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Research article

A study to assess the impact of structured teaching programme on knowledge regarding tracheostomy care among staff nurses working in selected hospital of Kashmir

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Abstract

Tracheostomy care and tracheal suctioning are high-risk procedures. Tracheostomy patients aren't seen only in intensive care units. As patients with more complex conditions are admitted to hospitals, an increasing number are being housed on general nursing units. Tracheostomy patients are at high risk for airway obstruction, impaired ventilation, and infection as well as other lethal complications. Skilled bedside nursing care can prevent these complications. **Aim:** The present study was aimed to enhance the knowledge of staff nurses regarding tracheostomy care & in turn reduce the risk of complications associated with the procedure. **Materials and methods:** A quantitative (pre-experimental) research study was conducted with "one group pre-test post-test research design to assess the level of knowledge regarding tracheostomy care among the staff nurses. The sample comprised of 60 staff nurses working in selected areas of the hospital. Stratified simple random sampling technique was used for the study. The tool utilized for the data collection was structured knowledge questionnaire. **Results:** The obtained data were analyzed by using the descriptive and inferential statistics. The mean post-test knowledge score (39.47) was significantly higher than the mean pre-test knowledge score (24.10) with the mean difference (15.37). There was a significant difference between pre-test and post-test knowledge score at $p<0.05$. The results of the study revealed that the planned teaching program was significantly effective in improving the knowledge of staff nurses. **Conclusion:** Hence, the study concluded that Staff nurses were having inadequate knowledge and structured teaching programme was effective in enhancing their knowledge regarding tracheostomy care.

Key words: Impact, structured teaching program, tracheostomy care, knowledge, implementation, suctioning, dissemination, comparative, domain.

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1. Introduction

Constant attention by a good nurse may be just as important as a major operation by a Surgeon.
Dag Hammars k. jold

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Tracheostomy is a surgical incision into the trachea through overlying skin and muscles for airway management [1]. Tracheostomy can be performed as an emergency procedure or as an elective procedure depending upon the indication. Tracheostomy is one of the most frequently performed surgical procedures on critically ill patients requiring prolonged mechanical ventilation [2]. It is performed in about 24% of all patients in intensive care units. Most of the patients require 1 to 3 days to adapt to breathing through a tracheostomy [3]

A major interest in tracheostomy developed during the 19th century, after Napoleon Bonaparte's nephew died of diphtheria in 1807. At this time mortality from the procedure was considered acceptable if 25% of the patient's survived [4]. Tracheostomy is associated with a number of emergencies, and nurses must provide proper care to patients to avoid these emergencies. Tracheostomy emergencies include hemorrhage, tube dislodgement and loss of airway, and tube obstruction. Such emergencies are managed more effectively when all necessary supplies are readily available at the bedside and when effective tracheostomy care is provided [5].
The fresh nurses after completing their graduation programme are not aware or else were not exposed to tracheostomy care during their student period. Thus there arises a great need to educate the nurses regarding this procedure, so that they may be able to take care of patients with a tracheostomy in a competent & skilled manner. The investigator had multiple experiences (while visiting the hospital as caretaker of a patient) that are related to inadequate knowledge of staff nurses regarding tracheostomy care. The investigator reviewed various bodies of research and clinical practice changes and research projects on tracheostomy care and decided to conduct a study related to the impact of structured teaching program on knowledge regarding tracheostomy among staff nurses working in selected hospital of Kashmir.

Statement of the problem.

A study to assess the impact of structured teaching programme on knowledge regarding Tracheostomy care among staff nurses working in selected hospital of Kashmir.

Objectives:-

1. To assess the existing level of knowledge regarding tracheostomy care among staff nurses before implementation of structured teaching programme (i.e. pre-test knowledge).
2. To assess the level of knowledge regarding tracheostomy care among the staff nurses after the implementation of structured teaching programme (i.e. post-test knowledge).
3. To assess the impact of structured teaching programme on knowledge regarding tracheostomy care among staff nurses by comparing the pre and post test knowledge score.
4. To find the association of pre-test knowledge score of staff nurses with their selected demographic variables i.e. professional qualification, place of posting, working experience and in-service education programme on tracheostomy care.

Research hypotheses:-

H_1: There is significant increase in mean post-test knowledge scores as compared to mean pre-test **K**nowledge scores on tracheostomy care among staff nurses at 0.05 level of significance.
H_2: There is significant association of pre-test knowledge scores on tracheostomy care among staff nurses with their selected demographic variables i.e. (Professional qualification, Place of posting, working experience & in-service education of staff nurses regarding tracheostomy care) at 0.05 Level of significance.

Conceptual framework of the study:-

The conceptual framework for the present study was developed from King's theory of goal attainment (Imogene M King -1971) [10].

Ethical consideration

Formal permission to conduct the study was taken from the ethical committee of SKIMS. Medical superintendent & Nursing superintendent of SMHS hospital Srinagar Kashmir for conducting a pilot study and final study

2. Materials and methods

A quantitative research approach with pre-experimental research design (one group pre-test- post-test) was used. The present study was conducted in different wards of SMHS (Shri Maharaja Hari Singh) hospital Srinagar Kashmir. These wards include General Medical ward, General Surgical ward, Intensive care unit and Emergency ward. 60 staff nurses working in selected wards of SMHS hospital were selected as sample subjects. The tool used to collect data was structured knowledge questionnaire. The structured knowledge questionnaire consists of two parts**, Part I**: comprised of four items regarding demographic variables of the sample which include, place of posting, working experience, professional qualification & in-service education. **Part II**: comprised of 55 multiple choice questions about knowledge of staff nurses regarding Tracheostomy care. In order to measure the content validity, the tool was submitted to eleven experts. The suggestions of the experts were incorporated into the tool & the tool validity certificates were obtained. The reliability coefficient was calculated by using Karl Pearson's correlation coefficient and was found to be 0.89. The Pilot study was conducted to find out the feasibility of the Study. The Schematic representation of research design and research methodology is given in table1and fig.1 respectively.

Table No 1: The schematic representation of research design.

Group (n=60)	pre-test (0_1) (day-1)	intervention (x) (day-1)	post-test (0_2) (day-8)
Staff Nurses working in a selected hospital.	Pre-interventional knowledge assessment regarding Tracheostomy care by implementing Structured Knowledge Questionnaire.	Administration of structured teaching programme on tracheostomy care.	Post Interventional knowledge assessment regarding Tracheostomy care by Implementing Structured Knowledge Questionnaire.

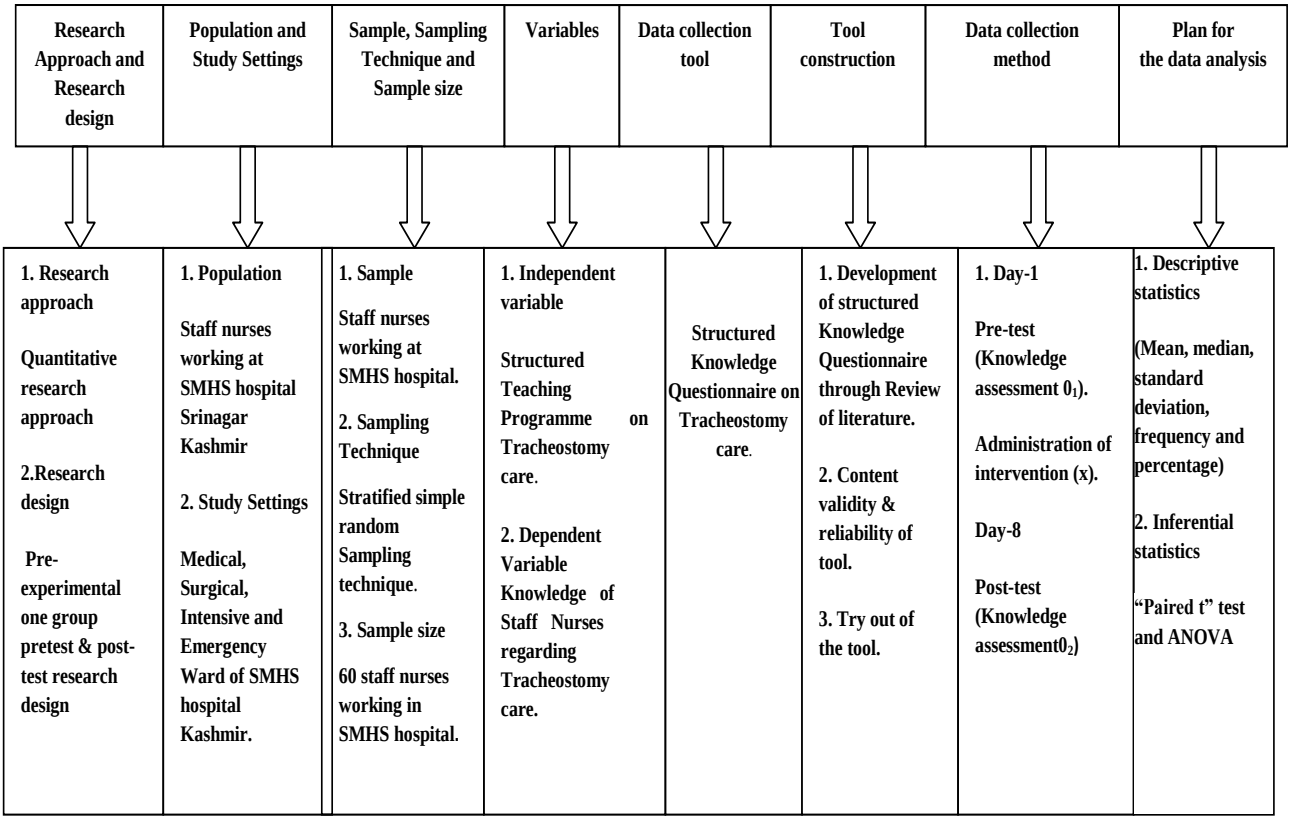

Fig.1: Schematic representation of research methodology

3. Results and findings

In this study, 60 staff nurses participated. The data and the findings were entered in a master data sheet followed by the analysis and interpretation using descriptive statistics (i.e. frequency, percentage, mean, median and standard deviation) and inferential statistics (i.e. t-test and ANOVA) according to the objectives of the study. The results obtained were presented in the following headings:-

Section I: Findings related to the description of demographic variables:

Maximum number of the subjects i.e. 39(65.0%) were qualified in General Nursing and Midwifery.16 (26.7%) of subjects were equally from medical ward, surgical ward, emergency ward and 12(20.0%) of the subjects were from the intensive care unit.40% had an experience of 1-5 years. Majority of the subjects 60 (100%) had not attended any in-service education programme related to tracheostomy care. Table-2 shows the Findings related to demographic variables of the study subjects.

Table No 2: Findings related to demographic variables:

Variable		Frequency	%
Professional Qualification1	GNM	39	65.0
	B.Sc Nursing	21	35.0
	Post Basic B.Sc Nursing	0	0
	M.Sc Nursing	0	0

Variable		Frequency	%
Place of posting	Medical ward	16	26.7
	Surgical ward	16	26.7
	ICU unit	12	20.0
	Emergency ward	16	26.7
Working experience	1-5 years	24	40.0
	6-10 years	22	36.7
	11-15 years	4	6.7
	Above 16 years	10	16.7
In-service education	Yes	0	0
	No	60	100.0

Section-II: Knowledge levels of staff nurses regarding tracheostomy care before and after implementation of "structured teaching programme."

The Pre-test knowledge levels of staff nurses show that Majority 49(81.67%) had inadequate knowledge level and 11(18.33%) of the subjects had adequate knowledge level and none had highly adequate knowledge level regarding tracheostomy care. While as in the post-test, Majority of the subjects 32(53.33%) had adequate knowledge level, 28(46.67%) had highly adequate knowledge level and none had fallen in the category of inadequate knowledge level regarding tracheostomy care. Figure 2 and 3 shows the pre and post-test knowledge level of staff nurses, While as Figure 4 shows the knowledge scores of staff nurses regarding tracheostomy care respectively.

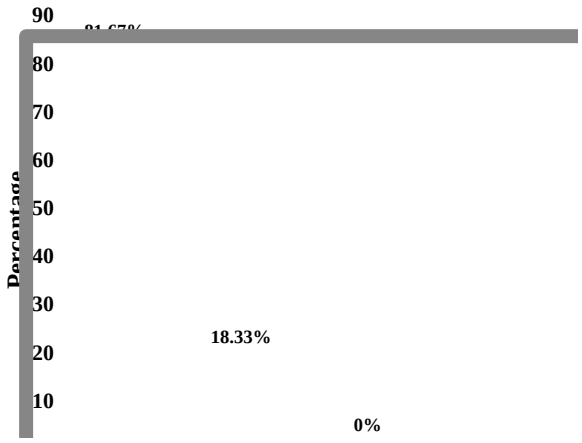

Figure No 2:- Column diagram showing the pre-test knowledge level of staff nurses.

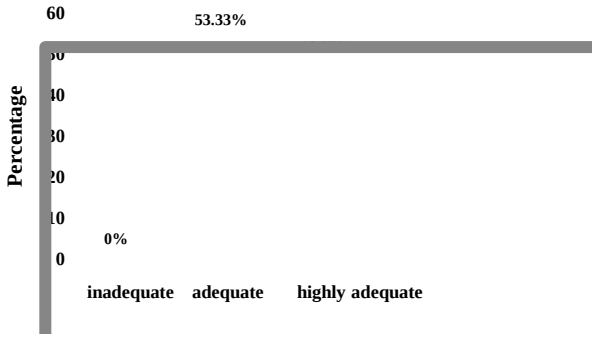

Figure No 3:- Column diagram showing the post-test knowledge level of staff nurses

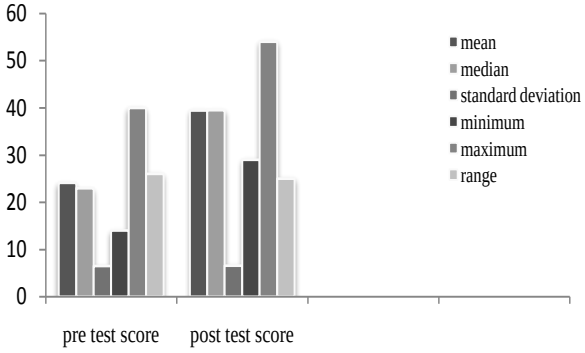

Figure No 4:- Column diagram showing the knowledge scores of staff nurses regarding tracheostomy care.

Section-III: Comparison of pre and post-test knowledge scores of staff nurses regarding tracheostomy care:

To test the research hypothesis ($\mathbf{H_1}$) the following null hypothesis was formulated.

$\mathbf{H_0}$: There is no significant increase in mean post-test knowledge scores as compared to mean pre-test Knowledge scores on tracheostomy care among staff nurses at 0.05 level of significance.

Fig-5 shows Comparison of pre and post-test knowledge scores of staff nurses regarding tracheostomy care

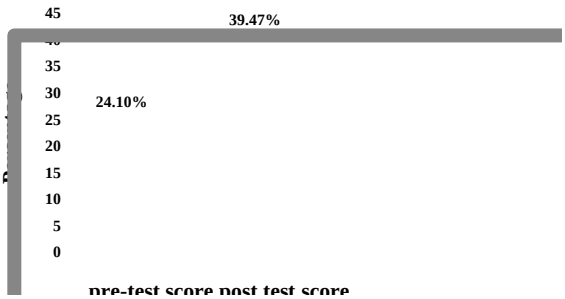

Figure No 5: Comparison of pre and post-test knowledge scores of staff nurses regarding tracheostomy care:

Figure: 5 indicate mean pre-test knowledge score of 24.10± 6.503 with mean post-score of 39.47± 6.606 & the mean difference of 15.37. The Mean post-test knowledge score was higher than the mean pre-test knowledge score which was significant at 0.05 level of significance (p value<0.001).

Hence the null hypothesis $\mathbf{H_0}$ was rejected and research hypothesis $\mathbf{H_1}$ was accepted which states that there is a significant increase in mean post-test knowledge scores as compared to mean Pre- test knowledge scores on tracheostomy care among staff nurses at 0.05 level of significance.

Section-IV: Findings related to the association of pre-test knowledge scores of staff nurses with their selected demographic variables:

To test the research hypothesis ($\mathbf{H_2}$) following null hypothesis was formulated:

$\mathbf{H_0}$: There is no significant association of pretest knowledge scores on tracheostomy care among staff nurses with their selected demographic variables i.e. (professional qualification, place of posting, working experience and in-service education on tracheostomy care) at 0.05 level of significance.

Table-3 shows the association of pretest knowledge scores with their selected demographic variables.

Table No 3: Association between pretest knowledge scores with selected demographic variables.

Demographic variables	Frequency	Mean / standard deviation	Mean difference	P value	
1 Professional qualification. 1.1 GNM 1.2 B.SC nursing 1.3 Post basic B.Sc 1.4 M.Sc Nursing	 39 21 0 0	 21.36+3.897 29.19+7.353	7.83	<0.001	Significant
2. Place of posting 2.1 Medical ward 2.2 Surgical ward 2.3 ICU unit 2.4 Emergency ward	 16 16 12 16	 23.00+6.240 23.06+5.157 24.17+7.481 26.19+7.259	0.06 1.17 3.19 1.11 3.13 2.02	0.482	Not Significant
3. Working experience 3.3 1-5 years 3.4 6-10 years 3.5 11-15 years 3.6 above 16years	24 22 4 10	24.75+6.752 24.95+7.358 20.75+6.397 22.00+2.828	0.2 4 2.75 4.2 2.95 1.25	0.445	Not Significant

The findings depicted in table 3 revealed that there was a significant association with only one variable i.e. professional qualification. Hence research hypothesis H_2 was accepted for this variable. While as no association was found with the other two variables i.e. working experience and place of posting (p-value 0.482 and 0.445 respectively). So for these two variables, H_0 was accepted while as H_2 was rejected. The data collected from the study subjects also showed that none of the study subjects (staff nurses) had attended any in-service education programme on tracheostomy care.

4. Discussion

The findings of the study revealed that knowledge level of staff nurses regarding tracheostomy care was inadequate and thus there arises a great need to improve this knowledge. The pre-test knowledge scores of staff nurses showed the overall mean score of 24.10±6.503 with median and range of 23.00 and 26 respectively. Majority 49(81.67%) of the subjects had inadequate knowledge level and 11(18.33%) of the subjects had adequate knowledge level and none had highly adequate knowledge regarding tracheostomy care. The above results are consistent with the findings of a study conducted on the assessment of healthcare professionals knowledge of tracheostomy and managing emergency complications in patients with tracheostomy. The study was conducted among seventy staff members in two large teaching hospitals in Britain. The results showed that there were significant gaps in pretest knowledge among healthcare professionals regarding the tracheostomy and management of specific tracheostomy-related emergencies [6].

The post-test findings of the study revealed the overall mean score of 39.47±6.606 with median and range of 39.50 and 25 respectively. The mean difference was 15.37. The mean post-test knowledge score was significantly higher (p<0.001) than the mean pre-test knowledge score which shows that the knowledge of staff nurses regarding tracheostomy care improved after intervention. The above results are consistent with the findings of a quasi-experimental study, undertaken at Vinayaka Mission Hospital, Salem. The overall post-test mean score was 23.58 ± 2.21, which was 78.6% of the total score, revealed adequate knowledge of staff nurses.

The difference in mean percentage between pre and the post-test score was around 27.4%, which showed that video-assisted teaching module was effective in improving the knowledge of staff nurses regarding tracheostomy care [7].

From the above findings, it can be concluded that the knowledge level of staff nurses regarding tracheostomy care can be enhanced and need to be enhanced with the help of different teaching programmes. These teaching programmes can be carried out by using workshops, seminars, training programmes and other orientation programmes. This improvement in knowledge can also lead to overall enhancement in the quality of care that is provided and better patient outcomes.

The findings related to demographic variables in the present study revealed that there is no significant association between pretest knowledge score and the variables like a place of posting, and working experience. This could be due to the fact that the staff is not attending the tracheostomy patients or due to lack of initiation and interest on their part to take up complicated procedures like tracheostomy care. However, a significant association was found between pretest knowledge score and the professional qualification. This can be attributed to the fact that the procedure is being extensively covered in the basic courses like GNM and B.Sc nursing. This also indicates that higher professional qualification results in better knowledge level. In-service education programmes should be conducted from time to time in order to update the knowledge level of the staff that is caring for these patients. Due to these programmes staff will also get oriented about the latest techniques and the evidence-based practices.

Conclusion

The findings concluded that Staff Nurse working in the selected wards of the hospital had inadequate knowledge regarding tracheostomy care. The structured teaching programme was found to be effective in enhancing the knowledge of staff nurses on tracheostomy care as is evident from the difference between mean pre-test and mean post-test knowledge scores.

Implications

The present study has several implications for nursing education, practice, and administration

- Nursing education:- professional organizations (INC, SNA) need to ensure that theoretical and practical aspects of tracheostomy care procedure are incorporated in nursing education & in Nursing practice, There should be an adequate focus on the training needs of staff nurses related to tracheostomy management, especially for nurses working in hospital emergency and ICU units.
- Nursing administration:- In every organization, the nursing administration must plan a separate budget for continuing education programs, & a protocol should be developed for conducting orientation programmes on tracheostomy care for the newly appointed staff nurses.

Recommendations

- A similar study can be conducted on the skill domain of the tracheostomy care. The study can be replicated on a large sample, thereby findings can be generalized.

Acknowledgment

To Allah, be all the glory, honor, praise and thanksgiving whose abiding grace made this study a possibility. The present study is completed under the expert, the excellent guidance of Prof. Dilshada Wani, Professor cum vice principal, Mader-e-Meharban Institute of Nursing Sciences and Research, SKIMS.I am extremely thankful to all the subjects who enthusiastically participated in the research project. If I have inadvertently missed out acknowledgment to anyone who has contributed to my successful completion of this project, I express my gratitude to all of them.

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