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## Knowledge among student nurses regarding bio-medical waste management in Narayana Nursing Institutions, Nellore, Andhra Pradesh

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### Abstract

**Background:** Bio-medical waste is generated during diagnosis, treatment, immunization of human beings or animals in research activities, where the management and Bio-medical waste or hospital waste has assumed great importance in the world wide because of the serious hazards it possesses to the environment in general and the public in particular.

**Aim:** The aim of the study was to assess the knowledge regarding bio-medical waste management among student nurses.

**Objectives:** 1. To assess the knowledge regarding the bio medical waste management among student nurses. 2. To find out the association between level of knowledge of student nurses with selected socio-demographic variables.

**Methodology:** 100 student nurses studying in Narayana Nursing Institutions, Nellore were selected by using non-probability convenience sampling technique method.

**Results:** Regarding the level of knowledge among student nurses, 10 (10%) of them had inadequate knowledge, 60 (60%) of them had moderately adequate knowledge and 30 (30%) of them had adequate knowledge regarding bio-medical waste management.

**Keywords:** Knowledge, Bio-medical waste management, Student nurses

### Introduction

Bio-medical waste is generated during diagnosis, treatment, immunization of human beings or animals in research activities, where the management and Bio-medical waste or hospital waste has assumed great importance in the world wide because of the serious hazards it possess to the environment in general and the public in particular<sup>[1]</sup>.

Bio-medical waste management issue has arrived on horizon with a bang. Bio-Medical waste management has now become a major pre-occupation of hospital health establishment and institution. Because of going on number of cases affected to hospital infection with Hepatitis-B and HIV, gastro enteritis, typhoid fever, tuberculosis, post-operative infections, wound infection, skin, and blood infection etc.<sup>[2]</sup>

Until recent times not enough attention has been rapid to the disposal of waste safe and effective management and biomedical waste is not only a legal recessing but also a social responsibility<sup>[3]</sup>.

Management of Bio-medical waste generated by health care institutions and hospital has emerged as prime care of concern in recent times. Safe and effective management of bio-medical waste is not only a legal necessity but also a social responsibility. All sections of society will have to contribute towards this cause. The bio-medical waste management has diverse effects on the health of patient and health care workers. It also affect the environment public health and sanitation<sup>[4]</sup>.

Though legal provision exist to mitigate the impact of hazardous and infections hospital waste on waste handlers, these provision are yet to be fully accomplished. Adequate knowledge about the health hazards of the hospital waste proper techniques and method of handling waste and practice of study of safety measures while handling waste can go a long way towards safe disposal of the hazardous hospital waste<sup>[5]</sup>.

Biomedical waste management is very important to protect and maintain hygienic environment. Nowadays air or environmental pollution is on rise. Every efforts is being taken by government to reduce it. The one step to control environmental pollution is the proper management of biomedical waste. Promote the health of human being and other

living creatures. As biomedical waste contribute to infections (HIV, infections, TB) is very important to dispose of biomedical waste in right way other living organisms<sup>[6]</sup>.

### Need For the Study

There is an increasing global awareness on the need to evolve proper and adequate treatment and disposal method for hospital waste. As a matter of fact level of awareness in India in these matters leave much to be desired. Hazardous impact of medical waste to public and the environment is enhanced mentioned in adequate and appropriate handling of these waste is not adopted<sup>[7]</sup>.

Bio-medical waste management has been defined as the waste produced during diagnosis, treatment immunization of human beings or animals in research activities or in production of testing of biological products including categories like discarding medicines, cytotoxic drugs and chemical waste. Management of waste generated by health care institutions and hospitals has emerged as primary care of concern in recent times<sup>[8]</sup>.

Approximately 75-90% of the Bio-medical waste is innocuous and are harmless as any other municipal waste. The remaining 10-25% however differs from other waste that it can be injurious to human or animal health and to environment<sup>[9]</sup>.

In 2018, 8 cases of HIV were recognized as occupational infection in France. In June 2014, out of 39 cases of HIV infection in USA, 34 were reported as positive. It is estimated that in USA, approximately 86,000 to 1,60,000 health workers are injured annually by sharp Bio-medical waste. Out of these about 164-323 persons develop Hepatitis-B infections. In Japan the risk of HIV and Hepatitis-B infection after hypodermic needle puncture is 0.3-3% respectively. Nearly 66% of rag pickers in India suffer from an injury because of Bio-medical waste. A hospital house keeper in USA develop staphylococcal, bacteremia and endocarditic after a needle injury<sup>[10]</sup>.

WHO states that 85% of hospital waste are actually non-hazardous waste, where 10% are infections and 5% are non-infections but are included in hazardous waste. About 15-35% hospital waste is regarded as infections waste. Regard to life threatening virus infections such as HIV/AIDS and Hepatitis-B&C health care workers, particularly nurses are at greatest risk of infection, through injuries from contaminated sharps<sup>[11]</sup>.

### Statement of Problem

A study to assess the knowledge among student nurses regarding bio-medical waste management in Narayana Nursing Institutions, Nellore, and Andhra Pradesh.

### Objectives

1. To assess the knowledge regarding the bio medical waste management among student nurses.
2. To find out the association between level of knowledge of student nurses with selected socio-demographic variables.

### Delimitations

- Nursing students studying in Narayana Nursing Institutions, Nellore, and Andhra Pradesh.
- Sample size of 100.

### Methodology

#### Research Approach

A quantitative approach was adopted to determine the research study.

#### Research Design

The present study was conducted by using descriptive research design

#### Setting of the Study

The study was conducted at Narayana Nursing Institutions, Nellore.

#### Target Population

The target population for the present study includes all student nurses.

#### Accessible Population

The accessible population for the present study was student nurses studying in Narayana Nursing Institutions, Nellore and who fulfilled the inclusion criteria.

#### Sample

The sample for the present study was student nurses studying in Narayana Nursing Institutions, Nellore.

#### Sample Size

The samples consist of 100 student nurses.

#### Sampling Technique

Non-probability convenience sampling technique was adapted for the study.

#### Criteria for Sampling Selection

##### Inclusion Criteria

- Student nurses studying at Narayana Nursing Institutions, Nellore
- Student nurses who are willing to participate in the study.

##### Exclusion Criteria

- Student nurses who were sick at the time of data collection.
- Student nurses who was not available at the time of data collection.

#### Description of Tool

**Part-I:** It deals with socio demographic variable of student nurses such as Age, Religion, Educational Qualification, Source of information, Attended any CNE programme regarding BMWM.

**Part-II:** Structured questionnaire consist of 50 questions to assess the knowledge of student nurses regarding bio-medical waste management.

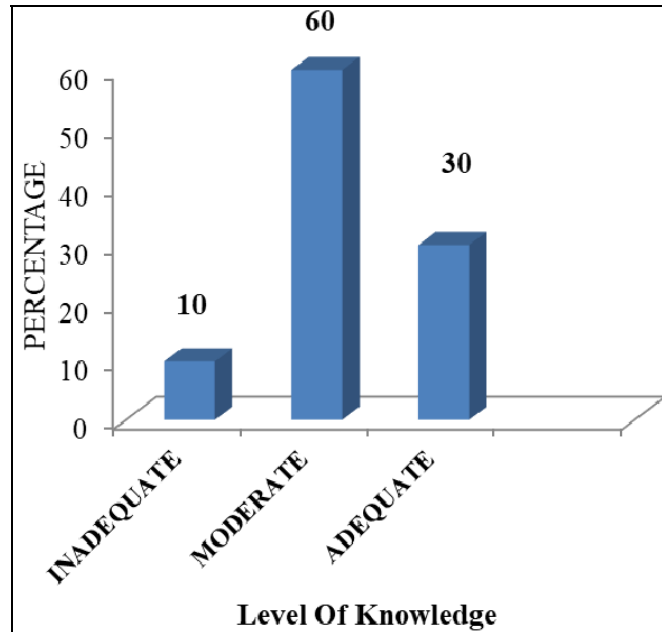
#### Score Interpretation

Level of Knowledge	Score	Percentage (%)
Inadequate Knowledge	0 -24	<50
Moderately Adequate Knowledge	25 -35	51 -75
Adequate Knowledge	>35	>76

**Data Analysis and discussion**

**Table 1:** Frequency distribution of level of knowledge among staff nurses and student nurses (N=100).

Level of knowledge	Frequency (f)	Percentage (%)
Inadequate knowledge	10	10
Moderately adequate knowledge	60	60
Adequate knowledge	30	30
Total	100	100



**Fig 1:** Frequency distribution of level of knowledge among staff nurses and student nurses

**Table 2:** Mean and standard deviation of knowledge score among student nurses. (N=100)

Level of knowledge	Mean	SD
Student nurses	32.58	6.4

**Table 3:** Association between level of knowledge and socio demographic variables.

S. No	Demographic Variables	Inadequate Knowledge		Moderate Knowledge		Adequate Knowledge		Chi Square
		F	%	F	%	F	%	
1.	Age							C=21.78 T=12.59 DF=6 P<0.01 S*
	a)16-17	1	1	13	13	1	1	
	b)18-19	3	3	15	15	2	2	
	c)20-21	5	5	13	13	2	2	
	d)22-23	1	1	19	19	25	25	
3.	Education							C=55.59 T=15.51 DF=8 P<0.01 S*
	a)ANM	2	2	18	18	-	-	
	b)GNM	7	7	13	13	-	-	
	c)BSC	-	-	12	12	8	8	
	d)PBBSC	1	1	13	13	6	6	
	e)MSC	-	-	4	4	16	16	
4.	Source of Information:							C=15.59 T=12.59 DF=6 P<0.01 S*
	a)Text Books	4	4	20	20	8	8	
	B)Conference	-	-	5	5	-	-	
	C)Hospitals	5	5	29	29	10	10	
	D)Class Teaching	1	1	6	6	12	12	
5.	Attended any CNE program on BMW							C= 32.54 T=5.99 DF=2 P<0.01 S*
	a)Yes	-	-	8	8	20	20	
	b) No	10	10	52	52	10	10	

**Major Findings of the Study**

- Regarding the level of knowledge among student nurses, 10 (10%) of them had inadequate knowledge, 60 (60%) of them had moderately adequate knowledge and 30 (30%) of them had adequate knowledge regarding bio-medical waste management.
- The mean knowledge score of student nurses was 32.58 and standard deviation was 6.4.
- Regarding association, Age, education, source of information and attended ant CNE program had significant association with level of knowledge at  $P < 0.01$  level.

**Conclusion**

The study concluded that majority of student nurses, 60 (60%) of them had moderately adequate knowledge regarding bio-medical waste management.

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