Effectiveness of Video Assisted Teaching programme on knowledge regarding management of biomedical waste among staff nurses working in Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow

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Abstract:
Background*: Bio-medical waste means any waste which is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in the production or testing of the biological.[1] The World Health Organization (WHO) has classified medical waste such as infectious waste, pathological waste, sharps, chemical waste, pharmaceutical, geotaxic waste, radioactive waste and non hazards or general waste. World Health Organization states that 85% of hospital wastes are actually non-hazardous, whereas 10% are infectious and 5% are non-infectious but they are included in hazardous wastes. About 15% to 35% of Hospital waste is regulated as infectious waste. This range is dependent on the total amount of waste generated. This range is dependent on the total amount of waste generated.[2] Absence of proper waste management, lack of awareness about the health hazards from biomedical waste, insufficient financial and human resources and poor control of waste disposes a serious threat to the environment and health. The severity of the threat is further compounded by the high prevalence such as HIV, hepatitis B and C[3]*

Materials and Methods*: The Quantitative research study was conducted using Pre-experimental Pre-test Post-test research design was conducted at Vivekananda Polyclinic & Institute of Medical Science, Lucknow. By using Purposive sampling technique total thirty staff nurses were selected for the data collection. Before conducting the study written consent were obtained from the samples. The data collection was done by using Structured Knowledge Questionnaires on management of Bio-medical waste management and same day Video Assisted Teaching Programme was provided. After seven days of Post-test data was collected from same samples with the help of same Structured Knowledge Questionnaire to find out the effectiveness of VATP regarding management of Bio-medical waste.*

Results*: The findings revealed that the result showed that the Post-test mean knowledge score is found higher mean (23.27) and S.D (4.65) when compared with Pre-test mean knowledge score, mean (14.37) and S.D. (3.51). Calculated Paired „t‟ value is 17.359 which is more than tabulated value of 2.05 at 0.05 level of significance. This indicates that Video Assisted Teaching Programme is effective in enhancing the knowledge regarding management of Bio-medical waste among staff nurses. Hence, research hypothesis (H1) is accepted and concluded that there is a significant difference between Pre-test and Post-test knowledge score of staff nurses regarding management of Bio-medical waste.*

Conclusion: *The findings of the study have shown that the was concluded that Video Assisted Teaching Programme was effective in enhancing the knowledge regarding management of Bio- medical waste among staff nurses working in Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow.*

Key Word: *Video Assisted Teaching Programme; Biomedical waste management; Human resources.*

I.   Introduction

Hospital is a place of almighty, a place to serve the patient. Since beginning, the hospitals are known for the treatment of sick persons but we are unaware about the adverse effects of the waste to human body and environment.[4] The waste produced in the course of health care activities carries a higher potential for infection and injury than any other type of waste. Therefore, it is essential to have safe and reliable method for its

handling, appropriate management of health care waste is thus a crucial component of environmental health protection, and it should become an integral feature of health care services. Absence of proper waste management, lack of awareness about the health hazards from biomedical waste, insufficient financial and human resources and poor control of waste disposes a serious threat to the environment and health. The severity of the threat is further compounded by the high prevalence such as HIV, hepatitis B and C.[5] In the country like India the total amount of municipal waste a city generates, only 1 to 1.5% is Bio- medical waste, of which 10-15% is considered infectious. Whereas in developed countries due to increased use of disposables the waste produced has been up to 5.24 Kgs per bed per day. In hospitals of United Kingdom's, France, Norway, Spain, Netherlands, USA and Latin America, waste produced is 3.3 Kgs, 2.5 Kgs, 3.9 Kgs, 4.4 Kgs, 4.2 Kgs, 4.5 Kgs and 3.8 Kgs per bed per day respectively which is on very higher side as compare to developing country like India. Most hospitals in India generate 1-2 Kgs per bed per day, except the tertiary care hospital (e.g. AIIMS and SKIMS) which produce waste on higher side. It is estimated, a city like New Delhi with about 40,000 beds generates about 60 metric tons of Bio medical waste per Day.[6]

II. Material And Methods

The study was conducted on Staff nurses working in Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow. Study was conducted on 30 staff nurses during 2017.

Study Design: Pre-experimental one group Pre-test Post-test research design.
Study Location: The study was conducted in Vivekananda Polyclinic & Institute of Medical Sciences.
Sample size: 30 staff nurses (Pre test Post test research design).
Subjects & selection method: Purposive sampling was used in selection of 30 participants.

Inclusion criteria:
* Staff Nurses who were available at the time of data collection.
* Staff Nurses who were willing to participate in the study

Exclusion criteria:
* Staff Nurses who were non cooperative to participate in the study.
* Staff Nurses who have received certificate on bio-medical waste management.

Procedure methodology
The present study was aimed to find out the effectiveness of video assisted teaching programme on knowledge regarding management of bio-medical waste among Staff Nurses working in Vivekananda Polyclinic & Institute of Medical Sciences, Lucknow.

Description of tool
For the present study Structured Knowledge Questionnaire were prepared for the data collection. Following steps were taken to develop the tool: review of literature, opinion and suggestion from guides and experts and the investigators own experience in clinical field.

In the present study the tool consists of two parts

Part I
Demographic variable – It includes Age, Gender, Educational qualification, Annual income, Area of working, previous information, Working experience.

Part II: Structured Knowledge questionnaire
It includes 30 structured knowledge questionnaire which were related to biomedical waste management. Multiple Choice Questions had four options and out of four choices only one was correct.

SCORE INTERPRETATION
Part I- Demographic Data
Researcher has prepared the coding for demographic data which was provided as the responses by samples.

Part II- Structured Knowledge Questionnaire
Knowledge items score '1' was awarded for each correct response and for each wrong response or unanswered '0' score was awarded by the researcher. Thus a total of 30 scores were allowed under knowledge aspect and to interpret the level of knowledge, the score interpretation was as follows

Percentage Score	Score level	Level of knowledge
≤50%	0-15	Inadequate
51-75%	16-22	Moderate
≥76%	23-30	Adequate

Statistical analysis

Analysis is the systematic organization and synthesis of research data and the testing of research hypothesis using that data". It was decided to analyse the data using both descriptive and inferential statistics on the basis of objectives and hypothesis of the study. To complete the data a master score sheet was prepared by the investigator.

III Result

The results of the study were as follows:-

Table no. 1:- Difference between Pre-test and Post-test knowledge score on Management of Bio-medical waste among Staff Nurses

H_1:- There is significant difference between Pre-test and Post-test knowledge score on Management of Bio-medical waste among Staff Nurses.

N=30

Pre –test	Respondents Knowledge			't' Value
	Mean	S.D	Mean Difference	
	14.37	3.51	8.90	
Post –test	23.27	4.65		17.359*

t (29) = 2.05 value p<0.05 , *Significant

The data presented in above table shows that the knowledge score of staff nurses regarding management of Bio-medical waste has revealed that Post- test mean knowledge score is found higher mean (23.27) and S.D (4.65) when compared with Pre-test mean knowledge score, mean (14.37) and S.D. (3.51). Calculated Paired 't' value is 17.359 which is more than tabulated value of 2.05 at 0.05 level of significance. This indicates that Video Assisted Teaching Programme is effective in enhancing knowledge regarding management of Bio-medical waste among staff nurses. Hence, research hypothesis (H_1) is accepted and concluded that there is significant difference between Pre-test and Post-test knowledge score of staff nurse regarding management of Bio-medical waste.

Table no.2:- Area wise mean, S.D, Pre- test and Post-test knowledge score of staff nurses regarding Bio-medical waste management

Data in table 2 depicts that in part I (Introduction of Bio medical waste management) the Pre- test mean knowledge score and S.D was 0.90 & 0.61, Post Test knowledge score and S.D was 2.83 & 0.75 and difference in knowledge score mean and S.D was 1.93 and 0.83. In part II (Health hazards) the Pre -test mean knowledge score and S.D. was 2.20 & 0.81, Post Test mean knowledge score and S.D. was 2.33 & 0.80 and difference in knowledge score mean and S.D was 0.13 and 0.97. In part III (Categorization & Segregation) the Pre-test mean knowledge score and S.D was 6.80 & 1.94, Post -test mean knowledge score and S.D. was 9.23 & 1.96 and difference in knowledge score was 2.43 and 1.77. In part IV (Treatment & disposal of biomedical waste) the Pre-test mean knowledge score and S.D was 3.03 & 1.50, Post Test mean knowledge score and S.D. was 6.40 & 1.43 and difference in knowledge score was 3.37 and 1.56. In part V (Benefits & nurse's responsibilities) the Pre-test mean knowledge score and S.D.1.43 & 0.86, Post Test mean knowledge score and S.D. was 2.47 & 1.20 and difference in knowledge score mean and S.D. was 1.03 and 1.03. Overall Pre-test mean and S.D was 14.37 and 3.51, Post Test mean and S.D was 23.27 and 4.65 and difference in knowledge score mean and S.D was 8.90 and 2.81. Thus the finding of the study has revealed that Post-test knowledge score was significantly higher than Pre- test knowledge score. The result has revealed that Video Assisted Teaching Programme was effective in enhancing the Staff Nurse's knowledge regarding management of Bio-medical waste.

S.no	Area of the Knowledge on Bio- medical waste management	Pre- test knowledge Score		Post-test knowledge Score		Difference in knowledge Score	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
1	Introduction	0.90	0.61	2.83	0.75	1.93	0.83
2	Health hazard areas	2.20	0.81	2.33	0.80	0.13	0.97
3	Categorization & Segregation	6.80	1.94	9.23	1.96	2.43	1.77
4	Treatment & disposal of biomedical waste	3.03	1.50	6.40	1.43	3.37	1.56
5	Benefits & Nurse's responsibility	1.43	0.86	2.47	1.20	1.03	1.03
	Total	14.37	3.51	23.27	4.65	8.90	2.81

IV. Discussion

The above findings were supported by the study conducted to assess the effectiveness of a self instructional module on biomedical waste management among nursing personnel in a private hospital in Mangalore. Multi stage random sampling was used to select the 30 samples. Pre experimental one group pre-test Post-test design was carried out in the study. The result has shown that in the Pre-test majority of nursing personnel 90% had average knowledge and 6.67% had poor knowledge regarding biomedical waste management. In the Post-test majority samples 93.3% had good knowledge and only 6.67% had average knowledge score. Hence it was clear that self instructional module on biomedical waste management was effective in enhancing the knowledge on biomedical waste management.[54] Similarly another study was conducted to assess the knowledge on biomedical waste management among health care providers working in chettinad hospital, Tamilnadu, India**.** Descriptive survey design was adopted for this study and 120 samples were selected by using non probability convenience sampling technique. Semi structured questionnaire was used to assess the knowledge of health care providers. The result of the study has revealed that majority of the subjects 35 (29%) belongs to age group 21-30 years and 41-50 years. Maximum number of samples 77 (64%) were females. Majority of samples 101 (85%) were qualified as a MPHW/ANM, and 89 (75%) were Junior Health Worker. The maximum number of subjects 39 (33%) were having 0-5 years of experience. The level of knowledge and practice of bio-medical waste management revealed that majority of samples 79 (65%) had average knowledge, 29 (24%) had good knowledge and majority of subjects 63(53%) had average practice and 42(35%) had average practice. The study concluded that there was significant association between practice and total year of experience (X^2 = 16.865) was more than tabulated value 12.592.[7,8,9]

V. Conclusion

The findings revealed the following data which is as follows:-

- Majority of staff nurse 70% were in the age group between 21-25 years of age and least 6.67% were aged 31-35 years

- All the samples were female. Majority 53.33% of staff nurses had GNM qualification and least 3.33% had P.B. B.Sc. nursing degree. Majority of staff nurses 56.67% were posted in general ward and least 16.67% were posted in Critical Care Units.

- Maximum number of staff nurses 73.33% had source of information regarding Bio-medical waste through previous experience and least 26.67% staff nurses has gained information on management of Bio-medical waste through mass media. Majority of staff nurses' i.e.33.33% had ≤1 year working experience and least 13.33% had 3 years work experience.

- Pre-test knowledge score among staff nurses depicts that majority of the samples 18 (60.00%) had inadequate knowledge regarding Bio-medical waste. But after Video Assisted Teaching Programme as an intervention. Post-test knowledge score depicts that majority of staff nurses 20 (66.67%) had adequate knowledge regarding management of Bio-medical waste.

- Calculated Paired 't' value is 17.359 which is more than tabulated value of 2.05 at 0.05 level of significance, This indicates that Video Assisted Teaching is effective in enhancing knowledge regarding management of Bio-medical waste among staff nurses. Thus the study concludes that there is significant difference between Pre-test and Post-test knowledge score of staff nurse regarding management of Bio-medical waste.

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