REVIEW ARTICLE

A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE AND PRACTICES REGARDING BIOMEDICAL WASTE MANANGEMENT AMONG HEALTHCARE PROFFESSIONALS IN A SELECTED HOSPITAL , MUMBAI

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ABSTRACT

Aim: To assess the knowledge and practices regarding biomedical waste management among healthcare professionals. **Background:** Health care waste is a unique category of waste by the quality of its composition, source of generation, its hazardous nature and the need for appropriate protection during handling, treatment and disposal. Mismanagement of the waste affects not only the generators, operators but also the common people too. **Methods:** Descriptive study was conducted in different departments of multi specialty hospital. **Conclusion:** Knowledge level of the samples was good and excellent but some practice levels were not up to the standard. Corrective steps were taken to improve the practices.

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INTRODUCTION

Bio medical waste is any kind of waste containing infectious or potentially infectious materials which may include solid or liquid waste generated from biological and medical sources and activities such as diagnosis, prevention and treatment of diseases (Ramesh chandrappa and Diganta Bhushan Das, 2012) Bio-medical waste (BMW) management is a very important but challenging task for the health workers. The safe and sustainable management of bio medical waste is legal and social responsibility of Professionals who work in collaboration with health care team and financing the health care team (Preeti Galot, 2019). Health care team should always be aware about the categories of hospital waste and segregation. It is also important to practice the proper knowledge regarding biomedical waste management (Nkechi Chuks Nwachukwu *et al.*, 2013). Due to the increase in the procedures that are carried out at the various health care setups, excessive amounts of waste have been generated at the centers of care. Different health settings in India approximately generates 2kg/bed/day biomedical waste and this contains anatomical waste, cytotoxic waste, sharps which, when inadequately segregated could cause different kinds of deadly

infectious diseases like Human immunodeficiency virus(HIV) hepatitis C and B infections, etc. (Padmnabhan, 2019). Today the problem is intensified because of liability issues, land-fill laws, public concern and a tremendous increase in the cost of handling, transport, and disposal of medical waste. Patients and professionals are contributing to environmental degradation. Improper handling of solid waste in the hospital may increase the airborne pathogenic bacteria, which could adversely affect the hospital environment and community at large improper hospital waste management has serious impact on our environment apart from risk of water, air and soil pollution, it has considerable impact on human health due to aesthetic effects (Manyele, 2004). Acceptable management of biomedical waste begins from the initial stage of generation of waste, segregation at the source, storage at the site, disinfection, and transfer to the terminal disposal site. Hence adequate knowledge and practices of the staff of the health care institutes play a very important role (Divya Rao, 2018). Studies documented from different parts of the country; still convey that there are gaps in the Knowledge, and inconsistency in the practice aspects which are matters of concern among the health care professionals (Priya Dutta, 2018).

With this background, the study was carried out to assess the current knowledge and practices of the health care workers like doctors, staff nurses, house-keeping staff and Technicians in a Multispecialty hospital with regard to the management of BMW (Pranjal Dey and Basudeb Das, 2020)

PROBLEM STATEMENT

A descriptive study to assess the knowledge and practices regarding biomedical waste management among healthcare professionals in a selected hospital in Mumbai.

RESEARCH OBJECTIVES

- To assess the knowledge regarding biomedical waste management among healthcare professionals.
- To assess the practices regarding biomedical waste management among healthcare professionals

ASSUMPTION

- The healthcare professionals may have adequate knowledge regarding biomedical waste management.
- The healthcare professionals may have good practice regarding biomedical waste management

OPERATIONAL DEFINITION

- **Assess:** In this study assess means to find out the existing knowledge regarding biomedical waste management among the healthcare workers.
- **Knowledge:** In this study Knowledge is considered as awareness of healthcare professionals regarding biomedical waste management
- **Practice:** In this study practice means the actions carried out by the healthcare professionals regarding biomedical waste management.

METHODOLOGY

Research Design: Descriptive design.

Research approach: Quantitative research approach.

Setting: The selected tertiary hospital.

Population: Healthcare professionals working in selected hospital.

Sample Size: 150 samples.

Sampling Technique: Non- probability purposive sampling technique.

Tool: A structured questionnaire was prepared to assess the knowledge of the participants. A practice checklist was used to assess practices.

Data collection: Researcher informed the participants about the objectives of the study at the start of the research and that the research would be kept anonymous.

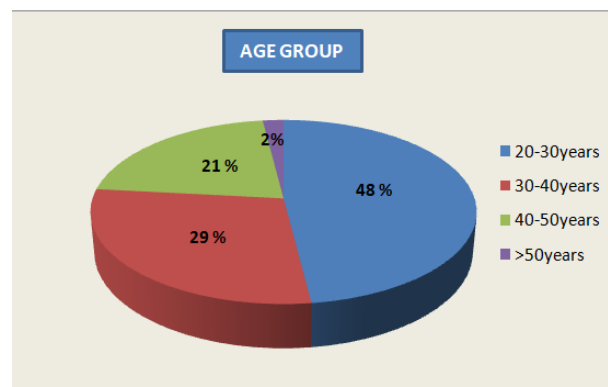**Data analysis:** Data analysis was done using Descriptive statistics.
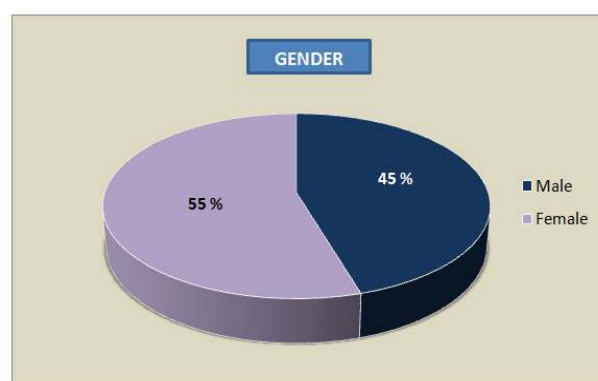

Figure no 1: Percentage distribution of age

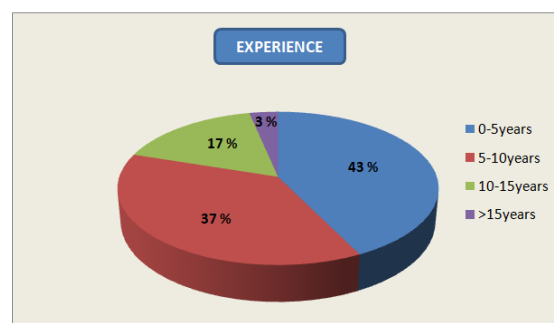**Figure no 2: Percentage distribution of gender**

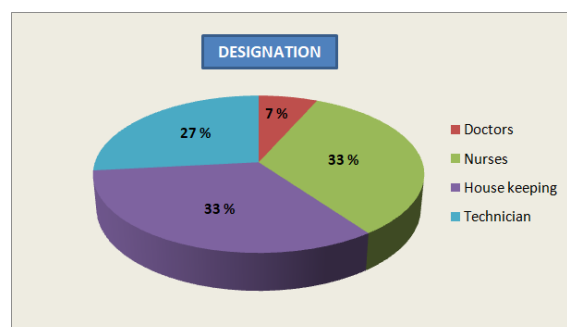**Figure no 3. Percentage distribution of experience**

Figure no 4. Percentage distribution of designation

MAJOR FINDINGS AND DISCUSSION

Table no 1 indicates frequency and percentage distribution of demographic variables. 48% of samples were in the age group of 20-30years, 29 % in 30-40 years, 21% in 40-50 years and 2% were in more than 50 years.

Table no.1 Frequency and percentage distribution of demographic variables

n=150

Demographic variables	Frequency	Percentage (%)
Age		
20-30years	72	48
30-40years	43	29
40-50years	32	21
>50years	3	2
Gender		
Male	68	45
Female	82	55
Experience		
0-5years	64	43
5-10years	56	37
10-15years	25	17
>15years	5	3
Designation		
Doctors	10	7
Nurses	50	33
House keeping	50	33
Technician	40	27

45% of male samples and 55% of female samples were included .Maximum samples (43 %) were having experience from 0-5 years , 37% have 5-10 years of experience , 17 % of samples were having 10-15 years and minimum samples that is 3% has more than 15 years of experience. 7% were doctors, 33% nurses , 33% housekeeping and 27% of technicians. Table No.2 shows the knowledge scores related to demographic variables. In the category of 21-30years 28% of samples had good knowledge whereas 72% had excellent knowledge.

Among the samples in the age group of 31-40years, 17% had good knowledge and 83% had excellent knowledge. In the age group of 41-50 years 11% had good knowledge and 89% had excellent knowledge. Samples in the age group above 51years had 100% knowledge regarding the topic. 20% male samples had good knowledge and 80% had excellent knowledge. As compared to males 22% female samples had good knowledge and 78% had excellent knowledge. In the category of samples having more than 11years of experience were found to have 100% knowledge regarding biomedical waste management. Among the samples having 6-10years of experience 13% had good knowledge whereas 87% had excellent knowledge. In the category of samples with 0-5years of experience 26% had good knowledge and 74% had excellent knowledge. 88% of nurses had excellent knowledge and 86% of samples from housekeeping staff had excellent knowledge whereas doctors had 80% knowledge, and paramedical had 75% knowledge regarding waste management. Table No. 3 Indicates practice scores related to demographic variables. Samples in the category of more than 51years were found to have excellent practice. Among the Samples in the category of 21-30years 90% had good practice whereas in the age group of 41-50years 84% had good practice and in the age group of 31-40years 83% had good practice. 17% had poor knowledge in the category of 31-40years.Among the samples in the category of 41-50years 16% had poor practice and 10% samples in the category of 21-30years had poor practice?. As compared to females 90% male samples had good practice and 87% had good practice. 13% female sample had poor practice and 10-% males had poor practice.

Table no.2 Level of knowledge related to demographic variable n=150

Sl.No.	Demographic Variables	Knowledge assessment						Total
		poor	Average	Good		Excellent		
1	**Age**							
	21 -30 Years.			22	28	58	72	80
	31-40 Years			8	17	40	83	48
	41-50 Years			2	11	17	89	19
	>51Years					3	100	3
2	**Gender**							
	Male			12	20	47	80	59
	Female			20	22	71	78	91
3	**Experience**							
	0-5 Years			28	26	78	74	106
	6-10 Years			4	13	26	87	30
	11-15 Years					6	100	6
	>16 Years					8	100	8
4	**Designation**							
	Doctors			2	20	8	80	10
	Nurses			6	12	44	88	50
	Housekeeping			7	14	43	86	50
	Paramedical			10	25	30	75	40

Table no.3 Practice Score related to demographic variable n=150

Sl. No.	Demographic Variables	Practice score				Total
		Poor		Good		
		Frequency	Percentage%	Frequency	Percentage%	
1	**Age**					
	21 -30 Years.	8	10	72	90	80
	31-40 Years	8	17	40	83	48
	41-50 Years	3	16	16	84	19
	>51Years			3	100	3
2	**Gender**					
	Male	6	10	53	90	59
	Female	12	13	79	87	91
3	**Experience**					
	0-5 Years	12	11	94	89	106
	6-10 Years	5	17	25	83	30
	11-15 Years	1	17	5	83	6
	>16 Years			8	100	8
4	**Designation**					
	Doctors	2	20	8	80	10
	Nurses	3	6	47	94	50
	Housekeeping	12	24	38	76	50
	Paramedical	16	40	24	60	40

Among the samples having experience of more than 16 years had 100% good practice. Among the samples having experience of 0-5years 89% had good practice. Samples in the category of 6-15years, 83% had good practice. 94% of nurses had good biomedical waste management practice, 80% doctors had good practice, 76% housekeeping had good practice and 60% of paramedical had good practice.

DISCUSSION

All healthcare settings produce biomedical waste. Such waste is dangerous and needs safe disposal. This can be dangerous for human beings and environment which has the capacity to transmit infections particularly HIV, Hepatitis B and C to those people who handle it or come in contact with it. Biomedical waste poses hazard due to two reasons – infectivity and toxicity.(9) According to this study knowledge level of participants were excellent. Maximum participants have good practice but also we have seen that there is scope for improvement. Management has taken measures to improve the practices such as surprise audits and onsite correction.

CONCLUSION

Knowledge level of the samples was good and excellent but some practice levels were found to be poor. Corrective steps were taken to improve the practices.

RECOMMENDATION

It is recommended to do research to assess the knowledge and practices regarding biomedical waste management among healthcare professionals in a selected hospital, Mumbai after giving planned teaching program.

ACKNOWLEDGEMENT

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