

# A study to evaluate the effectiveness of structured teaching program on knowledge and attitude regarding bio-medical waste management among nurses working in District hospital, Karwar, U.K.

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**Abstract-** The bio-medical waste is any solid, fluid or liquid waste including the container and any intermediate product, which is generated during the diagnosis, treatment or immunization of human beings or animals. The indiscriminate management of bio-medical waste could cause serious hazards to health and environment such as water and food pollution and cause alimentary infections like cholera, typhoid, dysentery, infective hepatitis, polio, ascariasis and hook worm diseases, etc. Wastes breed vermin and pests, for example mosquitoes which transmit diseases like malaria and filarial, common house flies which transmits infections mechanically, and also other insects and worms that cause nuisance (eg. Cockroaches, ants.). Dust may harbor tubercle bacilli and other germs, which cause diseases if inhaled. Soil polluted by night soil may be rich in tetanus spores. Nosocomial infections, AIDS, hepatitis-B and C, etc. are at a greater incidence rate to occur. Aesthetic-sullage water refuse and night soil, all create intolerable nuisance of sight and smell.

This study was conducted in District hospital, Karwar, U.K., to evaluate the effectiveness of structured teaching program on bio-medical waste management. An evaluative approach with one group pre-test posttest design was used for the study. Twenty samples were selected by purposive sampling method. Data was collected by the structured questionnaire which is designed to assess the knowledge and attitude regarding bio-medical waste management. A structured teaching program was prepared and administered regarding bio-medical waste management after the administration of pre-test and post test was conducted after six days. The data collected was analyzed using descriptive and inferential statistics.

The findings revealed that structured teaching program was effective, post test score was higher than pre-test scores of knowledge and attitude. Calculated 't' value was 7.14 and 6.99 of knowledge and attitude respectively. The mean knowledge pre-test score was 28.65 and attitude pre-test score was 43.35. The mean post test knowledge score was 37.2 and the attitude post test score was 52.15.

**Index Terms-** Bio-medical waste, knowledge, attitude and nurse.

## I. INTRODUCTION

Hospital waste management has become a critical issue as it poses potential health risks and damage to the environment.

It is an issue that is taking central place in the national health policies of many countries. All the hospitals, nursing homes, veterinary hospitals, clinics, dispensaries, diagnostic laboratories, pathogenic laboratories, blood banks, mortuary and any other health care establishment are the potential generators of bio-medical waste. The overall figure of waste generated throughout India was 4, 84,271 kg/day in 2013, 4,16,823.6 kg/day in 2012 and 4,15,429 kg/day in 2011. There has been a 16% increase in daily generation of bio-medical waste in 2012-13 as against a marginal increase of 0.33% the year ago.

According to a WHO report, the data available says, of the total bio-medical waste produced, around 85% of waste is non-hazardous, 10% is hazardous and infective and 5% hazardous but non-infective. 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 establishment regarding bio-medical waste management.

## II. MATERIALS AND METHODS

The cross-sectional study was conducted among staff nurses of District hospital, Karwar, U.K. The study was done for a period of one week. The study group included staff nurses. The nurses working in the hospital were selected from either gender, available during the period of data collection and who were able to read and understand English and those were not willing to participate in the study were excluded. The study population included 20 selected staff nurses. Purposive sampling method was used for the selection of the samples. The study was conducted by using a pre-tested structured questionnaire, which included three sections. Section-A had questions related to demographic performa, section-B and C included total of 45 questions related to knowledge regarding bio-medical waste and section-D included 20 questions related to attitude regarding bio-medical waste management. Informed consent was obtained from the study participants and ethical clearance was obtained from

the institute ethics committee. The data collected was analyzed using descriptive and inferential statistics.

**Observations**

The study was conducted for 1 week in May 2016. A total of 20 nurses (n=20) took part in the study. Their level of knowledge and attitude regarding bio-medical waste was assessed by using structured questionnaire. The data was analyzed using proportions and percentages. The details are presented in table.

Table – 1 shows findings related socio-demographic variables of staff nurses according to frequency and percentage. The frequency and percentage distribution of pre-test knowledge scores of samples regarding bio-medical waste management is presented in table – 2 and table -3 shows the frequency and percentage distribution of post test knowledge scores. Table – 4 shows the frequency and percentage distribution of pre-test attitude scores and table – 5 shows the frequency and percentage distribution of post test attitude scores of samples regarding bio-medical waste management.

**Table 1. Findings related to socio-demographic variables of staff nurses**

SL. NO	DEMOGRAPHIC VARIABLES	FREQUENCY	PERCENTAGE (%)
1	AGE (YEARS)	4	20%
	a) 20 - 30yrs		
	b) 31 - 40yrs	7	35%
	c) 41yrs and above	9	45%
2	GENDER	1	5%
	a) Male		
	b) Female	19	95%
3	QUALIFICATION	00	00%
	a) ANM		
	b) GNM	20	100%
	c) B.Sc. (N)	00	00%
4	TOTAL CLINICAL EXPERIENCE	1	5%
	a) ≤1yr		
	b) 2-5yrs	2	10%
	c) 6-10yrs	4	20%
	d) >10yrs	13	65%
5	CURRENT WORKING AREA	5	25%
	a) ICU, OT and Labor room		
	b) General ward (medicine & surgery)	15	75%
	c) Special/deluxe/semi deluxe room	00	00%
6	SPECIAL TRAINING IN BMW MANAGEMENT	9	45%
	a) Yes		
	b) No	11	55%
7	SOURCES OF INFORMATION REGARDING BMW MANAGEMENT	7	35%
	a) Magazines & Journals		

	b) Other health team members	8	40%
	c) Mass media	5	25%

**Table 2. Frequency and percentage distribution of pre-test knowledge scores of samples regarding biomedical waste management.**

SL.NO	LEVEL OF KNOWLEDGE	SCORE RANGE	FREQUENCY	PERCENTAGE (%)
1	Excellent	37 - 45	03	15%
2	Good	24 - 36	14	70%
3	Average	13 - 23	03	15%
4	Poor	0 - 12	00	00%

**Table 3. Frequency and percentage distribution of post test knowledge scores of samples regarding bio- medical waste management.**

SL. NO	LEVEL OF KNOWLEDGE	SCORE RANGE	FREQUENCY	PERCENTAGE
1	Excellent	37 - 45	14	70%
2	Good	24 - 36	06	30%
3	Average	13 - 23	00	00%
4	Poor	00 - 12	00	00%

**Table 4. Frequency and percentage distribution of pre-test attitude scores of samples regarding bio-medical waste management**

SL. NO.	LEVEL OF ATTITUDE	SCORE RANGE	FREQUENCY	PERCENTAGE (%)
1.	Good	43 - 60	7	35%
2.	Average	19 - 42	13	65%
3.	Poor	00 - 18	00	00%

**Table 5. Frequency and percentage distribution of post test attitude scores of samples regarding bio-medical waste management**

SL. NO.	LEVEL OF ATTITUDE	SCORE RANGE	FREQUENCY	PERCENTAGE
1.	Good	43 - 60	20	100%
2.	Average	19 - 48	00	00%
3.	Poor	00 - 18	00	00%

### III. DISCUSSION AND FINDINGS

The study indicated that 45% (9) of nurses belonged to age group of 41 years and above, majority of subject 95% (19) were female and 65% (13) had clinical experience above 10 years. The maximum nurses 75% (15) worked in general wards (medicine and surgery) and 55% (11) had taken special training in bio-medical waste management. The total number of nurses 40% (8) got information regarding bio-medical waste management from other health team members.

The distribution of pre-test and post test knowledge scores. The assessment pre-test knowledge of nurses regarding bio-medical waste management revealed that 15% had excellent knowledge, 70% had good knowledge and 15% had average level knowledge.

The assessment of post test knowledge of nurses regarding bio-medical waste management revealed that 70% of nurses had excellent knowledge and 30% had good level of knowledge. Effectiveness of structured teaching program on knowledge of nurses.

Paired 't' test established at 0.05 level of significance denotes the effectiveness of structured teaching programme on knowledge of nurses regarding bio-medical waste management. The statistical analysis demonstrated that an increase in knowledge level of nurses regarding bio-medical waste management was significant with 't' calculated value i.e 7.14 which is greater than 't' tabulated value 2.09. So the structured teaching programme was effective in improving the knowledge level among nurses regarding bio-medical waste management.

Description of pre-test and post test attitude scores. The assessment of pre-test attitude of nurses regarding bio-medical

waste management revealed that 35% of nurses had good attitude, 65% of nurses had average level of attitude.

The assessment of post test attitude of nurses regarding bio-medical waste management revealed that 100% of nurses had good level of attitude.

Effectiveness of structured teaching program on attitude of nurses.

Paired 't' test established at 0.05 level of significance denotes the effectiveness of structured teaching programme on attitude of nurses regarding bio-medical waste management. The statistical analysis demonstrated that an increase in attitude of nurses regarding bio-medical waste management was significant with 't' calculated value of 6.99 which is greater than 't' tabulated value 2.09. So the structured teaching programme was effective in improving the attitude level among nurses regarding bio-medical waste management.

#### IV. CONCLUSION

The study concluded there was increase in level of knowledge and attitude, hence research hypothesis was accepted and null hypothesis was rejected. Nursing education and nursing services should be strengthened to improve the effective management of bio-medical waste. Nursing administrator plays a major role in constantly updating the knowledge on bio-medical waste management and effective practices among nurses and all other healthcare team members including class IV workers. Similar experimental study can be conducted with control group. Strict Government policy for bio-medical waste management should be followed and constant reminders in the form of posters, leaf-lets, notices should be placed in every corner of the hospital.

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