

“Precaution while handling bio-medical waste among class-IV workers in a selected hospital.”

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Abstract:

BACKGROUND: The Bio-Medical waste may pose an occupational hazard when managed incorrectly. Therefore, we need special precautions and the well-trained personnel to manage those biomedical wastes and keep the risk low. So it is important to enhance knowledge regarding precaution while handling BMW among the Class IV workers. In this study Quantitative evaluative research approach with pre experimental one group pre-test, post-test research design was used. **MATERIAL AND METHOD:** In this research study Quantitative evaluative research approach with pre- experimental one group pre-test-post-test design was used. The sampling technique was non probability convenient sampling used to collect the 60 samples of Class IV workers. Data collection was done by administering the self structured questionnaire. Data was analyzed by using descriptive and inferential statistics such as standard deviation, chi- test, and paired ‘t’ test. **RESULTS:** The findings shows that there is no significant association between knowledge of Class IV workers and selected demographic variable. The pre test means score of knowledge of Class IV workers was 12.97 (43.23%) and post test mean score of knowledge was 21.51 (71.7%). The mean difference of pre and post test knowledge score was 8.54 which show the effectiveness of Planned Teaching Programme. The calculated value of ‘t’ test was (62.89) at 0.05 level of significance, which was more than table value of ‘t’, Therefore Finding reveals the planned teaching programme was effective to increase

the knowledge of respondent Hence, H_1 is accepted and another finding reveals there was no significant association between pre test knowledge score with demographic variable of age, education, experience & previous exposure. Hence hypothesis H_2 is rejected. **CONCLUSION:** In this study found that post-test knowledge score is higher than the pre-test score. So, it indicate effective outcome of planned teaching programme on Precaution while handing Bio-medical waste among Class IV workers. Pre-test knowledge score were not associated with selected demographical variables.

Key Words: Effectiveness, Planned Teaching Programme, Class IV workers, Bio- Medical Waste Management.

INTRODUCTION:

Bio-medical waste may be very hazardous if it's not disposed of in the right way. Universal precautions are used in all instances of medical waste disposal. Blood and blood products are always considered potentially infectious and are treated as such. The health hazard concern regarding medical waste began in the 1980s when medical objects like needles started to wash up on many east coast beaches. Great strides in proper medical waste disposal have been made since then.¹

Epidemiological studies indicate that a person who experiences one needle-stick injury from a needle used on an infected source patient has risks of 30%, 1.8%, and 0.3% respectively to become infected with HBV, HCV and HIV. In 2002, the results of a WHO assessment conducted in 22 developing countries showed that the proportion of healthcare facilities that do not use proper waste disposal methods ranges from 18% to 64%.²

WHO (World Health Organization) even mentioned that in 2000, there were 32% new Hepatitis B infections due to improper way of contaminated syringe disposal. In 2002, WHO conducted a research to review 22 countries about their way of medical waste disposal management and resulting various ranges from 18% up to 64% that used *improper methods* of biomedical waste management. Which is dangerous for people who have the highest risk of being the biomedical waste, for instance, healthcare workers, patients, waste collection and disposal staff, and even our environment. The biomedical waste may pose an occupational hazard when

managed incorrectly. Therefore, we need special precautions and the well-trained personnel to manage those biomedical wastes and keep the risk low.³

LITERATURE REVIEW:

A study was conducted by **ParvinLakbala, FarboodEbadiAzari et.al 2012**, on Needle sticks and sharps injuries among housekeeping workers in hospitals of Shiraz, Iran. For the effective prevention of these injuries, health boards and hospital trusts need to formulate strategies to improve the working conditions of health care workers, discourage the excessive use of injections, and increase their adherence to universal precautions.⁴

A study was conducted by **P.V. Srinivasa Kumar, P. Padmajaet.al (2017)** on Knowledge, Attitude, Practices of Biomedical Waste Management among Nursing Students and Staff in a Tertiary Care Hospital. The result of study is Third year students answered better than first year and second year students towards KAP of Bio Medical Waste management. Out of 54 third year students, 88.8% gave correct answers to knowledge questionnaire, 79.6% and 74% responded well to attitude and practice questionnaire. Out of 147 nursing students, 14.2% of first year, 21.7% of second year, 32.6% of third year students gave correct answers to knowledge questionnaire. And study is concluded as the higher education and clinical rounds are needed for nursing students to increase the knowledge of bio medical waste management activities.⁵

STUDY OBJECTIVES :

- ❖ Determine the knowledge regarding precaution while handling biomedical waste among class-IV workers of selected hospital.
- ❖ Assess the effectiveness of planned teaching programme regarding precaution while handling bio-medical waste.
- ❖ Find out the association between the pre-test knowledge score regarding precautions while handling bio-medical waste with their selected demographic variables.

MATERIALS:

Research variables

- ❖ **Independent variables:** The independent variable in this study is planned teaching programme on precaution while handling biomedical waste.
- ❖ **Dependent variable:** The dependent variable in this study is knowledge regarding precaution while handling bio-medical waste among class-IV workers.

- ❖ **Socio-demographic variable:**The socio-demographic variables in this study are age, education, working experience in hospitals, previous exposure of Bio-Medical Waste.

Description of tools

This consists of two parts:

- ❖ **Section 1:** Deals with the demographic data of the samples such as Age, Educational Qualification, Working experience in hospitals & Previous Exposure regarding Bio Medical Waste Management.
- ❖ **Section 2:** It Consisted of a 30 multiple choice questionnaire (MCQs) to assess the Knowledge of Class IV workers working in Dhiraj Hospitals at Vadodara regarding Bio-Medical Waste Management.

Scoring Procedure:

- ❖ For knowledge assessment If answer is right then give - **1**
If the answer is wrong then give - **0**

Scoring Interpretation Of Knowledge:

- ❖ Adequate knowledge: $\geq 67\%$ in Score (21-30)
- ❖ Moderately adequate knowledge: **34-66%** in Score (11-20)
- ❖ Inadequate knowledge: $\leq 33\%$ in Score (<10)

Reliability

The reliability of tool established by using split half method ‘Spearman Brown Prophecy formula’ ($r=0.86$) reliability test.

METHOD:

Research design:

- ❖ In this study, the research design was pre-experimental one group pre-test post-test research design.

Setting

- ❖ In this research study setting refers to Dhirajhodpital, Piparia, Waghodiya Vadodara.

Sample

- ❖ The sample for this study Comprise of 60 Class IV workers belongs to Dhiraj Hospital and available during the research study.

Method of data Collection

- ❖ Self administrated questionnaire on precaution while handling Bio-Medical Waste.

Inclusion Criteria: -

- ❖ Available at the time of data collection.
- ❖ Willing to participate in the study.

Exclusion Criteria:-

- ❖ The study excludes the class-IV workers who Can't read and write Gujarati.

DISCUSSION:

The aim of the study was conducted to evaluate the effectiveness of PTP on knowledge regarding precaution while handling BMW among Class IV workers. It was found Class IV workers had inadequate knowledge regarding precaution while handling BMW and PTP is effective to improve the knowledge and bring a good knowledge towards precaution while handling BMW.

Various evidences show the effectiveness of PTP in improving knowledge regarding precaution while handling BMW. the Class IV workers are having lack of knowledge regarding precaution while handling BMW, so it is important that health care provider should provide the knowledge regarding precaution while handling BMW.

ANALYSIS:

TABLE 1: Frequency and percentage distribution of samples, according to their demographic characteristic

N=60

SR.NO	CHARACTERISTICS	FREQUENCY	PERCENTAGE
1.	Age in years		
	a) 20-30	16	26.6%
	b) 31-40	30	50%
	c) 41-50	14	23.3%
2.	Education status		
	a) Below 8 th Std.	21	35%
	b) Above 8 th Std.	39	65%
3.	Year of job experience		
	a) 1 year	16	26.66%
	b) 2 year	13	21.66%
	c) 3 year	14	23.33%
	d) More than 3 year	17	28.33%

4	Previously Exposure Regarding BMW management.		
	a) Yes	54	90%
	b) No	6	10%

TABLE 2: Distribution of Mean, SD and mean percentage of pre test knowledge Score of Class IV workers. N=60

Sr.no	Knowledge Aspect	Maximum	Mean	Mean %	SD
1.	Introduction	5	3.40	68%	1.06
2.	Sources	2	0.48	24%	0.65
3.	Type & Colour of BMW	9	3.38	37.55%	1.57
4.	Potential Hazards & Its Prevention	8	3.61	45.12%	1.41
5.	Segregation & collection of BMW	4	1.30	32.5%	0.88
6.	Role of Class IV workers	2	0.80	40%	0.73
Overall score		30	12.97	43.23%	6.3

Table 3: Association between pre test knowledge score and socio-demographic variables N=60

Sr. no.	Variable	0-10	11-20	Total	X ²	df	Level of significance
1	AGE				3.017	2	3.017<5.99 NS
	20-30	02	14	16			
	31-40	04	25	29			
	41-50	05	10	15			
	TOTAL	11	49	60			
2	EDUCATIONAL STATUS				3.24	1	3.24<3.84 NS
	BELOW 8 th STD.	6	13	19			
	ABOVE 8 th STD.	5	36	41			
	TOTAL	11	49	60			
3	YEAR OF EXPERIENCE				1.59	3	1.59<7.81 NS
	1 YEAR	03	12	15			
	2 YEAR	01	13	14			
	3 YEAR	03	11	14			
	>3 YEAR	04	13	17			

	TOTAL	11	49	60			
4	PREVIOUSLY ANY EXPOSURE BMW PROGRAMME						
	Yes	10	46	56	0.127	1	0.127<3.84 NS
	No	01	03	04			
	TOTAL	11	49	60			

FINDINGS:

Section A: Description of samples according to their demographic characteristics.

- ❖ The highest percentage (50%) of Class IV workers were in the age group of 31-40 years and least (23%) of Class IV workers were in the age group of 41-50 years. (26%) of Class IV workers were indicated in age of 20-30 years.
- ❖ The highest number (65%) of Class IV workers were Above 8thStd and lowest number (35%) of Class IV workers were Below 8th Std.
- ❖ Most of the participant (28%) have more than 3 years of experience remaining Class IV workers (27%) have 1 year and (23%) have 3 years of experience and least of Class IV workers (18 %) have 2 years of experience in hospitals.
- ❖ 90% of Class-IV workers having previous exposure of BMW programme, least of (10%) not having previous exposure regarding BMW programme.

Section B: Analysis of pre test and post test score of knowledge Regarding Precaution while handling BMW.

Table 1: Distribution of pre test and post test knowledge score according to the percentage N=60

Sr. No	Categories of knowledge score	Percentage	Pre test	Post test
1	Inadequate	<33%	18.3%	0%
2	Moderate	34-66%	81.7%	35%
3	Adequate	>67%	00	65%

Section C: Effectiveness of Planned Teaching Programme.

Table 2: Comparison between pre test and post test score of knowledge among Class IV workers regarding precaution while handling BMW.

N=60

Variable		Mean	Mean Difference	Std. Deviation	t- Value
Knowledge regarding precaution while handling BMW.	Pre-test	12.97	8.54	6.30	62.89
	Post-Test	21.51		5.32	

* Significant at 0.05 level
(0.05, 99df) = 2

*t

Section D: Association between pre test knowledge score with socio demographic variables.

Association between pre test knowledge score and socio-demographic variables

- ❖ Finding data reveals that association between knowledge of Class IV workers and demographic variable. There are no any significant demographic variable. All of the above variables are non-significant.
- ❖ Hence, research hypothesis H_2 was not accepted.

RESULT:

The findings shows that there is no significant association between knowledge of Class IV workers and selected demographic variable. The pre test means score of knowledge of Class IV workers was 12.97 (43.23%) and post test mean score of knowledge was 21.51 (71.7%). The mean difference of pre and post test knowledge score was 8.54 which show the effectiveness of Planned Teaching Programme. The calculated value of ‘t’ test was (62.89) at 0.05 level of significance, which was more than table value of ‘t’, Therefore Finding reveals the planned teaching programme was effective to increase the knowledge of respondent Hence, H_1 is accepted and another finding reveals there was no significant association between pre test knowledge score with demographic variable of age, education, experience & previous exposure. Hence hypothesis H_2 is rejected

RECOMMENDATIONS:

Based on the findings of the present study recommendation offered for the future study:

- ❖ The similar study can be conducted in different settings.
- ❖ The similar study can be conducted on all health care personal.
- ❖ The similar study can be conducted in more depth.
- ❖ The similar study can be conducted in large sample.
- ❖ The similar study can be conducted in different hospital.

CONCLUSION:

The analysis reveals that the total mean of post-test knowledge score was observed to be significantly higher than the total mean of pretest knowledge score after providing PTP to the Class IV workers regarding precaution while handling BMW. Hence, it is concluded that the PTP was effective to increase the knowledge regarding the precautions while handling BMW. Education regarding Bio-medical Waste Management should be given to all Class IV workers to improve their knowledge of procedure which may aid in reducing rate of infection and needle stick injury.

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