







The planned teaching on knowledge regarding Tracheostomy suctioning was prepared with the following content areas based on tracheostomy suctioning. They are:

- 1) Definition of tracheostomy
- 2) Anatomy and physiology of trachea
- 3) Purposes of tracheostomy suctioning
- 4) Indications for tracheostomy suctioning
- 5) Equipments used for tracheostomy suctioning
- 6) Procedure of tracheostomy suctioning and its technique
- 7) Care of patient after tracheostomy suctioning
- 8) Unexpected outcomes and related interventions
- 9) Immediate, delayed and late complications.

**Reliability**

Reliability of the structured knowledge questionnaire was done by administering the questionnaire to 30 staff nurses by using the split half method. The reliability coefficient of correlation for structured knowledge questionnaire was;  $r = 0.799$ . Hence the tool was found to be reliable.

**Validity**

Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure.<sup>17</sup>

To obtain content validity of the tool, the prepared tool with synopsis, evaluator’s response sheet and content validity certificate was submitted to 11 experts of Nursing and Medicine . Experts were chosen on the basis of their teaching and clinical experience and interest in the problem area.

11 validated tools were received from the experts with their valuable suggestions and comments. All these suggestions were incorporated in the final draft of the questionnaire.

**Procedure For Data Collection**

Formal written permission was obtained from the selected hospital. Data was collected from 15th July 2013 to 22<sup>nd</sup> July 2013. Data collection technique used was paper and pencil test. On the first day (pre test day) purpose of the study was explained to each sample and confidentiality of their response was assured. After the pre test the same day planned teaching was conducted to enhance their knowledge. Post test was conducted on the 7<sup>th</sup> day.

**Plan for Data Analysis**

The data was decided to be analyzed, using descriptive and inferential statistics on the basis of objectives of the study. To compute the data, a master data sheet was prepared by the investigator. These include;

- Items related to demographic variables.
- Data of pre-test and post-test score would be analyzed by using ‘z’ test, that would be used to detect the effectiveness of planned teaching.
- The significant difference between the knowledge and demographic variables would be calculated using ANOVA test.

**5. Major Findings**

Table 1 shows that the distribution of staff nurses according to their age in years reveals that 80% of them belongs to the age group of 21-30 and 20% of them belongs to 31-40 years respectively. 52% were females and 48% of them were males. Out of 50 samples 58% of them were educated upto GNM, 36% were Basic B.Sc.(Nursing) and 6% were educated upto P.B.B.Sc.(Nursing). Years of experience reveals that 76% of them had 1-5 years, 20% were 6-10 years and 2% each had experiences of 11-15 years and >16 years respectively. 24% of them were working in SICU, 44% in MICU, 30% in ENT and 2% were working in oncology ward. Years of experience in the present working area shows that 92% of them had experience between 1-5 years, 6% had 6-10 years and 2% had 11-15 years of experience respectively. Staff nurses who participated in the training on tracheostomy care or suctioning after basic nursing training shows that 56% of them attended the said training and 44% of them are not attended any training.

Demographic Variables	No. of staff nurses	Percentage (%)
<b>Age(yrs)</b>		
21-30 yrs	40	80.00
31-40 yrs	10	20.00
41-50 yrs	0	0.00
>50 yrs	0	0.00
<b>Gender</b>		
Male	24	48.00
Female	26	52.00
<b>Professional Qualification</b>		
GNM	29	58.0
Basic B.Sc.(Nursing)	18	36.0
P.B.B.Sc.(Nursing)	3	6.0
Any Other	0	0.00
<b>Years of experience</b>		
1-5 yrs	38	76.0
6-10 yrs	10	20.0
11-15 yrs	1	2.0
>15 yrs	1	2.0
<b>Area of working</b>		
SICU	12	24.0
MICU	22	44.0
ENT	15	30.0
Oncology	1	2.0
Any other	0	0.00
<b>Years of experience in the present working area</b>		
1-5 yrs	46	92.0
6-10 yrs	3	6.0
11-15 yrs	1	2.0
> 16 yrs	0	0.00
<b>Attended any training on tracheostomy care or suctioning after basic nursing training</b>		
Yes	28	56.00
No	22	44.00

**Distribution of staff nurses according to their demographic variables.**

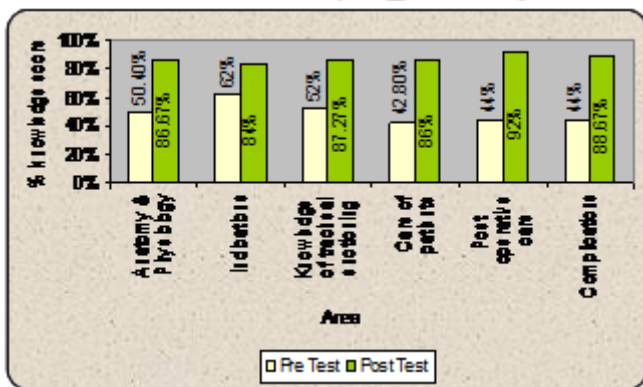
**Comparison of knowledge score of pretest and post test on knowledge regarding tracheostomy suctioning.**  
**N=50**

Area	Max Score	Pre Test		Post Test		Mean % Gain
		Mean	Mean%	Mean	Mean%	
Anatomy & Physiology	9	4.54	50.4	7.80	86.67	36.27
Indications	1	0.62	62.0	0.84	84.00	22
Knowledge of tracheal suctioning	11	5.72	52.0	9.60	87.27	35.27
Care of patients with tracheostomy	5	2.14	42.8	4.30	86.00	43.2
Post operative care	1	0.44	44.0	0.92	92.00	48
Complications	3	1.32	44.0	2.66	88.67	44.67

Data presented in above shows that the highest mean percentage of pretest score was 62% in the area of indications of tracheostomy, followed by knowledge on tracheostomy 52%, anatomy and physiology 50.4%, complications 44%, post operative care 44% and care of patient with tracheostomy 42.8%. Thus there is knowledge deficit observed in all the areas in staff nurses regarding tracheostomy suctioning.

The maximum mean percentage gain was 48% for post operative care, 44.67% for knowledge on complications, 43.2% on care of patient with tracheostomy, 36.27% on anatomy and physiology, knowledge on tracheostomy suctioning was 35.27% and 22% on indications for tracheostomy respectively.

After the administration of planned teaching it was found that the post test mean knowledge score in all areas were higher than the pre test mean percentage knowledge scores. Thus suggesting the effectiveness of the planned teaching.



**Figure**  
**Comparison of knowledge score in pretest and post test**

**Significance of difference between knowledge score in pre and post test of staff nurses in relation to knowledge regarding Tracheostomy suctioning**  
**N=50**

Area	Pre Test		Post Test		z-value	p-value
	Mean	SD	Mean	SD		
Anatomy & Physiology	4.54	1.21	7.8	1.12	17.6	0.000
Indications	0.62	0.49	0.84	0.37	3.07	0.000
Knowledge of tracheal suctioning	5.72	1.93	9.6	1.39	18.37	0.000
Care of patients	2.14	1.21	4.3	0.86	12.71	0.000
Post operative care	0.44	0.5	0.92	0.27	5.85	0.000
Complications	1.32	0.95	2.66	0.59	9.86	0.000

Table shows the comparison of pretest and post test knowledge scores of staff nurses on knowledge regarding Tracheostomy suctioning. Mean, standard deviation and mean score percentage values are compared and 'z' test is applied at 5% level of significance. The tabulated value for n=50-1 i.e 49 degrees of freedom was 2.00. The calculated 'z' value are much higher than the tabulated value at 5% level of significance which is statistically acceptable level of significance. In addition the calculated 'p' values for all the areas of knowledge regarding Tracheostomy suctioning was 0.000 which is ideal for any population. Hence it is statistically interpreted that the planned teaching regarding Tracheostomy suctioning was effective. Thus the H<sub>1</sub> is accepted.

**6. Summary of the Findings**

Distribution of the staff nurses according to their demographic variables it was found that 80% of staff nurses were in the age group of 21- 30yrs. 52% of them were females, 58% of them completed GNM, 76% had the working experience of 1- 5years. 44% were working in medicine ICU and 92% of them had 1-5 years of working experience in the present working area. Among them 56% of staff nurses attended the inservice education programme on tracheostomy suctioning.

In the assessment of existing knowledge 62 % of staff nurses were having knowledge on the indications for tracheostomy and 52% were having knowledge on tracheostomy suctioning. Knowledge on anatomy and physiology of staff nurses were 50.4 % and knowledge on post operative care and complications were 44%. Only 42.8% of staff nurses had knowledge on care of patients with tracheostomy.

In the post test knowledge score 92% of staff nurses were having knowledge on post- operative care after tracheostomy and 88.67% of them were having knowledge on complications of tracheostomy suctioning. 86.67% of staff nurses were having knowledge on procedure of tracheostomy suctioning. Knowledge on care of patients with tracheostomy and indications on tracheostomy was scored as 86% and 84% respectively.

In the comparison of pretest and post test knowledge scores of staff nurses on knowledge regarding tracheostomy suctioning, mean, standard deviation and mean score percentage values are compared and 'z' test is applied at 5% level of significance. The tabulated value for  $n=50-1$  i.e 49 degrees of freedom was 2.00. The calculated 'z' value are much higher than the tabulated value at 5% level of significance which is statistically acceptable level of significance. In addition the calculated 'p' values for all the areas of knowledge regarding Tracheostomy suctioning was 0.000 which is ideal for any population. Hence it is statistically interpreted that the planned teaching regarding Tracheostomy suctioning was effective. Thus the  $H_1$  is accepted.

Association of knowledge score in relation to demographic variables there was association between the knowledge score and the gender of staff nurses and there was no association with any other demographic variables.

## 7. Discussion

The findings of the study were discussed with reference to the objectives of the study and with the findings of other studies in this section.

The findings of the present study show a significant improvement of knowledge scores after the planned teaching. The findings show that in pre test scores 48% subjects were having satisfactory. Grading of knowledge, 52% of study participants were having good grading of knowledge and none was having excellent grading of knowledge score. In post test scores 80.00% of subjects showed excellent grading of knowledge, 20% of subjects showed good grading of knowledge and none was in the satisfactory grade.

Significance of difference between overall knowledge score in pre and post test in staff nurses in relation to knowledge regarding tracheostomy suctioning shows that mean pretest knowledge score was 14.78 and posttest knowledge score 26.14 which was found to be statistically significant. Based on this findings it is clear that staff nurses improved their knowledge regarding tracheostomy suctioning.

The findings of the present study was supported by the findings of previous studies. In an evidence-based guide to suctioning by David R T (2007) International Journal of evidence based health care emphasises that in order to promote positive outcomes in patients with tracheostomy, nurses need to stay up-to-date on best practices and develop and maintain the necessary skills.

A study was conducted by Varghese S (2011) in Bangalore to assess the effectiveness of Self instructed module (SIM) on knowledge regarding current suctioning practice among staff nurses. This study recommends that there is improvement in the knowledge of staff nurses after the administration of the SIM. Best outcome in patient care with tracheostomy can be achieved if periodical trainings are provided to the staff nurses.

A study was conducted by Day T (2002) on comparing the need for applying suction both before and after inserting catheter. These two methods of tracheal suctioning in the same 18 children with chronic tracheostomies were done. Use of the American Thoracic Society (ATS) recommendations resulted in a significant increase in secretions obtained ( $t = -3.96$ ;  $p = .001$ ) when compared with traditional practice. The ATS-recommended method was also more efficient in children with secretions. When used first, no additional secretions were obtained after 90 minutes using the traditional method. Additional secretions were obtained with the ATS-recommended method when the traditional method was used first. Heart rate and oxygen saturation immediately and 1 minute after suctioning were not significantly different between methods.

## 8. Conclusion

After the detailed analysis, this study leads to the following conclusions:

Staff nurses were having less knowledge regarding tracheostomy suctioning before planned teaching. There was a significant increase in the knowledge of subjects after the introduction of planned teaching. To find the effectiveness of planned teaching 'z' test was applied and 'z' value was calculated, post test score was significantly higher at  $< 0.05$  level than that of pre test score. Thus it was concluded that planned teaching on knowledge regarding tracheostomy suctioning was found effective as a teaching strategy.

Hence, based on the above cited findings, it was concluded undoubtedly that the planned teaching on knowledge regarding tracheostomy suctioning was effective in improving the knowledge of staff nurses regarding tracheostomy suctioning.

While associating the knowledge of staff nurses with their demographic variables shows that except gender any other demographic variables did not show a major role in influencing the pre test and post test knowledge score among staff nurses.

## 9. Implications of the Study

The implications of this study are discussed under the following headings

- ❖ Nursing administration
- ❖ Nursing education
- ❖ Nursing research
- ❖ Nursing practice

### Nursing Administration

Findings of the study can be used by the Nursing Administrator in creating policies and plans for providing education to the staff nurses and care takers. Care and suctioning procedures for patient with tracheostomies play a vital role in the maintenance of patent airway. A programme at hospital level for prospective (future) staff nurses can be planned and implemented to create awareness and to reduce



the complications and provide safe and comfort to the clients with tracheostomy. Such kind of planned teaching can be conducted for staff nurse for all nursing procedure will help them to update and improve their knowledge, which may help to adopt correct practices in all nursing procedures.

### Nursing Education

- The findings of the study will help the nursing students to develop an insight in the care of patient with tracheostomy and implement the knowledge of the same, while dealing with clients in various settings.
- The instruments prepared for this study will help the student nurses for collection of information regarding the technique and procedure of tracheostomy suctioning.
- The findings of the study will help nurse educators to guide senior staff nurses, colleagues and junior staffs regarding tracheostomy suctioning.

### Nursing Research

The nurse researchers can use the findings of this study as baseline data to conduct further interventional research to identify the level of knowledge and to determine the association of other demographic variable as age, gender, professional qualification and previous experience in caring of patient with tracheostomy.

It highlights the areas, which require future exploration. The suggestion and recommendations can be utilized by other researchers conducting further studies in the same field.

### Nursing Practice

- The findings of the study will help health care professionals including staff nurses to be more vigilant and tactful in order to identify and prevent complications related to tracheostomy suctioning that may deteriorate and alter their personal, social life and well being significantly.
- The planned teaching can be used for imparting knowledge regarding tracheostomy suctioning to health team members. Planned teaching will serve as a ready reference material for the health team members. It will also help the nurses to keep update knowledge regarding tracheostomy suctioning.
- The findings of the study can be used to promote community outreach services including health education, related to care and management of client with tracheostomies in their home settings.

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