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A study to evaluate the effectiveness of educational interventional programme on knowledge regarding bio-medical waste management (BMW) among student nurses of selected nursing institution, Hubballi

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Abstract

Background of the study: Health and disease have no political or geographical boundaries. The practice of public health has been dynamic in India, and has witnessed many hurdles in its attempt to affect the lives of the people of this country.

Objectives of the study
1. To assess the knowledge regarding Bio-medical waste management among student nurses.
2. To evaluate the effectiveness of Educational Interventional Programme regarding bio-medical waste management among student nurses in terms of gain in knowledge scores.
3. To find out an association between pre-test knowledge scores regarding bio-medical waste management among student nurses and their selected socio-demographic variables.

Material and Methods: An evaluative research approach with pre-experimental: one group pre-test, post-test design was used for the study. The sample was consisting of 50 Student Nurses studying in KLE'S Institute of Nursing Sciences, Hubballi. They were chosen by probability: Simple Random Sampling Technique was used to collect the data.

Results: In this study overall result of the study revealed that the level of knowledge on biomedical waste management in pre test reveals that most of the subjects 36 (72%) had average knowledge, 11 (22%) had good knowledge and 3 (6%) had poor knowledge whereas in post test all the subjects 50 (100%) had good knowledge. The calculated paired 't' value (t_{cal}=33.59) was greater than tabulated value (t_{tab}= 2.008). Hence, H_1 was accepted. This indicates that gain in knowledge score was statistically significant at 0.05 level of significance.

Conclusion: It is statistically proved and concluded that the educational interventional programme on knowledge regarding Bio-Medical Waste Management, is highly effective for improving the knowledge score of student nurses.

Keywords: Bio-medical waste management, student nurses, knowledge, effectiveness, educational interventional programme

Introduction
"It is health that is real wealth and not pieces of gold and silver".

-Mahatma Gandhi

The hospitals generate wide range of wastes including infectious or biomedical waste during diagnosis, treatment or immunization. The hospital solid waste include anatomical, pathological, infectious, non infectious, sharps, kitchen waste and general waste (paper, cardboard, plastic etc).

The waste generated from healthcare facilities referred also as healthcare waste, hospital waste and infectious waste includes all types of waste generated by healthcare establishments, research facilities and laboratories in addition to hospitals and clinics including waste generated by bank.

Biomedical waste (BMW) is different from the hospital waste. It consists of various solid, liquid or fluid components including immediate products. Biomedical

Waste Management should be handled carefully. People should be educated about proper handling of the biomedical waste. Inadequate knowledge and hence improper handling may have serious effect on health as well as environment.

Statement of the problem
"A study to evaluate the effectiveness of Educational Interventional Programme on knowledge regarding Bio-Medical Waste management (BMW) among Student Nurses of selected Nursing Institution, Hubballi".

Objectives of the study
1. To assess the knowledge regarding Bio-medical waste management among student nurses.
2. To evaluate the effectiveness of Educational Interventional Programme regarding bio-medical waste management among student nurses in terms of gain in knowledge scores.
3. To find out an association between pre-test knowledge scores regarding bio-medical waste management among

student nurses and their selected socio-demographic variables.

Hypotheses

H₁: The mean post-test knowledge scores of the student nurses receiving Educational Interventional Programme on knowledge regarding bio-medical waste management will be significantly higher than the mean pre-test knowledge scores at 0.05 level of significance.

H₂: There will be statistical association between pre-test knowledge scores and selected socio-demographic variables at 0.05 level of significance.

Assumptions

1. Student nurses have some knowledge regarding bio-medical waste management.
2. Educational interventional programme is effective strategy to impart knowledge regarding bio-medical waste management among student nurses.
3. Socio-Demographic variables of student nurses have influence on knowledge regarding bio-medical waste management.

Delimitations

The study is delimited to the student nurses who are studying in the Second Year Basic B.Sc. Nursing and Third Year Basic B.Sc. Nursing Students of a selected Nursing Institution at Hubballi, Karnataka.

Materials and Methods

Research approach: Evaluative Research Approach

Research design: Pre-experimental: one group pre-test, post-test design.

Research setting: The present study was conducted at KLE'S Institute of Nursing Sciences, Hubballi.

Population: All student nurses studying in KLE'S Institute of nursing sciences, Hubballi.

Sample: In the present study, the sample consists of B.Sc. (N) II Year and B.Sc. (N) III Year student nurses.

Sample size: 50 (25 B.Sc. II and 25 B.Sc. III Year) student nurses.

Sampling technique: Probability; Simple Random Sampling Technique was selected for the present study.

Variables

Independent variable: Educational Interventional Programme.

Dependent variable: Knowledge regarding Bio-Medical Waste Management.

Criteria for selection of samples

The criteria for selection of samples in this study involve:

Inclusion Criteria

Student Nurses who are;
- Studying in KLE'S Institute of Nursing Sciences, Hubballi.
- Available at the time of data collection.

- Willing to participate in the study.

Exclusion Criteria

Student Nurses who are;
- Sick during data collection.

Results

Demographic data was analyzed using frequency and percentage. Frequencies, percentage, mean, median, mean percentage and standard deviation was used to determine the knowledge score. The 't' value was computed to show the effectiveness of Educational Interventional Programme and chi-square test was done to determine the association between the pre test knowledge with selected demographic variables.

Section I: Distribution of sample characteristics according to socio demographic variables

- Majority of the subjects 49 (98%) were in the age group of 19-21 years where as 01 (02%) were in the age group of 22-24 years.
- Majority of the subjects 39 (78%) were females and 11 (22%) were males.
- Majority of the subjects 28 (56%) were Hindu, 13 (26%) were Christian, 05 (10%) were Muslim and 04 (08%) belonged to others.
- Majority of the subjects 38 (76%) belonged to nuclear family and 12 (24%) belonged to Joint family.
- Majority of the subjects 26 (52%) were from rural and 24 (48%) were from urban.
- Subjects educational status 25 (50%) were B.Sc. II Year and 25 (50%) subjects were B.Sc. III Year.
- Majority of subjects 18 (36%) had information regarding Bio Medical Waste Management through new age media, 16 (32%) through print media, 10 (20%) through health personnel and 06 (12%) through electronic media.

Section II: Analysis and Interpretation of knowledge scores of student nurses regarding bio-medical waste management

Table 1: Mean, Median, Mode, Standard Deviation and Range of knowledge scores of subjects regarding Bio-Medical Waste Management. n=50

| Areas of analysis	Mean	Median	Mode	Standard deviation	Range
Pre-test	21.94	21.5	19	4.010	20
Post-test	44.92	45	46	1.885	09
Difference	22.98	23.5	27	2.125	11

Table No 1 reveals that the pre-test mean knowledge score was 21.94, median 21.5, mode 19, standard deviation 4.010, and range 20. Where as in the post-test, mean knowledge score was 44.92, median 45, mode 46, standard deviation 1.885 and range 09. The overall difference in mean knowledge score was 22.98, median 23.5, mode 27, standard deviation 2.125 and range 11.

Table 2: Frequency and percentage distribution of knowledge scores of subjects regarding Bio-Medical Waste Management. n =50

Level of knowledge	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good (25 and above)	11	22%	50	100%
Average (17 to 24)	36	72%	00	00%
Poor (below 17)	03	06%	00	00%

Table No 2 reveals that distribution of level of knowledge on student nurses regarding Bio-Medical Waste Management in pre-test and post test. Most of subjects 36 (72%) had average knowledge, 11 (22%) had good knowledge and 03 (06%) had poor knowledge in pre test whereas in post-test 50 (100%) had good knowledge
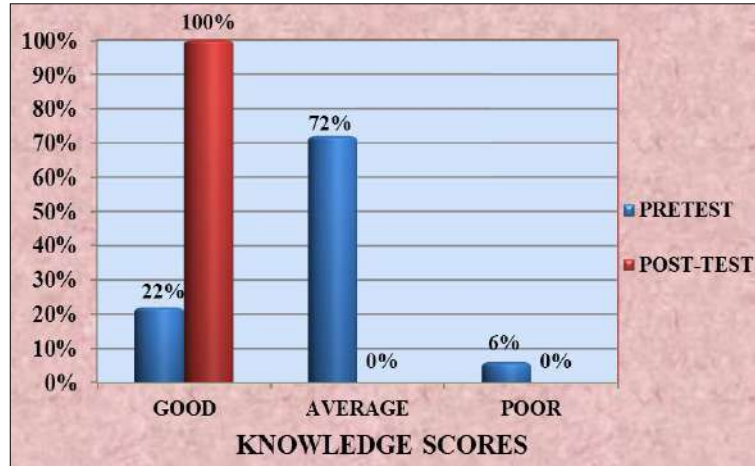

Fig 1: The cylindrical graph represents percentage distribution of subjects according to their level of knowledge scores in pre and post-test

Table 3: Mean Pre-test, post-test percentage of knowledge scores of subjects regarding Bio-Medical Waste Management. n=50

Items	Total Score	Mean % of knowledge Scores of Subjects		
		Pre-test	Post-test	Gain in knowledge
Structure knowledge Questionnaire	2500	43.88%	89.84%	45.96%

Table No 3 reveals that there was 45.96% gain in knowledge after Educational Interventional Programme.
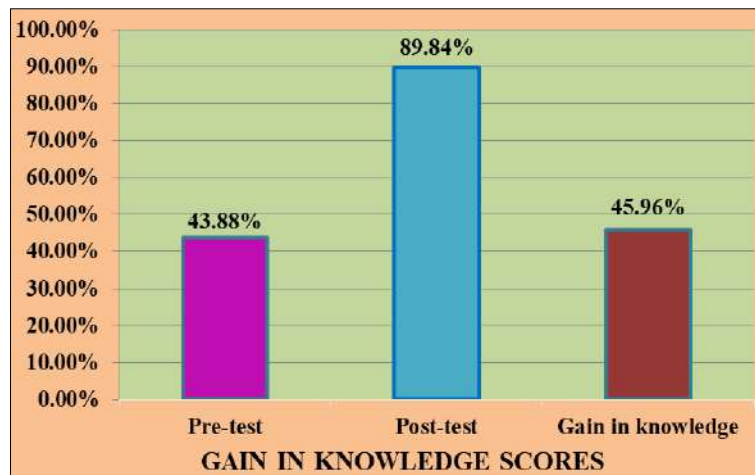
Fig 2: The Column graph represents the mean percentage gain in knowledge scores of subjects according to their knowledge scores

Section III: Testing of Hypotheses

Table 4: Mean difference (d), Standard Error of difference (SEd) and paired 't' values of knowledge score of subjects regarding Bio-Medical Waste Management. n=50

Mean difference (d)	Standard Error of difference	Paired 't' values	
		Calculated	Tabulated
22.98	0.625	33.59*	2.008

Table No 4 reveals that, the calculated paired 't' value (t_{cal}=33.59*) was greater than the tabulated value (t_{tab}=2.008). Hence, H_1 was accepted. This indicates that the gain in knowledge score was statistically significant at 0.05 level of significance. Therefore, the educational interventional programme was effective to improve the knowledge of subjects.

Discussion

The findings of the present study have revealed that the level of knowledge on biomedical waste management in pre test reveals that most of the subjects 36 (72%) had average knowledge, 11 (22%) had good knowledge and 3 (6%) had poor knowledge whereas in post test all the subjects 50 (100%) had good knowledge. The calculated paired 't' value (t_{cal}=33.59) was greater than tabulated value (t_{tab}= 2.008). Hence, H_1 was accepted. This indicates that gain in knowledge score was statistically significant at 0.005 level of significance.

Conclusion

The conclusions drawn from the finding of the study are as follows: The 't' value (t_{cal}=33.59) was greater than tabulated value (t_{tab}= 2.008). Hence, H_1 was accepted. The pre-test and post-test mean percentage is 43.88% and 89.84% and different is 45.96%. So knowledge is increase after the intervention. This indicates that Educational Interventional Programme is effective in increasing knowledge regarding Bio-Medical Waste Management (BMW).

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