



# **A descriptive study to assess the knowledge regarding prevention of health hazards related to biomedical waste management among nursing officers working in selected departments of IGMC&Hospital, Shimla (H.P.)**

## **Authors Details:**

**Ms. Shagun Kumari 1 .**

**1 M.Sc. Nursing, Department of Community health nursing, Shimla Nursing College, Shurala, Shimla-6, Himachal Pradesh University, India.**

**Ms. Rita Kumari 2 .**

**2 Nursing tutor, Department of Community health nursing, Shimla Nursing College, Shurala, Shimla-6, Himachal Pradesh University, India.**

**Dr. Pallavi Pathania 3 .**

**3 Associate professor, Department of Medical surgical nursing, Shimla Nursing College, Shurala, Shimla-6, Himachal Pradesh University, India.**

## **Corresponding author details:**

**Ms. Shagun Kumari, M.Sc. nursing, Department of Community health nursing, Shimla Nursing College, Shurala, Shimla-6, Himachal Pradesh University, India.**

**E mail: shagun.rana.562@gmail.com Phone no. – 9459278734, 8629859426**

## **ABSTRACT**

**Background:** 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 aim of study

was to assess the knowledge 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 nursing offices 95(95%) had adequate knowledge, 5(5%) of nursing officers had moderately adequate knowledge regarding prevention of health hazards related to biomedical waste management. The mean knowledge score was 28.11, Standard deviation score was 2.236 and median score was 29. This study concluded that majority of nursing officers had adequate knowledge regarding prevention of health hazards related to biomedical waste management.

**KEY WORDS:** Assess, knowledge, biomedical waste management, and nursing officers.

## 1. Introduction

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.<sup>i</sup>

Whereas it would be much higher in India because of proper waste segregation and waste disposal methods either does not exist or not practical. Many Indian newspapers and magazines have reported that re-use of disposable syringes, needles, catheters, bags, drug vials, bottles and intravenous drip sets are picked up by rag picker and purchased by duplicators, recycled, replaced without proper treatment.<sup>ii</sup>

Hepatitis C is also one of the problem 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.<sup>iii</sup>

The occupational exposure accounts for 2.5% of HIV infection and as high as 40% of HBV and HCV infections globally. Majority of occupational exposures (90%) occur in developing countries, but the United States and Europe have high reporting Rates (90%).<sup>iv</sup>

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.<sup>v</sup>

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. <sup>vi</sup>

Hence the researcher felt the need to assess the knowledge regarding prevention of health hazards related to biomedical waste management among nursing officers working in selected departments of IGMC&Hospital, Shimla, H.P.

## **2. METHODOLOGY:**

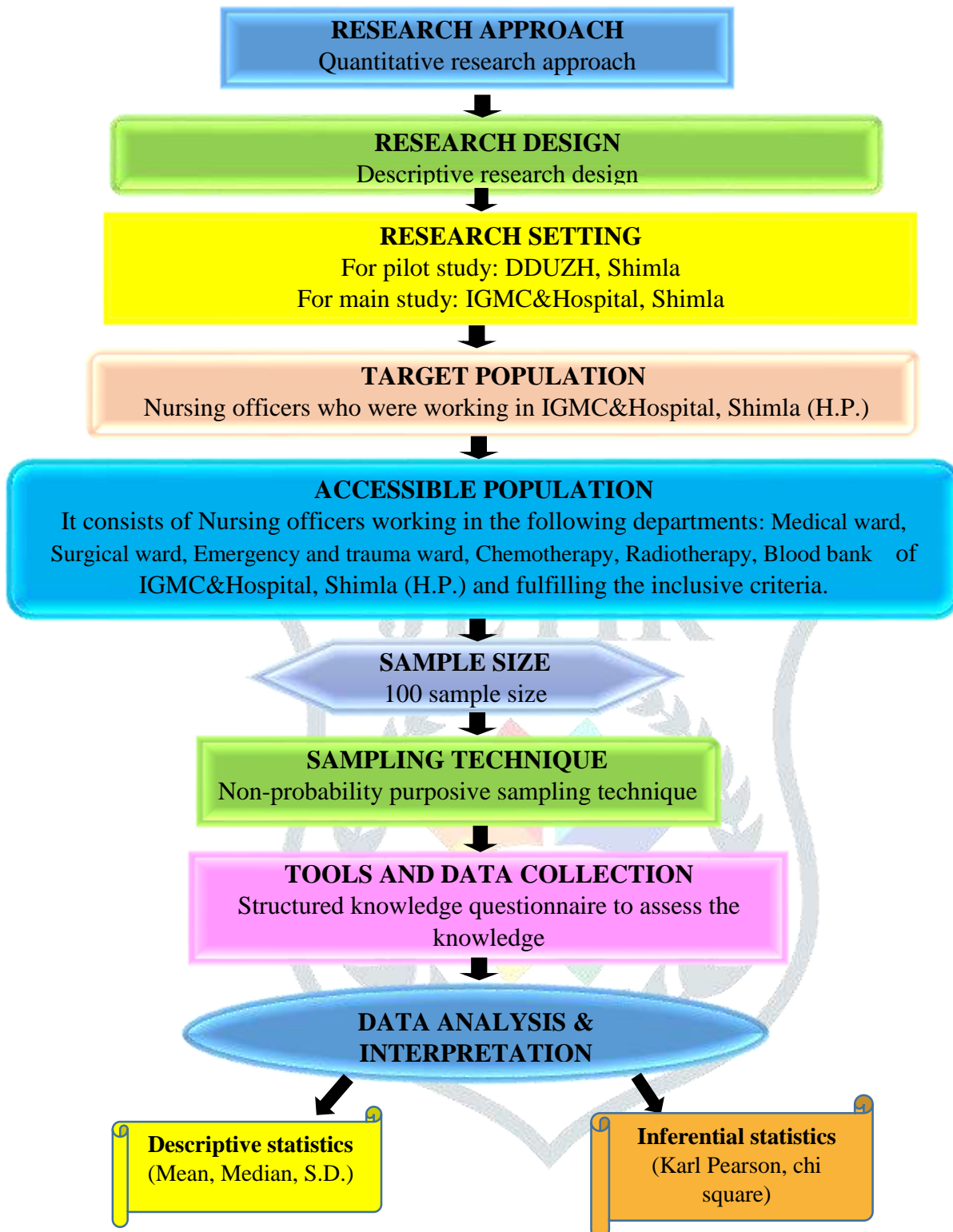
### **2.1 Research approach**

In this study, Quantitative research approach was used.

### **2.2 Research design**

In this study, Descriptive research design was used.





**Fig. 1.1** DEPICTS SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

### 2.3 Study area

Study was conducted in IGMC & Hospital, Shimla

### 2.4 Sample size

Study sample was 100 Nursing officers of IGMC&Hospital

### 2.5 Sampling technique

Non- probability purposive sampling technique was used.

## 2.6 Tool

The structured knowledge questionnaire was used to collect the data from nursing officers.

The data collection tool consist of two sections:

Section one related to demographic variables, Section two related to structured knowledge questionnaire regarding prevention of health hazards related to bio medical waste management. Content validity of the structured knowledge questionnaire regarding prevention of health hazards related to biomedical waste management was done by 11 experts.

## 2.7 Ethical consideration

The study was conducted after the approval from the Ethical consideration committee of Shimla Nursing College, Shurala. Written permission was taken for conducting pilot study from DDUZ, Hospital, and Shimla. Written permission was taken for conducting main study from IGMC & Hospital, Shimla. Written consent was taken from sample and confidentiality was maintained.

## 2.8 Data collection

Researcher collected data from IGMC & Hospital, Shimla. The structured knowledge questionnaires was administered to the study subject. The researcher assessed the knowledge regarding prevention of health hazards related to biomedical waste on dated 11<sup>th</sup> August 2021. 15-30 minutes was given to nursing officers to tick the right answer according to their knowledge. The collected data was then organized for analysis. The collected data were analysed through both descriptive and inferential statistics.

## 3 RESULT:

### 3.1 Findings related to socio-demographic variables among nursing officers

**Table no. 1: Frequency and percentage distribution of nursing officers based on demographic**

<b>Variables</b>			
<b>Sr. No.</b>	<b>Demographic Variables</b>	<b>Frequency (f)</b>	<b>Percentage (%)</b>
1	<b>Age (in years)</b>		
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	<b>Religion</b>		
2.1	Hinduism	100	100
2.2	Sikhism	-	-
2.3	Christianity	-	-
2.4	Others	-	-

<b>3</b>	<b>Marital status</b>		
3.1	Single	36	36
3.2	Married	63	63
3.3	Divorced	-	-
3.4	Widow	1	1
3.5	Separated	-	-
<b>4</b>	<b>Professional qualification</b>		
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
<b>5</b>	<b>Department of working</b>		
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
<b>6</b>	<b>Duration of clinical experience</b>		
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
<b>7</b>	<b>Previous knowledge regarding prevention of health hazards related to BMW</b>		
7.1	Yes	100	100
7.2	No	-	-
<b>8</b>	<b>Source of information regarding prevention of health hazards related to BMW</b>		
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

The Data presented in Table 1 depicts the demographic variables of nursing officers. With regard to age, majority of nursing officers i.e. 53 (53%) were in the age group of 31-40 years, With regard to religion all nursing officers 100(100%) belongs to Hinduism, As per Marital status majority of nursing officers 63(63%) were married, With regard to Professional qualification majority of nursing officers 57(57%) had done G.N.M, With regard to the department of working majority of nursing officers 37(37%) were in medical ward, As per Duration of clinical experience, majority of nursing officers 60(60%) were having 1-5 years, With regard to previous knowledge regarding prevention of health hazards related to BMW all nursing officers 100(100%) were having previous knowledge. With regard to source of information regarding prevention of health hazards related to BMW majority of nursing officers 75(75%) were having education/training.

### 3.2 Findings related to assessment of knowledge score regarding prevention of health hazards related to biomedical waste management

**Table no. 2: Frequency and percentage distribution of knowledge scores among nursing officers.**

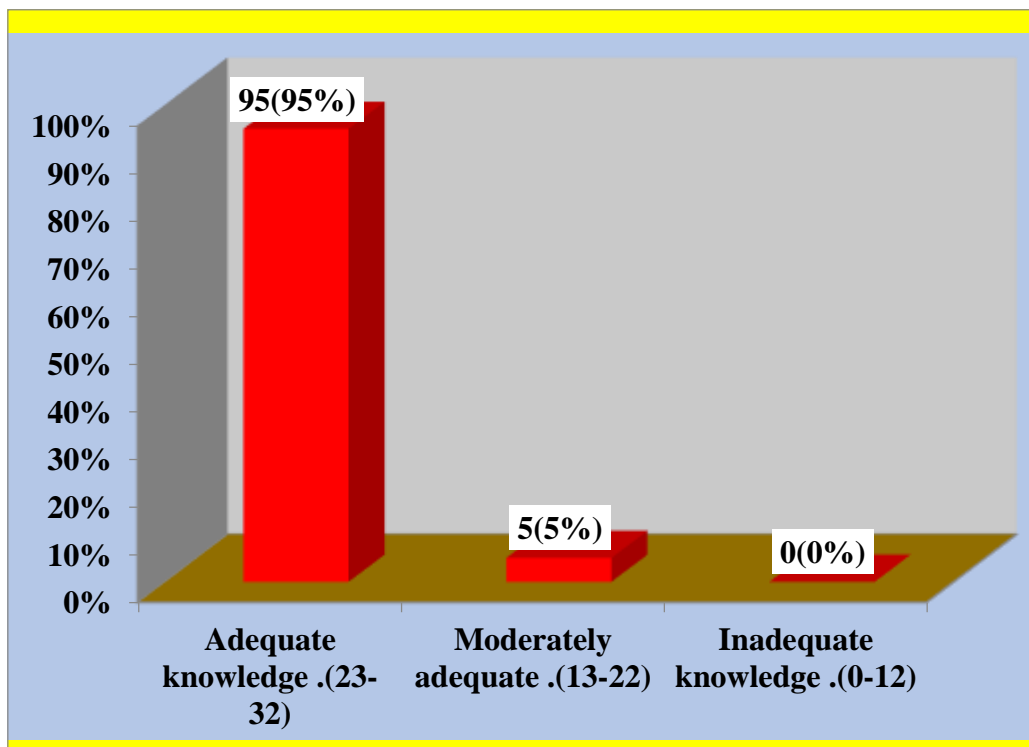
**N=100**

SR. NO.	Level of knowledge	Range of knowledge	of Frequency (f)	Percentage (%)
1.	Inadequate knowledge	0-12	0	0
2.	Moderately adequate knowledge	13-22	5	5
3.	Adequate knowledge	23-32	95	95

**Minimum scores =0**

**Maximum scores =32**

The data presented in Table 2 depicts the majority of nursing officers had adequate knowledge 95(95%), 5(5%) had moderately adequate knowledge and 0(0%) had inadequate knowledge regarding prevention of health hazards related to biomedical waste management.



**Fig.no. 2 Depicts bar diagram regarding frequency and percentage distribution of knowledge scores among nursing officers**

### **3.3 Finding related to association of knowledge scores regarding prevention of health hazards related to biomedical waste among nursing officers with selected demographic variables**

Based on the objective Chi-square test was used to find out the association of knowledge scores with selected demographic variables.

No significant association found between knowledge score with selected 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 biomedical waste, source of information regarding prevention of health hazards related to biomedical waste. The calculated chi-square values were less than the table value at the 0.05 level of significance.

## **4. Discussion**

In this study, knowledge score of nursing officers was 28.11 and it revealed that majority of nursing officers, 95(95%) had adequate knowledge, 5(5%) had moderately adequate knowledge and 0(0%) had inadequate knowledge.



## 5. CONCLUSION

The present study concluded that majority of nursing officers had adequate knowledge regarding prevention of health hazards related to biomedical waste management and most of nursing officers had very good practices regarding prevention of health hazards related to biomedical waste management.

## 6. LIMITATIONS

- The study was limited to the selected departments of the IGMC&Hospital, Shimla.
- Due to COVID -Pandemic, it was difficult to get permission from Medical Superintendent and Nursing Superintendent.
- The study was limited to 100 samples only.

## 7. RECOMMENDATIONS

Based on the result of the study following recommendation were made:

- 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 knowledge and practices among nursing officers.
- An experimental study to assess the knowledge and practices regarding biomedical waste management among health care personnel's.

## REFERENCES

- 
- <sup>i</sup> Gupta S, Boojh R. Report: Bio medical waste management practices at Balrampur Hospital, Lucknow, India. Waste Management Research. 2006; 24:584-591, viewed on 21-3-21.
  - <sup>ii</sup> Singh R, Mathur RG, Mandal K, Puri S. The role of information booklet on bio medical waste management for nurses. Nursing J India 2000;148: 271-72,viewed on 22-3-21
  - <sup>iii</sup> Hepatitis (internet) Available from <https://en.wikipedia.org/wiki/Hepatitis>, viewed on 4-3-21.
  - <sup>iv</sup> Bhat AG, Nazir R. Scenario of bio medical waste management in the majorhospitalsofSrinagarcity. InternationalJournalofCurrentResearchandReview. Apr2012; 4(8):16-22, viewed on 25-3-21.
  - <sup>v</sup> 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. 2020Jan 1;9(1):45, viewed on 3-1-21.
  - <sup>vi</sup> C.P.R. 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 on7-2-21.