

Original Research Article

Knowledge on Biomedical Waste Management among Nurses Working in Hospital at Madurai

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ABSTRACT

Good health depends in part on a safe environment. Practices or techniques that control or prevent transmission of infection help to protect clients and health care workers from disease. A descriptive study was planned to evaluate the level of knowledge regarding Biomedical Waste Management among nurses in Christian Mission Hospitals at Madurai. Research design was non experimental descriptive design. Convenience sampling technique was used to select the samples and 30 were selected. The data was collected based on the structured knowledge questionnaire on biomedical waste management. Analysis of the data was done by employing descriptive and inferential statistics. The findings revealed that, among 30 nurses 23 (77%) had adequate knowledge, 7 (23%) had moderate adequate knowledge and none of them had inadequate knowledge.

Key word: Biomedical, Biomedical waste, Nurses knowledge, and Hospital infection.

INTRODUCTION

Good health depends in part on a safe environment. ^[1] Practices or techniques that control or prevent transmission of infection help to protect clients and health care workers from disease. Clients in all health care settings are at risk for acquiring infections. The last decade witnessed a significant increase of public concern regarding biomedical waste disposal. ^[2] This was fuelled by the reports of “beach washing” of medical waste on the coasts of Florida and gulf, and the “recycling” of disposal articles in developing countries. The reports and figures available from developed countries indicate that approximately 1-5 kg of waste is generated per bed per day in developing countries. ^[3] In India it is estimated to be 2.0 kg per bed per day. ^[4] The concern regarding the medical waste is mainly due to the presence of pathogenic organisms and organic substances in hospital solid wastes in

significantly high in concentration. ^[5-7] Improper hospital waste management has serious impact on our environment. ^[8] Apart from the risk of water, air and soil pollution, it has considerable impact on human health. ^[9] According to the WHO report around 85% of the hospital wastes are actually non-hazardous, 10% are infective and the remaining 5% is non-infectious but hazardous (chemical), pharmaceutical and radioactive. ^[10]

The lack of awareness and technical guidance in the management of the bio medical waste has led to the hospital becoming a hub in spreading diseases rather than working towards eradicating them. ^[11,12] The regular training programme about efficient management of bio medical waste is necessary to improve the present situation. ^[13] Hospital waste management has been brought into focus in India recently, particularly with the notification of the bio medical waste (management and

handling) rules 1998. The rule makes it mandatory for the health care establishments to segregate, disinfect and dispose their waste in an eco-friendly manner. [14]

There is a need for improved knowledge for nursing personnel regarding bio medical waste management in hospital in order to safeguard their own health as well as the protection of patients. [15] The government of India is also now planned to upscale the implementation of bio medical waste management in all government hospital in all districts of Tamil Nadu. [16]

Therefore the researcher felt the need to undertake this study with aim of to assess the knowledge of nursing personnel regarding bio medical waste management.

MATERIALS AND METHODS

The descriptive study was conducted with convenience sample of 30 staff nurses working at CSI Christian Mission hospital, Madurai.

Semi-Structure Interview: The semi-structured questionnaire was prepared for interviewing the participant. It contains about the demographic profile such as age

in years, religion, family income per month, type of family, marital status, previous exposure to education regarding Bio Medical Waste Management and the source of information on Bio Medical Waste Management.

Knowledge on Bio-Medical waste: A well-structured questionnaire with answer in multi choice format which consists of 30 questions regarding the knowledge on Bio Medical Waste Management. The multiple choice questions has one right answer, which was allotted a score of “one” for every right answer and do not know answer was given the score of “zero”. The total attainable score in the knowledge questionnaire was 30. The knowledge score was classified as follows; 0-50% - Inadequate knowledge, 51-75% - Moderate knowledge and 76-100% - Adequate knowledge.

Procedure: The data analysis was done by using descriptive and inferential statistical methods. Ethical clearance was obtained from Institutional research and ethical committee of the C.S.I Jeyaraj Annapackiam College of Nursing in Madurai.

RESULTS

Table 1: Demographic profile of 30 staff nurse

Demographical Variables	Frequency	Percentage
Qualification		
a). A.N.M	1	3.33
b). G.N.M	13	43.33
c). B.Sc. (N)	15	50
d). M.Sc. (N)	1	3.33
Total years of experience		
a). 0-5 years	23	76.67
b). 6-10 years	1	3.33
c). 10 years	1	3.33
d). >10 years	5	16.67
Source of information about bio-medical waste management		
a). Education in nursing	21	70
b). Attended workshop/conference	1	3.33
c). Teaching by senior staff/colleagues	6	20
d). Mass media	2	6.67
Availability of needle burner		
a). Yes	19	63.33
b). No	11	36.67
Ward		
a). AB ward	6	20
b). ICCU	4	13.33
c). Causality	3	10
d). NICU & Paediatric	5	16.67
e). Post-Operative ward	3	10
f). C & D Ward	6	20
g). Geriatric	2	6.67
i). General	1	3.33

Table-1 revealed that among 30 samples the majority 15 (50%) were under the qualification of B.SC (N). with regard to total years of experience the majority 23 (76.67%) were fall in 0-5 years of experience. With regard to source of information about bio medical waste management the majority 21 (70%) got information through nursing education. With regard to availability of needle burner the majority 19 (63.33%) were having needle burner. With regard to Ward the

majority 6 (20%) were from A & B and C & D ward.

Table 2: Data on distribution of knowledge level regarding biomedical waste management among nurses.

Knowledge on biomedical waste	Score
Adequate Knowledge	77%
Moderately Adequate Knowledge	23%
Inadequate Knowledge	0%

The study findings revealed that among 30 nurses 23 (77%) had adequate knowledge, 7 (23%) had moderate adequate knowledge and none of them had inadequate knowledge.

Table 3: Association between the levels of knowledge on biomedical waste management with selected demographic variables

Status	Adequate Knowledge	Moderately Knowledge	Total
Qualification			
a). A.N.M	0	1	1
b). G.N.M	1	12	13
c). B.Sc (N)	5	10	15
d). M.Sc (N)	1	0	1
Total years of experience			
a). 0-5 years	6	17	23
b). 6-10 years	1	0	1
c). 10 years	0	1	1
d). >10 years	0	5	5
Source of information about bio-medical waste management			
a). Education in nursing	6	15	21
b). Attended workshop/conference	0	1	1
c). Teaching by senior staff/colleagues	1	5	6
d). Mass media	0	2	2
Availability of needle burner			
Yes	5	14	19
No	2	9	11
Ward			
a). AB ward	0	6	6
b). ICCU	3	1	4
c). Causality	1	2	3
d). NICU & Paediatric	2	3	5
e). Post-Operative ward	0	3	3
f). C & D Ward	0	6	6
g). Geriatric	0	2	2
h). General	1	0	1

Table-3 revealed that there is no significant association between the levels of knowledge regarding biomedical waste management with selected demographic variables.

DISCUSSION

This study has done to evaluate the knowledge on biomedical waste management among the nurses who are working in a mission hospital, Madurai. Since nurses, handle healthcare wastes at a major level, and this study mainly focussed to assess the knowledge and to recommend necessary implication programme needed on biomedical waste management in hospital.

The Biomedical waste management rules, 1998 formulated by the Indian Government has given regulations about the handling, storage, transportation and final disposal of the healthcare wastes. [17]

This study found that 77% nurses had adequate knowledge on biomedical waste management. Similar a study conducted by Gupta et.al found that the knowledge of nursing staff was appreciable (70%). [18] Also nurses from rural area of Haryana staff had 73% knowledge and awareness on biomedical waste management (Verma *et al.*, 2014). [19]

Most of the nurses (70%) got information about biomedical waste

management from their nursing education, and 20% of nurses got information through their senior staff and colleagues. Mohapatra et.al (2012) done a study about waste management among doctors showed the necessity of having a balance between effective practical training and theoretical aptitude building among the medical group. [20] Periodical education and training must need to get updated knowledge on biomedical waste management not only to the nurses, need to all the health care workers.

The findings of the study would help the nurse practitioner to develop a new vision in control of infection through proper segregation of hospital waste and control of infections and injuries related to that. The findings of the study recommended the educationalists at various institutions to emphasize the importance of proper segregation of biomedical waste in hospitals to control infections. The nursing students can be provided with opportunities to implement during their clinical exposure. The nurse as an administrator can organize and conduct various training programs on Bio medical waste management to nurses and fourth class workers, which will enhance their knowledge and keep them aware of proper segregation of waste in the respective areas.

CONCLUSION

Hence, the need of comprehensive training programs regarding handling, segregation, transportation & storage of waste in colour bins until final disposal and treatment for all hospital staff is highly recommended to deal with this burning issue of bio-medical waste management.

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