A Study to Assess the Effectiveness of Planned Teaching Program on Biomedical Waste Management among Staff Nurses

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Abstract

Background: Bio medical waste (BMW) collection and proper disposal has become a significant concern for both the medical and general community. Effective management of biomedical waste is not only a legal necessity but also a social responsibility. *Aims and Objectives:*The present experimental descriptive studywas conducted to "a study to assess the effectiveness of planned teaching program on biomedical waste management among staff Nurses working in Dr. Vikhe Patil Memorial Hospital Ahmednagar". The data were collectedby using the self-preparedstructured knowledge questionnaire. The results were analyzed and interpreted using descriptive, inferential statistics and Paired 't' test. *Results*: Result revealed that Paired 't' test of correlation analysis between pre test and post test scores shows that there is significant relationship (t; 12.04) which reveals positive relationship between variables. Hence it can be interpreted that the planned teaching programme on biomedical waste management is effective among staff nurses. Thus the stated null hypothesis (H_{02}) was rejected.*Conclusion:* It is essential to raise awareness on biomedical waste management and its impact on health; and develop health seeking behaviors among the patients and improve the quality of life.

Keywords: Bio Medical Waste; Knowledge; Staff Nurses.

Introduction

According to Bio-Medical Waste (management and handling) rules, 1998 of India, Bio Medical Waste (BMW) means any solid, fluid, or liquid waste including its containers and any intermediate product which is generated during the diagnosis, treatment, orimmunization of human beings or animals or in research activities pertaining thereto or in the production or testing of biological and includes ten categories for same [1].

Majority of waste (75-90%) produced by the healthcare providers is non-risk or general and it is estimated that theremaining (10-25%) of healthcare waste is regarded as hazardous the potential for creating a variety of health problems [2].

Rahman H, Ahmed N.S, UllahS.M, 1999 Conducted study on hospital waste management finding revealed that the Waste is a change of form of a particular item from one shape to another it is useful to the first user but with its transformation after use, some of its item may be useful to subsequent users. It subsequent utilization is harmful. It should be removed with such precautionary measure keeping it out of reach of others. But the trouble with throwaway society like ours is that there is no such a place as "away". What we think we have is liable to come that back to us [3].

In 2002, the results of a WHO assessment conducted in 22 developing countries showed that the proportion of healthcare facilities that do not use proper waste disposal methods ranges from 18% to 64% [4].

A quasi-experimental study was conducted to examine the impact of structured program on prevention of occupational exposure to blood borne pathogens as well as the knowledge, behavior and incidence of needle stick injury among student nurses in a hospital in China. One hundred and six student nurses were selected for the study. The study findings suggested that use of gloves was rare while performing activities involving high risk of exposure to blood and body fluids. The experimental group reported a total of eighteen injuries whereas the control group reported thirty-two. 24% injuries

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occurred while giving injection. Most common source of sharp injury were IV needles (44%) and syringes (32%). The study concluded that structured training programme improved knowledge and behavior, and reduced incidence of needle stick injuries in students who received, in comparison to those students who did not received the training [5].

A descriptive survey was conducted to assess the knowledge of nursing personnel regarding biomedical waste management in a hospital at Delhi. Thirty nurses were selected randomly as samples. Structured questionnaires were administered for data collection. Study findings suggested that 56% nurses knew about treatment & disposal of waste. 70% knew about universal precaution and sharp disposal and 77% knew about waste categorization and segregation. Further 96.6% 22 nursing personal desired that hospital authority should do more regarding biomedical waste management [6] .

An evaluatory study was conducted to assess the knowledge and practice of nurses in biomedical waste management before and after administration of information booklet in a large hospital at Delhi. Thirty-two nurses were selected as samples. Data was collected using structured questionnaire and observation checklist. The study findings revealed that only one nurse (3%) had received training on waste management where as others had not received any short-term program or special training on biomedical waste management. It was also observed that less than half of the staff nurses were aware of various risks and methods of treatment and disposal of biomedical waste. Hence it was concluded that nursing staff must have knowledge to perform their duties that should ensure safe handling, collection, storage, treatment and disposal of biomedical waste [7].

Material and Methods

This Experimental descriptive study was conducted among 50 staff nurses working in hospital in Dr. Vikhe Patil Memorial Hospital Ahmednagar. Before commencement of the study, ethical approval was obtained from the Institutional Ethical Committee, and official permission was received from the authority. Staff nurses who were registered with Diploma in Nursing, Staff nurses who are willing to participate in the study, Staff nurses present during the study were included in the study by using the non-probability; purposive sampling technique.

The purpose of the study was informed and explained to the participants and those who voluntarily agreed to participate in the study and gave an informed consent for the same were asked to fill the self-prepared structured knowledge questionnaire. Material used is self-prepared; and content validated structured knowledge questionnaire to collect the data. Structured knowledge questionnaires to measure the knowledge of staff nurses regarding Bio Medical waste management. The tool had a total of forty items. All the items were multiple-choice questions. Score values of one (1) were allotted to each correct response. The total knowledge score were forty. Knowledge scores were arbitrarily scored as good (28-40), Average (15-27) and poor (0-14). The respondents were asked to give relevant information in the spaceprovided.The collected data was tabulated and analyzed using appropriate statistical methods like descriptive statistics (mean, SD and mean percentage) and inferential statistics (Chi–square test & Paired 't' test).

Results

Findings Related to Socio Demographic Data of Biomedical Waste Management

The highest percentage (94%) were in age group > (28), More than half (62%) of staff nurse are male and (38%) were female staff nurse, majority (76%) were having year of experience, highest percentage (76%) was having GNM registered staff nurse, Majority of staff nurses (46%) were Hindu, (38%) belongs to christen religion, Highest percentage (42%) of staff nurses working in other departments.

Assessment of Knowledge of Staff Nurse on Biomedical Waste Management Before Receiving Planned Teaching Programme

Result shows that highest percentage (86 %) had poor knowledge, (14%) had Average knowledge . it depicts that the knowledge of staff nurses on biomedical waste management was poor.

Assessment of Knowledge of Staff Nurse on Biomedical Waste Management after Receiving Planned Teaching Programme Result Shows

That highest percentage (100%) had good knowledge. It depicts that the planned teaching programme was effective among staff nurses on biomedical waste management.

Assessment of Mean, SD and Mean Percentage of Planned Teaching Programme Result

Shows that the highest mean score (34.94 ± 2.11) which is 87.35%of total score was obtained in the area of post test. The lowest mean score (11.46 ± 2.74) which is 28.65% of total score was obtained in the area of pre test. It interprets that the effectiveness of planned teaching programme on biomedical waste management among staff nurses was good.

Area Wise Assessment of Mean, SD and Mean Percentage of Pretest and Posttestof Planned Teaching Programme Result

Shows that the highest mean score (5.48 ± 6.25) which is 13.5% of total score was obtained in the area of 'Disposal'. However the other areas like introduction, segregation, and storage had mean percentage below 7.55%. The distribution of mean, SD and Mean percentage score of posttest of planned teaching programme on biomedical waste management among staff nurses working Dr. VikhePatil Memorial hospital Shows that the highest mean score (17.74 ± 17.11) which is 44.35% of total score was obtained in the area of 'Disposal'. However the other areas like introduction, segregation, and storagehad mean percentage below 24.35%.

Assessment Between the Post Test of Staff Nurses with their Selected Demographic Variables

Result revealed that the Chi–square values were calculated to find the association between posttest and with their demographic variables of staff nurse working in Dr. Vikhe Patil Hospital Ahmednagar. Finding revealed that there was no significant association was found between the post test and the variables like year of experience, educational qualification, religion and area of working. However significant association was found between the post test and the variables like age and gender. Hence the stated null hypothesis (H_{01}) was rejected as there was significant association between the post test and their demographic variables.

Correlation Between Pretest and Posttest of Planned Teaching Programme on Biomedical Waste Management

Result revealed that the Paired 't' test of correlation analysis between pretest and post test scores shows that there is significant relationship (t; 12.04) which reveals positive relationship between variables. Hence it can be interpreted that the planned teaching programme on biomedical waste management is effective among staff nurses. Thus the stated null hypothesis (H_{02}) was rejected.

Discussion

Dr. Mohan D. Rama, Dr. Prasad M. Veera, Dr. Kumar Kanagaluru Sai(2012) conducted study on Impact of training on bio medical waste management– A study and analysis sample on 38 staff nurses, finding reveals that there is a significant improvement in the skill levels of the sample respondents after undergoing the training programme. The effectiveness of the training programme was also measured and rated by collecting the opinion of respondents. Questionnaire analysis showed that a large number of respondents gained knowledge on various aspects of bio medical waste management.[8]In present study finding revealed that the correlation between pretest and posttest of planned teaching programme on biomedical waste management result revealed that the Paired 't' test of correlation analysis between pretest and post test scores shows that there is significant relationship (t; 12.04) which reveals positive relationship between variables. Hence it can be interpreted that the planned teaching programme on biomedical waste management is effective among staff nurses. Thus the stated null hypothesis (H_{02}) was rejected.

Conclusion

The premier hospital is severely lacking in actions to dispose of its waste and uphold its statutory responsibilities. This is due to the lack of education, awareness and trained personnel to manage the waste in the hospital, as well as the paucity of the funds available to proper waste management system. The results of the study demonstrate the need for strict enforcement of legal provisions and a better environmental management system for the disposal of biomedical waste in hospitals as well as other healthcare establishments. A policy needs to be formulated based on 'reduce, recover, reuse and dispose'. The study concludes that healthcare waste management should go beyond data compilation, enforcement of regulations and acquisition of better equipment. It should be supported through appropriate education, training and the commitment of the healthcare staff, management and healthcare managers within an effective policy and legislative framework. From the analysis done on effectiveness of planned teaching program on biomedical waste management, it can be concluded that planned teaching program was effective in terms of improving the knowledge of staff nurses

regarding biomedical waste management.

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