

# Effect of Competency-based Intervention on Knowledge and Feeding Practice among Caregivers of Patients on NG Tube Feeding

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## Abstract

**Background:** Adequate nutrition will reduce the incidence of infection among tube-fed patients, which can improve the quality of life of patients with nasogastric tube feeding. Poor management of nasogastric tube feeding may lead to frequent complications above that no disease process improves with good nutrition. **Aim:** The study aimed to improve the knowledge and practice of caregivers of patients with nasogastric tube feeding who were admitted to the Government Medical College Hospital, Kozhikode, and to evaluate the effect of competency-based intervention on knowledge and feeding practice among caregivers. **Materials and Methods:** A pre-experimental design involving a single group's pretest and posttest was utilized. A total of 30 participants were selected using inclusion criteria from the hospital's medical wards. **Results:** The findings of the study revealed that most of the participants had average knowledge and poor practice, respectively. Competency-based intervention was effective in the knowledge and practice of caregivers of patients with tube feeding. **Conclusion:** Competency-based intervention can change the knowledge and feeding practice of caregivers of patients with tube feeding. A positive change can improve the overall health and prognosis of the patients.

**Keywords:** Nursing care, nasogastric tube feeding, competency-based intervention, caregivers, nutrition, diet

## INTRODUCTION

Nutrition is the scientific study of food and its correlation with health, primarily focusing on the role played by nutrients in body growth, development, and the maintenance of overall health. The act of consuming food is a source of joy for every individual, representing a divine gift. There are unpredictable instances in life when one may need to rely on enteral feeding. Starvation does not contribute significantly to improving any disease process; however, ensuring adequate nutrition can be challenging for patients who are unable or unwilling to eat. When other measures such as enteral supplements, dietary counselling, and appetite stimulation fail, the consideration of tube feeding becomes necessary. Nasogastric (NG) tube feeding, also known as enteral feeding, involves the

administration of a nutritionally balanced liquid food or formula through a nasogastric tube inserted into the stomach via the nose. This method is employed to deliver essential nutrients when conventional means are insufficient. It is also used to ensure calorie intake, which enhances the natural growth, immunity, hydration status, and metabolism of the body [1–5].

Tube feeding is often accompanied by challenges. Navigating these obstacles can be particularly challenging when entwined with the usual concerns caregivers have regarding their patient's health promotion. It is commonly noted that caregivers

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possess numerous uncertainties and apprehensions regarding the correct methods of tube feeding, the types of food suitable for nasogastric tube delivery, and the best practices for patient care. To mitigate these issues and prevent additional complications related to tube feeding, it is essential that caregivers receive thorough education and support [6–11].

## OBJECTIVES

- Evaluate the understanding of nasogastric tube feeding among caregivers of individuals receiving nasogastric tube nutrition.
- Assess the tube feeding practice among caregivers of patients on nasogastric tube feeding.
- Evaluate the effect of competency-based intervention on knowledge and tube feeding practice among patients' caregivers on nasogastric tube feeding.

## METHODOLOGY

### Population and Sample

The research took place in the male and female medical wards of Govt. Medical College Hospital, Kozhikode, which serves as a primary care facility. A total of 60–90 patients were admitted during each admission day. On average, five to eight patients with nasogastric tube feeding were admitted during each admission. The sample size was 30 caregivers of nasogastric tube feeding, selected by purposive sampling, which was calculated based on a study of the effectiveness of demonstrations regarding feeding hemiplegia patients.

### Tools and Technique

A questionnaire and observational checklist were prepared to collect socio-personal variables and knowledge regarding nasogastric tube feeding. The questionnaire consists of 21 items. The maximum score of the tool is 21, and the minimum score is 0. A second tool, the observational checklist, is used to assess the feeding practice among caregivers, and it consists of 34 statements. The total score of the checklist is 34. The validity of the content of the tool was established by experts in the fields of medicine, community medicine, dietary department, and nursing.

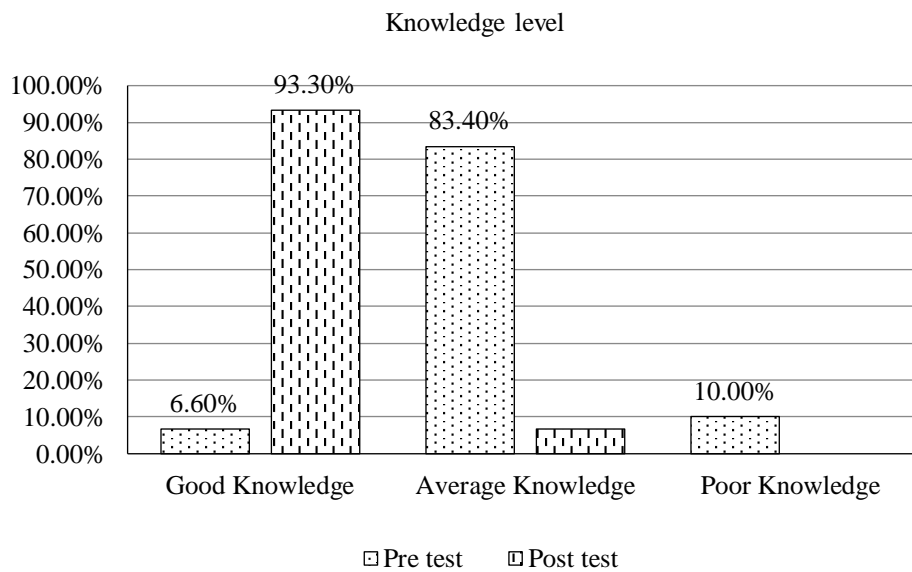
Based on objectives, a competency-based intervention was prepared, which includes session I (day 1), consisting of individualized teaching on the selection of feed through a nasogastric tube, amount of feed given in each feeding, food handling, personal hygiene, and complications related to nasogastric tube feeding [12]. This session is planned for 30 minutes. Session II (day) consists of a demonstration on nasogastric tube feeding and includes preparation of the article, feed administration, and aftercare of the patient and articles. The session was planned for 15 minutes. Session III (day 1): During this session, the caregiver must do a return demonstration on nasogastric tube feeding for three observations over a period of 6–8 hours. Supportive supervision was given to the caregiver during the return demonstration to achieve competency in nasogastric tube feeding [13–18].

## RESULTS

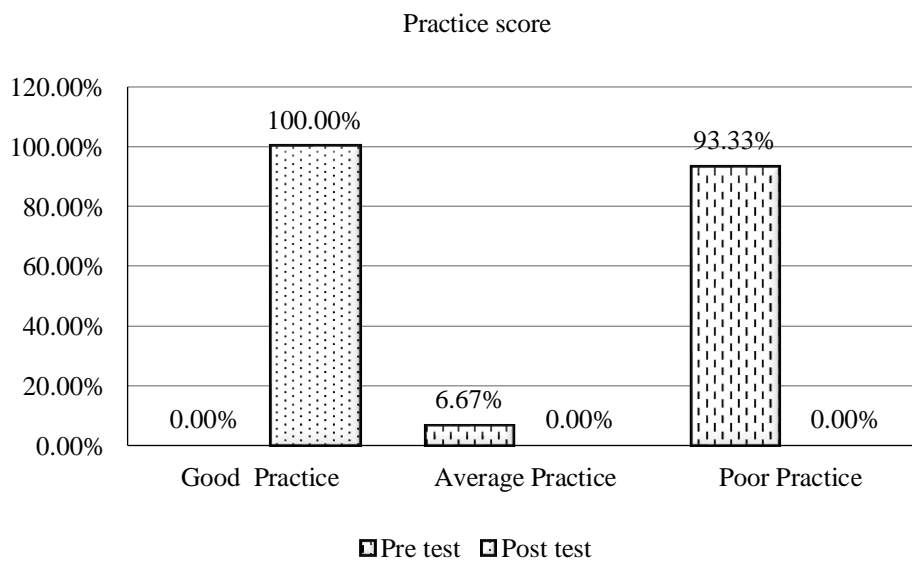
Demographic description of caregivers by frequency and percentage (N = 30).

The study found that most of the caregivers were in the age group of 45–58 years; 63.3% of them were females, and 46.7% of caregivers had primary education. Most of the caregivers come from the BPL families. Around 73.3% of the participants had not had any previous experience of caring for patients with nasogastric tube feeding.

The results identified that 83.4% of caregivers of patients with nasogastric tube feeding had average knowledge of nasogastric tube feeding before intervention. After the competency-based intervention, 93.3% of caregivers of patients with nasogastric tube feeding had good knowledge of nasogastric tube feeding (Figure 1).



**Figure 1.** Distribution of participants based on knowledge score on nasogastric tube feeding before and after intervention.



**Figure 2.** Distribution of participants based on practice score on nasogastric tube feeding before and after intervention.

**Table 1.** Mean of pretest and posttest feeding knowledge and practice score of patients on nasogastric tube feeding before and after competency.

Mean of pretest and posttest feeding knowledge and practice score		
Scores	Pretest	Posttest
Knowledge score	12.03	19.08
Practice score	14.43	33.10

The results show that 93.3% of caregivers of patients with nasogastric tube feeding had poor practice on nasogastric tube feeding before intervention, and 100% of caregivers of patients with nasogastric tube feeding demonstrated good practice on nasogastric tube feeding after intervention (Figure 2).

The mean of pretest and posttest feeding knowledge and practice scores of patients on nasogastric tube feeding before and after competency-based are mentioned in Table 1.

**Table 2.** Mean and t-values of knowledge scores among caregivers of patients with nasogastric tube feeding before and after competency-based intervention.

Knowledge score	Mean	Mean difference	t-value	p-value
Before intervention	12.03	7.05	14.56	0.001*
After intervention	19.08			

\*Significant at 0.001 level

Table 2 shows the significant difference between mean pretest and posttest scores on knowledge of nasogastric feeding among caregivers of patients with nasogastric feeding ( $df=29$ ) = 14.56,  $<0.001$ ). Hence, the null hypothesis is not accepted, and it is inferred that there is a significant improvement in knowledge after the competency-based intervention and that the intervention was found to be effective.

The mean and t-values of feeding practice scores among caregivers of patients with nasogastric tube feeding before and after competency-based intervention.

**Table 3.** Mean and t-values of feeding practice scores among caregivers of patients with nasogastric tube feeding before and after competency-based intervention.

Practice score	Mean	Mean difference	t-value	p-value
Before intervention	14.44	18.66	41.90	0.001*
After intervention	33.10			

\*Significant at 0.001 level

Table 3 shows the significant difference between mean pretest and posttest scores on feeding practice of nasogastric feeding among caregivers of patients with nasogastric feeding ( $df=29$ ) = 41.90,  $<0.001$ ). Hence, the null hypothesis is not accepted, and it is inferred that there is a significant difference in feeding practice after the competency-based intervention and that the intervention was found to be effective.

**Table 4.** Association between knowledge and selected variables (n = 30).

Socio-personal variable	Level	df	X <sup>2</sup> value
Age	0.188	6	8.7
Gender	0.917	2	0.172
Educational status	0.005	6	18.75
Financial status	0.572	2	1.11
Previous experiences	0.664	2	0.818

The data presented in Table 4 indicates that the p-value is not statistically significant at 0.005 levels. Therefore, the null hypothesis is confirmed, indicating no significant correlation between the caregivers' knowledge and the chosen sociodemographic variables [19, 20].

## CONCLUSION

The results of this research were analyzed in relation to its goals and hypotheses. The data revealed that a significant portion of the study's participants were female (63.3%). This aligns with research on the differences in caregiving patterns and impacts based on gender and relationship. The investigation looked into the variances in caregiving behaviors among a group of working caregivers (n = 2174), finding no differences in the types of caregiving tasks between genders. However, it noted that females spent more time on caregiving duties and were more frequently the primary caregivers, especially in activities such as feeding. The findings lend support to the gender role socialization. Around 73.3% of the family caregivers did not have any previous experience with nasogastric tube feeding or caring for patients with nasogastric tube feeding. A study conducted in Malaysia by Nordin and Nordin on utilization, complications, and caregiver opinions says that 51% of caregivers had previous knowledge and experience with nasogastric tube feeding patients prior to their relative's hospital admission.

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