



KNOWLEDGE, ATTITUDE & PRACTICES REGARDING BIOMEDICAL WASTE MANAGEMENT AMONGST NURSING STAFF OF KHAJA BANDA NAWAZ INSTITUTE OF MEDICAL SCIENCES, KALBURGI, KARNATAKA

Amrutha Swati Indupalli¹, Kaviraj Motakpalli², Purushottam A. Giri³, Bendigeri Nazir Ahmed⁴

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Author's Affiliation:

¹Prof; ²Asst Prof; ⁴Professor and Head, Department of Community Medicine, Khaja Banda Nawaz Institute of Medical Sciences (KBNIMS), Kalburgi Karnataka, India; ³Professor, Department of Community Medicine, JIU's Indian Institute of Medical Science & Research Medical College, Badnapur, Jalna, Maharashtra, India

Correspondence:

Dr. Amrutha Swati Indupalli
E-mail:induswati@gmail.com

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ABSTRACT

Context: Globally 18 to 64% of healthcare institutions are reported to have unsatisfactory Bio-Medical Waste Management (BMWM) facilities.

Objective: To assess the knowledge, attitude and practices regarding biomedical waste management of hospital nursing staff

Method: A hospital based cross-sectional study was carried out amongst 100 nursing staff working in Khaja Banda Nawaz Institute of Medical Sciences, Hospital Kalburgi.

Result: Majority had knowledge regarding 92% colour coding, 77% sources of bio-medical waste, 75% steps in its management and 68% diseases transmitted through it and 91% had positive attitude towards biomedical waste management. Among practices (90%) are using needle hub cutter for needles and syringes and (84%) segregation of bio-medical waste and (81%) following personal protective measures at their work place.

Conclusion: The overall knowledge, attitude and practice regarding bio-medical waste management among the study participants were found to be average. Knowledge was poor regarding correct categories of BMW. Only 57% are maintaining bio-medical waste record at their work place. It is recommended to have strict supervision by the administrative personnel and periodical reorientation on biomedical waste management guidelines.

Key words: Knowledge, Attitude, Practice, Bio-medical waste management, Nursing staff

INTRODUCTION

India is the first country that has made constitutional provisions for protection and improvement of the environment.¹ Inadequate management of

biomedical waste can be associated with risks to healthcare workers, with diseases like tuberculosis, pneumonia, diarrhoeal diseases, tetanus, etc.² Approximately 1.45kg waste is generated per patient

per day in Indian hospitals compared to 4.5kg in developed countries.³ Majority of waste (75-90%) produced by the healthcare providers is non-risk or general and it is estimated that the remaining (10-25%) of healthcare waste is regarded as hazardous the potential for creating a variety of health problems.⁴

The management of health care waste in India is 'bleak'. In India biomedical waste generated from health care facilities are generally not segregated and disposed in municipal bins located either inside or outside the facility premises.⁵ The most common problems associated with health care wastes are the absence of waste management, lack of awareness about their health hazards, insufficient financial and human resources for proper management and poor control of waste disposal.⁶ Therefore, conducted a study to assess the knowledge, attitude and practices regarding bio-medical waste management of hospital nursing staff and to help the authorities to develop the strategy for improving the situation in future.

MATERIALS AND METHODS

The study was conducted at Khaja Banda Nawaz Institute of Medical Sciences hospital Kalburgi Karnataka. The institute is a tertiary care centre serving not only the Kalburgi city and district, but also the other districts of North Karnataka region. The study was conducted from September 2014 to October 2014. It was a hospital based cross-sectional study. Study participants included the nursing staff, working in the institute who are dealing with BMW. The study was conducted by using pretested, semi-structured proforma.

The study included details of various demographic variables like age, sex, educational status and other

details regarding knowledge, attitude and practice for bio-medical waste handling and its management. All nursing staff was invited individually to participate in the study after giving the informed consent. Limitation of the study was 4 staff were not willing to participate were not included in the study. All the study participants were assured about their confidentiality and anonymity. Total 100 nursing staff participated in the present study. The data was tabulated and interpretation was done by using percentages through Microsoft Excel 2007.

Working definition the grading was given as GOOD, AVERAGE and POOR. Based on average weightage score for knowledge and practice questioners was as follows:

Grading	for knowledge	for practice
Good	7-10	6-8
Average	3-6	3-5
Poor	0-2	0-2

Whereas for attitude. The remark was taken as POSITIVE when all the questions were answered YES and NEGATIVE when even one question was answered NO.

RESULTS

Out of 100 study subjects, 51% were males and 49% were females. Majority 48% of them were in the age group 25-29 years followed by 20% in the age group of 20-24 years and 17% in the age group of 30-34 years. Majority 83% had education qualification of GNM (General Nursing and Midwifery), followed by 10% BSC Nursing (BSC. Nursing) and 7% ANM (Auxiliary Nursing and Midwifery)

Table 1: Knowledge on different aspects of bio-medical waste management amongst study population [N=100] "(multiple answers)"

Awareness	Present (n=100)(%)	Absent (n=100)(%)
Sources of bio-medical waste.	77(77)	23(23)
Diseases transmitted through bio-medical waste.	68(68)	32(32)
Colour coding for disposal of bio-medical waste.	92(92)	8(8)
Steps involved in the management of bio-medical waste.	75(75)	25(25)
Symbolic representation of bio hazard.	43(43)	57(57)
Type of waste collected in Yellow bag.	28(28)	72(72)
Type of waste collected in Red bag.	30(30)	70(70)
Type of waste collected in Blue bag.	21(21)	79(79)
Type of waste collected in Black bag.	30(30)	70(70)
Symbolic representation of Cytotoxic hazard.	36(36)	64(64)

Table 2 Depicting Attitude regarding need of bio- medical waste management [N=100] “(multiple answers)”

Questionnaire	Nurses with positive attitude (n=100)(%)	Nurses with negative attitude (n=100)(%)
Bio-medical waste categorization needed or not?	100(100)	0(0)
Bio-medical waste management useful or not?	98(98)	2(2)
Bio-medical waste management can reduce health hazards or not?	93(93)	7(7)

Table 3: Practices of bio- medical waste management amongst study population [N=100] “(multiple answers)”

Questionnaire	Answered correctly (%)	Answered incorrectly (%)
Maintenance of biomedical waste record at your work place	57(57)	43(43)
Segregation of biomedical waste is done at your work place or not?	84(84)	16(16)
Human placenta, tissues, organs are disposed in which colour bag?	29(29)	71(71)
Disinfection of biomedical waste done at your work place or not?	72(72)	28(28)
How you will dispose liquid waste?	24(24)	76(76)
Personal protective measures while handling biomedical waste are followed or not?	81(81)	19(19)
Needle hub cutter for needle and syringes used or not?	90(90)	10(10)
Place where the biomedical waste is treated?	32(32)	68(68)

Table 4: Assessment regarding overall knowledge and practice in study population [N=100]

Assessment	Knowledge (%)	Practice (%)
Good	21(21)	30(30)
Average	69(69)	66(66)
Poor	10(10)	4(4)

Table 1 illustrate that, majority 92% have good knowledge about colour coding for disposal of bio-medical waste followed by 77%, 75%, and 68% regarding sources of bio-medical waste, steps involved in its management and diseases transmitted through it respectively. On the contrary 79%, 72%, 70% have poor knowledge in relation to the type of waste collected in blue bag, in yellow bag and in red & black bag respectively.

Table 2 reveal over all attitude of study population that, 91% had positive towards biomedical waste management. With, 100% had a positive attitude towards the need of bio-medical waste categorization followed by 98% and 93% regarding the use of bio-medical waste management and reduction of health hazards by its management respectively.

Table 3 shows that, 90% are using needle hub cutter for needles-syringes and 84%, and 81% are doing segregation of bio-medical waste and following personal protective measures at their work place respectively. Correspondingly, 76%, 71% and 68% dispose liquid waste by chemical treatment, collect human placenta and organs in yellow bag and know the place of bio-medical waste treatment respectively.

Table 4 demonstrate that knowledge and practice of nursing staff (in a study population) was found to be average i.e. 69% and 66% respectively.

DISCUSSION

Globally, 18 to 64 per cent of healthcare institutions are reported to have unsatisfactory Bio-Medical Waste Management (BMW) facilities; due to lack of awareness, insufficient resources and poor disposal mechanisms. As per the Biomedical waste (management and handling) rules 1998 any violation of the rules by any person is punishable with fine or imprisonment under the Environment protection Act 1986. The BMWMS rules 2011 states that it's the duty of every single occupier of an institution generating biomedical wastes to take all necessary steps and ensure safe handling. The hospital waste was considered as a serious issue, especially after HIV and Hepatitis B infected materials can be a potential risk factor to other patients The concept of biomedical waste management is new in India; it came into limelight recently after the notification of Bio Medical Waste (BMW) (Management and Handling) Rules 1998. Many countries lack documented government rules related to BMW. India was one of the first countries to implement BMW rules. Unlike other waste bio-medical waste is bio-hazardous, infectious and pathological in nature, which not only encourages the growth of various pathogens and vectors but also contaminates the non hazardous and non toxic waste, Hence, its handling and disposal becomes an important issue.^{7,8,9,10,11}

Knowledge concerning BMW handling and waste segregation is probably the most important crucial point and key for further waste management. In current study, it was observed that majority had knowledge regarding 92% colour coding for disposal of bio-medical waste 77%, sources of bio-

medical waste, 75% steps involved in its management and 68% diseases transmitted through it. But poor knowledge was found regarding correct categories of waste. Our findings were similar with the finding of Rajesh K Chudasama,¹² where majority participants heard about the BMW and its management rule but less than half of the study participants have actually received training for BMW management. V Mathur observed only 40.4% study participants know correct categories of BMW.¹³

In our study, 91% had positive attitude towards biomedical waste management. Similarly in the study done by Shafee M et al.¹⁴ on *knowledge, attitude and practices regarding biomedical waste among paramedical workers found that the nurses had a better attitude toward separation of wastes 99.5%, proper disposal 98.7%, and implementation of rules 98.3%. Overall score regarding knowledge and practice in our study were comparable to the study done by Nagaraju B et al.⁹ found that 65% had an overall average level of knowledge and 53% had an overall average level of practice, and also found positive correlation between knowledge and practice, in their study. This indicated that the practices of health care providers on bio-medical waste management were influenced by their level of knowledge.*

CONCLUSION

To conclude the overall knowledge, attitude and practice regarding bio-medical waste management among the study participants were found to be average. Knowledge was poor regarding correct categories of BMW. Most of the nursing staff practices personal protective measures while handling biomedical waste but only 57% are maintaining biomedical waste record at their work place. It is recommended to have strict supervision by the administrative personnel and periodical reorientation on biomedical waste management guidelines.

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