

## Effectiveness of Structured Teaching programme on Knowledge of Hospital Waste Management among Senior Nursing Students “Let the Waste of the Sick Not Contaminate the Lives of Healthy”

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**Abstract: Background:** The generation of infectious and hazardous waste has increased in health care services. Improper management of waste generated in health care facilities causes a direct health impact on the community, the health care workers and the environment. Adequate awareness among the hospital staffs and practices regarding the biomedical waste management is crucial to prevent health hazards.

**Methods:** pre experimental one group pretest and posttest design was adopted to assess the effectiveness of structured teaching programme on knowledge of hospital waste management among senior nursing.

**Results:** In pretest 2% students had adequate knowledge on concept and classification of hospital waste, and 4% students had adequate knowledge of practice. In post test 98% students had adequate knowledge regarding and classification, 88% students had adequate knowledge in handling, storing, treating and 79% students had adequate knowledge of practice about hospital waste. In remote memory assessment test 94% students had adequate knowledge in concept and classification, 85% students had adequate knowledge regarding handling, storing and treating the hospital waste and 75% students had adequate knowledge of practice. In post test assessment there was a significant improvement in knowledge level at  $p < 0.001$ . The comparison between the pre test and remote memory assessment test is significant at  $p < 0.001$

**Conclusions:** senior nursing students are the one going to be as a future nurses. Hence imparting and inculcating knowledge on hospital waste management improve their practices in hospitals.

**Keywords:** senior nursing students, hospital waste management, structure teaching module.

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### I. Introduction

Hospital waste has caused major environmental distress in many countries, including India. About 14,000 mega tones per day of medical waste are produced in India. Out of the total waste generated, around 40-50 percent is infectious or hazardous<sup>6</sup>.

Inadequate hospital waste management will cause environmental pollution, multiplication of vectors like insects, rodents and worms may lead to the transmission of diseases like typhoid, cholera. Also injuries from sharp leading to infection to all categories of hospital personnel and waste handler may cause hepatitis and AIDS<sup>3</sup>. Hence the proper hospital waste management system is the prime responsibility of nurses and is an essential component of quality assurance in hospitals.

#### Need for the study:

World health organization stated that the waste generated by the hospital if allowed to enter in waste stream without proper disposal would cause unimaginable loss to the society. This will lead to the outbreak of communicable diseases, diarrhoeal epidemics, water contamination etc., studies have estimated that the quantum of waste generated from hospital ranges from 1.5 to 2.5 kg per day per patient.

According to survey conducted by the Indian society of hospital waste management in June 2016, the quantum of waste that is generated in India is estimated to be 1-2 kg per day in hospital and 600 g per day per bed in general practitioner's clinic<sup>4</sup>.

Nurses frequently get needle injuries that increase chance of infections; mainly HIV and Hepatitis B and C. Neeraj (2015) stated that regular orientation and re orientation training programs should be organized for health care personals to enhance the compliance rate of biomedical waste management<sup>7</sup>

Health and safety of the health care personals is the cardinal feature of the hospitals. The nurse spend maximum time with patient in the ward than any other members of the health team, which increase their exposure and risk to the hazards present in the hospital environment<sup>1</sup>. Skill and precaution in managing hospital waste which

reduces the risk of hospital acquired infection will help the nurses to protect their own health and others<sup>2</sup>. The senior nursing students are the one being in the hospital and going to be as a future nurses. Hence they should be educated with the latest information and skills in managing hospital waste.

### **Statement of the problem**

A study to assess the effectiveness of structured teaching programme regarding knowledge of hospital waste management among senior nursing students at Rani Meyyammai College of nursing.

### **Objectives**

1. To assess the knowledge of senior nursing students on hospital waste management
2. To assess the knowledge of practice about hospital waste management
3. To correlate the knowledge with knowledge of practice on hospital waste management
4. To determine the effectiveness after structured teaching programme on hospital waste management
5. To assess the remote memory of senior nursing students on hospital waste management
6. To compare the pre test with remote memory assessment test on knowledge on hospital waste management

### **Hypothesis**

There is a significant difference in knowledge and practice of the students on hospital waste management before and after administering the structured teaching programme

### **Assumptions**

- ✓ The structured teaching programme will enhance the knowledge of the students on hospital waste management
- ✓ Issuing the informational booklet followed by structured teaching programme will enhance and retain the knowledge about hospital waste management

### **Limitations**

- ✓ The study was limited to the senior nursing students of Rani Meyyammai College of nursing
- ✓ The study participant was limited to those students who were present on the day of pretest

## **II. Review of literature**

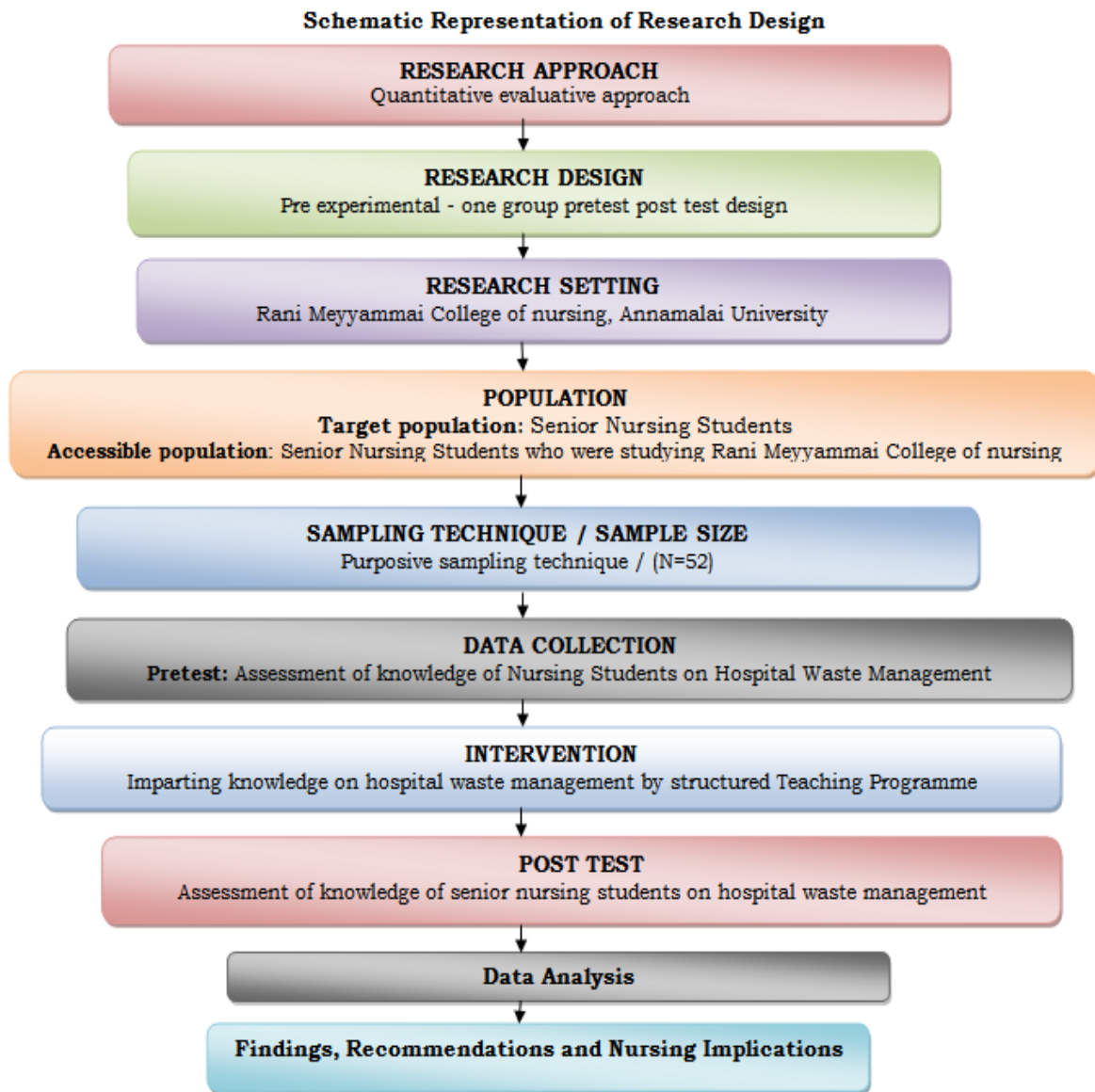
The review were organized in the following sections

**Section A:** studies related to hospital waste and its management

**Section B:** studies related to knowledge on hospital waste management among staff Nurses

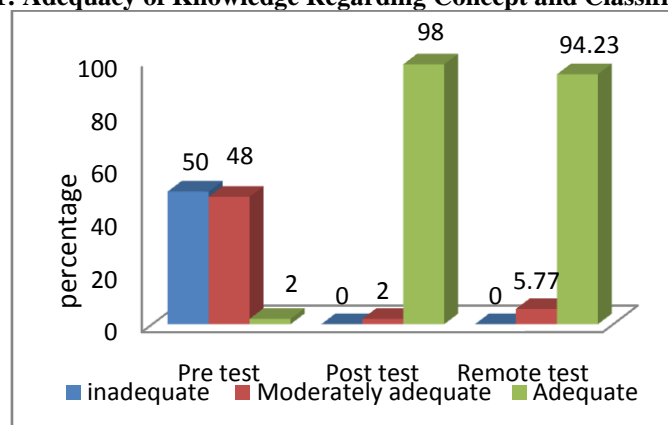
**Section C:** Studies related to knowledge on practice on waste management among staff Nurses

Schematic Representation of Research Design

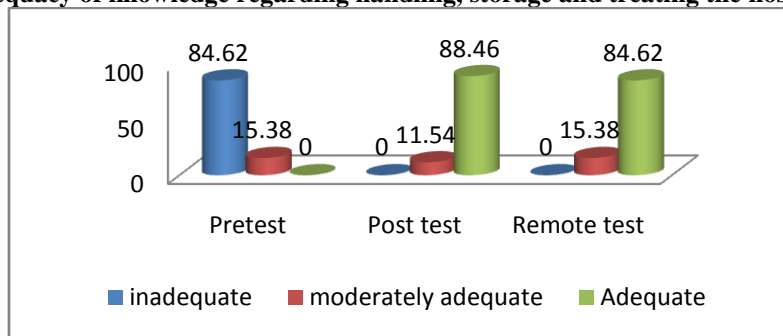


**Objective 1:** To assess the knowledge of senior nursing students on hospital waste management

**Fig 1: Adequacy of Knowledge Regarding Concept and Classification of Hospital Waste**

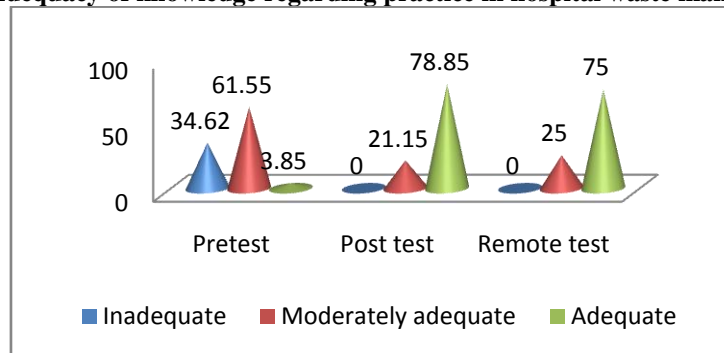


**Fig2: Adequacy of knowledge regarding handling, storage and treating the hospital waste**



**Objective 2:** To assess the knowledge of practice about hospital waste management

**Fig3: Adequacy of knowledge regarding practice in hospital waste management**



**Objective 4:** To determine the effectiveness after structured teaching programme

**Table1: Comparison of mean and standard deviation of pretest and post test score about hospital waste management**

Variables	pretest		Posttest		't' test value
	MEAN	SD	MEAN	SD	
Knowledge on concept and classification	4.29	1.66	9.30	0.80	P<0.001
Knowledge on handling storing and treating	3.46	1.80	10.88	0.92	P<0.001
Knowledge of practice	4.98	1.51	8.46	1.14	P<0.001

**Objective 3:** To correlate the knowledge with knowledge of practice

**Table2: Correlation coefficient between the knowledge and knowledge of practice on hospital waste management**

Knowledge of hospital waste management with knowledge of practice	'r' value
Pretest	0.204
Post test	0.392*
Remote test	0.407**

**Objective 5:** To assess the remote memory of senior nursing students on hospital waste management

**Table3: distribution of remote memory of senior nursing students on hospital waste management**

Variable	Remote memory test	
	MEAN	SD
Knowledge on concept and classification	9.00	1.19
Knowledge on handling storing and treating	10.65	1.12
Knowledge of practice	8.23	1.10

**Objective 6:** To compare the pre test with remote memory assessment test on hospital waste management

**Table 4: comparison of pretest memory with remote memory assessment on hospital waste**

Variable	Pretest		Remote test		Paired 't' test value
	MEAN	SD	MEAN	SD	
Knowledge on concept and classification	4.29	1.66	9.00	1.19	P<0.001
Knowledge on handling storing and treating	3.46	1.80	10.65	1.12	P<0.001
Knowledge of practice	4.98	1.51	8.23	1.10	P<0.001

**Major findings:**

- In pretest 2% students had adequate knowledge on concept and classification of hospital waste, none had adequate knowledge regarding handling, storing and treating the hospital waste and 4% students had adequate knowledge of practice.
- In post test 98% students had adequate knowledge regarding and classification, 88% students had adequate knowledge in handling, storing, treating and 79% students had adequate knowledge of practice about hospital waste.
- In remote memory assessment test 94% students had adequate knowledge in concept and classification, 85% students had adequate knowledge regarding handling, storing and treating the hospital waste and 75% students had adequate knowledge of practice.
- After the structured teaching programme there was significant improvement in knowledge at  $p < 0.001$  level.
- the comparison between the pre test and remote memory assessment test is significant at  $p < 0.001$

**III. Conclusion:**

Nursing is a service profession and it must advance to the extent that it keeps pace with the advancing technology, with the changing trends and issues. It is imperative for nursing personnel to keep themselves abreast with the changes. To safeguard their own health, patients and of the environment, students must have knowledge on hospital waste management. This study found to be more effective in improving knowledge and skill in senior nursing students.

**Implications:**

**Implications for the Nursing Practice:**

1. Nurses are in the position to provide optimal environment to the patients. Through the proper education regarding hospital waste management, nurses will protect themselves and provide good environment to the patient.
2. The study findings signify the importance of formulation of policy and implementation of hospital waste management practice in nursing service.

**Implications for Nursing Education:**

1. Hospital waste management subject should be including in the nursing curriculum for the students to understand the importance about the waste and to manage it efficiently in the future.
2. Periodical in-service education workshop and seminars should be conducted to refresh the knowledge of the students on hospital waste management.

**Implications for Nursing Administration:**

1. Administrators should emphasize the nurses to follow the waste handling rules in efficient manner.
2. Administrators should supervise the workers to ensure that they are following the rules of hospital waste management.

**Implications for nursing research:**

1. Research can be conducted in cost effective hospital waste management and thus reducing the burden on the hospitals.
2. findings signify the importance of formulation and implementation of policy on hospital waste management practice in nursing service.

**IV. Recommendations:**

1. Similar study can be conducted with a large sample
2. Similar study can be conducted for doctors, nurses and class IV workers
3. An interventional study can be conducted in cost effective hospital waste management
4. A comparative study can be done by giving one group structured teaching and another group by issuing booklet
5. Similar study can be conducted by assessing the attitude of the health personnel

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the institutional ethical committee.

**Bibliography:**

- [1] Bhavesh R. (2017), Assessment of bio medical waste management practices of staff nurses according to newer guidelines in a teaching hospitals of rural vadodaras, Gujarat, international journal of community medicine and public health, oct 4(10):3922-3926
- [2] Manoj B, Mishra A, Gautam P, Changulani R, Shrivastava D, Neeraj S. Management of biomedical waste: Awareness and practices in a district of Gujarat. National Journal community medicine.2011;2(3):452-6.
- [3] Shrestha D, Gokhe S. B, Houndiyal A, Bothe P. A case study to review compliance to biomedical waste management rules in a tertiary care hospital. International journal of community medical public health. 2017; 4:511-5.
- [4] Ghasemi M.K, Yusuff R .B. Advantages and disadvantages of health care waste treatment and disposal alternatives: Malaysian scenario. pol journal of environmental studies 2016;25:17-25
- [5] Praveen Mathur, Sangeeta Patan and Anand s. Shobhawat , Need of biomedical waste Management – An emerging issue, An international research journal of environmental science, 2015, 7(1): 117-124.
- [6] Dutta et al.(2017), “ knowledge, attitude and practice of bio medical waste management among private practitioners in poonamallee taluk, chennaiZ”, international journal of community medicine and public health, aug4(8):2930-2933.
- [7] Bowden F.J. et al.(2015), Z” occupational exposure to the humam immunodeficiency virus and other blood borne pathogens- a prospective study”, <https://www.ncbi.nlm.nih.gov>.

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