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## Knowledge regarding Tracheostomy Care among Staff Nurses working in ICUs of selected hospitals, Kamrup, Assam: A Descriptive Study

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### Abstract:

#### Background and aim of the study

Tracheostomy is a surgical procedure to create an opening (stoma) in the neck into the trachea to provide alternative airway for breathing. It may be temporary or permanent. Sometimes it may be also use for long term ventilation patient and upper airway obstruction patient. Tracheostomy care is a vital, daily nursing care procedure to maintain airway patent and to prevent infection. Tracheostomy care involves cleaning the tracheostomy site, changing dressings, managing ties to prevent accidental decannulations and cleaning or replacing the inner cannula to remove secretion. The aim of the study is to assess the knowledge regarding tracheostomy care among staff nurses.

#### Methods and Materials

A Quantitative Descriptive research design was used in this study to accomplish the objectives. Non-probability Convenience sampling technique was used for obtaining the adequate sample for the study. Study was undertaken on 80 staff nurses who are working in ICU's of selected hospitals, Kamrup, Assam. Tools used for this study was demographic proforma, self-structured knowledge questionnaire. Participants were selected based on inclusion criteria.

#### Results:

The study revealed that Out of 80 staff nurses, 71(88.8%) were aged between 20-30 years, 74(92.5%) of the respondents were female, 52(65%) were GNM nurses 45(56.3%) had 3-5 years of experience in ICU, 60(75%) were exposed to any in-service education related to tracheostomy care, 24(43.6%) had attended 1 session.

In assessing the knowledge of staff nurses regarding tracheostomy care was assessed by using structured knowledge questionnaire and out of 80 staff nurses 38(47.5%) had moderately adequate knowledge, 34(42.5%) had adequate knowledge and 8(10%) had inadequate knowledge regarding tracheostomy care among the participants.

The association was statistically tested by chi square test and Fisher exact test. The result shows that none of the demographic variables show statistically significant association with knowledge regarding tracheostomy care among the staff nurses working in ICU at  $p < 0.05$  level.

#### Conclusion

Based on the analysis of the study findings, the investigator concluded that the majority of participants had moderately adequate knowledge regarding tracheostomy care; therefore, additional education on tracheostomy care should be implemented in order to help prevent from tracheostomy related complications.

Index Terms - Knowledge, Staff Nurses, Tracheostomy, Tracheostomy care, Hospital

## Introduction

Tracheostomy is a surgical procedure to create an opening (stoma) in the neck into the trachea to provide alternative airway for breathing. Tracheostomy care is a vital, daily nursing care procedure to maintain airway patent and to prevent infection. As nurses play pivotal role in giving care to the patient, any deviation in knowledge of nurses can impact patient safety.

## Methods

The study was aimed to assess the knowledge regarding tracheostomy care among staff nurses. A Quantitative Descriptive research design was used in this study to accomplish the objectives. Non-probability Convenience sampling technique was used for obtaining the adequate sample for the study. Study was undertaken on 80 staff nurses who are working in ICU's of selected hospitals, Kamrup, Assam. Tools used for this study was demographic proforma and self-structured knowledge questionnaire. Participants were selected based on inclusion criteria.

## Result

The following conclusions were drawn from the present study: Out of 80 staff nurses, 71(88.8%) were aged between 20-30 years, 74(92.5%) of the respondents were female, 52(65%) were GNM nurses, 45 (56.3%) had 3-5 years of experience in ICU, 60(75%) were exposed to any in-service education related to tracheostomy care, 24(43.6%) had attended 1 session.

The knowledge of staff nurses regarding tracheostomy care was assessed by using self- structured knowledge questionnaire and out of 80 staff nurses 38(47.5%) had moderately adequate knowledge, 34(42.5%) had adequate knowledge and 8(10%) had inadequate knowledge regarding tracheostomy care among the participants.

The association was statistically tested by chi square test and Fisher exact test. The result shows that none of the demographic variables show statistically significant association with knowledge regarding tracheostomy care among the staff nurses working in ICU at  $p < 0.05$  level.

**Table 1: Frequency and percentage distribution of demographic variables of the staff nurses working in ICU.**

n= 80

| Demographic Variables                   | Frequency (f) | Percentage (%) |
|-----------------------------------------|---------------|----------------|
| <b>Age (in years)</b>                   |               |                |
| 20 – 30                                 | 71            | 88.8           |
| 31 – 40                                 | 7             | 8.8            |
| Above 41                                | 2             | 2.4            |
| <b>Gender</b>                           |               |                |
| Male                                    | 6             | 7.5            |
| Female                                  | 74            | 92.5           |
| Transgender                             | -             | -              |
| <b>Professional qualification</b>       |               |                |
| GNM                                     | 52            | 65.0           |
| Post Basic B.Sc. Nursing                | 6             | 7.5            |
| B.Sc. Nursing                           | 22            | 27.5           |
| M.Sc. Nursing                           | -             | -              |
| <b>Total years of experience in ICU</b> |               |                |
| <1 year                                 | 33            | 41.3           |
| 3 – 5 years                             | 45            | 56.3           |
| 6 – 10 years                            | 2             | 2.4            |
| Above 10 years                          | -             | -              |

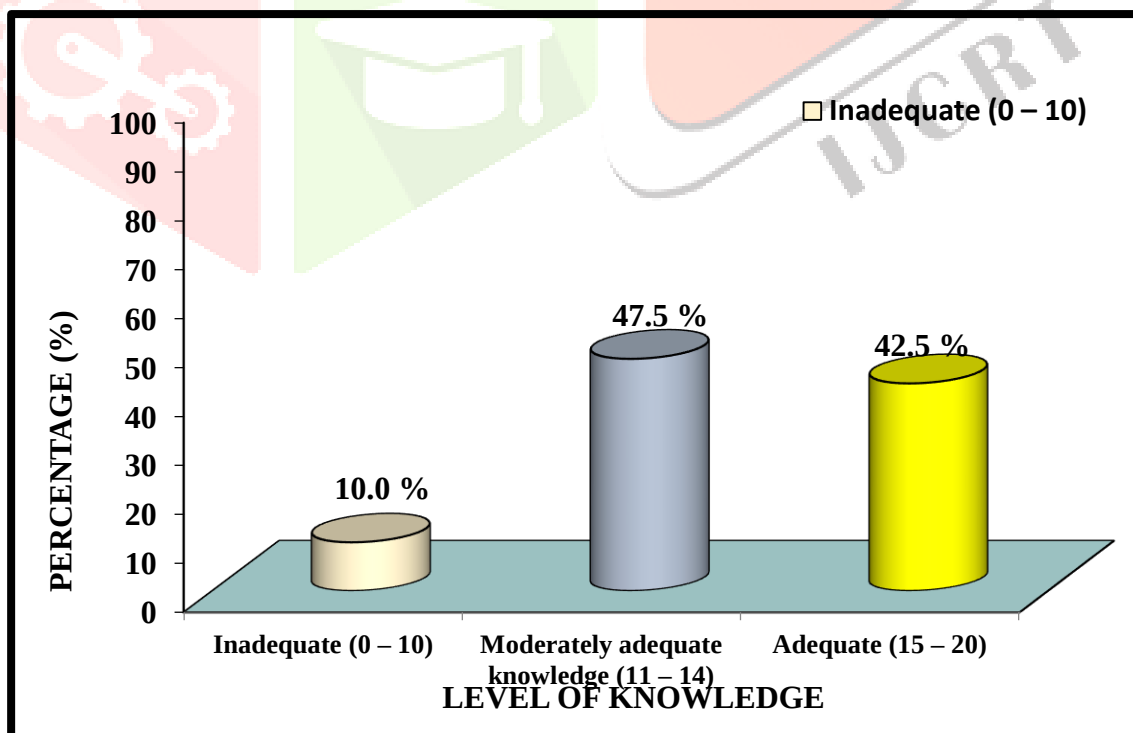
| Demographic Variables                                                    | Frequency (f) | Percentage (%) |
|--------------------------------------------------------------------------|---------------|----------------|
| <b>Exposure to any in-service education related to Tracheostomy care</b> |               |                |
| Yes                                                                      | 60            | 75.0           |
| No                                                                       | 20            | 25.0           |
| <b>If yes specify the duration</b>                                       |               |                |
| 1 session                                                                | 24            | 43.6           |
| 2 session                                                                | 12            | 21.9           |
| No                                                                       | 19            | 34.5           |

**Table 2: Frequency and percentage distribution of level of knowledge regarding tracheostomy care among the staff nurses working in ICU.**

**n = 80**

| Level of Knowledge                      | F  | %    |
|-----------------------------------------|----|------|
| Inadequate (0 – 10)                     | 8  | 10.0 |
| Moderately adequate knowledge (11 – 14) | 38 | 47.5 |
| Adequate (15 – 20)                      | 34 | 42.5 |

**n=80**



**Figure 1: Cylindrical diagram showing percentage distribution of the staff nurses according to their level of knowledge**

**Table 3: Association of level of knowledge regarding tracheostomy care among the staff nurses working in ICU with their selected demographic variables.**

| Demographic Variables                                                    | Inadequate |      | Moderately Adequate |      | Adequate |      | Chi-Square Test / Fisher Exact test & p-value |
|--------------------------------------------------------------------------|------------|------|---------------------|------|----------|------|-----------------------------------------------|
|                                                                          | F          | %    | F                   | %    | F        | %    |                                               |
| <b>Age (in years)</b>                                                    |            |      |                     |      |          |      | p=0.619<br>(N.S)                              |
| 20 – 30                                                                  | 8          | 10.0 | 35                  | 43.8 | 28       | 35.0 |                                               |
| 31 – 40                                                                  | 0          | 0    | 2                   | 2.5  | 5        | 6.2  |                                               |
| Above 41                                                                 | 0          | 0    | 1                   | 1.2  | 1        | 1.2  |                                               |
| <b>Gender</b>                                                            |            |      |                     |      |          |      | p=0.281<br>(N.S)                              |
| Male                                                                     | 0          | 0    | 5                   | 6.2  | 1        | 1.2  |                                               |
| Female                                                                   | 8          | 10.0 | 33                  | 41.2 | 33       | 41.2 |                                               |
| Transgender                                                              | -          | -    | -                   | -    | -        | -    |                                               |
| <b>Professional qualification</b>                                        |            |      |                     |      |          |      | p=0.453<br>(N.S)                              |
| GNM                                                                      | 6          | 7.5  | 25                  | 31.2 | 21       | 26.2 |                                               |
| Post Basic B.Sc. Nursing                                                 | 1          | 1.2  | 4                   | 5.0  | 1        | 1.2  |                                               |
| B.Sc. Nursing                                                            | 1          | 1.2  | 9                   | 11.2 | 12       | 15.0 |                                               |
| M.Sc. Nursing                                                            | -          | -    | -                   | -    | -        | -    | p=0.534<br>(N.S)                              |
| <b>Total years of experience in ICU</b>                                  |            |      |                     |      |          |      |                                               |
| <1 year                                                                  | 5          | 6.2  | 17                  | 21.2 | 11       | 13.8 |                                               |
| 3 – 5 years                                                              | 3          | 3.8  | 20                  | 25.0 | 22       | 27.5 |                                               |
| 6 – 10 years                                                             | 0          | 0    | 1                   | 1.2  | 1        | 1.2  | $\chi^2=0.741$<br>d.f=2<br>p=0.690<br>(N.S)   |
| Above 10 years                                                           | -          | -    | -                   | -    | -        | -    |                                               |
| <b>Exposure to any in-service education related to Tracheostomy care</b> |            |      |                     |      |          |      |                                               |
| Yes                                                                      | 7          | 8.8  | 28                  | 35.0 | 25       | 31.2 |                                               |
| No                                                                       | 1          | 1.2  | 10                  | 12.5 | 9        | 11.2 | p=0.634<br>(N.S)                              |
| <b>If yes specify the duration</b>                                       |            |      |                     |      |          |      |                                               |
| 1 session                                                                | 4          | 7.3  | 10                  | 18.2 | 10       | 18.2 |                                               |
| 2 session                                                                | 2          | 3.6  | 6                   | 10.9 | 4        | 7.3  |                                               |
| No                                                                       | 1          | 1.8  | 7                   | 12.7 | 11       | 20.0 |                                               |

N.S – Not Significant,  $p>0.05$ 

## Discussion

The study findings revealed that 75% of the participants had attended in-service education related to tracheostomy care, with 43.6% attending one educational session. This indicates that most staff nurses had some exposure to formal training programs regarding tracheostomy care. Continuous professional education plays a vital role in enhancing clinical competence and improving patient safety.

Assessment of knowledge regarding tracheostomy care showed that nearly half of the participants (47.5%) had moderately adequate knowledge, 42.5% had adequate knowledge, and only 10% had inadequate knowledge. These findings suggest that although the majority of staff nurses possess a satisfactory level of knowledge, there remains a need for strengthening their understanding through regular educational interventions.

The moderate level of knowledge observed in the present study may be attributed to routine clinical exposure and participation in in-service educational programs. Since ICU nurses frequently care for patients with tracheostomy, practical experience contributes significantly to knowledge acquisition. However, the presence of inadequate knowledge among some participants indicates gaps that need to be addressed through structured training and competency-based learning.

The present study also examined the association between demographic variables and knowledge level. The findings revealed that none of the selected demographic variables showed statistically significant association with knowledge regarding tracheostomy care at  $p<0.05$  level. This indicates that knowledge regarding tracheostomy care was independent of age, gender, educational qualification, ICU experience, and exposure to in-service education among the study participants.

This finding suggests that knowledge deficits may exist across all categories of staff nurses, emphasizing the universal need for regular training programs rather than targeting specific demographic groups. The findings highlight the importance of organizing regular workshops, seminars, demonstrations, and evidence-based training sessions on tracheostomy care for ICU nurses. Such educational initiatives can improve knowledge, enhance nursing competence, and reduce tracheostomy-related complications. The study was limited by its sample size and confined setting, which may limit generalization of the findings. Future studies involving larger samples across multiple institutions are recommended. In conclusion, the present study found that the majority of ICU staff nurses had moderately adequate knowledge regarding tracheostomy care. Although the overall knowledge level was satisfactory, continuous education and periodic training programs are essential to further improve competency and ensure high-quality patient care.

### Conclusion

The present study was conducted to assess the knowledge regarding tracheostomy care among staff nurses working in ICU. Based on the analysis of the findings, it can be concluded that the majority of staff nurses possessed moderately adequate knowledge regarding tracheostomy care, while a considerable proportion demonstrated adequate knowledge and only a small percentage had inadequate knowledge. The study findings indicate that although ICU nurses have a satisfactory level of understanding due to clinical exposure and in-service education, there is still scope for improvement in their knowledge and practice related to tracheostomy care. Since tracheostomy care is a crucial component of critical care nursing and directly influences patient safety and prevention of complications, continuous updating of knowledge is essential.

The study also concluded that there was no statistically significant association between selected demographic variables and knowledge level, suggesting that knowledge gaps may exist irrespective of age, gender, educational qualification, or years of experience.

Therefore, the study emphasizes the need for regular in-service education, workshops, competency-based training programs, and adherence to standardized tracheostomy care protocols to enhance nurses' knowledge and clinical competence. Strengthening knowledge regarding tracheostomy care among ICU staff nurses will ultimately improve the quality of nursing care, reduce tracheostomy-related complications, and promote better patient outcomes in intensive care settings.

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