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IMPACT OF TRAINING ON BIO MEDICAL WASTE MANAGEMENT AMONG FIRST YEAR MEDICAL STUDENTS

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ABSTRACT

Introduction

Today with growing and emerging Health care, Managing Biomedical Waste is the biggest challenge. The nonsegregated or untreated waste cause infectious diseases and environmental degradation.

Aim & Objective

The objective of the study is to analyze impact of training on knowledge and awareness of under graduate first year medical students regarding bio medical waste management. Due to availability of less information the study is being carry out to get more information on the subject

Material and Methods

This study was conducted during the academic year 2019-2020 in selected medical college. Undergraduate medical students willing to participate were included in the study. A total of 80 students were randomly selected through random number table, and a self-administered questionnaire was given to the respondents. The questionnaire consisted of 8 structured questions to assess the students, knowledge and awareness regarding BMW management pretest was taken before scheduling of training session and a post test is taken immediately after training for bio medical waste management. Results were computed using SPSS version 23.

Results

The knowledge score before and after training shows drastic improvement after training. Mean score in pre-test of participant was 3.3 ± 1.39 and mean score of post-test of participant was 7.2 ± 0.70. Mean difference in scores from pre-test to post test was 3.9. There was significant difference in mean test score of participants from pre-test to post test. The knowledge score before and after training shows drastic improvement after training.

Conclusion

The results indicate that training students on BMW management made a huge impact on the knowledge of medical student.

Hence, there is an utmost need to educate all students on a regular basis for bringing change in bio medical waste management.

Keywords: *Biomedical Waste Management, BMW, Knowledge, Awareness, Training.*

Introduction

Biomedical Waste management (BMW) is any waste which is a byproduct of waste generated from any health care institution and is infectious in nature. Although bio medical waste handling rules have been into existence since 1998 but waste disposal, segregation and disposal still remains the biggest gap that should be catered. This waste if remain unsegregated or mixed up with general waste at any stage from handling to disposal can infect the 85% of general waste which is being produced in healthcare setting. Today this waste is a major concern due to increase in number of infectious diseases. In almost all the health care settings majority of health personals have poor knowledge and awareness.

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All the waste get mix together within the premises. The waste being mixed poses serious health hazard to both staff and patient. This waste increases incidences of hospital-acquired infections, makes the environment stinking, highly infectious and unhygienic. At the same time Non-compliance to BMW rules may invite punitive action which can lead to monitory loss and even jail term. It can also increase incidences of needle-stick injuries. Unhygienic work environment and increased incidences of hospital acquired infections are the major factor of concern therefore training is an important factor to improve management of bio medical waste. Training if imparted from the very beginning of imparting medical education can add wonders in understanding the importance of bio medical waste management, increasing of awareness level as well knowledge and practice standards during later years of life. Due to paucity of information the study is being carry out to get more information on the subject.

Material and Methods

The study was conducted during the academic year 2019-2020 in selected medical college. Various studies on the topic were reviewed both primary and secondary study was done. Undergraduate medical students willing to participate were included in the study. A total of 80 students were randomly selected through random table number, and a self-administered questionnaire was given to the respondents. The questionnaire consisted of 8 structured questions to assess the students, knowledge and awareness regarding BMW management. Pre-test was taken before scheduling of training session and a post test is taken immediately after training for bio medical waste management. Results are computed using SPSS version 23.

Questionnaire

Q1. Blue bag or container is for disposal of following waste category.

a) Human anatomical waste: Human tissues, Organs, Body parts
b) Broken, discarded and contaminated glass, Medicine vials and ampoules, metallic body implants
c) Waste sharps including metals: needles, syringes, scalpels, blades
d) Recyclable Wastes, tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes

Q2. White (Translucent) bag or container is for disposal of the following waste category.

a) Human anatomical waste: Human tissues, Organs, Body parts
b) Broken, discarded and contaminated glass, Medicine vials and ampoules, metallic body implants
c) Waste sharps including metals: needles, syringes, scalpels, blades
d) Recyclable Wastes, tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes

Q3. Red bag or container is for disposal of the following waste category.

a) Human anatomical waste: Human tissues, Organs, Body parts
b) Broken, discarded and contaminated glass, Medicine vials and ampoules, metallic body implants
c) Waste sharps including metals: needles, syringes, scalpels, blades
d) Recyclable Wastes, tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes

Q4. Yellow bag or container is for disposal of the following waste category.

a) Human anatomical waste: Human tissues, Organs, Body parts
b) Broken, discarded and contaminated glass, Medicine vials and ampoules, metallic body implants
c) Waste sharps including metals: needles, syringes, scalpels, blades
d) Recyclable Wastes, tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes

Q5. When is the environment protection act was passed in India.

a) 1986
b) 1996
c) 1998
d) 1999

Q6. When is the Bio medical waste (handling & management) rules were notified in India.

a) 1986
b) 1996
c) 1998
d) 1999

Q7. Which ministry is responsible for implementation of biomedical waste management and handling rules in India.

a) Education
b) Environment & Forest
c) Social Welfare
d) Human Resource

Q8. For implementation and enforcement of Air, Water & Environmental act in India the following is responsible

a) Central Pollution Control Board (CPCB)
b) Government & State Pollution Control Board (SPCB)
c) Both
d) None

Discussion and Results

Table 1: Pre-Test Response

Pre- test	Male		Female		Total	
Question	Number	%	Number	%	Number	%
Q-1.	12	32.4	11	25.6	23	28.8
Q-2.	11	29.7	14	32.6	25	31.3
Q-3.	3	8.1	4	9.3	7	8.8
Q-4.	12	32.4	17	39.5	29	36.3
Q-5.	34	91.9	15	34.9	49	61.3
Q-6.	18	48.6	20	46.5	38	47.5
Q-7.	21	56.8	5	11.6	26	32.5
Q-8.	16	43.2	11	25.6	27	33.8

In this study pretest questions out of 80 participants maximum score was 61.3 % which was responded in Q-5, followed by 47.5 % responded in Q-6. Maximum score 91.9 % for response in Q-5 by male participants followed by 56.8 % response in Q-8 whereas Maximum score was 46.5 % for response in Q-6 by female participants followed by 39.5 % score in Q-4.

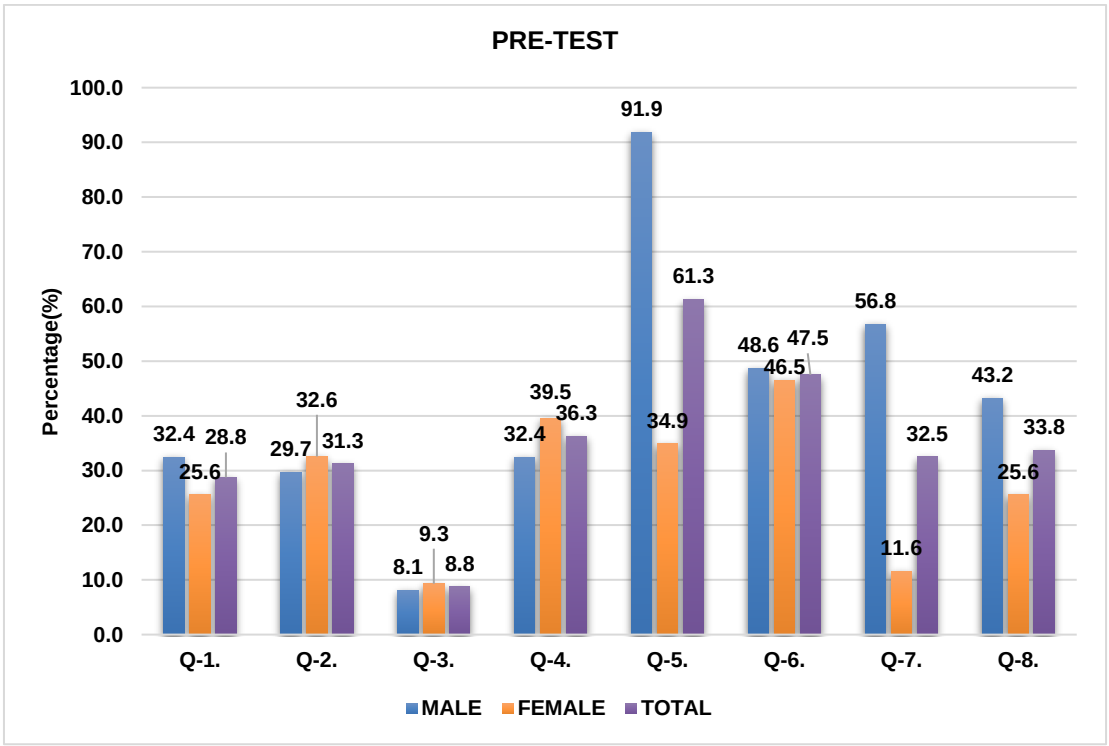


Table 2: Post-Test Response

Post- test	Male		Female		Total	
Question	Number	%	Number	%	Number	%
Q-1.	35	94.6	42	97.7	77	96.3
Q-2.	36	97.3	43	100.0	79	98.8
Q-3.	36	97.3	42	97.7	78	97.5
Q-4.	37	100.0	43	100.0	80	100.0
Q-5.	37	100.0	41	95.3	78	97.5
Q-6.	35	94.6	43	100.0	78	97.5
Q-7.	34	91.9	42	97.7	76	95.0
Q-8.	19	51.4	8	18.6	27	33.8

In the study in post-test questions out of 80 participants in posttest maximum score comes out 100 % in response to Q-4 followed by 98.8 % response in Q-2. Maximum 100 % correct response in Q-4,5 by male participants followed by 97.3 % response score in Q-2, Q-3. Maximum 100 % correct response in Q-2,4,6 by female participants followed by 97.7 % correct response in Q-1,3,7.

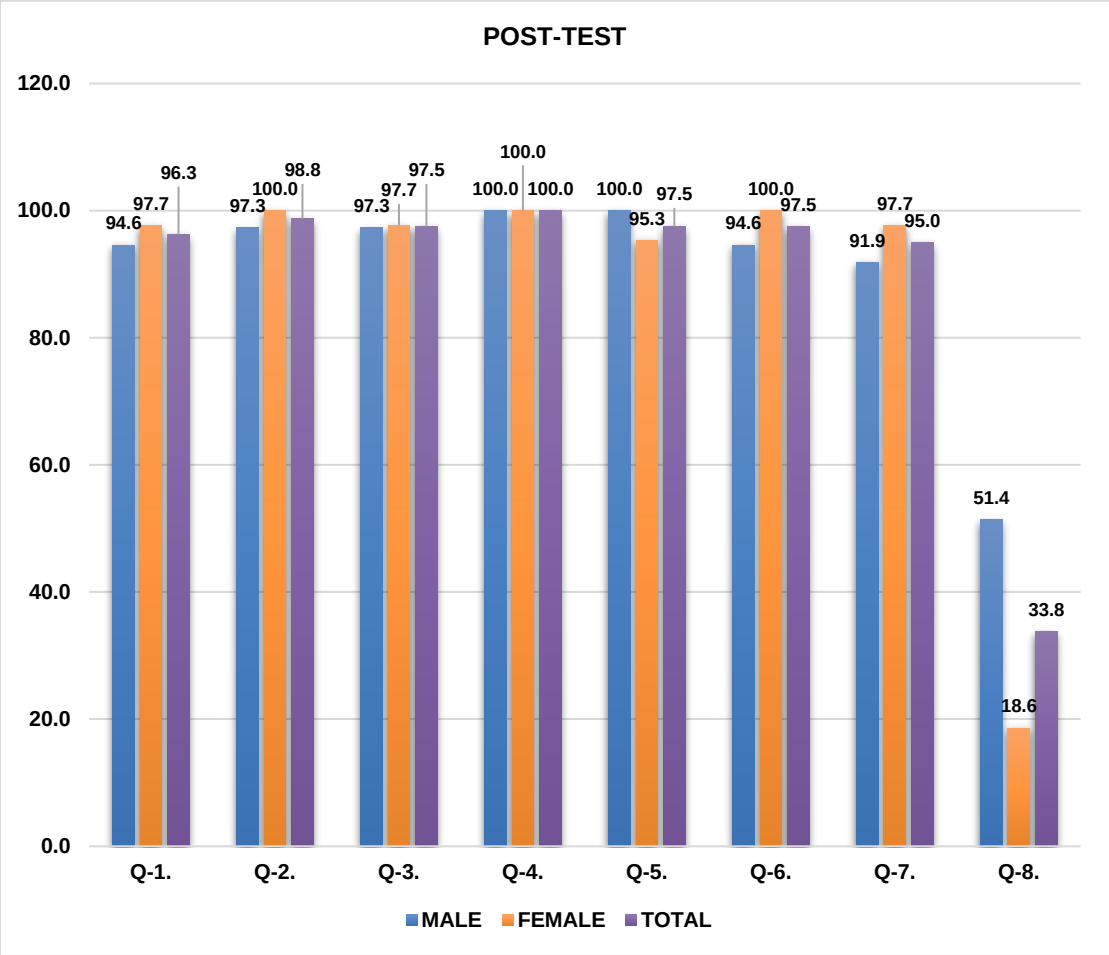


Table 3: Comparison of Mean Score of Pre-Test & Post Test

	Score			
	Mean ± SD	Mean Difference	t-value	P-Value
Pre test	3.3 ± 1.39	3.9	22.18	<0.001*
Post test	7.2 ± 0.70			

Mean score in pre-test of participant was 3.3 ± 1.39 and mean score of post test of participant was 7.2 ± 0.70. Mean difference in scores from pre-test to post test was 3.9. There was significant difference in mean test score of participants from pre-test to post test.

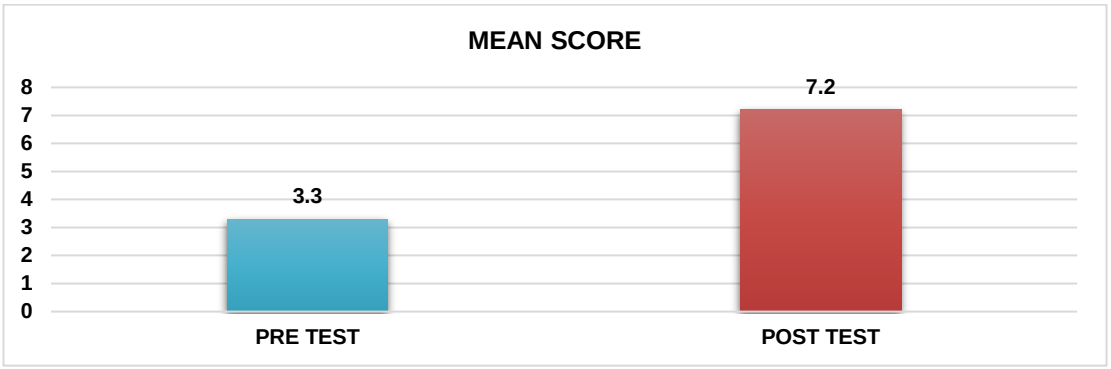
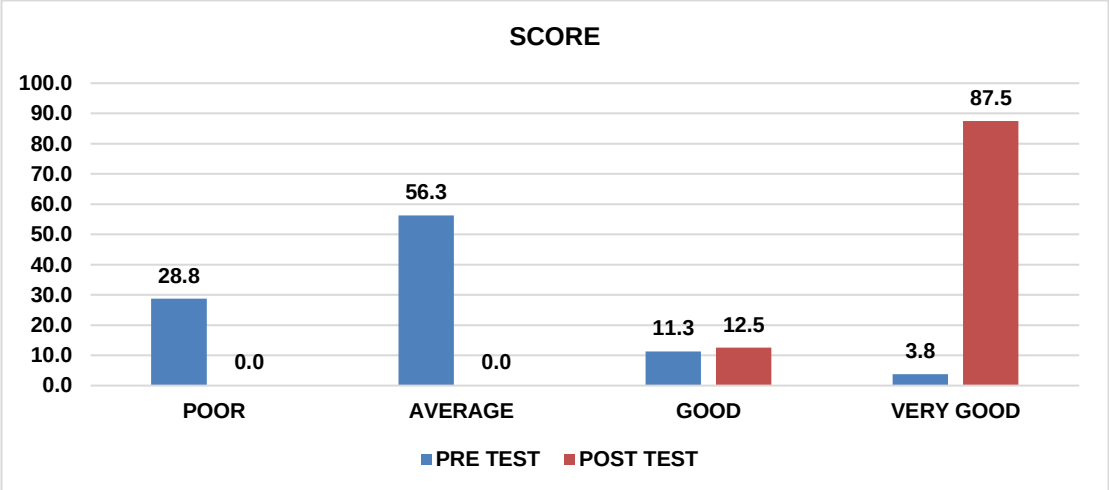


Table 4: Comparison of Pre-Test & Post Test Score

Score	Pre -test		Post test	
	Number	%	Number	%
Poor	23	28.8	0	0.0
Average	45	56.3	0	0.0
Good	9	11.3	10	12.5
Very Good	3	3.8	70	87.5

Out of 80 participants maximum had an average score in 56.3 % of cases followed by 28.8% of poor score, 11.3% had good score and only 3.8% very good score in pre test

In post test Out of 80 participant maximum had very good score of 87.5 % of cases followed by 12.5% which had good score and none had poor or average score. This shows that there was a remarkable difference in the score of pre test and post test result



Conclusion

In the above study mean score in pre-test of participant was 3.3 ± 1.39 and mean score of post test participant was 7.2 ± 0.70. Mean difference in scores from pre-test to post test was 3.9. There was significant difference in mean test score of participants from pre-test to post test.

The results clearly show the effect of training on the score of the participants. The knowledge and awareness level shows notifiable improvement in post test hence the study can be concluded training in initial years on bio medical waste in medical curriculum can be fruitful in improving the level of knowledge awareness and practice in health care personals

References

1. Biomedical Waste (Management and Handling) Rules 2016, 2018,
2. Oyefabi AOM, Yahuza BS. Ethical issues in knowledge, perceptions, and exposure to hospital hazards by patient relatives in a tertiary institution in North Western Nigeria. Niger J Clin Pract. 2016;19(5):622–31.
3. Mathur V, Hassan MA, Dwivedi S, Misra RP. Knowledge, attitude, and practices about biomedical waste management among healthcare personnel: A cross-sectional study. Indian J Community Med. 2011;36(2):143–5.
4. Yadavannavar M, Berad AS and Jagirdar P, Biomedical waste management: A study of knowledge, attitude, and practices in a tertiary health care institution in Bijapur, Indian J Community Med, 35, 2010, 170-171.
5. Ujwala U, Ramasankaram K, Satyanarayan D, Naidu NR, Kulkarni A and Ved P, Awareness about biomedical waste management in undergraduate medical and nursing students at a teaching institute in Vizianagaram, Andhra Pradesh, National Journal of Community Medicine, 3(3), 2012, 428-432.
6. Richard Chang Associates, INC., “Measuring the impact of traning, demonstrate the measureable results and return on investment.”
7. Kern DE, Thomas PA, Bass EB, Howard DM, eds. Curriculum Development for Medical Education: A Six-Step Approach. Baltimore, MD: Johns Hopkins University Press; 1998.
8. Nema SK, Ganeshprasad KS. Plasma pyrolysis for medical waste. Curr Sci 2002;83:271-8.
9. Roohi, Bano K, Kuddus M, Zaheer MR, Zia Q, Khan MF, et al. Microbial enzymatic degradation of biodegradable plastics. Curr Pharm Biotechnol 2017;18:429-40.