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## Video-assisted teaching vs. Demonstration Method of Teaching regarding knowledge on bio-medical waste management

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### ABSTRACT

*Bio-Medical Waste Management is one of the biggest challenges of the present-day time because it has a direct impact on the health of the human being. Awareness about various aspects of Bio-Medical Waste Management is required and is needed to be assessed among the health care workers. To evaluate the effectiveness of Video Assisted Teaching Vs. Demonstration Method of Teaching regarding knowledge on Bio-Medical Waste Management and to correlate between the Video Assisted Teaching and Demonstration Method of Teaching on Biomedical Waste Management among the second year BSc Nursing students. Quasi-experimental, Pretest Posttest Design was adapted. The study was conducted among 82 second-year BSc Nursing students of PSG College of Nursing, Coimbatore. Based on the inclusion criteria, the study participants were divided for Experimental group I and Experimental group II. A convenient sampling technique was adopted. The questionnaire comprised 20 questions for assessing the knowledge of students on Biomedical Waste Management. Experimental group I was educated using Video Assisted Teaching and Experimental group II was educated using the Demonstration Method of Teaching. Descriptive and inferential statistics were used to analyze the data. The mean and standard deviation of pretest and posttest value for Video Assisted Teaching were  $13.8 \pm 2.12$  and  $16.39 \pm 2.79$  and for Demonstration Method of Teaching were  $13.6 \pm 2.10$  and  $15.92 \pm 2.62$ . The calculated 't' value of Video Assisted Teaching was 6.03 and the Demonstration Method of Teaching was 3.35 which were more than tabulated value 2.02 at the level of  $p < 0.05$ . There was a positive correlation ( $r = 0.715$ ) between Video Assisted Teaching and Demonstration Method of Teaching among Nursing students on Bio-Medical Waste Management at 0.05 level (2-tailed). The finding of the study concluded that Demonstration Method of Teaching is effective than Video Assisted Teaching regarding knowledge on Bio-Medical Waste Management among second year B.Sc. Nursing students.*

**Keywords**— Evaluate, Effectiveness, Video-Assisted Teaching (VAT), Demonstration Method of Teaching (DMT), Knowledge on Bio-Medical waste management

### 1. INTRODUCTION

Nurses are directly involved in providing a biologically safe environment. All health care organizations must have interdisciplinary infection control committees. The nurses specially trained to be knowledgeable about the latest research and practices in preventing, detecting and treating infections<sup>1</sup>. The hospitals generate a wide range of wastes including infectious or biomedical waste during diagnosis, treatment or immunization. The biomedical wastes need to be properly segregated at the source of its generation and color coded for transportation, storage, appropriate treatment, and disposal. Biomedical waste management is one of the biggest challenges of the present-day times because it has a direct impact on the health of human beings. According to the Ministry of Environment and Forest Gross generation of Biomedical Waste Management in India is 4,05,702 kg/day of which only 2,91,983kg/day is disposed of, which means that almost 28% of the waste is left untreated and not disposed findings its way in dumps and reenters our system<sup>2</sup>.

In the persuasion of the aim of reducing health problems, eliminating potential risks, and treating sick people, healthcare services inevitably create waste which itself may be hazardous to health. The waste produced in the course of healthcare activities carries a higher potential for infection and injury than any other type of waste. Inadequate and inappropriate knowledge of handling of healthcare waste may have serious health consequences and a significant impact on the environment as well. It is estimated that annually about 0.33 million tons of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day. Wherever generated, a safe and reliable method for handling of biomedical waste is essential. Effective management of biomedical waste is not only a legal necessity but also a social responsibility<sup>3</sup>.

Biomedical waste management has recently emerged as an issue of major concern not only to hospitals, nursing home authorities but also to the environment. The bio-medical wastes generated from health care units depend upon a number of factors such as waste management methods, type of health care units, occupancy of healthcare units, specialization of healthcare units, the ratio of reusable items in use, availability of infrastructure and resources, etc. The proper management of biomedical waste has become a worldwide humanitarian topic today. Although hazards of poor management of biomedical waste have aroused, that concerns the world environment. Now it is a well-established fact that there are many adverse and harmful effects to the environment including human beings which are caused by the “Hospital waste” generated during the patient care. Hospital waste is a potential health hazard to the health care workers, public and flora and fauna of the area. The problems of the waste disposal in the hospitals and other health-care institutions have become issues of increasing concern over, especially in the light of its far-reaching effects on human, health and the environment. Now the world is directing their efforts towards proper disposal of biomedical waste<sup>4</sup>.

**1.1 Statement of the Problem**

A Comparative study to evaluate the effectiveness of Video Assisted Teaching Vs Demonstration Method of Teaching regarding Knowledge on Bio Medical Waste Management among the second year B Sc Nursing students at selected College of Nursing, Coimbatore.

**1.2 Objectives**

- Assess the knowledge of Bio Medical Waste Management among the second year BSc Nursing students.
- Evaluate the effectiveness of Video Assisted Teaching Vs Demonstration Method of Teaching regarding knowledge on Bio Medical Waste Management among the second year B Sc Nursing students.
- Correlate between the Video Assisted Teaching and Demonstration Method of Teaching on Biomedical Waste Management among the second year B Sc Nursing students.
- Determine the level of satisfaction regarding the Education on Bio Medical Waste Management among the second year B Sc Nursing students.

**1.3 Hypothesis**

- 1.3.1 There will be a significant difference in mean posttest from the mean pre test level of knowledge on Bio Medical Waste Management among the second year BSc Nursing students.
- There will be a significant correlation between knowledge of Video Assisted Teaching the knowledge of Demonstration Method of Teaching on Bio Medical Waste Management among the second year B Sc Nursing students.

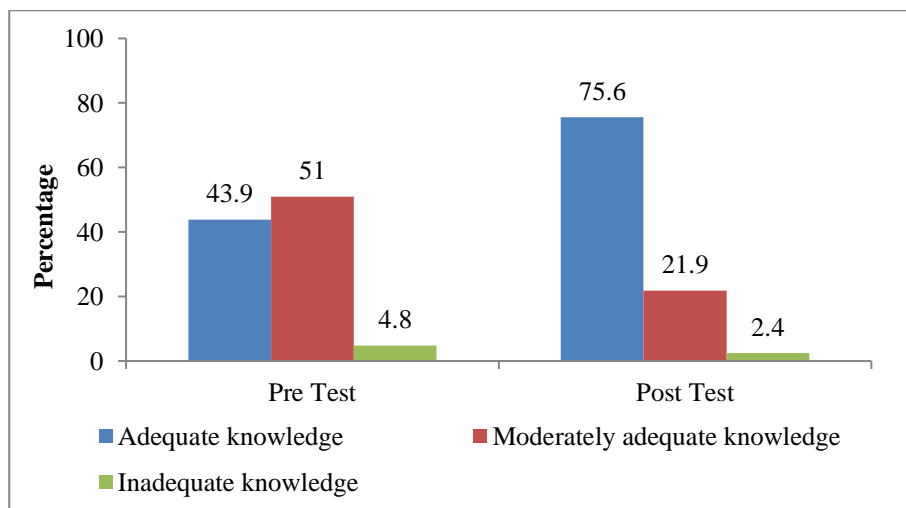
**2. MATERIALS AND METHODS**

Quasi experimental, Pretest Posttest Design was adapted. The study was conducted among the second year B Sc Nursing students of PSG College of Nursing, Coimbatore. Totally, there are 93 students present in the second year 2017 batch. Eighty two students had given consent for the study. The study participants were divided for Experimental group I and Experimental group II. Convenient sampling technique was adapted. The students who were willing and present during the study were included. The questionnaire comprised 20 multiple choice questions on the definition, types, sources, color coding, disposal and treatment of Biomedical Waste Management. Experimental group I was educated using Video Assisted Teaching and Experimental group II was educated using Demonstration Method of Teaching. Descriptive and inferential statistics were used to analyze the data.

**Table 1: Score for Interpretation**

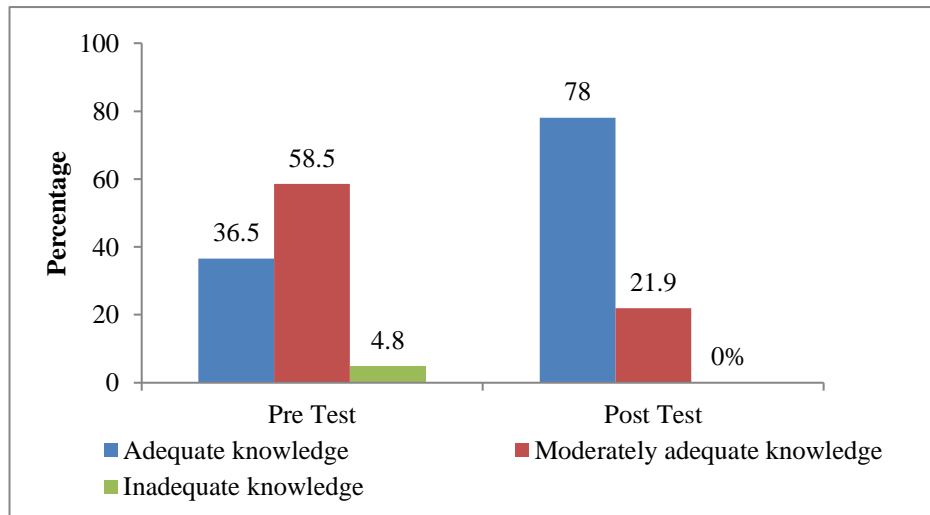
S no.	Level of Knowledge	Score	Percentage
1	Adequate knowledge	16-20	>75
2	Moderately adequate knowledge	11-15	51-75
3	Inadequate knowledge	< 10	<50

**3. RESULTS**



**Fig. 1: Pre and posttest knowledge scores of Nursing students educated using Video Assisted Teaching on Biomedical Waste Management, n=82**

The above figure shows that 43.9% had adequate knowledge and 51% had moderately adequate knowledge in pre-test of Video Assisted Teaching. Whereas in the posttest 75.6 % had adequate knowledge and 21.9% had moderately adequate knowledge.



**Fig. 2: Pre and posttest knowledge scores of Nursing students educated using Demonstration Method of Teaching on Biomedical Waste Management, n=82**

In figure 2, Demonstration Method Teaching shows that 36.5% had adequate knowledge 58.5% had moderately adequate knowledge and 4.8% had inadequate knowledge in the pretest. In the post test, 78% had adequate knowledge 21.9% had moderately adequate knowledge and none of them had inadequate knowledge.

**Table 1: Comparison of Mean and Standard Deviation of knowledge scores of study participants on Bio Medical Waste Management, n=82**

Groups	Level of knowledge	Mean	Standard deviation	't' value	Table value
Video Assisted Teaching	Pre test	13.8	2.12	6.03*	2.02
	Post test	16.39	2.79		
Demonstration Method of Teaching	Pre test	13.6	2.10	3.35*	2.20
	Post test	15.92	2.62		

Significant- \*  $p < 0.05$ , S- Significant

The mean and standard deviation of pre-test and post-test value for Video Assisted Teaching were  $13.8 \pm 2.12$  and  $16.39 \pm 2.79$  and in Demonstration Method of Teaching, it was  $13.6 \pm 2.10$  and  $15.92 \pm 2.62$ . The calculated value of Video Assisted Teaching was 6.03 and Demonstration Method of Teaching was 3.35 which were more than tabulated value 2.02 at the level of  $p < 0.05$ .

**H<sub>1</sub>:** There was a significant difference in mean posttest from the mean pre-test level of knowledge on Bio Medical Waste Management among the second year B Sc Nursing students. So, the hypothesis H<sub>1</sub> is accepted.

**Table 2: Correlation between Video Assisted Teaching and Demonstration Method of Teaching of the post-test knowledge scores on Bio Medical Waste Management, n=82**

A test score of knowledge on nursing students	Mean	Standard deviation	Correlation 'r' valve	Table Value
Video assisted teaching	16.39	2.79	0.715*	1.96
Demonstration method of teaching	15.92	2.62		

Significant- \*  $p < 0.05$ , S- Significant

The data were analyzed with Karl Pearson's correlation. Table 2 shows that there was a positive correlation ( $r = 0.715$ ) between Video Assisted Teaching and Demonstration Method of Teaching among Nursing students on Bio Medical Waste Management at 0.05 level (2-tailed). Hence hypothesis (H<sub>2</sub>) is accepted.

**Table 3: Frequency and percentage distribution of level of satisfaction of nursing students regarding knowledge on bio medical waste management, n=82**

S no.	Level of Satisfaction	Highly Satisfaction				Satisfaction				Dissatisfaction			
		VAT		DMT		VAT		DMT		VAT		DMT	
		f	%	f	%	f	%	f	%	f	%	f	%
1.	Explanation regarding Bio Medical Waste Management	23	56	22	53.6	18	43.9	19	46.3	0	0	0	0
2	Approach of the researcher	18	43.9	12	29	23	56	29	70.7	0	0	0	0
3	Time spent by the researcher	10	24.5	9	21	31	75.6	32	78	0	0	0	0

4	Duration of the programme	18	43.9	14	34.1	22	53.6	27	65.8	1	2.4	0	0
5	Arrangement made during the programme	19	46.3	18	43.9	21	51.2	23	56	1	2.4	0	0
6	The programme was easy to understand	23	46	21	51.2	17	41.4	19	46.3	1	2.4	1	2.4
7	Use of audio-visual aids	13	31.7	22	53.6	27	65.8	19	46.3	1	2.4	0	0
8	Involvement of the participants	14	34.1	10	24.5	26	63	31	75.6	1	2.4	0	0
9	Given at the appropriate time	20	48.7	9	21	19	46.3	31	75.6	2	4.8	1	2.4
10	Usefulness	21	51.2	18	43.9	20	48.7	23	56	0	0	0	0

Table 3 explains that the level of satisfaction, the students are highly satisfied for an explanation regarding Bio Medical Waste Management and for the approach of the researcher 56.4% are highly satisfied, 40.8% are satisfied and 2.8% are dissatisfied in Video Assisted Teaching. In Demonstration Method of Teaching, 64.2% are highly satisfied, 34.7% are satisfied and 1.1% are dissatisfied.

#### 4. DISCUSSION

##### 4.1 Effectiveness of Video Assisted Teaching and Demonstration Method of Teaching

Eighty-two students were selected and their knowledge on Bio Medical Waste Management. On evaluation, post test scores of Video Assisted Teaching and Demonstration Method of Teaching was higher than pre test scores. In post-test 31(75.6%) had adequate knowledge, 9 (21.9%) had moderately adequate knowledge and 1 (2.4%) had inadequate knowledge in Video Assisted Teaching. In Demonstration Method of Teaching 32 (78%) had adequate knowledge 9 (21.9%) had moderately adequate knowledge and none of them had inadequate knowledge. The mean and standard deviation of pre-test and post-test value for Video Assisted Teaching were  $13.8 \pm 2.12$  and  $16.39 \pm 2.79$  and in Demonstration Method of Teaching, it was  $13.6 \pm 2.10$  and  $15.92 \pm 2.62$ . The calculated value of Video Assisted Teaching was 6.03 and Demonstration Method of Teaching was 3.35 which were more than tabulated value 2.02 at the level of  $p < 0.05$ .

A study conducted in 2015 by Mimi Lalmuanpuii, et al., on effectiveness of video assisted teaching program regarding knowledge on Bio Medical Waste Management proved to have 35 (59%) of nurses were having average knowledge and 25 (41%) had poor knowledge about Bio Medical Waste Management in the pre-test where as in the post-test 40 (67%) had adequate knowledge 20 (33%) had moderately adequate knowledge. The pre-test score was  $17.383 \pm 3.836$  and post test score was  $26.033 \pm 3.474$  significant at the level of  $0.0001(t=12.947)^5$ .

##### 4.2 Correlation between Video Assisted Teaching and Demonstration Method of Teaching

In the current study, there was a positive correlation between Video Assisted Teaching and Demonstration Method of Teaching ( $r=0.715$ ) on Bio Medical Waste Management among the second year B Sc Nursing students. Barkha Devi, (2019) stated that although both the methods were equally effective in enhancing skill, traditional demonstration scored much better than the video assisted teaching programme<sup>2</sup>. The finding is consistent with the evidence of Vanesh Mathur (2011) on knowledge, attitude, and practices about Bio-Medical Waste Management among the health care professionals to evaluate the effectiveness of Demonstration Method of Teaching. After administering Demonstration method of teaching, the post-test score was increased to 26.03 from 17.38. There was a strong positive relationship ( $r=0.73$ )<sup>4</sup>.

#### 5. CONCLUSION

The primary responding of a health care professional is to create awareness and to provide necessary information through continuous education which will help in developing a positive attitude. In this study majority of the students had adequate knowledge after Demonstration Method of Teaching compared with Video Assisted Teaching. Even though, the study found that the Demonstration Method of Teaching and Video Assisted Teaching on Biomedical Waste Management helped to develop additional knowledge about the same, Demonstration Method of Teaching is highly effective than Video Assisted Teaching.

#### 6. REFERENCES

- [1] Berman. A Synder. S. J. and Fradsen, G. (2018), Kozier and Erb’s Fundamentals of Nursing-Concepts, Process and Practice, Uttar Pradesh Pearson India Education Services Pvt Ltd.,
- [2] A. Sharma, et al., (2014), Awareness of Biomedical Waste Management Among Health Care Personnel in Jaipur, India, Oral Health and Dental Management, 12(1):32 - 40
- [3] Barkha Devi, Biditha Kandelwal, Mirdula Das, (2019), Comparison of the Effectiveness of Video-assisted Teaching Program and Traditional Demonstration on Nursing Students Learning Skills of Performing Obstetrical Palpation, Iranian Journal of Nursing and Midwifery Research,24(2):118
- [4] Mathur, V., Dwivedi, S. Hassan, M. and Misra, R. (2011), Knowledge, Attitude, and Practices about Biomedical Waste Management among Healthcare Personnel: A Cross-sectional Study, Indian Journal of Community Medicine, Apr; 36(2):143-5.
- [5] Mimi Lalmuanpuii (2015). “Effectiveness of Video Assisted Teaching Program Regarding Knowledge on Biomedical Waste Management among Staff Nurses”, International Journal of Science and Research, 3(6), 45 - 79.
- [6] Aditya S Berad, (2014), “Biomedical Waste Management: A Study of Knowledge, Attitude, and Practices in a Tertiary Health Care Institution in Bijapur”, Indian Journal of Community Medicine, 4(1):32-40.
- [7] Ahmad Basheer, (2016), “The Effectiveness of Teachers' Use of Demonstrations for Enhancing Students' Understanding of and Attitudes to Learning the Oxidation-Reduction Concept”, Research gate, 2(5):144 -178.
- [8] Dal Singh Kharat, (2016), “Bio-Medical Waste Management Rules 2016- A review, Research Gate, vol.1, pp.:56 - 58

- [9] Gia Lenn L, (2012), "Effectiveness of Video Presentation to Students' Learning", Scientific and Academic Publishing, 2(4): 112 - 134.
- [10] Hirani. P, (2014), "Biomedical Waste an Introduction to its Management", International Journals of Innovative Research in Advanced Engineering, 1 (8): 2349 - 2163.
- [11] Kumar R et al (2014), "A descriptive study on evaluation of bio-medical waste management in a tertiary care public hospital of North India", Journal of Environmental Health, 5(3): 102 -134.
- [12] Loris Salina, (2012), "Effectiveness of an educational video as an instrument to refresh and reinforce the learning of a nursing technique: a randomized control trial", Perspectives on Medical Education, 2(7):122 - 134.
- [13] Manasi, (2017), "Statement challenges in Biomedical Waste Management in Cities: A Ward Level Study of Bangalore", 7(1):112 - 134
- [14] Nice Joseph (2016). "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", International Journal of Scientific Research and Publications, 2(4):127 - 134.
- [15] Olufunsho in Awodele (2016) "Assessment of medical waste management in seven hospitals in Lagos, Nigeria", BMC Public Health, 5(7):78 - 88.
- [16] Praveen Mathur, (2012), "Need of Biomedical Waste Management System in Hospital", Journals of current World Environment, 7 (1):117-124.
- [17] Rajiv Kumar, (2014), "A Descriptive Study on Evaluation of Biomedical Waste Management in a Tertiary Care Public Hospital of North India", Journals of Environmental Health Science and Engineering, pg.no:12-69.
- [18] Ramesh Babu. B, (2009) "Management of Biomedical Waste in India and other countries", Journals of International Environmental Application and Science, 4(1):67-78.
- [19] Shalini Sharma, (2010), "Awareness about Bio-Medical Waste Management among Health Care Personnel", International Journal of Environmental Science and Development, 2(2):67 – 78.
- [20] Sushma Prabhu, (2013), "Comparison of traditional versus video-based teaching on neurological assessment among undergraduate nursing students", NITTE University Journal of Health Sciences, 2(6):76 - 88.