) were Health officer students, 39(30.2%) were Midwifery students, 32(24.8%) were Nursing students and 26(20.2%) were Medical laboratory students.

Table 2: Socio-demographic characteristics of the respondents in Wolkite University, Gurage, SNNRP, Ethiopia, in 2020(nf=129).

Characters	Variables	Frequency	Percent(%)

Sex	Male	82	63.6
	Female	47	36.4
	Total	129	100
Age	20-25 years	82	63.6
	26-30 years	37	28.7
	>30 years	10	7.9
	Total	129	100.0

From study participants 53(41.1%) were Oromo in ethnicity, 31(24.0%) were Amhara, 17(13.2%) were gurage, 13(10.1%) were Wolaita and 15(11.6%) were other.

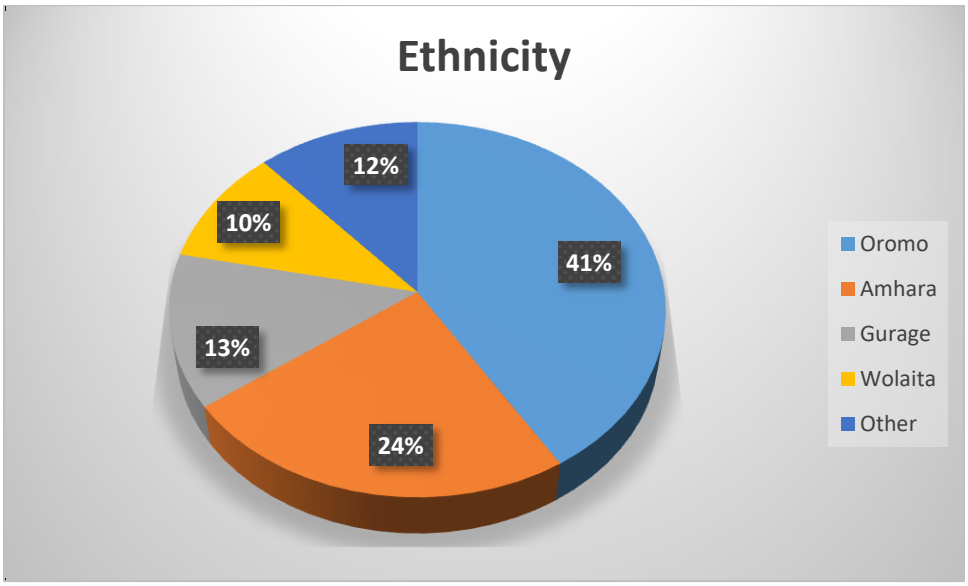


Figure 2: Ethnicity of study population among WKU graduate health students, Wolkite, Ethiopia, December 2020.

From total of 129 study participants 51 (39.5%) were Orthodox follower, 38(29.5%) were Muslims, 37(28.7%) were protestant, and 3(2.3%) were other religion follower.

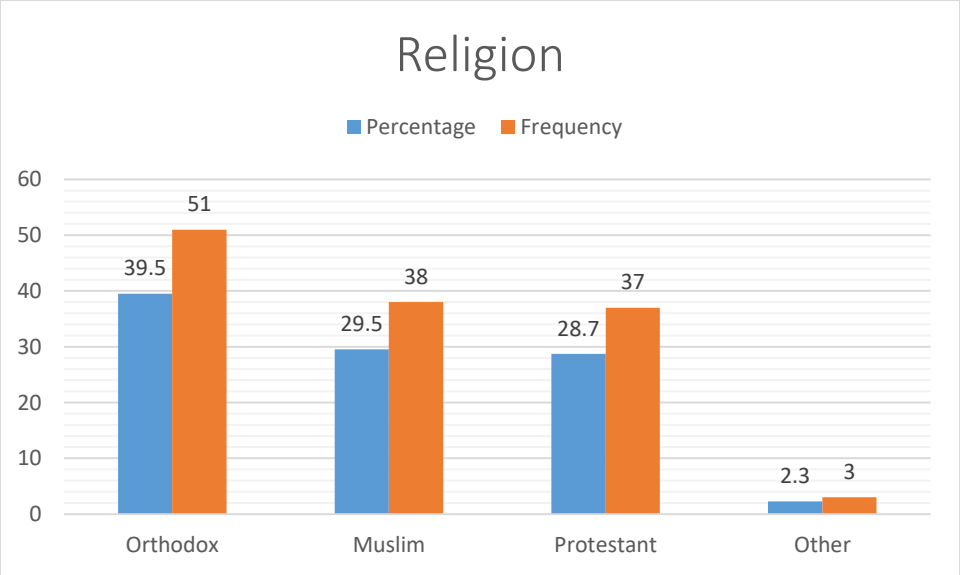


Figure 3: Religion of study population among WKU graduate health students, Wolkite, Ethiopia, December 2020.

As shown below on table2 the majority of the respondent are students of midwifery department. But minorities of the respondents are students of Medical Laboratory.

Table2: Department of study population among WKU graduate health students, Wolkite, Ethiopia, December 2020.

Characters	Variables	Frequency	Percent(%)
Department of the respondent	Public Health Officer	32	24.8
	Midwifery	39	30.2

	Nursing	32	24.8
	Medical Laboratory	26	20.2
	Total	129	100.0

Table 3: the mean variables of respondents among WKU graduate health students, Wolkite, Ethiopia, December 2020.

Variables	**Total**	**Mean**
Knowledge	129	7.59

5.2 KNOWLEDGE OF THE RESPONDENTS ABOUT SHARP WASTE MATERIAL

The three categories were grouped in to two categories to make the analysis is easy. Don't know and I don`t know responses were grouped as one category. As shown in table majority of the respondents were know that dirty needles /sharps injuries can transmit diseases, 126(97.7%). Majority of the respondents knew about post exposure prophylaxis 97(75.2%). But only 64(50.8) of the respondents knew about HCV can transmit through dirty needles and 55(42.6%) have not participated in any training program about sharp waste management or safe injection.

Table 3: The level of the knowledge of respondents at Wolkite University, Gurage zone, SNNRP, Ethiopia 2020 (nf=129).

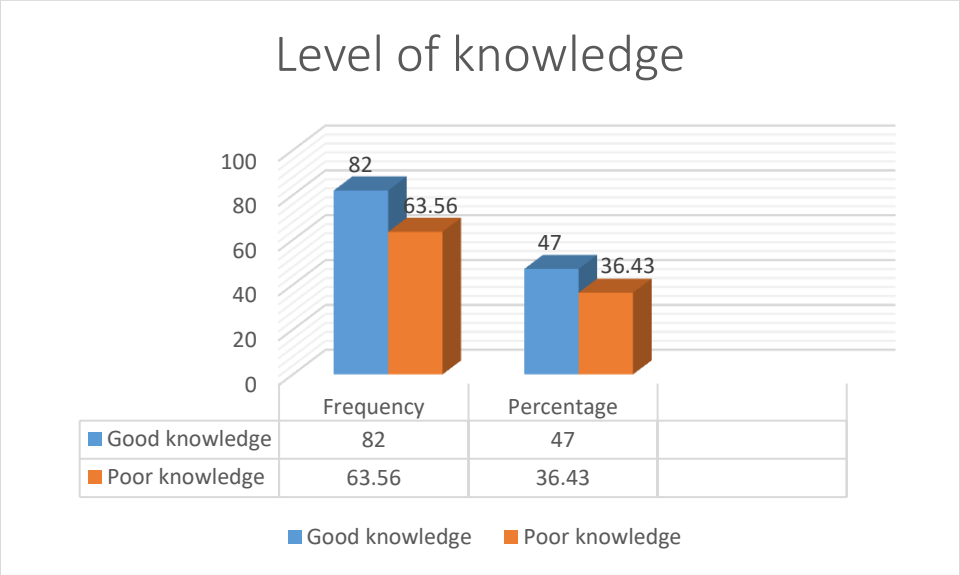
S no	Questions		Frequency	Percent(%)

1	Do you think that dirty needles /sharps injuries can transmit diseases?	Yes	126	97.7
		No	2	1.6
		I don't know	1	0.8
2	Which of the following disease can transmit through dirty needles or sharp injuries (multiple response can possible)?	HBV	107	82.9
		HCV	89	69
		HIV/AIDS	123	95.3
3	Have you learn topic related to infection prevention?	Yes	70	54.3
		No	59	45.7
6	Have you participated in any training program about sharp waste management or safe injection in your practical site?	Yes	55	42.6
		No	74	57.4
7	What do you think the main reason for sharp object injury? (Multiple responses are possible)	Work over load	73	56.6
		Carelessness	92	71.3
		Knowledge deficit	55	42.6
		Lack of experience	57	44.2
8	Does the health centres have a system for reporting accidental exposure to blood and body fluids including sharp object in your attachment site?	Yes	59	45.7
		No	31	24.0
		I don' know	39	30.2
9	Have you ever heard of post exposure prophylaxis?	Yes	97	75.2
		No	32	24.8
10	Do you know the place where post exposure prophylaxis is available if health students have sharp object injury?	Yes	61	43.3
		No	68	52.7

11	Do you think that, the absence of safe sharp waste management in your hospital can be the source of infection?	Yes	114	88.4
		No	6	4.7
		I don't know	9	7

As shown below on figure 4 from the total population 63.56% of the respondents had good knowledge and 36.43% had poor knowledge.

Figure 4: Summary the level of the knowledge of respondents in Wolkite University, Gurage zone, SNNRP, Ethiopia 2020.



5.3 PRACTICE OF THE RESPONDENTS ABOUT SHARP WASTE MATERIAL

38(29.45%) of the respondents had good practice, however; 91(70.54%) of the respondents had poor practice. Majority of the respondents 65(50.4%) use open container to discard sharp health care wastes. 36(27.9%) had sharp injuries in their practical section and from these only13(36.1%) takes post exposure prophylaxis.

Table 4: The level of the practice of respondents in Wolkite University, Gurage zone, SNNRP, Ethiopia 2020 (nf=129).

S no	Questionnaires		Frequency	Percent(%)
1	Have you had exposure of blood during your practical section ?	Yes	45	34.9
		No	84	65.1
2	If the response to Q- no 1 is “yes” have you reported to concerned body or infection control office?	Yes	22	48.9
		No	17.8	51.1
3	If you say no to Q no 2 what is the most important reason for not reporting it?	Fearing of getting trouble	7	28.0
		Waiting to feel un well or symptomatic	14	56.0
		Taking some prophylactic measures on own	4	16
4	If you say yes have you taken any post exposure prophylaxis?	Yes	18	40.9
		No	26	59.1
5	If you say yes at what time did you received post exposure prophylaxis?	Within 24hrs	12	66.7
		Within 48 hrs	3	16.7
		Within 72 hrs	2	11.1
		> 72 hrs	1	5.6
6	Do you clean your hand before giving injection?	Yes	77	59.7
		No	52	40.3
7	If "No" for question number 6, why?	Shortage of water supply	18	34.6
		Negligence	24	46.2

		Work overload	8	15.4
		Other	2	3.8
		Yes	96	74.4
8	Do you clean your hand after giving injection?	No	33	25.6
9	If your answer is "No" for question number 8, why?	Shortage of water supply	13	39.4
		Negligence	14	42.4
		Work overload	6	4.7
10	Which method do you use to clean your hands at work?	Plain soap and water	50	38.8
		Anti- microbial	12	9.3
		Alcohol based hand rub	49	38.0
		Water only	18	14.0
		Total	129	100
11	Do you wear personal protective equipment while working with sharps?	Yes	122	94.6
		No	7	5.4
12	If "Yes" for question number 11 which once?	Apron	26	21.3
		Head cover	16	13.1
		Boots/Shoes	24	19.7
		Eye protectors/gog	18	14.8

		gle		
		Mask	76	62.3
		Gloves	121	99.2
		Gown	113	92.6
13	If your answer is No for question number 11Why?	Difficult to work with	2	28.6
		Not always necessary	1	14.3
		Not available	4	57.1
14	Are needles, syringe and sharps immediately discarded after used?	Yes	121	93.8
		No	8	6.2
15	Have you had with sharp injuries in your practical section?	Yes	36	27.9
		No	87	67.4
		I don't know	6	4.7
16	If you say yes for Q-no 15 have you received any Post exposure prophylaxis?	Yes	13	36.1
		No	23	63.9
17	If you say yes for Q no 15 how did you sustain the injury? (Multiple responses are possible)	during drawing blood/injection	16	44.4
		by sudden movement of patients	5	13.9
		When sharp collection showed up unexpected place like bed, sheet	5	13.9
		During suturing and	6	16.7

		surgery procedure		
		During recapping and surgical procedure	9	25
		By glass equipment like broken vials	11	30.6
18	How many times needle stick injury did you sustained in your practical section?	No	91	70.5
		One times	20	15.5
		Two times	11	8.5
		Three times	7	5.4
19	Did you recap used needles?	Yes	73	56.6
		No	56	43.4
20	If you say yes for Q no 19 what types of techniques used?	One hand recapping techniques	43	58.9
		Two hand recapping techniques	29	22.5
		I do not know	1	0.8
21	Where you dispose used needles, syringe and Sharp objects?	Safety box	64	49.6
		Open container	65	50.4
		Total	129	100.0

As shown below figure5 majority of the respondents 65(50.4%) use open container to discard sharp health care wastes.

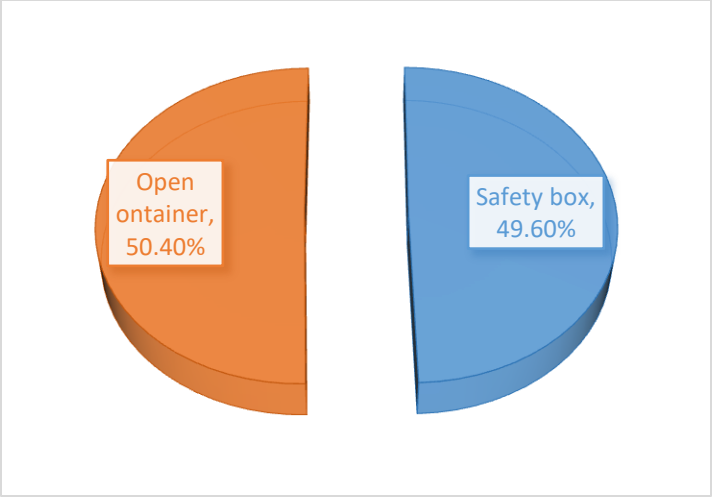


Figure 5: Place for sharp disposal of respondents at Wolkite University, Gurage zone, SNNRP, Ethiopia 2020.

As shown below on figure6, 38(29.45%) of the respondents had good practice, however; 91(70.54%) of the respondents had poor practice.

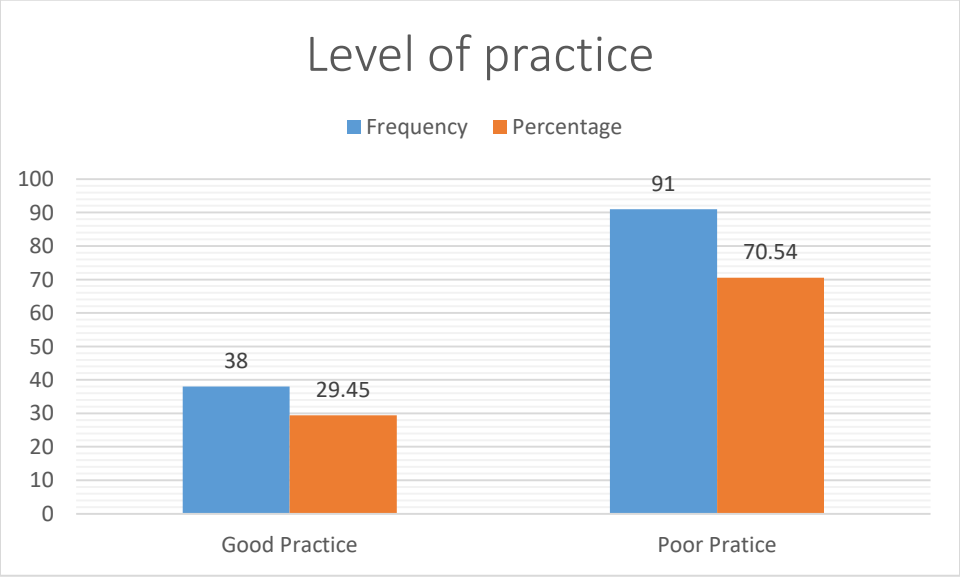


Figure6: summary the level of the practice of respondents at Wolkite University, Gurage zone, SNNRP, Ethiopia 2020.

6. Discussion

The current finding of the level of knowledge, 82(63.56%) had good knowledge, and 47(46.43%) had poor knowledge. These finding is contradict with study conducted at Addis Ababa 76.2% of the respondents had good knowledge. But, these findings were higher than a study conducted Debre Markos that majority of the respondents had knowledge.

The current finding the level of respondent's involvement 38(29.45%) had good level of practice and 91(70.54%) of the respondents had poor level of practice towards sharp waste management. These findings were in line with a study conducted at Uganda 99 (26%) the respondents had high level of involvement. But contradict with study conducted at Addis Ababa 190 (60.3%) of the respondents had high level of involvement and a study conducted at Debre Markos town 198 (72.26%) of the respondents had high level of involvement, but those value that we used for discussion part were done upon health workers not on students.

7. Conclusion

This study has revealed that the knowledge and practice towards sharp waste material among WKU graduate health students were poor.

Majority of the respondents had good knowledge. But majority of the respondents had poor level of involvement or practice in the management sharp health care waste.

8. Recommendation

Based on the findings the following recommendations should be done

To ministry of health

A strategy should be done to enhance training program to health students to maximize the available performance.

Funds should be provided for each hospital and health centers to buy unfulfilled materials like safety box.

To Wolkite University

Another qualitative and quantitative research should be done to address the main reason that majority of the respondents had low level of involvement or performance towards sharp health care waste.

9. Limitation

The limitation of study will emanate from the study design. It cannot show temporal relationship of sharp waste material and Knowledge and Practice of waste material of Health students. Secondly, health students who will be involved in the study may forget the answer that will be asked. So recall bias will be the second limitation of the study.

CHAPTER SIX

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ANNEXES

QUESTIONIRE

INTRODUCTION;

Good Morning/Good afternoon! My name is _____. I am from Wolkite University Collage of Health Sciences Department of Midwifery. Currently my group working on a research survey concerned with Sharp Wastes material among graduate health students of WKU.

I am going to give you a questionnaire about Sharp Waste material. Your responses are completely secret; your name will not be written on the form and will never be used in connection with any of the information you provide. You don't have to answer any question you don't want to answer, however your honest answer to these questions will help us to accomplish the research. I would like to thank you in advance for your help. Are you willing to participate? The interview may take about 30 minutes. Do you have any question?

Are you willing to fill the questionnaire?

[ ] Yes, Go to the next page

[ ] No, Thank you and please return the questionnaire

Result of the questionnaire:

1. Completed ----------2. Partially completed ----------

3. The interviewee refused---------- 4. Others----------

Instruction:

This self-administered questionnaire has ……. pages and it contains …….questions. You are expected to circle the answers against the write on the space provided.

I.SOCIODEMOGRAPHIC CHARACTERICS

1.1 Age_____ in years

1. 20-25 2. 26-30 3. >30

1.2 Gender

1. Male 2. Female

1.3. Religion

1. Orthodox 2. Muslim 3. Protestant 4. Other

1.4. Ethnicity

1. Oromo 2. Amhara 3. Gurage 4. Wolaita 5. Sidama 6. other

1.5. Department category

1.Health officer 2. Midwifery 3. Nurse 4. Medical Laboratory

2. KNOWLEDGE PART

2.1. Do you think that dirty needles /sharps injuries can transmit diseases?

1.Yes 2. No 3. I don't know

2.2. If " yes" for Q no 1, which of the following disease can transmit through dirty needles or sharp injuries (multiple response can possible)

1. Hepatitis (HBV) 2. Hepatitis (HCV)

3.HIV/AIDs

2.3 Have you learn topic related to infection prevention?

1. Yes 2. No

2.4. Have you participated in any training program about sharp waste management or safe injection in your practical site?

1. Yes 2. No

2.5. What do you think the main reason for sharp object injury? (Multiple responses are possible).

1. Due to work load 2. Carelessness 3. Knowledge deficit

4. Lack of Experience 5. Other specify----------

2.**6**. Does the health centers have a system for reporting accidental exposure to blood and body fluids including sharp object in your attachment site?

1. Yes 2. No 3. I don't know

2.7. Have you ever heard of post exposure prophylaxis?

1. Yes 2. No

2.8. Do you know the place where post exposure prophylaxis is available if health students have sharp object injury?

1. Yes 2. No

2.9. Do you think that, the absence of safe sharp waste management in health center can be the source of infection?

1. Yes 2. No 3. I don't know

3. PRACTICE PART

3.1. Have you had exposure of blood during your practical section?(if "NO" go to Q no 3.6)

1. Yes 2. No

3. 2. If the response to Q- no 3.1 is "yes" have you reported to concerned body or infection control office?

1. Yes 2. No

3.3. If you say "No" to Q no 3.2 what is the most important reason for not reporting it?

1. Fear of getting into Trouble 2. waiting to feel unwell or symptomatic

3. Taking some prophylactic measures on their own

4. Others specific----------

3.4. If you say "yes" to Q no 3.2 have you taken any post exposure prophylaxis?

1. Yes 2. No

3.5. If you say yes at what time did you received post exposure prophylaxis?

1. Within 24 hours 2. within 48 hours

3. within 72 hours 4. More than 72 hours

3.6. Do you clean your hand before giving injection?

1. Yes 2. No

3.7. If "No" for question number 3.6, why?

1. Shortage of water supply 2. Negligence 3. Work overload
4. Other Specific----------

3.8. Do you clean your hand after giving injection?

1. Yes 2. No

3.9. If your answer is "No" for question number 3.8, why?

1. Shortage of water supply 2. Negligence 3. Work overload
4. Other Specific…….

3.10. Which method do you use to clean your hands at work?

1. Plain soap and water 2. Anti-microbial 3. Alcohol based hand rub

4. Water only 5. Other specify ----------

3.11. Do you wear personal protective equipment while working with sharps?

1. Yes 2. No

3.12. If "Yes" for question number 3.11 which one? (multiple answer is possible)

1. Apron 2. Head cover 3. Boots/shoes 4. Eye protector/goggle

5. Mask 6. Gloves 7. Gown

3.13. If your answer is "No" for question number 3.11Why?

1. Difficult to work with 2. Not always necessary 3. Not available

4. Other specify------

3.14. Are needles, syringe and sharps immediately discarded after used?

1. Yes 2. No

3.15. Have you had with sharp injuries in your practical section?

1. Yes 2. No 3. I don't know

3.16. If you say "yes" for Q-no 3.15 have you received any Post exposure prophylaxis?

1. Yes 2. No

3.17. If you say yes for Q no 3.15 how did you sustain the injury? (Multiple responses are possible).

1. During drawing blood/injection 2. During recapping of syringes

3. By sudden movement of patients 4. By glass equipment like broken vials

5. When sharp collection showed up unexpected place like bed, sheet

6. During suturing and surgical procedure 7. Other specify_____

3.18. How many times needle stick injury did you sustained in your practical section?

1. No 2. One times 3. Two times 4. Three or more

3.19. Did you recap used needles?

1. Yes 2. No

3.20. If you say "yes" for Q no 3.19 what types of techniques used?

1. One hand recapping techniques 2. Two hand recapping techniques

3. I don't know

3.21. Where you dispose used needles, syringe and Sharp objects?

1. Safety box 2. Open container 3. Others specify----------

THANK YOU FOR YOUR PARTICPATION!!!