**International Journal of Multidisciplinary Research and Development**
**www.allsubjectjournal.com**
**ISSN Online: 2349-4182 ISSN Print: 2349-5979**
**Received: 28-08-2022, Accepted: 14-09-2022, Published: 29-09-2022**
**Volume 9, Issue 9, 2022, Page No. 93-98**

# A descriptive study to assess the expressed practice regarding prevention of health hazards related to biomedical waste management among nursing officers working in selected departments of IGMC & hospital, Shimla (H.P.) 2019-2021

**Pallavi Pathania[1], Rita Kumari[2], Shagun Kumari[2]**
[1] Associate Professor, Shimla Nursing College, Shimla, Himachal Pradesh, India
[2] Shimla Nursing College, Shimla, Himachal Pradesh, India

**Abstract**
Hospital waste generation has become a prime concern due to its multi-dimensional ramifications as a risk factor to the health of patients, hospital staff and extending beyond the boundaries of the medical establishment to the general population. The health care sector produces huge amount of biomedical waste which may be hazardous to all those who come in contact with the waste. The WHO reveals that more than 50,000 people die every day from infectious diseases and one of the causes is improper waste management. HIV, hepatitis, tuberculosis, pneumonia, diarrhea diseases, tetanus, and whooping cough are the diseases spread through improper waste management. The aim of study was to assess the expressed practices regarding prevention of health hazards related to bio medical waste management among nursing officers. Quantitative research approach was used with descriptive research design. Study population was nursing officers. Non-probability purposive sampling technique was used to select the study sample. The sample size was 100 nursing officers. The result of the study was majority of 93(93%) of nursing officers had very good practices, 7(7%) of nursing officers had good practices regarding prevention of health hazards related to biomedical waste management. This study concluded that most of the nursing officers had very good practices regarding prevention of health hazards related to biomedical waste management.

**Keywords:** assess, expressed practices, biomedical waste management, nursing officers

## Introduction

Biomedical waste is generated in hospitals, research institutions, health care teaching institutes, clinics, laboratories, blood banks. Biomedical waste is containing infectious materials that include waste of medical or laboratory origin (e.g., unused bandages, infusion kits, etc.), as well as research laboratory waste containing biomolecules or organisms that are mainly restricted from environmental release. Discarded sharps wastes are to be considered as biomedical waste whether they are contaminated or not, due to the possibility of being contaminated with blood that causes injury when not properly contained and disposed. Health care wastes are categorized as infectious and non-infectious. Infectious waste includes human tissue, body fluids, and excreta, articles such as urine containers, sharp-edged and glass pieces, many of which may be contaminated. Non-infectious wastes are generated from laboratory work and waste from surgery and autopsies on patients with infectious diseases.

Health care waste is a by-product of health care that includes sharps, non-sharps, blood contaminated items, blood, body parts and tissues, chemicals, pharmaceuticals, and radioactive materials. Healthcare wastes are categorized as infectious and non-infectious. Infectious waste includes human tissue, body fluids, and excreta, articles such as urine containers, sharp-edged and glass pieces, many of which may be contaminated. Non-infectious wastes are generated from laboratory work and waste from surgery and autopsies. Poor management of health care waste exposes health care workers, waste handlers, patients and their families and the community to infections, toxic effects, and injuries.

In health care institutions day to day activities generate a lot of waste which is biological in nature and are critical sources of infection transmission, especially hepatitis B and C, HIV, and tetanus. In India, Hospital's manage biomedical waste by categorization to improve biomedical waste management. This also help to reduce risk for health if properly managed in hospitals. WHO report that globally, Injections with contaminated syringes caused 21 million hepatitis B infections, 2 million hepatitis C infections and 2, 60,000 HIV infections. Furthermore, documents that, in India, 2 million, new Hepatitis B, 4, 00,000 Hepatitis C and 30,000 HIV positive cases occur in a year due to needle prick injuries. Approximately 1.45 kg waste is generated per patient per day in Indian hospitals.

Transmission of AIDS/HIV, and also hepatitis B and C, through injuries and infection of the personnel's who handle bio medical waste materials, and furthermore, there is a serious risk to public health arising from the transport of infectious and hazards waste.

Rates (90%). In the USA, 6, 00,000 -10, 00,000 people receive needle stick injuries from needles and sharps every year, where in the UK, it is 1,00,000 HCWs/year. In India, actual data on needle stick injuries are limited, but it is estimated to be much higher because almost 3-6 billion injections are given annually, out of which two-thirds of injections are unsafe (62.9%) as the use of glass syringe is associated with a high degree of unsafety.

Hepatitis C is also one of the problems that may arises if bio medical waste is not properly managed. Hepatitis is the inflammation of the liver tissue. Hepatitis is most commonly caused by viruses hepatitis A, B, C, D, and E. The symptoms of the hepatitis are yellow discoloration of the

skin and whites of the eye, vomiting, diarrhea, abdominal pain. Two types of hepatitis are: a) acute hepatitis: it can resolve on its own way. b) Chronic hepatitis: it may progress to scarring of the liver or liver failure. Hepatitis A and E are mainly spread by contaminated food and water. Hepatitis B is mainly spread by sexually transmitted. Hepatitis C is commonly spread through infected blood such as during needle sharing. Hepatitis D can only infect people who are already infected with hepatitis B. hepatitis A, B and D are preventable with immunization.

Improper disposal practices of hospital waste affect the people health who come in direct contact.

The treatment methods are incineration, autoclaving, microwaving, chemical treatment, deep burial and disposal in a secure landfill.

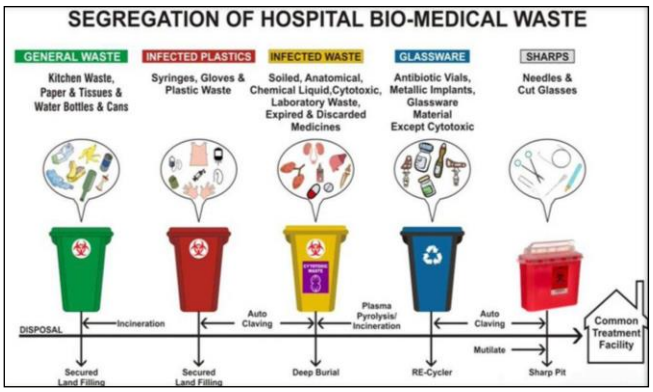


**Fig 1**

The problem of bio-medical waste disposal in the hospitals and other health care establishments has become an issue of increasing concern, prompting hospital administration to seek new ways of scientific, safe and cost-effective management of the waste, and keeping their personnel informed about the advances in area. So, the need of proper hospital waste management system is important and is an essential component of quality assurance in hospitals as well as the knowledge and practices of the health personnel and workers in effective waste disposal also prime importance to reduce the risk health hazards related to biomedical waste management.

## Methodology

Research methodology is the specific procedure or technique used to identify, select, process, and analyze information about a topic. It includes the research approach, research design, research setting, the sample and sampling technique, development and description of tool, data collection and plan of data analysis. The research approach adopted in the study was Quantitative research approach. A descriptive research design was selected for the present study. The study was conducted at Indira Gandhi medical college & hospital, Shimla, Himachal Pradesh. Total sample were 100 nursing officers selected through Non-probability purposive sampling technique. With the extensive review of literature, guide's opinion, discussion with the experts and with the researcher's personal and professional experience, checklist was developed to assess the expressed practices. The tool for the data collection was consists of two parts. Part I: Demographic variable is used to collect data about certain characteristics of sample population. Part II: checklist was develop to assess the expressed practices of nursing officers regarding prevention of health hazards related to biomedical waste management. Validity of tool was established by experts from nursing field for content. The reliability of tool was determined by using Cronbach`s alpha and tool was found to be highly reliable. The α value calculated was 0.75, hence the tool was considered reliable for proceeding with the main study. Ethical approval taken from the Principal, research & ethical committee of Shimla Nursing College, Shurala. Written permission was obtained from the head of the hospital. Informed consent was taken from the nursing officers. Assurance was given to the nursing officers regarding the confidentiality of the data collected. The tool for the data collection was carried on 11th August 2021. 15-30 minutes was given to nursing officers to tick the right answer according to their knowledge. After the collection of whole data researcher was thankful to the study subject or concerned authority for their full cooperation.

## Result

### Section A: Findings related to description of frequency and percentage of demographic variables among nursing officers

**Table1:** Depicts Frequency and percentage distribution among nursing officers based on demographic variables such as Age (in years), Religion, Marital status, Professional qualification, Department of working, Duration of clinical experience, Previous knowledge regarding prevention of health hazards related to BMW, Source of information regarding prevention of health hazards related to BMW.

**Table 1:** Showed the frequency and percentage distribution of demographical variables in terms of Age (in years), Religion, Marital status, Professional qualification, Department of working, Duration of clinical experience, Previous knowledge regarding prevention of health hazards related to BMW, Source of information regarding prevention of health hazards related to BMW.

**N=100**

| Sr. No. | Demographic Variables | Frequency (f) | Percentage (%) |
|---|---|---|---|
| **1** | **Age (in years)** | | |
| 1.1 | 20-30 years | 42 | 42 |
| 1.2 | 31-40 years | 53 | 53 |
| 1.3 | 41-50 years | 5 | 5 |
| 1.4 | Above 50 years | - | - |
| **2** | **Religion** | | |
| 2.1 | Hinduism | 100 | 100 |
| 2.2 | Sikhism | - | - |
| 2.3 | Christianity | - | - |
| 2.4 | Others | - | - |
| **3** | **Marital status** | | |
| 3.1 | Single | 36 | 36 |

| | | | |
|---|---|---|---|
| 3.2 | Married | 63 | 63 |
| 3.3 | Divorced | - | - |
| 3.4 | Widow | 1 | 1 |
| 3.5 | Separated | - | - |
| 4 | **Professional qualification** | | |
| 4.1 | G.N.M | 57 | 57 |
| 4.2 | Basic B.Sc. Nursing | 29 | 29 |
| 4.3 | Post basic B.Sc. Nursing | 11 | 11 |
| 4.4 | M.Sc. Nursing or above | 3 | 3 |
| **5** | **Department of working** | | |
| 5.1 | Medical ward | 37 | 37 |
| 5.2 | Surgical ward | 25 | 25 |
| 5.3 | Emergency and trauma ward | 17 | 17 |
| 5.4 | Chemotherapy | 9 | 9 |
| 5.5 | Radiotherapy | 10 | 10 |
| 5.6 | Blood bank | 2 | 2 |
| **6** | **Duration of clinical experience** | | |
| 6.1 | 1-5 years | 60 | 60 |
| 6.2 | 6-10 years | 25 | 25 |
| 6.3 | 11-15 years | 9 | 9 |
| 6.4 | Above 15 years | 5 | 5 |
| **7** | **Previous knowledge regarding prevention of health hazards related to BMW** | | |
| 7.1 | Yes | 100 | 100 |
| 7.2 | No | - | - |
| **8** | **Source of information regarding prevention of health hazards related to BMW** | | |
| 8.1 | Mass media (television, internet) | 1 | 1 |
| 8.2 | Education/training | 75 | 75 |
| 8.3 | Books (journal, magazine) | 14 | 14 |
| 8.4 | No information others | 10 | 10 |

### 1. Percentage distribution among nursing officers as per Age (in years)

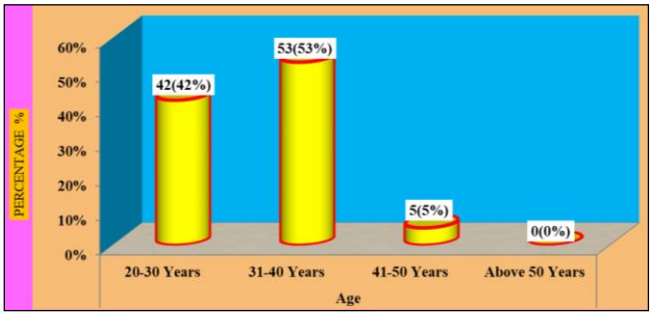


**Fig 2:** Reveals that majority of nursing officers i.e. 53 (53%) were in the age group of 31-40 years, 42(42%) were in the age group of 20-30 years, 5(5%) were in the age group of 41-50years.

### 2. Percentage distribution among nursing officers as per Religion

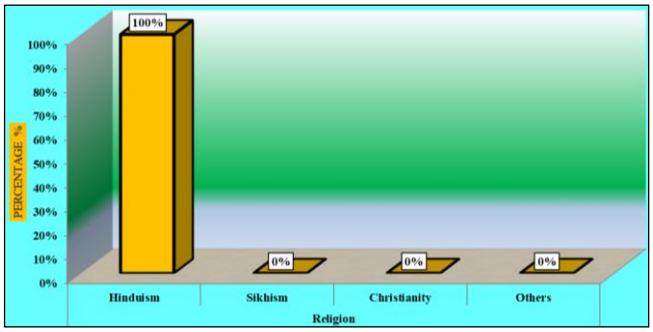


**Fig 3:** Reveals that all nursing officers 100 (100%) belongs to Hinduism.

### 3. Percentage distribution among nursing officers as per marital status

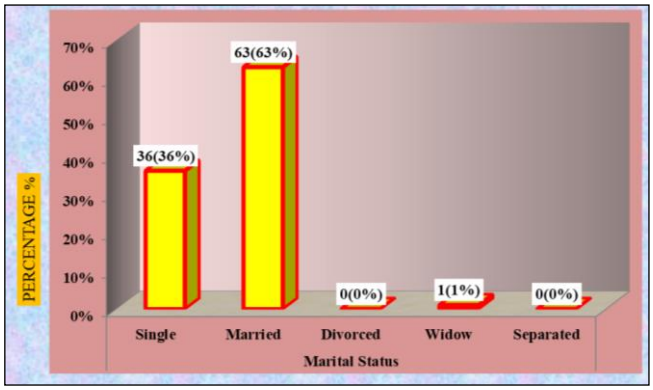


**Fig 4:** Reveals that majority of nursing officers 63(63%) were married, 36(36%) were single, 1(1%) was widowed

### 4. Percentage distribution among nursing officers as per professional qualification

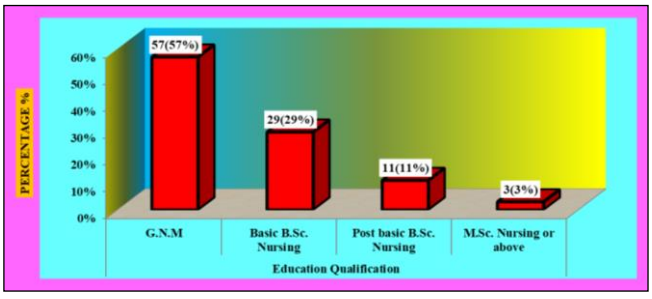


**Fig 5:** Reveals that majority of nursing officers 57(57%) had done G.N.M, 29(29%) had done basic B.Sc. Nursing, 11(11%) had done Post basic B.Sc. Nursing and 3(3%) had done M.Sc. Nursing or above

### 5. Percentage distribution among nursing officers as per departments of working

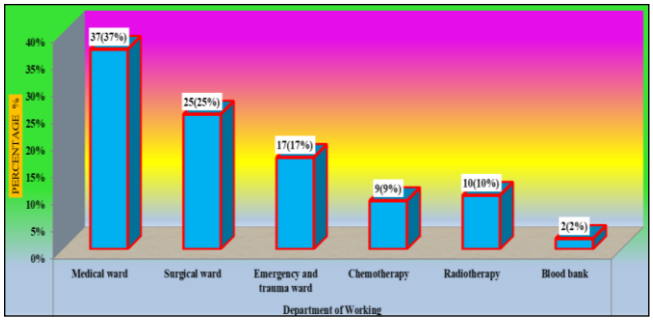


**Fig 6:** Reveals that majority of nursing officers 37(37%) were in medical ward, 25(25%) were in surgical ward, 17(17%) were in emergency and trauma ward, 10(10%) were in radiotherapy, 9(9%) were in chemotherapy, 2 were in Blood bank

### 6. Percentage distribution among nursing officers as per duration of clinical experience

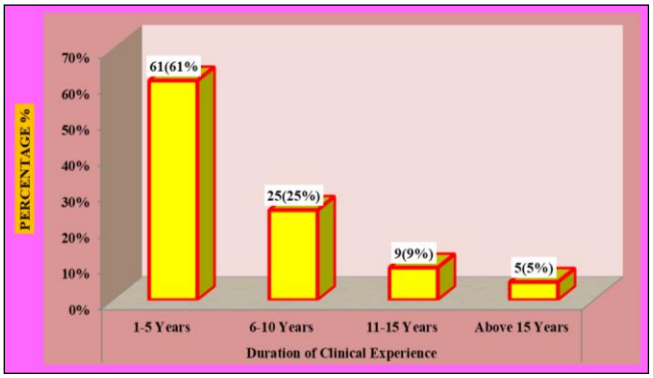


**Fig 7:** Reveals that majority of nursing officers 60(60%) were having 1-5 years, 25(25%) were having 6-10years, 9(9%) were having 11-15 years, 5(5%) were having above 15 years.

### 7. Percentage distribution among nursing officers as per previous knowledge regarding prevention of health hazards related to biomedical waste

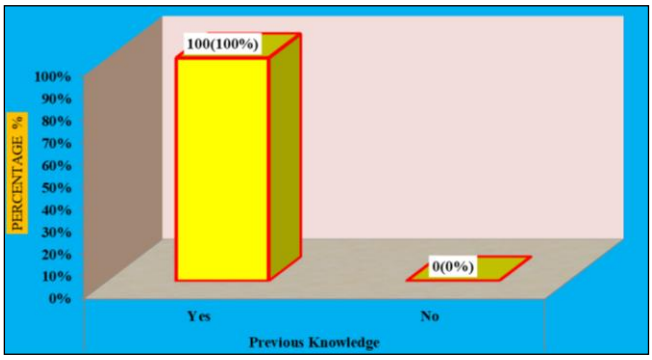


**Fig 8:** Reveals that all nursing officers 100(100%) were having previous knowledge.

### 8. Percentage distribution among nursing officers as per source of information regarding prevention of health hazards related to biomedical waste

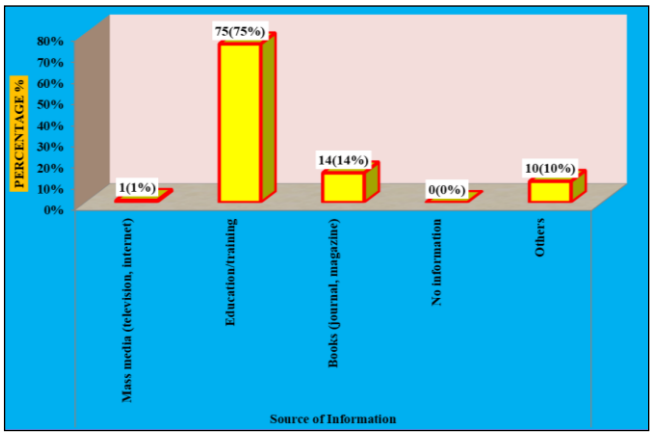


**Fig 9:** Revealed that majority of nursing officers 75(75%) were having education/training, 14(14%) were having books (journals, magazine), 10(10%) were having no information, 1(1%) had mass media (television, internet).

### Section B: Findings related to assessment of expressed practices scores

**Table 2:** depict frequency and percentage distribution of expressed practices scores among nursing officers

**N=100**

| Sr. No. | Level of expressed practices | Range of expressed practices | Frequency (f) | Percentage (%) |
|---|---|---|---|---|
| 1. | Fairly expressed practices | 0-8 | 0 | 0 |
| 2. | Good expressed practices | 9-16 | 7 | 7 |
| 3. | Very good expressed practices | 17-24 | 93 | 93 |

**Minimum scores= 0 Maximum scores=24**

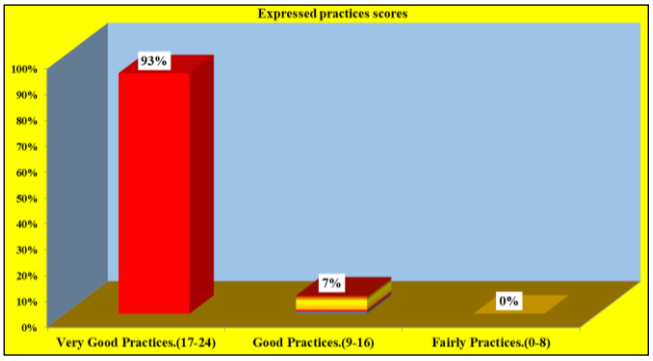


**Fig 10**

### Section C: findings related to descriptive statistics of expressed practices among nursing officers

**Table 3:** depicts descriptive statistics of expressed practices scores regarding prevention of health hazards related to biomedical waste management among nursing officers

**Table 3:** showed that Mean expressed practices scores was 21.30, Standard deviation score was 2.368 and Median score was 22.

**N=100**

| Expressed practices scores | Mean | SD | Median |
|---|---|---|---|
| | 21.30 | 2.368 | 22 |

**Minimum scores = 0 Maximum scores=24**

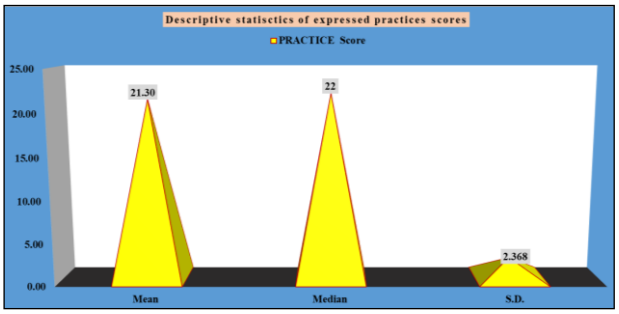


**Fig 11**

## Discussion

**It dealt with the discussion parts according to the result obtained from statistically analysis on the data of the study.**

The hospitals bring relief to the sick are themselves creating health hazards to the community due to improper management of waste generated in the course of health care activities Increasing population and increasing health awareness has led to increase in the number of health care facilities and increased generation of health care waste. The purpose of biomedical waste is mainly to reduce waste generation, to ensure its efficient collection, handling as well as safe disposal. Lack of awareness and inadequate knowledge has led to the hospitals becoming the hub for spreading illness or develop many health hazards. It is recommended that all medical staff, who are exposed to patients, must have adequate expressed practices related to biomedical waste management. The objective of the study was to assess the expressed practices regarding prevention of health hazards related to biomedical waste management among nursing officers. Some of the literature related to the research were also reviewed as followed: Gautam Aakriti et. al, (2019) conducted a pre-experimental study to assess the effectiveness of self-instructional module on knowledge and practices regarding biomedical waste management among staff nurses working in Indira Gandhi Medical College and Hospital, Shimla, Himachal Pradesh. The main aim of the study was to evaluate the effectiveness of self-instructional module regarding the management of biomedical waste among staff nurses. The study samples were 39 staff nurses by non-probability convenient sampling technique. The result of the study was in pre-test, 50% Staff Nurses had good knowledge and 50% had average knowledge while in post-test, 100% Staff Nurses had good knowledge regarding Biomedical Waste Management. It also revealed that in pre-test, 60% Staff Nurses had good practices and 40% had average practices while in post-test, 96.7% Staff Nurses had good practices and 3.3% had average practices regarding Biomedical Waste Management. The pre-test knowledge score was 70.11% and post-test knowledge score was 89.33%. It showed difference of 19.22%. And the pre-test practice score was 75.17% and post-test practice score was 86.83%. It showed difference of 11.67%. Hence, self-instructional module on Biomedical Waste Management was effective. The conclusion of the study was self-instructional module was proved effective in enhancing the knowledge and improving the practices regarding the management of Biomedical Waste Management.

After reviewing the review of literature data was collected and analyzed. The overall mean expressed practices score of nursing officers was 21.30 and it revealed that 93(93%) had very good practices, 7(7%) had good practices and 0(0%) had fairly practices. The result revealed that most of nursing officers had very good practices regarding prevention of health hazards related to biomedical waste management.

## Conclusion

The conclusion of the study revealed that most of nursing officers had very good practices regarding prevention of health hazards related to biomedical waste management.

## Recommendation

Based on the result of the study following recommendations were made: A descriptive study can be conducted among nursing officers at all departments of IGMC&Hospital, Shimla. A comparative study may be conducted to assess the knowledge and expressed practices regarding prevention of health hazards related to the biomedical waste management among nursing officers at DDUZH, Shimla and IGMC&Hospital, Shimla. An experimental study could be conducted with structured teaching program on expressed practices among nursing officers. An experimental study to assess the expressed practices regarding biomedical waste management among health care personnel`s.

## Acknowledgement

Don`t let the sun go down without saying thank you to someone, and without admitting to yourself that absolutely no one gets this far alone. I thanks to the Lord Almighty, whose blessings have bestowed the will power and confidence to successfully complete my thesis It would not have been possible without the constant support from my family members. I extend my heartiest thanks to my loved one who was a backbone to this research work. I would like to express my special gratitude and thank to My Guide/Advisor Ms. Rita Kumari (Nursing tutor of Community Health Nursing) for inspiring her knowledge and expertise in this study. I wish my heartfelt thanks to Co-Guide/Advisor Dr. Pallavi Pathania (Associate professor and head of the department of Medical Surgical Nursing) Shimla Nursing Shurala, for her elegant direction and valuable suggestions for completing this study. I am deeply indebted to Members of Research and Ethical Committee of Shimla Nursing College, Shurala, for their approval and for giving me the opportunity to conduct this research project valuable.

## References

1. Biomedical waste (internet) available from https://en.wikipedia.org/wiki/Biomedical_waste,viewed on 15-2-21
2. Water sanitation (internet) available from http://www.who.int/water_sanitation_health/facilities/waste/en/ viewed on 19-2-21.
3. Blood on floor (internet) available from https://i.dailymail.co.uk/i/pix/2015/11/12/10/2E5DE0D000000578 -3314941 -image -a-25_1447325929723.jpg, viewed on 29-3-21.
4. HP. Report: Hospital waste management awareness and practices: a study of three states in India. Waste Management & Research,2008:26:297-303, viewed on 6-3-21.
5. Murthy PG, *et al*. Bio-medical wastes disposal and management in some major hospitals of Mysore City, India. International Journal of the Physical Sciences,2011:6(3):71-78, viewed on 30-3-21.

6. Ali S, Athar M, Zafar L, Siddiqi OA. Knowledge, awareness, and practices regarding needle stick injury among health-care workers in a tertiary care hospital of India: Annual incidence versus reporting rate. International Journal of Health & Allied Sciences,2020:9(1):45. viewed on 3-1-21.
7. Needle stick injury (internet) Available from https://medicaldialogues.in/wp-content/uploads/2016/11/nsi2.jpgviewedon27-2-21.
8. Hepatitis (internet) Available from https://en.wikipedia.org/wiki/Hepatitis,viewedon4-3-21.
9. Jain AB. Management of hospital waste. International Journal of Occupational and Environmental Medicine,1998:2(3):134-5. viewed on 22-3-2-21.
10. Singh BP, *et al*. Current Biomedical Waste Management Practices and cross infection control procedures of dentists in India. International Dental Journal,2012:62(3):111-16. viewed on 13-2-21.
11. Segregation of biomedical waste (internet) Available from https://pbs.twimg.com/media/DRZyqAhUQAAqPDb.jpg,viewed on 12-2-21.
12. CPR. Environmental Education Centre, a centre of Excellency of the Ministry of environment and forests, Government of India http://www.cpreec.org/pubbook-biomedical.htm,viewed on 7-2-21.