

A Study to Evaluate the Effectiveness of Planned Teaching Programme Regarding Tracheostomy Care in Terms of Knowledge of Staff Nurses Working in Government Hospital Gwalior

Suman Jaiswal¹, Sunita Singh², Dr. Sukhmanpreet Kaur³

¹Nursing Tutor, College of Nursing Government Medical College Budaun, Uttar Pradesh, India

²Nursing Officer, Department of Critical Care Medicine K.G.M.U. Lucknow, Uttar Pradesh, India

³Associate Professor, Desh Bhagat University, Mandi Gobindgarh, Punjab, India

ABSTRACT

Background: Tracheostomy is indicated to facilitate weaning from mechanical ventilation by decreasing anatomical dead space, prevention/treatment of retained trachea-bronchial secretions, chronic upper airway obstruction and bypass acute upper airway obstruction.

Objectives: The aim of this study was to assess the effectiveness of planned teaching programme on knowledge regarding tracheostomy care among staff nurses. **Methods:** The research approach used for the study was one group pre-test & post-test design. The setting was civil hospital Gwalior. With a sample of 10 staff nurse, pilot study was conducted, sample for the main study included 50 staff nurses on the basis of purposive sampling technique. A structured questionnaire was used to evaluate the knowledge regarding identification of learning disabilities among staff nurse. The reliability of the tool was established by split half technique and the reliability co-efficient were calculated to be 0.82. **Result:** The findings revealed that knowledge scores of nurses were inadequate before the administration of planned teaching program (PTP) on Tracheostomy, i.e., the mean score of the pre-test was 18.22. The PTP helped them to update their knowledge on tracheostomy care. The mean post-test knowledge of sample significantly increased about 32.95 after administration of STP.

Conclusion: The result of the study indicated that staff nurse does not have adequate knowledge regarding tracheostomy care. This assessment project has helped the investigator to develop a PTP to improve the knowledge on tracheostomy care. The results have also shown that various demographic variable have significant association with respect to the knowledge of staff nurse regarding tracheostomy care.

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KEYWORDS: Effectiveness, Tracheostomy

INTRODUCTION

Health (or health care) is the diagnosis, treatment and prevention of disease, illness, injury, and other physical and mental impairments in human's Health care is delivered by practitioners in medicine, dentistry, nursing, pharmacy and allied health.

Nurses care for patients continuously, 24 hours a day. They help patients to do what they would do for themselves if they could. Nurses take care of their patients, making sure that they can breathe properly, seeing that they get enough fluids and enough nourishment, helping them rest and sleep, making sure that they are comfortable, taking care of their need to eliminate wastes from the body, and helping

them to avoid the harmful consequences of being immobile, like stiff joints and pressure sores. The nurse often makes independent decisions about the care the patient needs based on what the nurse knows about that person and the problems that may occur.

A tracheostomy is the formation of an opening into the trachea usually between the second and third rings of cartilage. Tracheostomy is indicated to facilitate weaning from mechanical ventilation by decreasing anatomical dead space, prevention/treatment of retained trachea-bronchial secretions, chronic upper airway obstruction and bypass acute upper airway obstruction."

A tracheostomy is a surgically created opening in the trachea. A tracheostomy tube is placed in the incision to secure an airway and to prevent it from closing. Tracheostomy care is generally done every eight hours and involves cleaning around the incision, as well as replacing the inner cannula of the tracheostomy tube. After the site heals, the entire tracheostomy tube is replaced once or twice per week, depending on the physician's order.

The goals of tracheostomy care are to maintain the patency of the airway, prevent breakdown of the skin surrounding the site, and prevent **infection**. Sterile technique should be used during the procedure.

Need of the study:

Tracheostomy is a common surgical procedure performed on critically ill intensive care patients. Reports in India have documented considerable associated morbidity, with complication rates varying from 6 to 66%. The reports on mortality associated with tracheostomy range from 0 to 5%.

Tracheostomy is probably the most common surgical procedure performed on critically ill patients. Approximately 10 presents of mechanically ventilated critically ill patients undergo tracheostomy to facilitate prolonged airway and ventilator support¹. Most critically ill patients with respiratory failure tolerate tracheal intubation for short duration with minimal complications, but longer duration (> 1week) of mechanical ventilation will have adverse outcomes.

Tracheostomy care is a relatively benign procedure. The greatest risk is that the tube may be inadvertently removed and the airway lost. The anticipated outcomes of tracheostomy care include continual patency of the airway, prevention of skin breakdown around the stoma, and prevention of infection.

In the guidelines for Nursing Care of the Tracheostomy Patients three major factors must be considered which includes

1. Humidification
2. Mobilization of secretions
3. Airway patency.

Many of the nursing skills employed are aimed at the mobilization of pulmonary secretions. Frequent turning, encouragement of deep breathing, and ambulation are important in the prevention of pulmonary complications.

PROBLEM STATEMENT:

“A study to evaluate the effectiveness of planned teaching programme regarding tracheostomy care in terms of knowledge of staff nurses working in government hospital Gwalior”

OBJECTIVES:

- To assess the knowledge regarding tracheostomy care among staff nurses.
- To assess the effectiveness of planned teaching programme on knowledge regarding tracheostomy care among staff nurses.
- Evaluate the Effectiveness of planned Teaching Programme regarding Care of Clients with Tracheostomy among Staff Nurses by Comparing Pre and Post test Scores.
- To find the association between level of knowledge with selected socio demographic variables

HYPOTHESIS:

H1: There is significant difference in pre-test and post-test knowledge scores on tracheostomy care among staff nurses.

H2: There is significant association between knowledge level with selected socio demographic variables.

OPERATIONAL DEFINITIONS:

ASSESS- In this study assesses refers to determining the knowledge score of staff nurses regarding tracheostomy care using a self-administered knowledge questionnaire.

EFFECTIVENESS- It refers to significant gain in knowledge of staff nurses regarding tracheostomy care determined by significant difference between pre- test and post-test knowledge scores.

PLANNED TEACHING PROGRAMME- In this study it refers to a systematically organized teaching strategy of one hour duration on definition, indications, complications and management of tracheostomy care by using appropriate A.V aids.

STAFF NURSES- Nurses working in government hospital Gwalior.

TRACHEOSTOMY CARE- In this study it refers to caring of the Tracheostomy tube placed in the incision to secure an airway and to prevent it from closing.

MATERIAL AND METHODS:

Research approach: Evaluate research approach was used.

Research design: *Pre-experimental one group pre-test post-test design.*

Variables:

Independent variables: In this study independent variable is teaching programme on Tracheostomy care

Dependent variables: In this study, knowledge of staff nurses regarding tracheostomy care is the dependent variable.

Research setting:

The study was conducted in civil hospital Gwalior.

Population:

Sample: Staff nurses

Sample size: 50

Sample techniques:

Purposive sampling technique was used.

Criteria for sample selection:

Exclusion criteria:

- Subjects who are not available during data collection.
- Who are not willing to participate in study.

Tool and method of data collection:

DEVELOPMENT OF TOOL

Selection and development of tool was done based on the objectives of the study. After the review of literature, the structured knowledge questionnaire was found appropriate. The developed tool was refined and validated by the experts and guide.

The tool consists of self-administered knowledge questionnaire which includes two sections:

Section A: Socio- demographic characteristics.

Section B: Knowledge regarding foot care.

The Structured knowledge questionnaire consists of two parts.

DESCRIPTION OF THE TOOL

PART I: Demographic Performa

- A Performa for selected personal information was used to collect the sample characteristics.
- The characteristics included; age, gender, religion, professional qualification, professional experience, family income, source of information on learning disabilities.

RESULTS:

ANALYSIS OF SAMPLE CHARACTERISTICS.

Table 1: Frequency & percentage distribution of demographic viable.

S. No.	Demographic Variables	Frequency	Percentages
1	Age in years		
	20 – 30 years	8	16%
	31 – 40 years	26	52%
	41– 50 years	12	24%
	51– 60 years	4	8%
2	Religion		
	Hindu	31	62%
	Muslim	4	8%
3	Gender		
	Male	18	36%
	Female	32	64%

- The respondents were asked to give relevant information in the space provided.

PART II: Structured knowledge questionnaire.

It consists of 40 items divided into 3 areas

Section-A: Meaning, Definition, indication, and purpose of Tracheostomy.

Section-B: Nursing care for Tracheostomy.

Section-C: Complications and Management of complication of Tracheostomy. All the items were multiple-choice questions, which has three alternative responses. A Score value of (1) was allotted to each correct response. The total knowledge score was 40.

Reliability of tool: was established by split half method by using **Spearman Brown** Prophecy formula. The reliability co-efficient of the tool obtained was ($r = 0.82$) Hence the tool was found to be **valid, reliable, and feasible.**

Data collection procedure:-

Ethical consideration:

- Permission for the study was obtained from the Hospital authority and
- District Surgeon of Government hospital at Gwalior.
- An Informed consent was also obtained from the respondents after proper explanation about the purpose, usefulness of the study and assurance given about the confidentiality of their responses.

Plan for data analysis:

The plan for data analysis includes-

- Demographic data was planned to analyze in terms of frequency and percentage.
- Paired 't' test was used to test the significant difference in the pre test and post test knowledge scores.
- Chi – square test was used to find the association between the level of knowledge and socio-demographic characteristics.

4	Department where working		
	General ward	28	56%
	ICU	4	8%
	Post-operative ward	18	36%
5	Experience in year		
	0 to 5	12	24%
	6 to 10	18	36%
	11 to 15	12	24%
	16 and above	8	16%
6	Educational program		
	Attended	15	30%
	Not attended	35	70%
7	Frequency of Tracheostomy Patients		
	About even three months	24	48%
	About even six months	19	38%
	Almost always	7	14%

Table 1- Distribution of nurses according to age It is observed that 16% nurses are in the age group of 20-30 years, 52% nurses are in the age group of 31-40 years, 24% nurses are in the age group of 41-50 and 8% nurses are in the age group of 51-60. According to religion 62% nurses are Hindus, 8% nurses are Muslims, according to gender 36% nurses are males and 64% nurses are females. Department were working wise distribution of nurses, it is observed that 56% nurses belong to general ward, 8% nurses belong to ICU, 36% nurses belong to post operative ward. experience wise distribution of nurses. According to experience in Year 24% nurses belongs to 0-5 years, 36% nurses belong to 6-10 years, 24% nurses belong to 11-15 years and 16% nurses belongs to 16 years and above. educational program wise distribution of nurses, it is observed that 30% nurses have attended and 70% nurses have not attended. According to Frequency of tracheostomy patients 48% nurses belong to about even three months, 38% nurses belong to about even six months and 14% nurses belong to Almost always.

ASSESSMENT OF KNOWLEDGE

TO ASSESS THE EXISTING KNOWLEDGE OF NURSES REGARDING TRACHESTOMY CARE.

Table: 2- Distribution of knowledge score in pre test

n=50

Level of knowledge	Pre- test	
	Numbers	%
Inadequate (<50%)	31	62
Moderate (50—75%)	19	38
Adequate (>75%)	-	-

Table 2- shows that the level of knowledge regarding tracheostomy care is inadequate in 62% of subjects and moderate in 38% subjects in pre-test.

Mean, SD and Mean% of the pre-test knowledge of nurses regarding tracheostomy care.

Table: 3 – Area wise pre test score of nurses on tracheostomy Care.

n = 50

Domain	Max Statements	Max Score	Range	Mean	SD	Mean %
General information regarding Trachea	5	5	4	2.6	0.822	52
Knowledge regarding Tracheostomy	5	5	3	2.24	0.82	44.8
Tracheostomy tube	5	5	4	2.64	1.064	52.8
Tracheostomy care	10	10	5	4.58	1.162	45.8
Tracheostomy Suctioning	5	5	3	2.12	0.872	42.4
Nursing responsibility in Tracheostomy	10	10	5	4.04	1.24	40.4

Table 3- shoes that the overall mean is 18.22 and Standard deviation is 3.30 and mean percentage is 45.55 in pre-test.

TO ASSESS THE POST-TEST KNOWLEDGE SCORE OF NURSES REGARDING TRACHEOSTOMY CARE.**Table: 4- Distribution of knowledge score in post- test**

Level of knowledge	Post test	
	Numbers	%
Inadequate (<50%)	-	-
Moderate (50—75%)	16	22
Adequate (>75%)	44	88

Table 4 shows that the level of knowledge regarding tracheotomy care, is adequate in 88% of subjects and moderate in 22 % subjects in post-test.

Mean, SD and Mean% of the post-test knowledge of nurses regarding tracheotomy care.

Table: 5- Area wise post test score of nurses on tracheotomy care.**n=50**

Domain	Max Statements	Max Score	Range	Mean	SD	Mean %
General information regarding Trachea	5	5	3	3.	0.735	78
Knowledge regarding Tracheostomy	5	5	3	3.86	0.700	77.8
Tracheostomy tube	5	5	3	3.92	0.72	78.4
Tracheostomy care	10	10	4	8.06	0.89	80.6
Tracheostomy Suctioning	5	5	3	3.82	0.62	76.4
Nursing responsibility in Tracheostomy	10	10	4	7.88	1.02	78.8
Overall	40	40	7	31.4	1.44	78.5

Table 5- shows that the overall mean is 31.4 and standard deviation is 1.44 and mean percentage is 78.5 in post-test.

TO COMPARE THE SIGNIFICANT DIFFERENCES BETWEEN PRE-TEST & POST-TEST KNOWLEDGE SCORE OF NURSES REGARDING TRACHESOTOMY CARE.**Table: 6-Distribution of differences between pre-test & post test score.****N=50**

Level of Knowledge	Pre test		Post test	
	No	%	No	%
Inadequate (<50%)	31	62	00	00
Moderate (50—75%)	19	38	16	26.6
Adequate (>75%)	0	0.00	44	73.3

Table-6 shows 26.6% nurses had moderate knowledge and 73.3% nurses has adequate knowledge on tracheostomy care in post-test.

Table no- 7-Abstract of chi-square results of socio demographic Characteristics and knowledge of nurses regarding tracheostomy care.

Sl. No	Characteristics	Chi-Square value	Df	Result	'p' value
1	Age	4.12	3	NS	7.82
2	Gender	0.86	1	NS	3.84
3	Religion	0.129	2	NS	5.99
4	Educational Status	9.29	2	S*	5.99
5	Department where Working	7.808	2	S*	5.99
6	Experience in year	12.5	3	NS	7.82
7	Educational program	0.67	1	S*	3.84
8	Frequency of tracheostomy patients	10.7	2	S*	5.99

NOTE: - N.S- Not significant, S*- Significant *P<0.05 level.

Table-7 Educational Status, Department where Working, Educational program, Frequency of tracheostomy patients are significant. The other variables such as age, Gender, religion and Experience in year are not significant. Hence reject null hypothesis and accept research hypothesis that administration of planned teaching programme can improve the knowledge of nurses regarding tracheostomy care.

Table: 8- Area wise difference of pre-test and post test score regarding tracheostomy**N=50**

Domain	Max Scored	Pre test	Pre test		Post test		
		Mean	SD	Mean %	Mean	SD	Mean %
General information regarding Trachea	5	2.6	0.822	52	3.9	0.735	78
Knowledge regarding Tracheostomy	5	2.24	0.82	44.8	3.86	0.700	77.8
Tracheostomy tube	5	2.64	1.064	52.8	3.92	0.72	78.4
Tracheostomy care	10	4.58	1.162	45.8	8.06	0.89	80.6
Tracheostomy Suctioning	5	2.12	0.872	42.4	3.82	0.62	76.4
Nursing responsibility	10	4.04	1.24	40.4	7.88	1.02	78.8
Overall	40	18.22	3.30	45.55	31.4	1.44	78.5

Table: 9- Area wise enhancement of knowledge regarding Tracheostomy Care.**n = 50**

Domain	Max Scores	Enhancement			Paired 't' test
General information regarding Trachea	5	1.3	0.087	26	27.19
Knowledge regarding Tracheostomy	5	1.26	0.12	33	
Tracheostomy tube	5	1.28	0.334	25.6	
Tracheostomy care	10	3.48	0.272	34.8	
Tracheostomy Suctioning	5	1.70	0.252	34	
Nursing responsibility in Tracheostomy care	10	3.84	0.22	38.4	
Overall	40	13.88	1.86	32.95	

Table 9-shows the distribution of enhancement in Mean with 13.88, SD with 1.86 and Mean% with 32.95.

DISCUSSION:

This chapter presents the major findings of the study and discusses them in relation to similar studies conducted by other researchers. "A study to evaluate the effectiveness of planned teaching programme regarding tracheostomy care in terms of knowledge of staff nurses working in government hospital Gwalior". The findings of the study have been discussed with reference to the objectives and hypothesis stated in chapter 2 along with findings of other studies.

1. AGE: majority of the respondents are from 31-40 years of age.

Calculated Value was found to be 4.12, which is less than table value with $p\text{-value} > 0.05$. Hence rejected research hypotheses ie. there is no significant association between age and post-test knowledge of staff nurses.

2. GENDER: Maximum number of participants were females and least number of participants were males.

Calculated χ^2 Value was found to be 0.86 which is less than table value, $DF = 1$ with $p\text{-value} > 0.05$. There is no statistical association between gender and the knowledge of staff nurses.

3. RELIGION: Most of the participants are Hindu in my study.

The chi-square value found to be 0.129 which is less than table value at $DF 0.05$. Hence there is no

association between religion and knowledge of school staff nurses.

4. EDUCATIONAL STATUS: The maximum numbers of respondents are having GNM education.

Calculated χ^2 Value was found to be 9.29 which is more than table value, with $p\text{-value} > 0.05$. There is statistical association between educational status and the knowledge of staff nurses.

5. DEPARTMENT OF WORKING: the majority of participants are working in general ward.

The chi-square test was found to be 7.808 and it was found to be significant at 0.05. So there is a statistical association between department of work and post-test knowledge of staff nurses.

6. EXPERIENCE IN YEAR: most of the participants are in experience of 6-10 years.

The chi-square value found to be 12.5 which is more than table value at Hence there is association between experience and knowledge of staff nurses.

7. EDUCATIONAL PROGRAM: most of the sample not amended the educational programme,

The calculated chi-square test value is 0.67 which are less than table value Hence reject the research hypotheses. There is no association between educational programme and knowledge of staff nurses.

8. FREQUENCY OF TRACHEOSTOMY PATIENT:

most of the sample were about 3 months of duration

The chi-square test was found to be 10.7 and it was found to be significant at 0.05. So there is a statistical association between frequency of tracheotomy patient and post-test knowledge of staff nurses.

Conclusion: The study findings showed that there was a significant increase in the knowledge of staff nurses after administration of PTP regarding tracheostomy care. Hence it was concluded that PTP is an effective method to increase knowledge of staff nurses regarding tracheostomy care.

Conflict of interest: No

Financial support: Self

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