**A STUDY TO ASSESS EFFECTIVENESS OF VIDEO ASSISTED LEARNING ON
KNOWLEDGE & PRACTICE OF HEALTH CARE PROFESSIONALS
REGARDING BIOMEDICAL WASTE MANAGEMENT IN TERTIARY CARE
HOSPITAL WESTERN RAJASTHAN**

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ABSTRACT

Introduction: Great strides have been made in the field of health care system over the years. The health of public and professionals alike are affected by poor waste management practices and also contributes to environmental degradation.

Material & Methods: Pre experimental approach for the study. One group pre-test post-test design (O1 X O2) was adopted for the study the sample consisted of 60 Health Care Professionals. The setting of the study was Umaid Hospital Jodhpur. The sampling technique was convenience sampling.

Results : The mean of knowledge regarding biomedical waste management was 23 good ,33 average and 4 poor in pre-test was increased to 55 good , 5 average and 0 poor in the post test. Practice regarding biomedical waste management was 10good, 22 averages and 28 poor in pre-test was increased to 21 good, 31 average and 8 poor in the post test. The finding revealed that there was improvement in the mean percentage of post test score compared to mean percentage of pre-test score.

Conclusion: the present study that knowledge and practice awareness about the biomedical waste generation hazards, legislation and management among health care professionals in tertiary care centre, western Rajasthan, were not satisfactory.

Keywords: Bio-medical waste, Waste management, Effectiveness, Video assisted learning, Knowledge, Practice, Health care professionals.

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Let the wastes of "the sick" not contaminate the lives of

"The Healthy" - K.PARK

INTRODUCTION :

The term "Biomedical waste" has been defined as any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals, or in research activities pertaining thereto, or in the production or testing of biological.

Government of India's Bio Medical Waste (Management and Handling) Rules 1998, which amended in 2000, 2003, 2016 and 2018.

In India, the Ministry of Environmental and forests has promulgated the Bio Medical Waste (Management and Handling) Rules 1998 which was first amended in 2000 and latest amendment in 2018 for proper management Bio Medical Waste. These rules are under **The ENVIRONMENT PROTECTION ACT 1986 (29 of 1986)**. These rules are mean to improve the overall waste management of health care facilities in India. The absence of proper waste management, lack of awareness about the health hazards from Bio Medical Waste insufficient financial and human resources, and poor control of waste disposal are the most critical problems connected with health care waste.

*DrMadhviSanwalka, Dr Grace John, et.al. (2020)*¹⁷ A Study conducted of Bio medical waste management. Sample size consists of 150 healthcare personnel. The result from the present study, the result show revealed the major findings of the study were; with the respect to the overall status of the **healthcare personnel**, it's evident that majority We found out that technicians (89.95%) and nurses (88.87%) have more knowledge regarding BIO MEDICAL WASTEM then doctors (85.82 %). But doctors (82.20%) are more aware for proper management than nurses (73.80%) and technicians (64.0%). Doctors (80.87%) and nurses (82%) are practicing these norms more than technicians (59%).

Dhasarathi Kumar, et.al.¹⁸ (2018) A Study conducted on Knowledge Level on Bio-Medical Waste Management Sample size consists of 100 staff nurses working in selected hospital. The result from the present study, the result show revealed the major findings of the study were; with the respect to the overall status of the staff nurses, it's evident that majority 75% of the subject had inadequate 25% had moderate knowledge and none of the nurses have adequate knowledge.

MATERIAL & METHODS

Research Approach: In order to accomplish the objective of the study, a quantitative research approach was considered in this study.

Research Design: For the present study, a pre-experimental design adopted. A pre-experimental research design was used to assess the knowledge and practice of health care professionals.

Research Setting of Study:-

This study will be conducted in health care professionals in departments under Dr. S.N medical college of nursing Jodhpur.

RESEARCH POPULATION:

In this study population is all Health care professionals at Jodhpur.

SAMPLING TECHNIQUE:

This research study will adopt non-probability convenience sampling technique for selecting sample.

SAMPLE SIZE:

In this study, the sample consists of 60 Health Care Professionals departments under Dr. S.N medical college Jodhpur.

METHOD OF DATA COLLECTION

The data will be collected from Health Care Professionals through the Structured questionnaire method by structured

standardized tool in departments under Dr. S.N medical college jodhpur.

RESULT

PART-I SOCIO-DEMOGRAPHIC CHARACTERISTIC OF THE SAMPLES

Table No. 1: Frequency and percentage distribution of socio-demographic characteristic of the samples.

(N=60)

Socio-Demographic Characteristic	Frequency(n)	Percentage (%)
Age (in years)		
20-30	20	33.33%
30-40	17	28.33%
40-50	8	13.33%
50 years and above	15	25.00%
Religion		
Hindu	44	73.30%
Muslim	10	16.70%
Christian	5	8.30%
Others	1	1.70%
Professional Qualification		
A.N.M	2	3.30%
G.N.M	55	91.70%
Graduate Nursing	3	5.00%
Post Graduate Nursing	0	0.00%
Year of experience in present jobs		
Less than 1 year	12	20.00%
1-5 years	5	8.30%
5-10 years	18	30.00%
More than 10 years	25	41.70%
Source of Information regarding Bio medical waste		
Mass media	0	0.00%
Upgraded courses	2	3.30%
In-service training	34	56.70%
Co-worker	24	40.00%

PART-II

PRE-TEST KNOWLEDGE REGARDING BIO MEDICAL WASTEMANAGEMENT

Table No. 2: Frequency and percentage distribution of the samples pre-test level of knowledge regarding Bio medical waste management.

(N=60)

Level of Knowledge	Frequency	Percentage
Poor	4	6.67%
Average	33	55.00%
Good	23	38.33%
Total	100	100.0%

Table No. 2 shows that majority (55%) of the sample had average knowledge regarding Bio medical waste management, followed by 38.33% had good knowledge and remaining (6.67%) samples had poor knowledge regarding Bio medical waste management.

Figure No. 1: Simple Bar diagram showing the percentage distribution of the samples according to their Level of Knowledge.

Table No. 3: Aspects wise pre-test mean knowledge score regarding Bio medical waste management.

(N=60)

Aspects	Max	Mean	Mean %	±S.D.	Median
General information about Bio medical waste	18	13.92	77.32%	2.47	14
Bio medical waste law	5	3.58	71.67%	1.21	4
Bio medical waste process	7	5.15	73.57%	1.85	6
Over all	30	22.65	75.50%	4.12	23

Table No. 3 shows the pre-test mean knowledge score of samples according to the different Aspects of Bio medical waste. It was highest (77.32%) regarding the 'General information about Bio medical waste' with the mean 13.92 ± 2.47 , followed by 73.57% regarding the 'Bio medical waste process' with the mean 5.15 ± 1.85 , and the lowest (71.67%) regarding the 'Bio medical waste law' of Bio medical waste management. The overall pre-test mean percentage knowledge score is 75.5% with the mean of 22.65 ± 4.12 . Based on the findings we can conclude that the overall and as well as its different aspects pre-test knowledge score of samples regarding Bio medical waste have been Average.

PART-III

PRE-TEST PRACTICE REGARDING BIO MEDICAL WASTEMANAGEMENT

Table No. 4: Frequency and percentage distribution of the samples pre-test level of

practice regarding Bio medical waste Management.

(N=60)

Level of Practice	Frequency	Percentage
Poor	28	46.67%
Average	22	36.67%
Good	10	16.67%
Total	100	100.0%

Table No. 4 shows that majority (46.67%) of the sample had poor practice regarding Bio medical waste Management, followed by 36.67% had average practice and remaining (16.67%) samples had good practice regarding Bio medical waste Management.

Figure No. 2: Simple Bar diagram showing the percentage distribution of the samples according to their Level of Practice.

Table No. 5: Pre-test mean practice score regarding Bio medical waste Management.

(N=60)

Max	Mean	Mean %	±S.D.	Median
7	3.87	55.24%	1.51	4

Table No. 5 shows the pre-test mean percentage practice score is 55.24% with

the mean of 3.87 ± 1.51 . Based on the findings we can conclude that the pre-test practice score of samples regarding Bio medical waste have been Poor.

PART-IV EFFECTIVENESS OF VIDEO ASSISTED LEARNING ON KNOWLEDGE

Table No. 6: Comparison of pre-test and post-test on level of knowledge regarding Bio medical waste management.

(N=60)

Level of Knowledge	Pre-test	Post-test	χ^2 Value	df	P value
Poor	4	0	37.76	2	<0.001*
Average	33	5			
Good	23	55			

* Significant at $p \leq 0.05$

Table No. 6 shows that, the calculated Pearson Chi-squared value ($\chi^2_{(2)} = 37.76$) and its corresponding p value <0.001 is very less than 0.05. Hence, there is very highly significant difference found in between pre-test and post-test level of knowledge regarding Bio medical waste at level of significance $p \leq 0.05$.

Figure No. 3: Simple Bar diagram showing the percentage distribution of the samples

according to their Level of Knowledge.

PART-V

EFFECTIVENESS OF VIDEO ASSISTED LEARNING ON PRACTICE

Table No. 7: Comparison of pre-test and post-test knowledge score regarding Bio medical waste management.

(N=60)

Aspects	Max Score	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	Knowledge gain Mean $\pm$ SD	Paired t-value	P value
General information about Bio Medical Waste	18	13.92 $\pm$ 2.47	16.53 $\pm$ 1.40	2.62 $\pm$ 2.71	7.472	<0.001*
Bio medical waste law	5	3.58 $\pm$ 1.21	4.27 $\pm$ 0.84	0.68 $\pm$ 1.33	3.968	<0.001*
Bio medical waste process	7	5.15 $\pm$ 1.85	6.28 $\pm$ 1.01	1.13 $\pm$ 1.92	4.578	<0.001*
Over all	30	22.65 $\pm$ 4.12	27.08 $\pm$ 1.99	4.43 $\pm$ 3.94	8.721	<0.001*

* Significant at $p \leq 0.05$

Table No. 7 shows that comparison of the mean knowledge score, before and after implementation of Video Assisted Learning, the overall mean knowledge score was apparently higher in post-test (27.08 $\pm$ 1.99) with the mean difference of 4.43 $\pm$ 3.94 and the computed P-value for the paired t-score for overall and as well as different aspects of Bio medical waste is <0.001, which is very less than the 0.05. Hence, there is a very highly significant difference found in between pre-test and post-test knowledge score regarding Bio medical waste at the level of significance $p \leq 0.05$.

Table No. 8: Comparison of pre-test and post-test on level of practice regarding Bio medical waste Management.

(N=60)

Level of Practice	Pre-test	Post-test	χ^2 Value	df	P value
Poor	28	8	16.54	2	<0.001*
Average	22	31			
Good	10	21			

* Significant at $p \leq 0.05$

Table No. 8 shows that, the calculated Pearson Chi-squared value ($\chi^2_{(2)} = 16.54$) and its corresponding p value <0.001 is very less than 0.05. Hence, there is very highly significant difference found in between pre-test and post-test level of practice regarding Bio medical waste at level of significance $p \leq 0.05$.

Table No. 9: Comparison of pre-test and post-test practice score regarding Bio medical waste Management.

(N=60)

Tes t	M e a n $\pm$ SD	Mean Difference $\pm$ SD	Pai red t- val ue	d f	P valu e
Pr e- te st	3.87 $\pm$ 1.51	1.12 $\pm$ 1.77	4.896	59	<0.001*
Po st- te st	4.98 $\pm$ 1.21				

* Significant at $p \leq 0.05$

Table No. 9 shows that comparison of the mean practice score, before and after implementation of Video Assisted Learning, the overall mean practice score was apparently higher in post-test (4.98 ± 1.21) with the mean difference of 1.12 ± 1.77 and the computed P-value for the paired t-score for is <0.001 , which is very less than the 0.05. Hence, there is a very highly significant difference found in between pre-test and post-test practice score regarding Bio medical waste at the level of significance $p \leq 0.05$.

SECTION-VI

CORRELATION BETWEEN KNOWLEDGE AND PRACTICE

Table No. – 10 Correlation between knowledge and practice score

(N=100)

Variable	Mean	SD	Karl Pearson Correlation coefficient	Interpretation
Knowledge	22.65	4.12	$r = 0.329$ $p = 0.010^*$	Significant moderate positive correlation
Practice	3.87	1.51		

* Significant at $p \leq 0.05$

Table no 10 shows that the calculated correlation Coefficient 'r' = 0.329 and corresponding $p = 0.010$ that is very less than 0.05, shows that there is a significant moderate positive correlation between knowledge and practice score regarding Bio medical waste among Health Care Professionals in

tertiary care hospital i.e., As knowledge increases their practice also positively increases moderately.

PART-VII

ASSOCIATION BETWEEN KNOWLEDGE & SOCIO-DEMOGRAPHIC VARIABLES.

Table No. 11: Association between Pre-test level of knowledge regarding Bio medical waste management and socio-demographic characteristic.

(N=60)

Socio-Demographic Characteristics	Level of Knowledge			Fisher's Exact Test	P value
	Poor	Average	Good		
Age (in years)					
20-30	0	12	8	4.719	0.587
30-40	1	10	6		
40-50	1	5	2		
50 years and above	2	6	7		
Religion					
Hindu	3	25	16	5.755	0.463
Muslim	1	6	3		
Christian	0	1	4		
Others	0	1	0		
Professional Qualification					
A.N.M	1	0	1	5.636	0.202
G.N.M	3	31	21		
Graduate Nursing	0	2	1		
Post Graduate Nursing	0	0	0

Socio-Demographic Characteristic	Level of Knowledge			Fisher's Exact Test	P value
	Poor	Average	Good		
Experience in present jobs					
Less than 1 year	0	8	4	4.826	0.556
1-5 years	0	1	4		
5-10 years	2	10	6		
More than 10 years	2	14	9		
Source of Information for Bio Medical Waste					
Mass media	0	0	0	7.549	0.071
Upgraded courses	1	0	1		
In-service training	2	22	10		
Co-worker	1	11	12		

Table no. 11 shows the association between pre-test level of knowledge regarding Bio medical waste and socio-demographic characteristic among Health Care Professionals in tertiary care hospital. All the demographic variables found no significant association between pre-test level of knowledge regarding Bio medical waste at the level of $p < 0.05$.

PART-VIII

ASSOCIATION BETWEEN KNOWLEDGE SCORE & SOCIO-DEMOGRAPHIC VARIABLES.

Table No. 12

(N=60)

Socio-Demographic Characteristic	Level of Knowledge			Fisher's Exact Test	P value
	Poor	Average	Good		
Age (in years)					
20-30	10	6	4	7.884	0.231
30-40	10	7	0		
40-50	3	4	1		
50 years and above	5	5	5		
Religion					
Hindu	24	14	6	6.776	0.286
Muslim	3	5	2		
Christian	1	2	2		
Others	0	1	0		
Professional Qualification					
A.N.M	1	0	1	3.239	0.546
G.N.M	26	20	9		
Graduate Nursing	1	2	0		
Post Graduate Nursing	0	0	0		
Experience in present jobs					
Less than 1 year	5	4	3	2.379	0.923
1-5 years	3	2	0		
5-10 years	8	6	4		
More than 10 years	12	10	3		
Source of Information for Bio Medical Waste					
Mass media	0	0	0	5.204	0.201
Upgraded courses	1	0	1		
In-service training	17	10	7		
Co-worker	10	12	2

DISCUSSION

This chapter had dealt with the analysis and interpretation of data collected from 60 Health Care Professionals in tertiary care hospital western Rajasthan at Jodhpur to assess the knowledge regarding Bio medical waste. Descriptive and inferential statistics were used for analysis.

CONCLUSION:

It was found that pre-test knowledge and practice level was poor with mean score 22.65 ± 4.12 and 3.87 ± 1.51 respectively. It was found that mean post-test knowledge score was significantly higher than mean pre-test knowledge score with mean difference of 4.43 ± 3.94 and computed paired 't' value was [$t_{(59)} = 8.721$, $P = <0.001$] and mean post-test practice score was also significantly higher than mean pre-test practice score with mean difference of 1.12 ± 1.77 and computed paired 't' value was [$t_{(59)} = 4.896$, $P = <0.001$]. It showed highly significant difference suggesting that the Video Assisted Learning was effective in increasing the knowledge and improving the practice of Health Care Professionals regarding Bio medical waste. However, all the demographic variables were found no significant association with the level of knowledge and practice regarding Bio

medical waste among Health Care Professionals in tertiary care hospital.

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