

# Effect of Tracheostomy Care Intervention on Self-Care Knowledge and Level of Anxiety among Adult Patients with Permanent Tracheostomy

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Tracheostomy  
Care  
Intervention on  
Self-Care  
Knowledge

## ABSTRACT

**Objective:** To determine improving self-care knowledge and level of anxiety through nursing intervention among adult patients with permanent tracheostomy

**Study Design:** quasi-experimental pre and post-study

**Place and Duration of Study:** This study was conducted at the Lahore General Hospital Lahore from January, 2022 to October, 2022.

**Materials and Methods:** Patients and their caregivers participated in multifaceted intervention with educational sessions, training, discussion and demonstration, and also post-training discussion was continued on hospital appointment days and also using on WhatsApp. Pre and post-assessment of tracheostomy care intervention on self-care, daily activities and reducing involvement of anxiety are completed through using validated tools.

**Results:** The positive effects on self-care intervention and level of anxiety on tracheostomy care calculated using the Wilcoxon Rank Test, where the pre-intervention median score was 16.41 and level of anxiety score was 26.29 and the post-intervention score was 30.32, and level of anxiety post score was 2.41 with significant difference ( $p$ -value=.000).

**Conclusion:** The educational intervention has a significant impact to enhance self-care and reducing the level of anxiety for patients with tracheostomy at home.

**Key Words:** Tracheostomy, intervention, self-care, home care, level of anxiety, experimental

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## INTRODUCTION

Tracheostomy is a major surgery, to create an opening to provide airway patency at the 3rd or 4th cartilage ring in the anterior wall of the trachea. Tracheostomy has been considered the best life-saving procedure.<sup>1</sup>

From the time the tracheostomy is placed through hospital discharge and home maintenance, people with tracheostomies face a variety of functional, physical, and emotional issues. The existence of a long-term tracheostomy will probably affect the patient's psychological wellness and quality of life (QoL) because it affects vital functions including breathing, communicating, and eating.<sup>2,3</sup>

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Due to the innate deformity that comes with a tracheostomy, negative psychosocial effects may develop. It is well known that acquired deformity poses particular psychological and social difficulties and may significantly affect a person's life.<sup>4</sup> The tracheostomy becomes essential to maintain the airway patency; it is particularly important for patients who had have the experience to be discharged by tracheostomy. In order to avoid certain complications which might occur, and proper healthy diet, coordination, aspiration, cannula washing, cuff control, stoma treatment and dressing should be included in the care routine of patients after tracheostomy.<sup>5</sup>

An estimated 80,612 tracheostomies were performed in 2002, 89545 were conducted at their highest point in 2008, and 58840 were performed at their lowest point in 2016.<sup>6</sup> The annual incidence rate of tracheostomies per 100,000 U.S. adults was 37.5 (95% CI, 34.7-40.4) in 2002, reaching a maximum of 39.7 (95% CI, 36.5-42.9) in 2003, and a minimum of 28.4 (95% CI, 27.2-29.6) in 2017. A tracheostomy was performed on an annual average of 9.6% of hospital discharges with respiratory failure requiring invasive mechanical ventilation.<sup>7</sup>

Over the course of the study, this moved from 10.4% in 2002 to a peak of 10.9% in 2004 and a low of 7.4% in

2017. The yearly proportion of patients 50–59 and 60–69 years old increased among respiratory failure discharges requiring invasive mechanical ventilation and tracheostomy, but patients 70–79 years old and older than or equal to 80 years old dropped. While in-hospital mortality and the average duration of stay both fell, the number of patients discharged to intermediate care facilities rose.<sup>8</sup>

A tracheostomy changes a person's physical, psychological, and social aspects, but it also affects how they behave. To regain autonomy, the person needs to learn new stoma care techniques and create new communication pathways. For patients leaving the hospital with a tracheostomy, this is very crucial. They have a significant risk of problems. Because of this, the main goal of organizing a tracheostomy patient's release is to secure their return to autonomy so they may return home safely and adjust to their new surroundings.<sup>9</sup>

In order to provide airway protection, avoid difficulties, and improve quality of life, it is required that the individual develops the skills necessary for stoma self-care and handling tracheostomy equipment.<sup>10</sup> Therefore, the majority of nursing interventions for tracheostomy patients emphasise self-care. It is acknowledged as being necessary for stoma acceptance, adaptation, and improvement of quality of life.<sup>11</sup> So therefore the study was conducted to determine improving self-care knowledge and level of anxiety through nursing intervention among adult patients with permanent tracheostomy.

## MATERIALS AND METHODS

This study was conducted after the institutional Review Board (IRB) of The Lahore University of Lahore, conducted this study from dated 25th Jan 2022, all participants were well informed about purpose of this study, informed consent obtained. This study utilized a quasi-experimental approach with a single group pretest and post-test this study is the best to judge patient's self-care and level of anxiety of patients with permanent tracheostomy. Patients of this study selected from General Hospital Lahore. After that informed consent was completed at that time risk, benefits, purpose of study also described to patients and patients' caregivers also. They are willing to gain knowledge and want to minimize the level of anxiety, so willing patients include in this study. Sample size of 28 cases is calculated with 95% confidence interval,  $d=0.09$  and mean difference of pre-post self-care score as  $4.04 \pm 0.26$  (pilot study). After adding 20% drop out rate the sample size was 34. A validated questionnaire was used to assess the self-care and anxiety of patients regarding tracheostomy care at home. This questionnaire has three parts, 1) socio Demographic, 2) questions on self-care and 3) questions about level of anxiety

**Self-care:** Self-care is the physical activities such as exercising and eating healthy, is the ability of adult patients to perform their skills of caring with competency in each step according to need. It will be measured by the validated structured self-care questionnaire. It has 16 questions with Yes/No. Appropriate answer was scored as "1" and inappropriate answer will be scored as "0"

- < 50% = Poor Knowledge (0-7)
- 51% to 75% = Fair Knowledge (8-12)
- >75% = Good Knowledge (13-16)<sup>12</sup>

The personality, coping mechanisms, life experiences, and gender can all affect anxiety level. The Hospital Anxiety and Depression Scale (HADS)<sup>13</sup> divides anxiety levels into four groups based on the degree of difficulty and impairment they cause: mild, moderate, severe, and panic level. It was measured by the validated structured anxiety questionnaire. It has 11 questions with 4 points of anxiety scale, not at all = (0), Occasionally = 1, A lot of time = 2, Most of time = 3 response, where 26 to 33 shows severe anxiety. The following cutoffs were used to report anxiety:

- 0–8 scores = Normal or no anxiety
- 9–16 scores = Mild anxiety
- 17–25 = Moderate anxiety
- 26–33 = Severe anxiety

The Questionnaire is validated by seven field experts. The Content Validity Index = (CVI) for self-care questionnaire is  $15.1/16 = 0.94$  and for anxiety questionnaire Content Validity Index = (CVI) was  $11.2/12 = 0.93$ . Pilot study was done on 10 participants and Cronbach's alpha coefficient for self-care questionnaire was 0.796 and for anxiety questionnaire is 0.822. Data was entered and analyzed in SPSS-21.0. Shapiro Wilk test use for self-care to compute self-care and anxiety scores Paired sample t-test/Wilcoxon signed rank test was applied. P-value  $\leq 0.05$  was considered as statistically significant.

## RESULTS

There were 10 (29.4%) participants have 18-30 years, 9 (26.5%) participants have 31-40 years and majority of 15 (44%) have 41-50 years old (Table 1). Twenty four (70.6%) males and 10 (29.4%) females (Table 2). Majority of participants 24 (70.6%) of them had primary pass and only 10 (29.4%) had matric or above (Table 3)

Pre intervention median score is 16.41 and post intervention score is 30.32, results shown that after intervention big deferent between pre intervention and post intervention, (p-value .000), the participants of study are more conscious on their self-care after educational intervention. Assess the level of anxiety patients who are going for tracheostomy and intervention after tracheostomy, on pre intervention score was 26.29 which is high level of anxiety, post

intervention shown improvement 2.41 (p-value = .000) [Table 4].

**Table No.1: Distribution of participants according to age (n=34)**

Age (years)	No.	%
18 - 30	10	29.5
31 - 40	9	26.5
41 - 50	15	44.0

**Table No.2: Distribution of participants according to gender (n=34)**

Gender	No.	%
Male	24	70.6
Female	10	29.4

**Table No.3: Distribution of participants according to qualification**

Qualification	No.	%
Primary	24	70.6
Matric or above	10	29.4

**Table No.4: Comparison of pre and post-intervention score**

Variable	Pre-intervention median	Post-intervention median	Z	P value
Self-care	16.41	30.32	5.095	0.000
Anxiety	26.29	2.41	5.094	0.000

## DISCUSSION

A patient with a new tracheostomy leaving the hospital would face the issues regarding self-care. The patient must be aware to deal all facets of tracheostomy treatment to ensure a smooth transition from the hospital to home and be able to recognize signs and symptoms which should be identified to doctor and provide appropriate assistance at patient's home via detailed discharge preparation. Therefore, the study was conducted to assess the effect of tracheotomy care intervention on self-care among adult patients with permanent tracheostomy.

The findings of the current study reveal the intervention have significant impact on the pre and post self-care on tracheostomy score (p-value<0.05) as well as significant decrease in anxiety and depression.

These findings were comparable with a study conducted which reported that severe anxiety was found among the patients before counselling regarding the intervention. After intervention the patients and caregivers resulted in a reduction in anxiety score from 54.2% to 37.4%; P<0.001 and depression from 38.7% to 18.3%.<sup>14</sup>

The findings of this study are supported by a study conducted at the Tehran University of Medical Sciences Iran which also reported that the patient's self-care was improved after educational intervention which

ultimately leads to reduces anxiety and depression among patients (P=0.0001; t=16.29).<sup>15</sup>

However, the According to the research findings total anxiety level of the sample before the education was high and it decreased after the education intervention given to patients and caregivers. These findings were supported by another quasi-experimental study. This study revealed that in the intervention has improved the self-care behaviour of patients and also improve the quality of life (p = 0.003) in these patients in cases with a tracheostomy.<sup>16</sup>

Additionally, in current study the highest level of anxiety prior to the educational intervention was significantly decreased following intervention. All members of the healthcare team are responsible for attending to the requirements of patients' families and reducing their concern, but nurses have a specific role to play and are actually the primary source of support for patients' families in hospitals. This result is consistent with a study's finding that, at the post-test, the experimental group showed lower levels of anxiety and higher levels of satisfaction with their family's requirements than the control group. The results confirm the effectiveness of offering a educational intervention to family of newly admitted critically ill patients in order to reduce anxiety and meet immediate psychosocial needs. In order to meet the unique needs of family carers, a needs assessment should serve as the basis for developing a family education programme.<sup>17</sup>

## CONCLUSION

The implementing educational program causes the decrease of anxiety and increased the Self-care intervention of the patients who have permanent with tracheostomy.

### Author's Contribution:

Concept & Design of Study: Ghulam Rasool  
Drafting: Adnan Yaqoob, Hajra Sawar

Data Analysis: Hajra Sawar, Adnan Yaqoob

Revisiting Critically: Ghulam Rasool, Adnan Yaqoob

Final Approval of version: Ghulam Rasool

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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