

A STUDY TO ASSESS THE KNOWLEDGE LEVEL REGARDING BIOMEDICAL WASTE MANAGEMENT AMONG STAFF NURSES IN A SELECTED HOSPITAL OF AGARTALA, WITH A VIEW TO ADMINISTER PAMPHLET- (A PILOT STUDY)

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Abstract

All human activities produce waste. Such waste may be dangerous and needs safe disposal. Biomedical waste is the infectious waste generated from hospitals. Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment. A descriptive survey was adopted to assess the knowledge level regarding biomedical waste management among staff nurses in a selected hospital of Agartala, with a view to administer pamphlet. The objectives of the study were to identify the demographic data among staff nurses in a selected hospital of Agartala, to assess the existing level of knowledge regarding Biomedical waste Management among nursing staff nurses in a selected hospital of Agartala, to find out the association of level of knowledge with the selected sample characteristics and to administer pamphlet on biomedical waste management among staff nurses. 15 staff nurses were selected using convenient sampling for the pilot study. Data was collected using sample characteristics Performa and semi-structured knowledge questionnaire for 45 minutes. The conceptual frame work adopted for the study was based on Health Belief Model. The data were analysed using descriptive and inferential statistics There is a significance association found with the variables such as gender, marital status, educational status and religion at $p < 0.05$ level. In demographic variables such as age, length of service, biomedical waste management training, monthly income, previous place of residence and area of work the association was found to be not significant at $p < 0.05$ level. Following the study the investigator provided a pamphlet which will help the staff nurses to enhance their knowledge

Keywords: Assess, Knowledge, Biomedical waste Management, Staff nurses, Pamphlet.

INTRODUCTION

“Let the wastes of the sick not contaminate the lives of the healthy.”

- K. PARK.

Hospital waste refers to all waste, biologic or non-biologic that is discarded and not intended for further use. Medical waste is a subset of hospital waste; it refers to the material generated as a result of diagnosis, treatment or immunization of patients and associated biomedical research. Biomedical waste (BMW) is generated in hospitals, research institutions, health care teaching institutes, clinics, laboratories, blood banks, animal houses and veterinary institutes.

BACKGROUND OF THE STUDY

Biomedical waste is the infectious waste generated from hospitals. Improper management of waste

generated in health care facilities causes a direct health impact on the community, the health care workers and on the environment. The waste generated in these institutions essentially consists of solids and liquid, which may be hazardous, infectious and non-infectious. It has been estimated that up to 85% to 90% of the waste generated in hospitals is non-infectious (free with any body fluids, which is similar to domestic waste). It is the remaining 10% to 20% of waste that is of concern because it is hazardous and infectious. In addition, waste that is un-segregated and not treated in the right manner would cause environmental pollution affecting the health of the community. From waste audits done at several hospitals by a few NGOs, arrived at some figures, which can now be used and extrapolated for the whole country. These audits must be conducted only after adequate training on waste segregation is given to health care institutions.

Safe and effective management of waste is not only a legal necessity but also a social responsibility. Lack of concern, motivation, awareness and cost factor are some of the problems faced in the proper hospital waste management. Clearly there is a need for education as to the hazards associated with improper waste disposal. Lack of apathy to the concept of waste management is a major stymie to the practice of waste disposal. An effective communication strategy is imperative keeping in view the low awareness level among different category of staff in the health care establishments regarding biomedical waste management.²

OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To identify the demographic data among staff nurses in a selected hospital of Agartala.
2. To assess the existing level of knowledge regarding Biomedical waste Management among nursing staff nurses in a selected hospital of Agartala.
3. To find out the association of level of knowledge with the selected sample characteristics.
4. To administer pamphlet on biomedical waste management among staff nurses.

ASSUMPTIONS

1. Adequate knowledge is a sound basis of nursing practice.
2. The staff nurses may not have adequate knowledge on biomedical waste management.
3. Administration of pamphlet may enhance the knowledge regarding biomedical waste management.
4. Staff nurses will cooperate and follow the instructions while administering pamphlet.

OPERATIONAL DEFINITION

Assess

In this study, it refers to determining the responses of the staff nurses regarding biomedical waste management.

Knowledge

In this study, it refers to the understanding and awareness of staff nurses regarding biomedical waste management.

Biomedical waste

In this study, it refers to any waste which is generated during diagnosis, treatment or immunization of human beings and research activities.

Management

In this study it refers to the measures adopted like segregation, containment, colour coding, storage, transportation and final disposal of biomedical waste by the staff nurses.

Staff nurses

In this study, it refers to registered nurses working in the selected hospital who have a diploma or basic degree in nursing as prescribed by INC.

Pamphlet

In this study, it refers to a leaflet containing information regarding biomedical waste management.

CONCEPTUAL FRAMEWORK

The conceptual framework for this study is based on Health belief model. The health belief model was one of the first, and remains one of the best-known social cognition models. It is a health behaviour change and psychological model developed by Irwin M. Rosenstock in 1966 for studying and promoting the uptake of health services. This model was spelled out in terms of four constructs representing the perceived threat and net benefits: perceived susceptibility, perceived severity, perceived benefits, perceived barriers. These concepts were proposed as accounting for people's "readiness to act."

METHODOLOGY

Research Approach: A quantitative research approach was used for the study.

Research Design: Descriptive survey design.

Variables: Variable is an attribute of a person or object that varies, that is taken on different values (e.g. body temperature, age heart rate). Variable as the name implies, is something that varies. (Polit, 1999). The variables in this study are:

Research Variable:- Knowledge level regarding Biomedical waste management.

Demographic variables: - Age, Gender, Marital status, Educational status, Religion, Length of service, Biomedical waste management training, Monthly income, Previous place of residence, Area of work(Ward).

Setting of the Study: I.G.M Hospital (Old block), Agartala, Tripura.

Sample: Staff nurses working in I.G.M Hospital.

Sample Size: In this study investigator selected 15 staff nurses for this pilot study.

Sampling Technique: In this study the investigator used convenient sampling technique to draw the samples.

Inclusion Criteria:

- All the staff nurses who were available and willing to participate.
- All the staff nurses having diploma or basic degree in B.Sc Nursing.
- All the higher secondary students who understood English.

Exclusion Criteria:

- Staff nurses with M.Sc Nursing degree and above.
- Community health nurses.

Description of the tool

An extensive review of research and non-research literature was done. Guidance from experts having professional experience in the field, peer group discussion were done. Establishment of content validity, pretesting of the tool, checking reliability of the tool were taken into consideration. Data collection tools are as follows:-

1. Section A: Sample characteristics performa.
2. Section B: Structured Knowledge Questionnaire regarding biomedical waste management.

In the present study the following tools were used:

Tool 1: Sample characteristics performa.

It consisted of 10 items specifying Age, Gender, Marital status, Educational status, Religion, Length of service, Biomedical waste management training, Monthly income, Previous place of residence, Area of work(Ward).

Tool 2: Semi structured Knowledge Questionnaire regarding biomedical waste management. It consisted of 26 items, 9 specifying knowledge regarding biomedical waste generation, 10 regarding biomedical waste management, and 7 regarding biomedical waste Transportation.

Development of the Tool

The following steps were carried out in preparing the tool:

- a. Preparation of Socio demographic data.
- b. Preparation of Perceived stress scale and Brief coping scale
- c. Consultation with subject expert, Psychologist.
- d. Establishment of validity and reliability.

ETHICAL CONSIDERATION

The permission to conduct the study in the staff nurses were taken from the Medical Superintendent of I.G.M Hospital. The purpose of the study was explained and informed consent was taken from the participants before the collection of data The participants included in the study were safe from physical harms, risks, psychological and social distress or discomfort. Anonymity and confidentiality of the participants was maintained. A written consent form was signed by all the participants. Thus, the study undertaken is ethically appropriate.

Procedure For Data Collection

Prior to data collection, permission was obtained from the concerned authority followed by actual data collection. Filled-in questionnaire were collected from the subjects on the same day.

Plan For Data Analysis

The analysis has to be made based on the objectives. Descriptive statistics as well as inferential statistics were used for data analysis.

The analysis was made based on the objectives. Descriptive or summary statistics as well as inferential statistics were used for data analysis.

- The sample characteristics data were pictorially represented using bar diagram, pie diagram and cone diagram.
- Knowledge level regarding biomedical waste management were represented using frequency distribution table.
- The association between the demographic variable and knowledge level was analysed by chi-square (χ^2) test.

RESULTS

The obtained data were analyzed, tabulated and interpreted by employing descriptive statistics. The data have organized under following sections-

Section I: - Description of demographic variables .

Section II : - Findings related to knowledge level regarding Biomedical waste Management among nursing staff nurses .

Section III : - Findings related to the association of level of knowledge with the selected sample characteristics.

MAJOR FINDINGS OF THE STUDY

Section 1: Major findings regarding sample characteristics:

- Majority of staff nurses (46 %) are in the age group of 25-30 years.
- Majority of staff nurses (93.33%) are female.
- Majority of staff nurses (80 %) are married.
- Majority of staff nurses (86.67 %) are diploma in nursing.
- Majority of staff nurses (93.33 %) are Hindu.
- Majority of staff nurses (33.33%) have been working for 5-10 years.
- Majority of staff nurses (73 %) have got training in biomedical waste management.
- Majority of staff nurses (40%) have got salary between Rs/-25,000-40,000.
- Majority of staff nurses (53 %) are from rural area.
- Majority of staff nurses (40 %) works in medicine ward.

Section: 2 Finding regarding Knowledge level regarding biomedical waste management among staff members.

- 54% of staff nurses have poor knowledge and 46% of staff nurses have good knowledge on total biomedical waste management.
- 67% of staff nurses have good knowledge on total biomedical waste generation.
- 70% of staff nurses have poor knowledge on total biomedical waste management.
- 57% of staff nurses have poor knowledge on total biomedical waste transportation.

Section 3: Finding association between demographic data and knowledge level regarding biomedical waste management among staff nurses.

There is a significance association found with the variables such as gender, marital status, educational status and religion at $p < 0.05$ level. In demographic variables such as age, length of service, biomedical waste management training, monthly income, previous place of residence and area of work the association was found to be not significant at $p < 0.05$ level.

DISCUSSION

The present study aimed to identify sample characteristics, to assess the level of knowledge regarding biomedical waste management among staff nurses and to find out the association between and level of knowledge sample characteristics. The findings of the present study are discussed here with consistent and inconsistent supports from previous studies.

The first objective of the study was to identify the demographic data among staff nurses in a selected hospital of Agartala. The findings of the study were 46 % are in the age group of 25-30 years, 93.33% are female, 80 % are married, 86.67 % are diploma in nursing, 93.33 % are Hindu, 33.33% have been working for 5-10 years, 73 % have got training in biomedical waste management, 40% have got salary between Rs/-25,000-40,000, 53 % are from rural area, 40 % works in medicine ward. The findings of the study is consistent with the findings of another study Nagaraju B. et. al which are 29% of health care providers were in the age group of 29-30 years, 26% were between the age group of 31-40 years and 16% were 51 years and above. Majority of health care providers (64%) were females, 85% of health care providers were nurses. The study revealed that majority of health care providers 99(83%) did not have any in service education and 21(17%) had attended in management The study indicate that 39(33%) had 0-5 years of experience, 28(23%) had 6-10 years of experience, 18(15%) had 11-15 years of experience, and 35(29%) had ≥ 16 years of experience.

The findings of the study was inconsistent with the findings of study undertaken by Nagaraju B. et. al where he found majority of the respondents were male in the age group of 20-21 years.

The second objective of the study to assess the existing level of knowledge regarding Biomedical waste Management among nursing staff nurses in a selected hospital of Agartala. The findings of the study were 54% of staff nurses have poor knowledge and 46% of staff nurses have good knowledge on total biomedical waste management, 67% of staff nurses have good knowledge on total biomedical waste generation, 70% of staff nurses have poor knowledge on total biomedical waste management. 57% of staff nurses have poor knowledge on total biomedical waste transportation. The findings of the study is consistent with the findings of another study by Prabhakar U. Makhija N which showed that 66.6% of the staff nurses aware about the generation of bio medical waste , where as it contradicts the findings of 92.22% of the staff nurses aware about the transport. Wassen q.et al reported on positive response regarding the subject was 58% on knowledge awareness of biomedical waste management among the nursing staff of Government SMHS Hospital, The findings of the study is consistent with the findings of another study Nagaraju B. et. al are majority of the subjects 79(65%) had average knowledge regarding biomedical waste management.

The third objective of the study to find out the association between demographic data and knowledge level regarding biomedical waste management among staff nurses. There is a significance association found with the variables such as gender, marital status, educational status and religion at $p < 0.05$ level. In demographic variables such as age, length of service, biomedical waste management training, monthly income, previous place of residence and area of work the association was found to be not significant at $p < 0.05$ level.

The findings of the study is inconsistent with the findings of another study Nagaraju B. et. al are there is no significant association found between knowledge regarding biomedical waste management with

age, gender, education, designation and association with years of experience.

The findings of the study is consistent with the study finding of Vijamma Ajmera et.al. (2013) conducted a study on assessing the knowledge regarding biomedical waste management among B.Sc Nursing students of selected nursing which revealed that there is no significant association between knowledge scores and demographic variables other than gender, religion, educational status and marital status.

THE IMPLICATIONS OF THE STUDY IN NURSING:

The present study has several implications for Nursing Practice, Nursing Education, Nursing Administration and Nursing Research. Nurses should be encouraged to practice the proper way of biomedical waste management. The awareness of biomedical waste management through pamphlet can also help nurses in clinical practice as well as community. Nurses can help in strengthening the community support systems for preventing diseases and infection by proper segregation, management and disposal of biomedical waste. Nursing education plays a vital role in improving the health of the community by utilizing innovative approaches and evidence-based practice in health care. Findings of the present study depicts that there is increase need for awareness programme and periodical educational sessions by nurses for the other health seeker. This research has vital role for the nurse administrators. Findings of the present study help nurse administrators to organize continuing education programme for the medical surgical nurses and community health nurses to update the knowledge regarding biomedical waste management. nurse managers may also plan and organize group meetings, group discussions, health education, campaign etc. to impart the information to patients and their caregivers, the information can also be given to the general public so as to equip them with the accurate knowledge. Various research activities have to be under taken to know the hazards of improper biomedical waste management and its prevention among health care providers. The researcher provides information, which helps to focus on health hazards which based on nursing research.

LIMITATIONS

The limitations of the study were:

- The limited sample size restricts generalizations of the study findings.
- The study was confined only on the assessment of knowledge level regarding biomedical waste management before administration of pamphlet, however it does not specify the effect of pamphlet.

RECOMMENDATIONS

- i. On the basis of the findings, the following recommendations are given for future research:
- ii. This study can be replicated on larger samples, so that findings can be generalized to a larger population.
- iii. A similar study can be conducted with an experimental approach of pre-test post-test control group design.
- iv. A comparative study can be conducted to assess the knowledge regarding biomedical waste management among staff nurses and other health professionals.
- v. A longitudinal study can be undertaken for the same study subjects in order to find the knowledge regarding biomedical waste management after administration of pamphlet.

CONCLUSION

Based on the present study, it is clear that nurses have poor knowledge in some areas of biomedical waste management. The nurse spent maximum time with patients in the ward than any other member of the health care team, it increases their exposure and risk to the hazards present in the hospital environment mainly from biomedical waste. The improper management in biomedical waste causes environmental causes further polluting the air, water and land. Investigator experienced though there is an increased global awareness among nursing staffs about the hazards and also appropriate management techniques but the level of awareness in India is found to be unsatisfactory. So there is a need to update the nurses knowledge regarding biomedical waste management.

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