

Knowledge, Attitude, Practices of Biomedical Waste Management among Nursing Students and Staff in a Tertiary Care Hospital.

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ABSTRACT

Background: Bio Medical Waste Management works for effective reduction of waste volume, proper collection, segregation, transport and economical disposal of waste to prevent harm resulting from it, retrieve reusable materials. As nursing staff is the backbone of BMW management, here in this study we have tried to know the Knowledge, attitude, practices about BMW among nursing students. **Methods:** Total 147 nursing students were selected randomly, a structured valid questionnaire of Bio Medical Waste related framed by us were distributed to them. The respondents were asked to return the questionnaire immediately after answering. All the results were entered into spread excel sheet and analyzed. Results were expressed as number, percentages. **Results:** Third year students answered better than first year and second year students towards KAP of Bio Medical Waste management. Out of 54 third year students, 88.8% gave correct answers to knowledge questionnaire, 79.6% and 74% responded well to attitude and practice questionnaire. Out of 147 nursing students, 14.2% of first year, 21.7% of second year, 32.6% of third year students gave correct answers to knowledge questionnaire. **Conclusion:** It was observed that higher education and clinical rounds are needed for nursing students to increase the knowledge of bio medical waste management activities. Also very important to Create awareness and enough cognizant regarding bio medical waste management to nursing students who are going to manage bio medical waste in near future as nursing staff.

Keywords: Bio Medical Waste Management, Nursing Students, Questionnaire.

INTRODUCTION

Bio Medical Waste is more dangerous which contains infectious or other hazardous materials, unless carefully managed, if not can cause serious pollution to soil, water and air. Any waste generated in hospitals, clinics, laboratories or similar establishments during healthcare, research, testing or related procedures on human beings or animals conducted.

Medical Waste Management rules has promulgated by Government of India in 1998 and was came into effect from January 2003. The rules are about to guide others regarding collection, segregation and proper disposal of waste. The amount Bio Medical Waste production ranges from 1-2 kg/bed/day in developing countries,^[1] which is as high as 4.5kg in developed countries.^[2] 10-25% is estimated to be hazardous waste which has potential to injure, infect or harm to patients, visitors, health care personnel and to the public,^[1] which is more dangerous than other type of wastes.^[3] Hazards results by Bio medical waste are environmental burden and the another important risk is problems encountered by individuals who handles the waste.^[4]

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The objectives of Bio Medical Waste Management are to effective reduction of waste volume, proper collection, segregation, transport and economical disposal of waste to prevent harm resulting from it, retrieve reusable materials.^[5]

In hospital settings main concern is about Bio Medical Waste Management, so healthcare personnel should stuck to the rules related to management of Biomedical waste. Nurses and Sanitary staff are mostly involved in activities related to Bio Medical Waste management such as collection, segregation, transport and proper disposal.

As nursing staff is the backbone of BMW management, here in this study we have tried to know the Knowledge, attitude, practices about BMW among nursing students.

MATERIALS AND METHODS

After Institutional ethical committee approval, a prospective cross sectional study was undertaken at the Department of Community Medicine, Government Medical College and Hospital, Ananthapuram for a period of two years (2014 & 2015).

In the present study to assess the knowledge, attitude and practice of Biomedical Waste management, nursing students were selected, as the nursing staff are more involved in direct patient care, manages various healthcare activities and also responsible for proper disposal of Biomedical waste into various color code bags.

Three batches of first year, second year and third year nursing students were selected. Prior to the study, just before distributing questionnaire to them. Purpose of the study and knowledge, attitude, practice questionnaire were explained to all selected nursing staff.

Total 147 nursing students were selected randomly, a structured valid questionnaire of Bio Medical Waste related framed by us were distributed to them. A small pilot study was conducted among residents before doing the present study to assess the reliability of questionnaire. Bio Medical Waste Management Structured questionnaire as follows:

Knowledge Questionnaire

1. Is there any Existence of rules/Act for Bio Medical Waste Management?
2. Is Color coding available for BMW?
3. Disposal of Anatomical waste into which color bag?
4. Sharps disposal has to be in which color bag?
5. What is meant by Incinerator?
6. Upto which level the bag has to fill?
7. Personal Protective Equipment includes?
8. Percentage of Infectious waste in hospitals?
9. Is it necessary to have Biohazard symbol on BMW bag?

Attitude Questionnaire

1. Is there any necessity of BMW management rules?
2. Do you feel that BMW management is compulsorily needed for healthcare delivery?
3. How often do you recommend BMW management at your in-charge wards?
4. Do you follow color coding for waste disposal
5. Will you advice your subordinates to follow color coding for waste disposal?
6. Will you inform to sanitary staff to transport waste once bag is full?
7. Do you think your knowledge regarding BMW management is adequate?
8. Do you think any further training required on biomedical waste management?

9. Do you suggest segregation of waste?

Practice Questionnaire

1. Soiled linen should keep in which color bag?
2. Are you using PPE while handling linen?
3. Are you practicing hand hygiene in between every activity?
4. Are you using sharps destructor/sharp destroyer?
5. Are there color code bags for waste disposal?
6. Will you inform to sanitary staff once the BMW bag is full?
7. Non-infectious waste should put in which color code?
8. Are you practicing the segregation of infectious waste and Non-infectious waste?
9. All domestic and Kitchen waste should dump into which bag?

The questionnaires were distributed to all nursing students to answer within the stipulated time. The respondents were asked to return the questionnaire immediately. All the results were entered into spread excel sheet and analyzed. Results were expressed as number, percentages.

RESULTS

A total of 147 nursing students were selected including 44 first year, 49 second year and 54 third year nursing students. Knowledge, attitude and practice of management of biomedical waste was assessed among all three batches of nursing students. Positive answers to structured questionnaire gave by nursing students were tabulated in Table1. Third year students answered better than first year and second year students towards KAP of Bio Medical Waste management. Out of 54 third year students, 88.8% gave correct answers to knowledge questionnaire, 79.6% and 74% responded well to attitude and practice questionnaire.

Table 1: Response by nursing students towards KAP of Bio Medical Waste management.

Bio Medical Waste Management	First Year students		Second Year students		Third year students	
Knowledge	21	47.7 %	32	65.3 %	48	88.8 %
Attitude	10	22.7 %	25	51%	43	79.6 %
Practice	6	13.6 %	18	36.7 %	40	74%

All nursing students in different classes shown decrease in practices when compared to attitude and knowledge. As shown in [Figure 1] first year nursing students have poor KAP. Out of 147 nursing students, 14.2% of first year, 21.7% of second year,

32.6% of third year students gave correct answers to knowledge questionnaire.

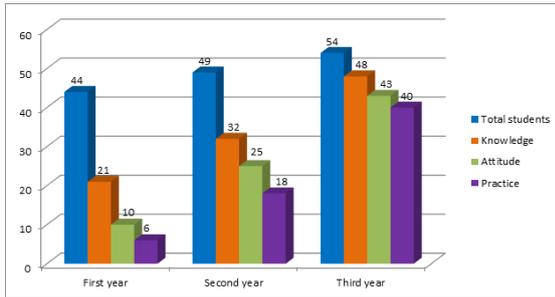


Figure 1: Showing KAP against Bio Medical waste management.

Response given by respondents to KAP questionnaire, were graded into High, intermediate and low. Response of Knowledge and attitude related to Biomedical waste management were observed better among third year nursing students when compared to first and second years students. Response to practice questionnaire was better among both third and second year students, were 65% and 66.6% respectively [Table 2]. It was observed that higher education and clinical rounds for nursing students increase the awareness of bio medical waste management activities.

Table 2: Assessment of different grades of KAP among respondents.

Grade of KAP	First Year Nursing students		Second Year Nursing students		Third Year Nursing students	
	No. of nursing students	Percentage (%)	No. of nursing students	Percentage (%)	No. of nursing students	Percentage (%)
Knowledge						
Low	14	66.6	7	22.5	4	8.3
Intermediate	5	23.8	13	40.6	10	20.8
High	2	9.5	12	37.5	34	70.8
Attitude						
Low	6	60	5	20	8	18.6
Intermediate	3	30	12	48	14	32.5
High	1	10	8	32	21	48.8
Practice						
Low	4	66.6	2	11.1	6	15
Intermediate	1	16.6	4	22.2	8	20
High	1	16.6	12	66.6	26	65

DISCUSSION

This study has undertaken mainly to assess the awareness about various aspects of biomedical waste management like knowledge, attitude and practices of disposal. Majority of doctors, residents, staff nurses are aware of bio medical waste management

and its dire consequences resulted by improper disposal.

Nursing staff manages the most work of the activities related with biomedical waste management. Nurses are working heavily in various high pressure departments such as operation theatres, emergency, ICU's. They have to work deliberately in wards, where there will be much work and less staff. Frankly speaking nursing staff is the backbone for biomedical waste management, they have to give advice, scrutinize the work does by sanitary staff related to bio medical waste segregation, collection and transport.

In the present study, Out of 54 third year students, 88.8% gave correct answers to knowledge questionnaire, 79.6% and 74% responded well to attitude and practice questionnaire. Out of 147 nursing students, 14.2% of first year, 21.7% of second year, 32.6% of third year students gave correct answers to knowledge questionnaire. Response of Knowledge and attitude related to Biomedical waste management were observed better among third year nursing students when compared to first and second years students. Response to practice questionnaire was better among both third and second year students, were 65% and 66.6% respectively.

66% of the students did not participate in segregation and recycling of solid waste as reported by Ehrampoush et al Singh Ajai et al observed 71.4% of nursing staff were practicing the do and do not of BMW management and also reported that 65% of nurses were practicing more than 70% of the correct practices as per their hospital norms.^[6,7] Shamim Haider et al did a study of KAP regarding Bio Medical waste management on nursing students and staff nurses,^[8] observed that knowledge related to BMW management was better among nursing students (65%) than staff nurses (33.3%) and practice activities was better among staff nurses (40%) when compared to nursing students(30%).

Necessary to educate health care personnel regarding activities of BMW management. Many of the studies reported that healthcare personnel have knowledge regarding BMW management but it has not put being practiced.^[9] Few literatures mentioned that knowledge of BMW management among students is not appropriate.^[6] Correlation exist between activities of BMW management and students knowledge.^[10] It is very important to improve the skills, attitude of Bio medical waste management and encourage students to put into practice.

CONCLUSION

Third year students answered better than first year and second year students towards KAP of Bio Medical Waste management. It was observed that higher education and clinical rounds are needed for nursing students to increase the knowledge of bio

medical waste management activities. Also very important to Create awareness and enough cognizant regarding bio medical waste management to nursing students who are going to manage bio medical waste in near future as nursing staff.

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