

## A Comparative Study to Evaluate the Effectiveness of Structured Teaching Programme and Video Assisted Teaching Programme on Knowledge Regarding Biomedical Waste Management

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### Abstract

"A comparative study to evaluate the effectiveness of structured teaching programme and video assisted teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students at Govt. Nursing College Kabirdham (C.G.)" In this study the sample size was 36 students (structured teaching programme group 18 students, video assisted teaching programme group 18). The sampling technique used was probability simple random (lottery method) sampling technique. The research design adopted for the study was two groups pretest and posttest quasi experimental research design. The tool developed was structured knowledge questionnaire consist of two section. (A) Socio demographic data and section (B) structured knowledge questionnaire. Descriptive and inferential statistics were used to analyze the obtained data. Results shows that there is no significant association between pretest knowledge of B.Sc. nursing 2<sup>nd</sup> year students with selected socio demographic variables at the level of  $p < 0.05$ . Finding related to the structured teaching programme the posttest mean score 25.16, standard deviation + 3.25 and video assisted teaching programme the posttest mean score 24.44, standard deviation +3.91. Between the structured teaching programme and video assisted teaching programme the posttest mean differences 0.72 and 't' test value is 0.60 degree of freedom 34 at the level of  $p < 0.05$ . Which shows that there is significant difference between level of knowledge through structured teaching programme and video assisted teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.

**Keywords:** Biomedical Waste Management; lottery method; Video-assisted.

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### Introduction

Biomedical waste has been defined as any waste that is generated during diagnosis, treatment and immunization of human being or animals or in the research activity pertaining to or in the production and testing of biomedical.<sup>1</sup> Biomedical waste may be solid or liquid. Examples of infectious waste include discarded blood, sharps, unwanted microbiological cultures and stocks, identifiable body parts (including those as a result of amputation), other human or animal tissue, used bandages and dressings, discarded gloves, other medical supplies that may have been in contact with blood and body fluids, and laboratory waste. Waste sharps include potentially contaminated used (and unused discarded) needles, scalpels, lancets and other devices capable of penetrating skin.<sup>2</sup> Approximately more than three fourth health care waste are non hazardous while the remaining proportion is hazardous.<sup>3</sup> World Health organization reports 20% of total waste generated by health care activity are hazardous. Hospitals and other health care facilities generate lots of waste

which can transmit infections, particularly HIV, Hepatitis B & C and Tetanus, to the people who handle it or come in contact with it.<sup>4</sup> India generates around three million tonnes of medical wastes every year and the amount is expected to grow at eight per cent annually.<sup>4</sup> Indiscriminate disposal of BMW or hospital waste and exposure to such waste possess serious threat to environment and to human health that requires specific treatment and management prior to its final disposal.<sup>5</sup> The problem of biomedical waste disposal in the hospital and other health care establishment has become an issue of increasing concern, promoting hospital administration to seek new ways of scientific, safe and cost effective management of the waste and keeping their personnel informed about the advances in this area. Managing healthcare waste requires effective knowledge not only among those who produce the healthcare waste but also among those who handles it.<sup>6</sup> The need of proper hospital waste management system is importance is an essential component of quality assurance in hospital as well as the knowledge of the worker in effective waste disposal also prime importance.

### Statement of the Problem

"A comparative study to evaluate the effectiveness of structured teaching programme and video assisted teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students at Govt. Nursing College Kabirdham (C.G.)."

### Objectives

1. To assess the pretest knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.
2. To evaluate the effectiveness of structured teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.
3. To evaluate the effectiveness of video assisted teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.
4. To compare structured teaching programme v/s video assisted teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.
5. To find out the association with pretest

knowledge scores among B.Sc. Nursing 2<sup>nd</sup> year students with selected socio demographic variables.

### Hypotheses

*H0* = There is no difference between the effectiveness of structured teaching and video assisted teaching programme on knowledge regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year student at the level of  $p \leq 0.05$ .

*H1* = There will be significant difference between the pretest and posttest knowledge regarding biomedical waste management through structured teaching programme among B.Sc. nursing 2<sup>nd</sup> year students at the level of  $p \leq 0.05$ .

*H2* = There will be significant difference between pre test and post test knowledge regarding biomedical waste management through video assisted teaching programme among B.Sc. nursing 2<sup>nd</sup> year students at the level of  $p \leq 0.05$ .

*H3* = There will be significant association between pretest level of knowledge regarding biomedical Waste management with selected socio demographic variables.

### Literature Review

The following literature was reviewed to highest the important concept of biomedical waste management which is organized under the following section:

- A) Biomedical waste management.
- B) Effectiveness of structured teaching programme.
- C) Video assisted teaching programme.

Chudasama Rajesh et al. (2013) Bio medical waste (BMW) collection and proper disposal has become a significant concern for both the medical and general community. Effective management of biomedical waste is not only a legal necessity but also a social responsibility. Objective: To know the knowledge, attitude and practice among health care personnels working in tertiary care centre. Methods: The study was conducted from January 2013 to June 2013. It was a descriptive observational hospital based cross sectional study. Study participants included the resident doctors intern doctors, nursing staff, laboratory technicians, ward boys and sweepers working in the institute who are dealing with BMW. The study was conducted

by using pretested, semi-structured proforma. The data was tabulated and interpretation was done by using percentages through Epi Info 3.5.1 software. Results: It included 123 resident doctors and interns, 92 nurses, 13 laboratory technicians, and 54 sanitary staff. Majority of study participants belongs to 21–30 years (61%) age group. Only 44.3% study participants received training for bio medical waste management. HIV (74.47%) and Hepatitis B (56.03%) were the main infectious diseases transmitted by the bio medical waste. Conclusion: The importance of training regarding bio medical waste management cannot be overemphasized, lack of proper and complete knowledge about bio medical waste management impacts practices of appropriate waste disposal.<sup>7</sup>

## Materials and Methods

The research design adopted for the study was two groups pretest and posttest quasi experimental research design. The setting of the study was at Govt. Nursing College Kabirdham (C.G.).

The target population in the study were B.Sc. nursing 2<sup>nd</sup> year students studying at Smt. Sudha Devi Memorial Govt. Nursing College Kabirdham. In this study the sample size was 36 students (structured teaching programme group 18 students, video assisted teaching programme group 18). The sampling technique used was probability simple random (lottery method) sampling technique.

The tool developed was structured knowledge questionnaire consist of two section. (A) Socio demographic data and section (B) structured knowledge questionnaire. The content validity of the tool was done by experts. The value of 'r' was found to be 0.98, hence the tool were reliable. Statistical analyses were undertaken by using Statistical Package for Social Science (SPSS) 16.0 version.

Informed consent was obtained from 36 B.Sc. nursing 2<sup>nd</sup> year students who were selected as a sample for the study. Explanation was given regarding the purpose of the study. Confidentiality was insured. Due permission from authority was sought and obtained.

## Results and Discussion

Majority of students {11 (61.11%) students of structured teaching programme and 17 (94.44) students of video assisted teaching programme}

were between the age Group 18–20 years. All of the students 18 (100%) students of structured teaching programme and 18 (100%) students of video assisted teaching programme were female. Majority of students 17 (94.44%) students of structured teaching programme and 15 (83.33%) students video assisted teaching programme were Hindu. Majority of students 16 (88.88%) students of structured teaching programme and 18 (100%) students of video assisted teaching programme were not having any clinical experience. Majority of students 15 (83.33%) students of structured teaching programme and 11 (61.11%) students of video assisted teaching programme were not attended seminar related to biomedical waste management.

### *1. To assess the pretest knowledge regarding biomedical waste management among B.Sc nursing 2<sup>nd</sup> year students.*

In group one of structured teaching programme obtained pretest value mean 18.05, standard deviation  $\pm 2.09$  and other group of video assisted teaching programme pretest mean was 17.27 with standard deviation  $\pm 4.72$ .

### *2. To evaluate the effectiveness of structured teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students.*

Finding related to the effectiveness of structured teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students. The pretest value mean 18.05, standard deviation  $\pm 2.09$ , posttest mean score was 25.16, standard deviation  $\pm 3.25$  and *t*- test value 6.89 at the level of  $p \leq 0.05$ . Hence, the hypothesis 1 is accepted, there is significant difference between pretest and posttest knowledge regarding biomedical waste management through structured teaching programme among B. Sc. Nursing 2<sup>nd</sup> year students at the level of  $p \leq 0.05$ . Thus the structured teaching programme is effective method for improving the knowledge.

### *3. To evaluate the effectiveness of video assisted teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students*

Finding related to the effectiveness of video assisted teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students. The pretest mean was 17.27 with standard deviation  $\pm 4.72$ , posttest mean score 24.44 and standard deviation  $\pm 3.91$  and *t* - test value 5.40 at the level of  $p \leq 0.05$ .

Hence, the hypothesis 2 is accepted, there is significant difference between pretest and posttest knowledge regarding biomedical waste management through video assisted teaching programme among B. Sc. Nursing 2<sup>nd</sup> Year students at the level of  $p \leq 0.05$ . Thus the video assisted teaching programme is also effective methods for improving the knowledge.

#### 4. To compare structured teaching programme v/s video assisted teaching programme on biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students

Finding related to the structured teaching programme the posttest mean score 25.16, standard deviation  $\pm 3.25$  and video assisted teaching programme the posttest mean score 24.44, standard deviation  $\pm 3.91$ . Between the structured teaching programme and video assisted teaching programme the posttest mean differences 0.72 and 't' test value is 0.60 degree of freedom 34 at the level of  $p \leq 0.05$ . Hence, null hypothesis was rejected, there will be significant difference between level of knowledge through structured teaching programme and video assisted teaching programme. Thus the structured teaching programme will be more effective than video assisted teaching programme for improving the knowledge.

**Table 1:** Represents the posttest knowledge score of structured teaching programme and video assisted teaching programme.

Group	Assessment	Mean score	Standard deviation	Degree of freedom	't' test value
Structured teaching programme	Posttest	25.16	+3.25	34	0.605*
Video assisted teaching	Posttest	24.44	+3.91		

\*significant at the level of  $p \leq 0.05$

#### 5. To find out the association with pretest knowledge scores among B.Sc. Nursing 2<sup>nd</sup> year students with selected socio demographic variables.

Findings related to the association between pretest knowledge score of B.Sc nursing 2<sup>nd</sup> year students with their selected socio demographic variables. Hence RH3 was rejected. There will be significant association between pretest knowledge of B.Sc. nursing 2<sup>nd</sup> year students with selected socio demographic variables at the level of  $p \leq 0.05$ .

#### Conclusion

The study was to assess the effectiveness of

structured teaching programme v/s video assisted teaching programme regarding biomedical waste management among B.Sc. nursing 2<sup>nd</sup> year students in selected Govt. Nursing College, Kabirdham. Objectives and specific hypothesis regarding pretest and post test score and socio demographic variables were framed. Scientific and objective research methodology was adopted to assess the level of knowledge among B.Sc. Nursing 2<sup>nd</sup> year students regarding biomedical waste management before and after imparting structured teaching programme and video assisted teaching programme. Its effect on knowledge level was seen by computing various statistical methods to achieve the objectives of the study. Planned structured teaching programme and video assisted teaching programme was developed and administered to increase the level of knowledge. The finding of the present study display an effect of planned structured teaching programme and video assisted teaching programme for increasing the knowledge level in B.Sc. nursing 2<sup>nd</sup> year students about biomedical waste management and our teaching programme is effective but structured teaching programme are more effective rather than video assisted teaching programme.

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