International Journal of Medical Science and Education
pISSN- 2348 4438 | eISSN-2349- 3208
Published by Association for Scientific and Medical Education (ASME)
Int.J.Med.Sci.Educ. July-Sept. 2019; 6(3):87-90
Available Online at www.ijmse.com
Original Research Article

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICES OF BIOMEDICAL WASTE MANAGEMENT AMONG NURSING STAFF OF HOSPITALS OF RAJSAMAND DISTRICT, RAJASTHAN

Dr Neeta Mishra[1], Dr Dilip Kumar L[2*], Dr. Sanjeev Kumar Sharma[3]

1. Assistant professor, Department of Community Medicine, Ananta Institute of Medical Sciences and Research Centre, Rajsamand, Rajasthan, 2. Associate Professor, Department of Community Medicine, Pacific Institute of Medical Sciences, Umarda, Udaipur, 3. Block Chief Medical Officer, Department of Medical and Health, Govt.of Rajasthan, Banera, Bhilwara, India

*Corresponding author – **Dr. Dilip Kumar L**
Email id – dilippareek27@gmail.com

Received:10/06/2019 ***Revised:15/09/2019*** ***Accepted:28/09/2019***

ABSTRACT

Background: Biomedical waste defined as any waste which is generated during the diagnosing, treating, and surgical intervention and immunizing and also conducting research activities on humans as well as on animals. Health care facilities are aimed to provide health care services to the general population to remove potential health hazards to people. **Material & Methods:** The present observational, prospective and cross-sectional study was conducted at the Department of Community Medicine of our medical college and hospital. The study duration was of six months, from May 2017 to October 2017. We include the nursing staff of our medical college along with two other hospitals of Rajsamand district, Rajasthan in the present study. Clearance from Institutional Ethics Committee was taken before the start of the study. **Results:** In the knowledge domain 51% of study participants answered Correct response on color-coded bags with respective waste and 77% of study participants answered Correct response on knowledge about colour coded bags. In the attitude domain, 94% of study participants had a positive attitude towards bio-medical waste (BMW) management categorization needs and 96% of study participants had a positive attitude towards bio-medical waste management necessary and reduction of health hazard. In the practice domain, 62% of study participants show a positive response towards disinfecting bio-medical waste (BMW) and 70% of study participants had a positive response towards the bio-medical waste treatment. **Conclusion:** We concluded from the present study that nursing staff had good knowledge and had a positive attitude towards biomedical waste management and positive findings towards practices related to BMW. However there still a knowledge attitude and practice gap exit. Therefore, the training programs for the nursing staff should be necessary to reduce this KAP gap related to biomedical waste management.

Keywords: Bio-medical waste management, knowledge, attitude, practice.

INTRODUCTION

Biomedical waste defined as any waste which is generated during the diagnosing, treating, and surgical intervention and immunizing and also conducting research activities on humans as well as on animals. Health care facilities are aimed to provide quality health care services to the general population and to remove potential health hazards of people **(1)**. During the processes of health care methods in health care facilities various wastes are generated, these wastes are hazardous to the general population. If these health care facilities generated waste (Biomedical waste) is handled poorly, it can be a potential health hazard for not only the general population but also to the health care providers,

doctors, nurses and all other health care and other hospital staff which are exposed to these biomedical wastes. Apart from humans, these biomedical wastes are highly hazardous to the environment, water bodies, groundwater, air and community, and animals. Some previous studies reported that developed countries generate more biomedical waste than developing and underdeveloped countries **(2)**.

Various studies reported that out of total waste generated in the health care facilities 90-85% volume of that waste is non-infectious or no hazardous. It means only 10-15% of the total waste generated in the health care facilities is infectious or hazardous which includes toxic or radioactive waste also. Therefore, the first and most important step of biomedical waste management should be the segregation of the total waste generated in the health care facilities. By the proper segregation of waste, we can reduce the volume of infectious waste from 100% to 15% by interrupting the mixing of non-hazardous waste to infectious or hazardous waste **(3)**. Hence, we have new guidelines for biomedical waste which allow us to segregate the total waste generated in the health care facilities in different colour coded bins, containers, and bags. In the disposal of total waste generated in the health care facilities, we use only non-chlorinated bags for safer disposal in the environment **(4)**. Workers who are engaged in the laundries, transportation of the waste and workers at the landfilling site are also at risk for hazardous exposure of biomedical waste. We conduct the present study to assess the knowledge, attitude, and practices of biomedical waste management among nursing staff of Rajsamand district, Rajasthan.

MATERIALS & METHODS

The present observational, prospective and cross-sectional study was conducted at the Department of Community Medicine of our medical college and hospital. The study duration was of six months, from May 2017 to October 2017. We included the nursing staff of our medical college along with two other hospitals of Rajsamand district, Rajasthan in the present study. We enrolled study participants by the simple random sampling up to the study sample size of 100 participants calculated by epi info software at a 95% confidence interval and 10% acceptable margin of error. Clearance from Institutional Ethics Committee was taken before the start of the study and written informed consent for the study purpose was obtained from all the enrolled participants.

The study was performed by using pretested and semi-structured proforma. The data collected from each study participants includes details of all the various demographic variables and details regarding knowledge, attitude, and practices for biomedical waste handling and its management. Knowledge, attitude, and practices were evaluated on correct and wrong responses. Data were entered in the MS office 2010 spreadsheet and Epi Info v7. Data analysis was carried out using SPSS v22. Qualitative data were expressed as the percentage (%) and Pearson's chi-square test was used to find out statistical differences between the study groups. If the expected cell count was < 5 in more than 20% of the cells then Fisher's exact test was used. All tests were done at alpha (level significance) of 5%; means a significant association present if the p-value was less than 0.05.

RESULTS

In the present study, a total of 100 nursing staff were enrolled after taking informed written consent, who were nursing staff of our medical college along with two other hospitals of Rajsamand district, Rajasthan. Out of the total study participants, 58% were males and 42% were females. The age group of study participants was ranged from 23 years to 27 years with a mean age group of 24.8 ± 1.2 years. Among the total study participants, on the assessment of knowledge we found that 76% of study participants had knowledge about disease occurring from biomedical wastes, 77% study participants had knowledge about colour coding of BMW bags, 70% study participants had knowledge about steps of disposal of biomedical waste and 73% study participants had knowledge about biohazard symbol. (Table 1)

Table 1: Distribution according to the knowledge of study participants.

Knowledge	No. of participants (%)
Diseases from BMW	76
Colour coded bags	77
Steps of disposal	70
Biohazard symbol	73

In the present study among the total study participants on the application of knowledge, attitude and practice domains we found that after

analysis that in the knowledge domain 51% of study participants answered correct response on colour coded bags with respective waste and 77% of study participants answered correct response on knowledge about colour coded bags. In the attitude domain, 94% of study participants had a positive attitude towards bio-medical waste (BMW) management categorization needs and 96% of study participants had a positive attitude towards bio-medical waste management necessary and reduction of health hazard. In the practice domain, 62% of study participants show a positive response towards disinfecting bio-medical waste (BMW) and 70% of study participants had a positive response towards the bio-medical waste treatment. (Table 2)

Table 2: Distribution according to knowledge, attitude and practice correct response.

Question	Related domain	Answered correctly by (%)
A correct response on colour coded bags with respective waste.	Knowledge	51
Knowledge about colour coded bags.	Knowledge	77
The attitude of the nursing staff on bio-medical waste (BMW) management categorization need.	Attitude	94
BMW management necessary and reduction of health hazard	Attitude	96
Disinfecting BMW.	Practice	62
BMW treatment	Practice	70

DISCUSSION

In the present study, a total of 100 nursing staff were enrolled in our medical college along with two other hospitals in Rajsamand district, Rajasthan. Out of the total study participants, 58% were males and 42% were females. The age group of study participants was ranged from 23 years to 27 years with a mean age group of 24.8 ± 1.2 years. Among the total study participants, on the assessment of knowledge we found that 76% of study participants had knowledge about disease occurring from biomedical wastes, 77% study participants had knowledge about colour coding of BMW bags, 70% study participants had knowledge about steps of disposal of biomedical waste and 73% study participants had knowledge about biohazard symbol. Similar results are found in a study conducted by Kaviraj Motakpalli et al among the students of nursing in their study and found nearly similar results to the present study. They reported higher knowledge ranging from 77% - 97% on the biomedical waste management and also were higher attitude and practice response **(5)**. Similar results are found in a study conducted by Prachi Priya et al among the students of interns of the medical college in their study and found nearly similar results to the present study. They reported higher knowledge ranging from 86% - 94% on biomedical waste management and also higher attitude and practice response **(6)**.

In the present study among the total study participants on the application of knowledge, attitude and practice domains we found that after analysis that in the knowledge domain 51% of study participants answered correct response on colour coded bags with respective waste and 77% of study participants answered correct response on knowledge about colour coded bags. In the attitude domain, 94% of study participants had a positive attitude towards bio-medical waste (BMW) management categorization needs and 96% of study participants had a positive attitude towards bio-medical waste management necessary and reduction of health hazard. In the practice domain, 62% of study participants show a positive response towards disinfecting bio-medical waste (BMW) and 70% of study participants had a positive response towards the bio-medical waste treatment. Similar results are found in a study conducted by Aastha Pandey et al among the students of interns of the medical college in their study and found nearly similar results to the present study. They reported higher knowledge ranging from 68% - 94% on biomedical waste management and also higher attitude and practice response **(7)**.

Contrary results were found in a study conducted by S Shah et al among the students of interns of the medical college in their study and found nearly contrary results to the present study. They reported poor knowledge of intern doctors on biomedical waste management and also poor attitude and practice response **(8)**. Contrary results were found in a study conducted by Kirti Deshpande et al among the health care staff of tertiary care centre in their

study and found nearly contrary results to the present study. They reported poor knowledge of health care staff of tertiary care centre on the biomedical waste management and also poor attitude and practice response **(9)**.

CONCLUSION

We concluded from the present study that nursing staff of our medical college along with two other hospitals of Rajsamand district, Rajasthan had good knowledge and had a positive attitude towards biomedical waste management and positive findings towards practices related to BMW. However, there is still a knowledge attitude and practice gap exit. Therefore, the training programs for the nursing staff should be necessary to reduce this KAP gap related to biomedical waste management.

REFERENCES

1. Deress T, Jemal M, Girma M, Adane K. Knowledge, attitude, and practice of waste handlers about medical waste management in Debre Markos town healthcare facilities, northwest Ethiopia. BMC Res Notes [Internet]. 2019 Dec 15;12(1):146. Available from: https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-019-4174-7
2. Tadesse ML, Kumie A. Healthcare waste generation and management practice in government health centers of Addis Ababa, Ethiopia. BMC Public Health. 2014;14(1).
3. Deress T, Hassen F, Adane K, Tsegaye A. Assessment of Knowledge, Attitude, and Practice about Biomedical Waste Management and Associated Factors among the Healthcare Professionals at Debre Markos Town Healthcare Facilities, Northwest Ethiopia. J Environ Public Health. 2018;2018.
4. Haylamicheal ID, Dalvie MA, Yirsaw BD, Zegeye HA. Assessing the management of healthcare waste in Hawassa city, Ethiopia. Waste Manag Res. 2011 Aug;29(8):854–62.
5. Amrutha Swati Indupalli KMPAGNAB. Knowledge, Attitude & Practices regarding Biomedical Waste Management amongst Nursing Staff of Khaja Banda Nawaz Institute of Medical Sciences, Kalburgi, Karnataka -. Natl J Community Med. 2015;6(4):562–5.
6. Priya P, Dixit UR. Knowledge, attitude and practices of biomedical waste management among interns of SDMCMSH, Dharwad. Int J Community Med Public Heal [Internet]. 2019 Oct 24;6(11):4736. Available from: https://www.ijcmph.com/index.php/ijcmph/article/view/4727
7. Pandey A, Dardi CK. KAP study on bio-medical waste management among interns in a tertiary care hospital in Maharashtra. Int J Community Med Public Heal. 2017 Oct 25;4(11):4174.
8. Shah M., Mullan S. Assessment of knowledge, attitude and practices regarding biomedical waste management amongst Intern Doctors in New Civil hospital, Surat. Int J Biomed Res. 2017;8(03):125–7.
9. Anand Rajput KDSVCSM. Is Biomedical Waste Management Knowledge Adequate in Paramedics & Sanitary Workers in Hospitals of Ujjain City. Natl J Community Med. 2016;7(3):151–4.

How to cite this article: Mishra N., Kumar DL., Sharma SK. Assessment of knowledge, attitude, and practices of biomedical waste management among nursing staff of hospitals of Rajsamand district Rajasthan. Int.J.Med.Sci.Educ 2019;6(3):87-90