

A study to evaluate the effect of planned teaching program on knowledge and practice of tracheostomy care of hospitalized patients among staff nurses in critical care unit at AGHL, Kolkata.

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Abstract

Background: Tracheostomy is a common procedure performed in critically ill patients requiring prolonged mechanical ventilation. As a principle, maintaining the airway is considered the first step of treatment in all patients who were in a critical condition. The nurse has the primary role in tracheostomy care, as he or she is responsible for doing it in the acute care setting. The application of this research by clinical staff nurses has become a priority, due to its anticipated positive effects on patient safety.

Materials and Methods: A quantitative pre experimental single group pre test post test research design was used to conduct the study. The study was conducted among 40 staff nurses in critical care unit of AGHL, Kolkata. The subjects were selected by non probability convenience sampling technique. Pretest was taken through structured knowledge questionnaire (self reported) and observation checklist on "Tracheostomy care", after that teaching program on tracheostomy care was administered and post test was taken after 7th day of pre test. A formal prior permission was obtained from the Institutional Ethics Committee and informed consent was obtained.

Results: Study findings revealed that the mean post test knowledge score (10.6) and practice score (13.5) was higher than the mean pre test knowledge (5.2) and practice score (6.3). It also found that the calculated 't' test value of knowledge and practice that were 13.4 and 12.2 for df (39) at 0.05 level of significance, verifying that the planned teaching program was fruitful in enhancing the knowledge and practice among staff nurse regarding tracheostomy care.

Conclusion: The planned teaching program was effective in intensifying the staff knowledge and practice in tracheostomy care and improving the quality care.

Key words: Knowledge, Practice, Tracheostomy care, Staff nurses, plan teaching program, critical care unit, patient safety, on job training, Continue Nursing education

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I. Introduction

Tracheostomy is a common procedure performed in critically ill patients requiring prolonged mechanical ventilation for acute respiratory failure and for airway issues¹. Tracheotomies are increasingly performed in adults for upper airway obstruction, prolonged endotracheal intubation and airway protection or maintenance².

As a principle, maintaining a clear airway is considered the first step of treatment in all patients who were in a critical condition. Tracheostomy is done to facilitate breathing in case of any blockage in the airway passages, foreign body impaction in the airways, acute infection of the airways, oedema of the airways, paralysis of vocal cords following injury, tumours of the vocal cords, trauma in the region and malignant lesion in condition of recurrent airway obstruction^{2,4}.

The nurse has the primary role in tracheostomy care, as he or she is responsible for doing it in the acute care setting⁴. Initially all tracheostomy was carried out only to relieve the upper airway obstruction but gradually its indication became extensive⁵. The benefits of tracheostomy are not without associated risk and complications⁵. The increasing use of tracheostomy has resulted in parallel increase in complications⁵. Performance improvement has evolved over the past two decades from quality assurance, to quality improvement, to performance improvement³. As the process of performance improvement has changed, the amount of research relevant to nursing procedures has grown³. The application of this research by clinical staff nurses has become a priority, due to its anticipated positive effects on patient safety³.

II. Objectives

- To assess the knowledge and practice of tracheostomy care of a hospitalized patients among staff nurses before administration of teaching program.
- To assess the knowledge and practice of tracheostomy care of a hospitalized patients among staff nurses after administration of teaching program.
- To find out the effect of planned teaching program on tracheostomy care among staff nurses.

Need of the study

Mir Bilques Qadir 2015, 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. It also 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 intervention⁷.

Megha A. et al 2017, the study revealed that total number of tracheostomy performed were 124, so prevalence rate of tracheostomy was 0.253%. The most common age group for tracheostomy found was 1550 years of age i.e. 88 cases (70.96%)⁵.

Mandeep Sharma et al 2018 , Study showed that 57% of staff nurses were having average knowledge and 43% staff nurses were having good knowledge. Moreover, 44% and 56% staff nurses were having fair and good skills regarding tracheostomy care respectively. Study also depicted that there was a weak positive correlation between knowledge and skills on tracheostomy care ($r = 0.198$)⁴.

In tracheostomy management states that airway assessment and management is one of the primary responsibilities of nurses caring for the critically ill patient⁶. Although tracheostomy are used to a lesser extent than endotracheal tubes in most intensive care units⁶. Their use typically requires additional education and training because of the available tubes are of surgical site and other related nursing care practices⁶. Nurses are professionally accountable for the quality of care they deliver and for working with them and their scope of practice⁶. One of practice that creates anxiety for many nurses is tracheostomy care⁶. A tracheostomy care includes stoma care and suctioning⁶. The practice of care was changing in every aspect⁶. These inconsistencies represented patient safety of the threat in the form of nosocomial infections, prolonged hospitalization, airway complications and even death⁴.

To address and reduce these issues it is necessary to assess the knowledge and skill of nurses and to improve patient safety in the hospital⁴.

Research Hypothesis

- Hypothesis(H1): There is a significant difference between pre-test and post test knowledge score among staff nurses at 0.05 level of significance.
- Hypothesis(H01): There is no significant difference between pre-test and post test knowledge score among staff nurses at 0.05 level of significance.
- Hypothesis(H2): There is a significant difference between pre-test and post test practice score among staff nurses at 0.05 level of significance.
- Hypothesis(H02): There is no significant difference between pre-test and post test practice score among staff nurses at 0.05 level of significance.

III. Materials And Methods

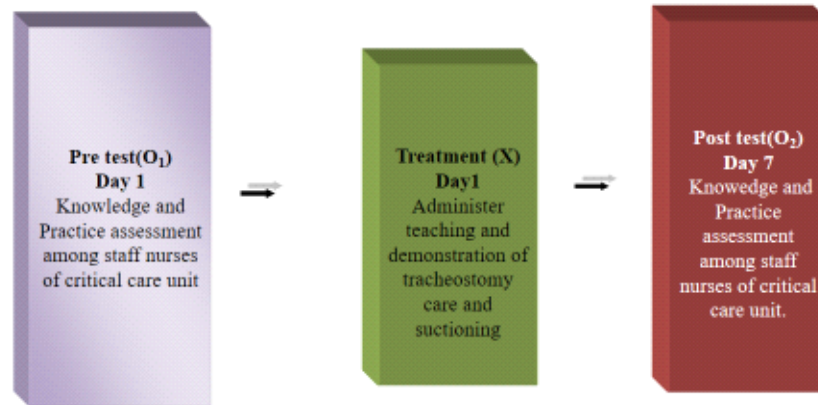


Figure 1: depicts the blue print of research design

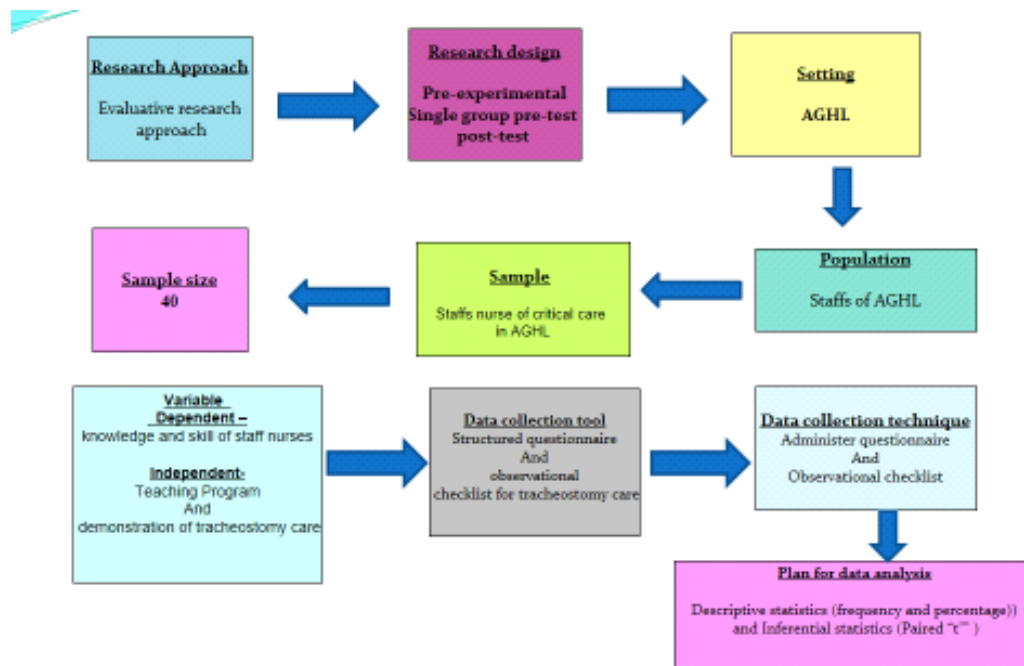


Figure 2: represents research methodology

Study Design: Pre experimental single group pre test post test design

Study Location: Apollo Gleneagles Hospitals

Study Duration: 1st March to 31st March, 2020

Sample Size: 40

Subjects & Selection methods: 40 staff Nurses, working in critical care unit selected by non probability convenience sampling technique.

Tool consists of three sections:

Section 1: Demographic Performa includes 3 items to collect information on subject's demographic characteristics. It includes age, qualification, and years of experience. Data was collected by investigator through self reported questionnaire (pen and pencil method).

Section 2: Structured knowledge questionnaire consists of 20 multiple choice questions to assess the knowledge regarding tracheostomy care. Data was collected by investigator through self reported questionnaire (pen and pencil method).

PERCENTAGE	KNOWLEDGE LEVEL
<40%	Poor
(40-59)%	Average
(60-79)%	Good
>80%	Excellent

Section 3: Observation checklist on tracheostomy care consists of 14 criteria to assess the practice of staff nurse, observed by the investigator. The one score is for each correct step and no score is awarded for missed step.

PERCENTAGE	PRACTICE LEVEL
<50%	Poor
(51-79)%	Good
>80%	Excellent

Procedure methodology:

The final study was conducted from 01.03.20 to 31.03.20 at Apollo Gleneagles Hospital, Kolkata, after getting Ethical clearance. Data collection time was 1 month.

After self introduction revealed consent was taken from participants which was counter signed by investigators. The data was collected by questionnaire (demographic profile), knowledge questionnaire (tool 2) from the staff through paper pencil method and practices (tool 3) was observed by observation checklist.

After that teaching program and demonstration on tracheostomy care was administered to the participants on the day of pre test.

Then after 7 days, post test, tool 2 and tool 3 was re administered for assessing the knowledge level and practices of staff evaluating the effect of intervention.

Then collected data were tabulated, analysed, statistically calculated.

IV. Results

In the present study the obtained data was organized, tabulated, analyzed and interpreted under the following sections.

- Section I: -This section describes description of demographic characteristics of staff nurses.
- Section II -This section describes pre and post test knowledge and practice scores of staff nurse.
- Section II-A- This section describes Pre and post test knowledge score of staff nurses.
- Section II-B- This section describes Pre and post test practice score of staff nurses
- Section III -This section describes effect of teaching program and demonstration.
- Section III-A- This section describes that mean, Mean difference, SD and t value of knowledge scores in target group before and after administration of teaching program.
- Section III-B- This Section describes that mean, Mean difference, SD and t value of Practice scores in target group before and after administration of teaching program

Section I

Table 1: Description of demographic profile of staff nurse

		N=40	
	Attributes	Frequency	Percentage (%)
1.	Staff		
	Age in years		
	a. 20-24 years	30	75%
	b. 25-29 years	08	20%
	c. 30- 34 years	02	5%
d. 35 years and above	-	Nil	
2.	Qualification		
	a. GNM	18	45%
	b. B.Sc / Post Basic	22	55%
	c. M.Sc	-	Nil
3.	Critical care experience		
	• 1-6 months	04	10%
	• 7-12 months	22	55%
	• 13-18 months	09	22.5%
	• More than 18 months	05	12.5%

Table 1, depicts that most of the staffs (75%) belonged to 20-24 years of age group and 55% staffs had B. Sc degree in Nursing and 7 to 12 months of experience in critical care.

Section II A: Pre and post test knowledge score of staff nurses.

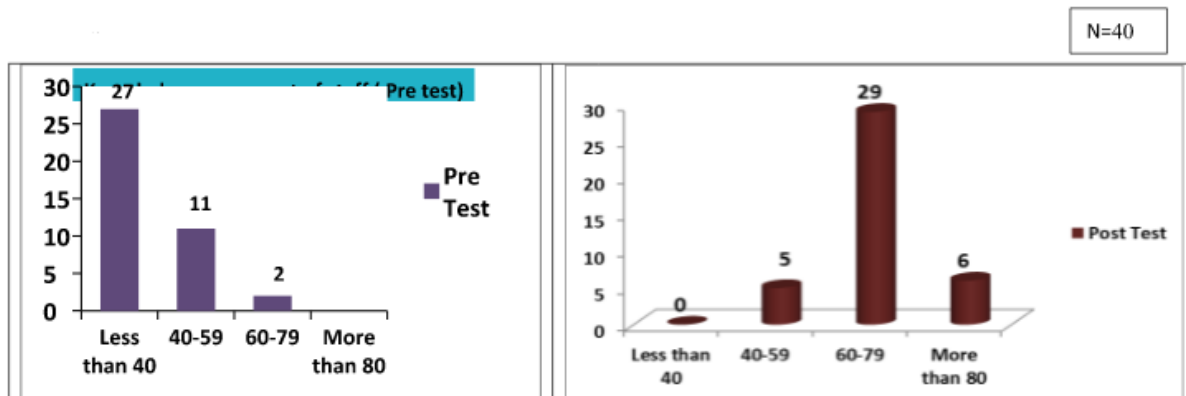


Figure 3: bar diagram demonstrate frequency and percentage distribution of knowledge score among staff nurses before and after administration of teaching program.

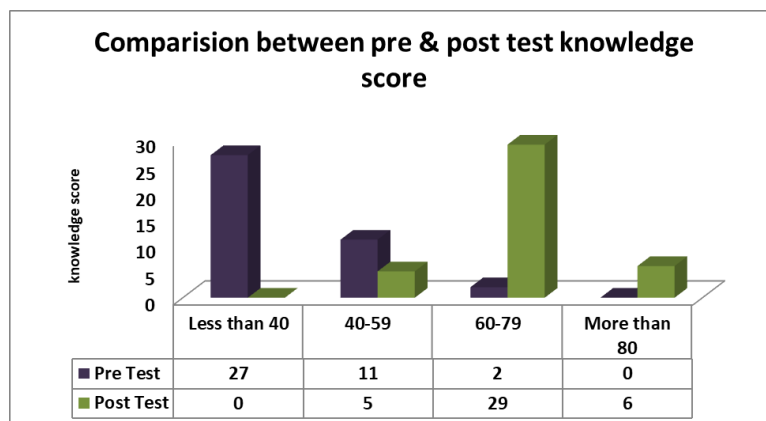


Figure 4: describe the improvement of knowledge score in post test

It also highlighted that 67% staffs had poor knowledge regarding tracheostomy care before administration of teaching program and 72% staffs had good knowledge in post test and this above diagram showed that frequency distribution between pre test and post test knowledge score. While assessing the Practice of the nurses it was found that there was remarkable improvement in the practice score after receiving training.

Section II B Pre and post test practice score of staff nurses

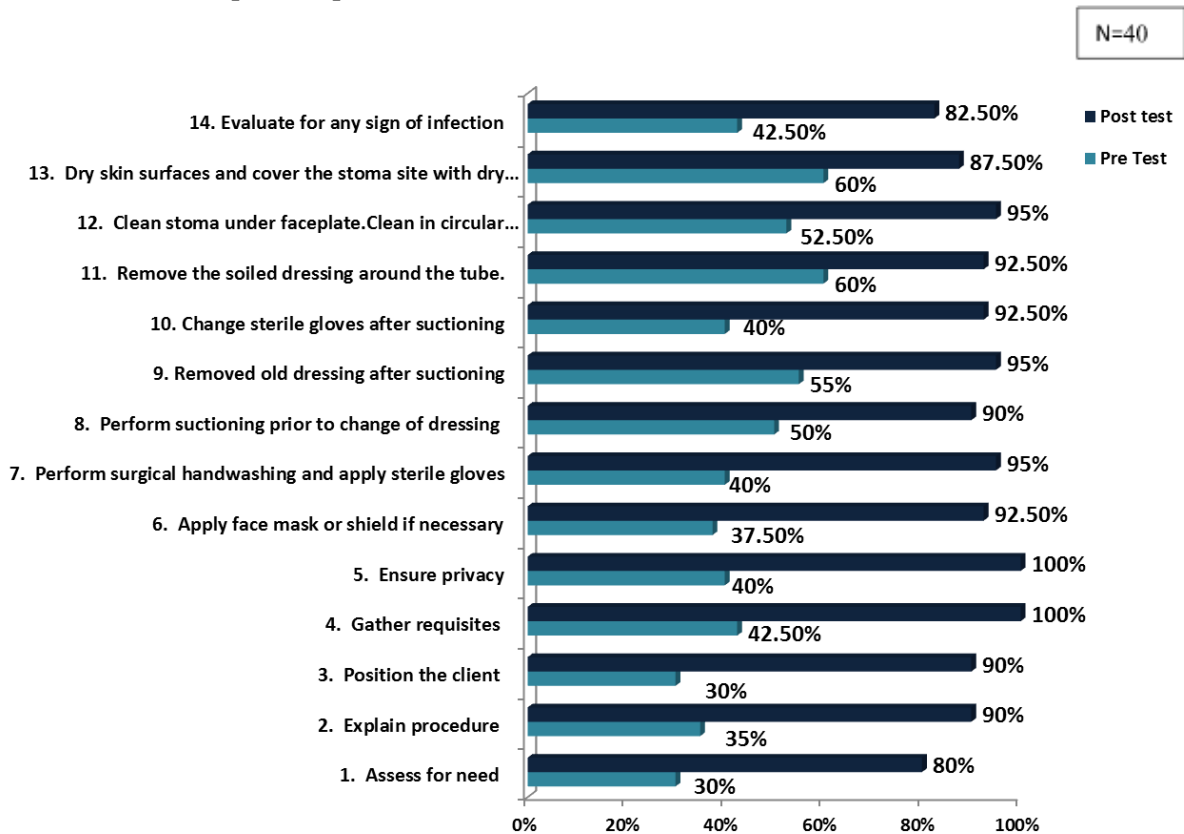


Figure 5: Bar diagram depicts the percentage distribution between pre test and post test of practice score.

Section III

Table 2: Mean, Mean difference, SD and t value of knowledge scores in target group before and after administration of teaching program

N=40

Observation	Mean	Mean difference	SD	't'
Pre-test	5.2	5.4	2	13.4*
Post-test	10.6			

't' df(39)=1.68, P<0.05

* Significant

As calculated 't' value is greater than table value, so the research hypothesis is accepted and null hypothesis is rejected.

Table 3: Mean, Mean difference, SD and t value of Practice scores in target group before and after administration of teaching program.

N=40

Observation	Mean	Mean difference	SD	't'
Pre-test	6.3	7.2	3.06	12.2*
Post-test	13.5			

't' df(39)=1.68, P<0.05

* Significant

As calculated 't' value is greater than table value, so the research hypothesis is accepted and null hypothesis is rejected.

The teaching program was effective in enhancing knowledge and practice as mean value of post-test (10.6) and (13.5) was higher than pre-test mean value (5.2) and (6.3) and the calculated "t" test value [13.4, 12.2] of knowledge and practice score was more than the table value [1.68] at 0.05 level of significance.

So the planned teaching program on tracheostomy care was effective in enhancing knowledge and practice of the staff nurses.

V. Discussion

In this study 75% staffs belonged to the age group of 20 to 24 years, 55% staffs had done GNM course and had critical care experience of 7 to 12 months and 12.5% staffs had more than 18 months critical care experience

Sharma B investigated, A Quasi-Experimental Study to Assess the Effect of Video Assisted Teaching Module Regarding Tracheostomy Care on Knowledge and Skill of Staff Nurses at Vinayaka Mission Hospital, Salem, Tamilnadu. Their result showed that most of the staff nurses (86%) were in the age group of 21-25 years, 68% were females, majority (78%) had GNM qualification, 60% were working in ICU, majority (58%) had less than one year of experience, 62% had previous exposure to tracheostomy care through books, 72% had attended in-service education on tracheostomy care⁸.

This study highlighted that in pretest 67% of the staffs had poor knowledge and very few staff had average and good knowledge and none of them had excellent knowledge.

And in post test 72% staffs had done good knowledge score, 15% had done excellent knowledge score and no one had poor knowledge.

Sharma S who investigated on Exploration of Knowledge and Practices of Nurses Working in Selected Tertiary Care Hospitals in Uttarakhand State. They revealed that 58.76% staffs had weaker knowledge regarding tracheostomy care¹³.

Present study emphasized that Mean difference of pre test and post test knowledge score was 5.4. It was found to be statistically significant as evident from calculated 't' value 13.4 at 0.05 level of significance. According to this study findings teaching program on tracheostomy care was effective in increasing knowledge and skill of staff nurses as evident by 't' values.

Jacob B, Ramesh A investigated on Efficacy of Planned Teaching program on Knowledge Regarding Tracheostomy Suctioning among Staff Nurses. The findings shows that in pre test 48% participants were having satisfactory level of knowledge, 52% study participants were having good level of knowledge and none was having excellent level of knowledge. Contrastly in post test scores 80.00% of participants showed excellent knowledge, 20% of participants showed good knowledge and none were in the satisfactory level. And calculated 'Z' value are much higher than the tabulated value at 5% level of significance which is statistically acceptable¹².

VI. Conclusion

Present study shows that it is helpful to the staff for gaining knowledge and practice and in turn improving the patients care. The quality of their care enhance the patient outcome. The proper care and compliance with the standard care of the airways, reduce the duration of hospital stay, lower costs, reduce risk and complications and in turn reduce ALOS, also reduce stress and improve the quality of life of the patient and his family.

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