

Nurses' Performance Regarding Nasogastric Tube Feeding Among Critically Ill Patients

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Abstract: Tube feeding is a medical device used to provide nutrition to patients who cannot obtain nutrition by mouth, are unable to swallow safely, or need nutritional supplementation. **Aim of the study:** to assess nurses' performance through assess nurses' knowledge, practice and attitude regarding nasogastric tube feeding among critically ill patient. **Research design:** A descriptive design was utilized. **Methods:** All available nurses working in ICU settings of Cairo University Hospitals, 40 nurses from both genders, with different ages, educational levels and years of experience was selected for this study. Data were obtained through three main tools; Self-administered questionnaire sheet, observational checklist and Nurses attitude questionnaire sheet. **Results:** Nurses had satisfactory level of knowledge, unsatisfactory level of practice, and positive attitude regarding nasogastric tube feeding among critically ill patient. There were statistically significance relation between level of knowledge, practice and attitude. Knowledge, practice and attitude level was found to differ significantly in relation to years of experience. **Recommendation:** Designing nurses' educational program to improve their knowledge for nasogastric tube. Procedure book should be available in ICU as a reference for all nurses. **Recommendation for future:** Setup a project that aims to improve nurses' performance by implementing evidence based practice. Ongoing monitoring of staff nurses' practice by head and charge nurses when caring for patients who receiving nasogastric tube feeding and provision of guidance to correct poor practices.

Key words: Knowledge, Practice, attitude, tube feeding, ICU nurses, Intensive care unit (ICU)

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I. Introduction

Nutritional physiology refers to the role of food and nutrition in the function of the body. In critically ill patients, there are numerous points at which nutrition affects function. It improves outcomes such as infection rate, days on mechanical ventilation, days in critical unit, and mortality. These actions include the provision of early enteral nutrition, use of tube feedings with reaching minimum target for energy and protein intake

(Faber & Siervo, 2014).

Critical illness is a life threatening. Critical illness is physiologically debilitating and is affected by the nutritional status of patients. The majority of critically ill patients are unable to provide their own nourishment. There is a strong relationship between adequate nutritional status and recovery from critical illness. Patients in the critical care setting are at high risk of malnutrition, due to the nature of their illness and their hyper-metabolic state. Therefore, correct nutrition from the onset of admission is imperative (CJN, 2013).

In the management of a critical care patient, nutritional provisions are essential and should be based on the nutritional guidelines specifically recommended for the critically ill. According to the nutritional guidelines of the American Society for Parenteral and Enteral Nutrition (ASPEN) and the Society for Critical Care Medicine, feedings for critical care patients should be initiated early, ideally within the first 24 to 48 hours after ICU admission. In the ASPEN guidelines, the preferred route for feeding critical care patients who are unable to consume nutrients orally is the enteral route, which offers many benefits, including maintenance of the functional integrity of the gastrointestinal tract (Brantley & Mills, 2012).

Enteral feeding is a relatively safe procedure with limited complications that can usually be avoided or managed. These complications can be classified as primarily gastrointestinal, mechanical, metabolic, and infectious categories. The most serious of these complications is pulmonary aspiration, which can be fatal. Critically ill patients are vulnerable to aspiration because of decreased level of consciousness, altered gastrointestinal motility, slower gastric emptying, and presence of artificial airways (Daniels, Grendell & Wilkins, 2010).

Critical care nurses are frontline caregivers, vital to both appropriate delivery of enteral feedings and management of critical care patients. Early referral by a critical care nurse to a registered dietitian is the

essential first step in improving nutritional outcomes for patients found to be at risk during the initial nutritional screening (CCN, 2014).

It is important for the intensive care unit nurse to be knowledgeable of the primary characteristics of enteral feeding. Nurses are poised to have a great impact on patient care by ensuring the adequacy of delivered enteral nutrition. Critical care nurses spend more time at the bedside with patients than any other health care provider, allowing the nurse to monitor the amount of enteral nutrition delivered and to monitor and treat complications associated with enteral feedings (Stewart, 2014).

Significance of the study:-

Although nutritional guidelines are already established, there is a gap between the recommended practice and the actual practice undertaken by nurses. Between 2002 and 2004 the national patient safety agency reported at least 11 patients died as a result of nasogastric tube misplacement. Since 2005, 21 deaths and 79 cases of harm have been reported by (NPSA) this has been due to incorrectly feeding (Anderson, Buckle and Hanna, 2012). Therefore, this study has been carried out to explore nurses' performance regarding nasogastric tube feeding.

Aim of The Study:

This study aims to assess nurses' performance regarding nasogastric tube feeding among critically ill patients. This aim will be achieved through the following:

- 1- Assess the nurses' knowledge regarding nasogastric tube feeding among critically ill patients.
- 2- Assess the nurses' practice regarding nasogastric tube feeding among critical ill patients.
- 3- Assess the nurses' attitude regarding nasogastric tube feeding among critical ill patients.

Study questions:

- 1- What are the nurses' knowledge regarding nasogastric tube feeding among critically ill patients at critical care unit?
- 2- What are the nurses' practices regarding nasogastric tube feeding among critically ill patients at critical care unit?
- 3- What are the nurses' attitudes regarding nasogastric tube feeding among critically ill patients at critical care unit?

II. Subject And Methods

Study design:

A descriptive design was conducted to assess nurses' performance regarding nasogastric tube feeding among critically ill patients in Intensive Care Unit of Cairo University Hospitals.

Subjects:

A purposeful subject include a total number of 40 critical care nurses attended in the previously mentioned setting.

Technical design

Study tools

Three tools were used in the study as the following:

I) Self-administered questionnaire sheet: developed by researcher in Arabic language to suit the nurses' level of understanding and divided into two parts as follows:

a) Demographic characteristics of nurses: the studied subjects' characteristics include age, gender, level of education, years of experience and previous courses.

b) Nurses' knowledge: this part was developed by the researcher after reviewing the recent and relevant literature. As regard definition, indications, contraindication, complications and preventive measures and technique before, during and after procedures. The scoring system classified as follows; correct responses were given a score of 2 grades and incorrect were given a score of 1 grade. A total score for questionnaire was 50 grades. Score less than 70% was considered unsatisfactory and the score equal or more than 70% considered satisfactory.

II) Nurses practices observational checklists: consists of 40 steps to assess nurses' practice related to care before, during and after nasogastric tube feeding. The scoring system classified as follows; complete done step was given a score of 3 grades, incorrectly done step was given a score of 2 grades and not done was given a score of 1 grade. A total score for the checklist was 120 grades. Score less than 70% considered unsatisfactory and the score equal or more than 70% considered satisfactory.

III) Nurses attitude questionnaire sheet: consists of 28 statements to assess nurses' attitude regarding nasogastric tube feeding. Participants were asked to respond on a 3-point Likert Scale. The scoring system classified as follows; agree was given a score of 3, neither/don't have an opinion was given a score of 2 and

disagree was given a score of 1. Thus, score from 28-46 reflect negative attitude, score from 47-65 reflect neither/don't have an opinion and score from 66-84 reflect positive attitude

Pilot study:

A pilot study was carried out on 10 nurses from the study subjects to test the clarity, applicability, feasibility & relevance of the tools used and to determine the needed time for the application of the study tools. The nurses who were included in the pilot study were included to the sample because no modification was done after conducting pilot study.

Ethical considerations:

Approval of the study protocol was obtained from Ethical Committee in the Faculty of Nursing at Ain Shams University before starting the study. The researcher clarified the objective and aim of the study to the nurses included in the study. The researcher assured maintaining anonymity and confidentiality of the subject data. Nurses were informed that they allowed choosing to participate or not in the study and that they have the right to withdraw from the study at any time without giving any reasons.

Statistical Design:

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version (20) to assess nurses' level of knowledge, practice and attitude regarding nasogastric tube feeding among critically ill patients at critical care unit. Data were presented in tables and graphs. The statistical analysis included; percentage (%), the arithmetic mean (\bar{X}), standard deviation (SD), chi-square (X^2), and pearson correlation (R)

III. Result

Table (1) reveals that more than half of the nurses (52.5%) their age less than 25 years with a mean age of 26.60 ± 5.128 . less than two thirds of the nurses (62.5%) were females. around two thirds of the nurses (65%) were having less than 5 years of experience with a mean of 5.77 ± 5.517 . less than half of the nurses (47.5%) carrying technical institute. Most of the nurses (82.5%) has no previous training courses.

Figure (1) shows that, two third (67%) of the studied subjects had satisfactory level of knowledge regarding nasogastric tube feeding among critically ill patients.

Figure (2) shows that, near two third (60%) of the studied subjects had unsatisfactory level of practice regarding nasogastric tube feeding among critically ill patients.

Table (2) illustrates that, less than half of the nurses under study (47.5%) had positive attitude regarding NGT feeding, while more than one quarter of them (27.5%) had negative attitude regarding NGT feeding.

Table (3) reveals that, more than two thirds of nurses (70.4%) who had satisfactory level of knowledge had positive attitude. While, most of nurses (84.6%) who had unsatisfactory level of knowledge had negative attitude. So, there is a highly statistically significant relation between the nurses' level of knowledge and their attitude regarding nasogastric tube feeding ($p \leq 0.001$).

Table (4) shows that, the majority of nurses who having less than 5 years of experience (92.3%) had satisfactory level of knowledge, while all nurses who having between 5 to 10 years of experience, (100%) had unsatisfactory level of knowledge. So, there is highly statistically significant relation between the nurses' level of knowledge and years of experience ($p \leq 0.001$).

Table (1): Frequency & percentage distributions of socio-demographic characteristics among nurses under study (n=40).

Item	No.	%
Age		
<25	21	52.5%
25 – 30	11	27.5%
30 +	8	20%
Mean	26.60	
SD	5.128	
Gender		
Male	15	37.5%
Female	25	62.5%
Years of Experience		
<5 years	26	65%
5 – 10	6	15%
>10 years	8	20%
Mean	5.77	
SD	5.517	
Academic Qualifications		
Secondary school of nursing	16	40%
Technical institute	19	47.5%
Bachelor degree	5	12.5%

Training courses		
Yes	7	17.5%
No	33	82.5%

Figure (1): Percentage distribution of the nurses' knowledge regarding nasogastric tube feeding among critically ill patients (no=40).

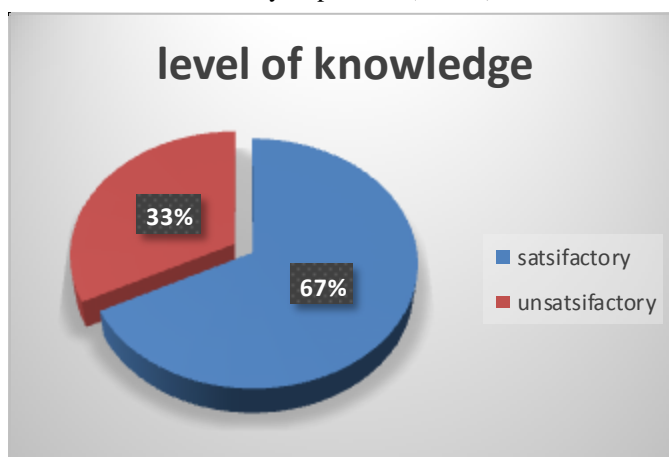


Figure (2): Percentage distribution of the nurses' practice regarding nasogastric tube feeding among critically ill patients (no=40).

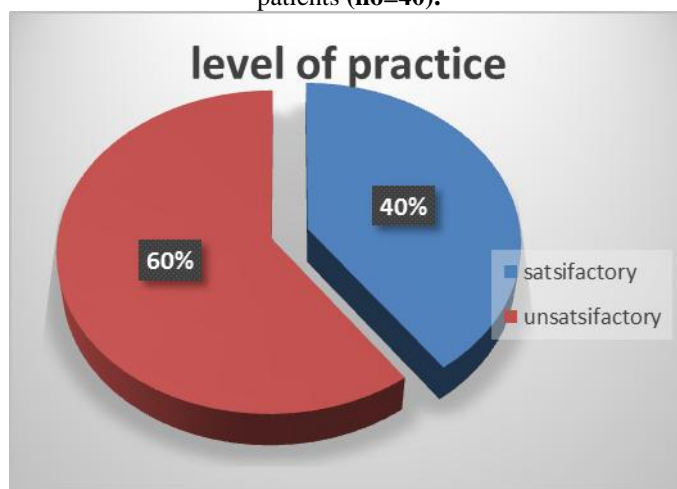


Table (2): Frequency & percentage distribution of the nurses' attitude regarding nasogastric tube feeding among critical ill patients (no=40).

Attitude Level	No.	%
Positive Attitude	19	47.5%
Neutral / Indifferent	10	25%
Negative Attitude	11	27.5%

Table (3): Relation between nurses' knowledge regarding nasogastric tube feeding and their attitude (no=40).

Knowledge	Attitude Level						X2 test	
	Positive		Neutral		Negative		x ²	P value
	N	%	N	%	N	%		
Satisfactory	19	70.4%	8	29.6%	-	-	32.707	0.000***
Unsatisfactory	-	-	2	15.4%	11	84.6%		

Table (4): Relation between nurses' knowledge regarding nasogastric tube feeding and their years of experience (no=40).

Years of Experience	Knowledge				chi-square	
	Satisfactory		Unsatisfactory		X ²	P value
	N	%	N	%		

<5 years	24	92.3%	2	7.7%	23.037	0.000***
5-10 year	-	-	6	100%		
>10 year	3	37.5%	5	62.5%		

> 0.05 insignificant *≤ 0.05 significant **≤ 0.01 moderate significant ***≤ 0.001 highly significant

IV. Discussion

As regards the nurses' demographic characteristic, the present study revealed that, about more than half of the nurses age was below 25 years. This result may be due to most of nurses under study had a newly graduated and There are mandatory period after graduation. This is consistent with **Ali (2013)** who reported that near half of the study subjects' age was between 20-25 years.

In relation to gender, the study showed that, more than half of the nurses under study were females. This may be due to the greater fraction of the nurses in Egypt was female and may also related to the studying of nursing in Egyptian universities were exclusive for females only till few years ago. These findings were in consistent with **Abdullah (2014)** who reported that three quarter of the study subjects were females.

Regarding to years of experience in ICU, results revealed that, about two third of the nurses under study were having less than 5 years of experience. This finding may be due to most of the nurses under study were recently graduated, work stress, severity of patient condition, hours of work and occupational hazards that facing them in ICU , all of this prevent them from continuing work as critical care nurse. This findings were in agreement with **Mohammed (2014)** who reported that about two third of the study subjects' years of experience in ICU ranged between 1-5 years.

Concerning level of education, results revealed that, near half of the nurses under study were having technical institute degree. In researcher point of view, this may be due to a lot of bedside nurses in governmental hospitals were diploma and technical nurses because bachelor nurses in the governmental hospitals are working as head nurse not bedside nurse. These results were not compatible with **Alkaladah (2012)** who reported that the majority of the study subjects were having bachelor degree.

As regard having previous courses. The present results showed that, the majority of nurses under study had no previous courses. This may be due to shortage of staff, work load and lack of time in ICU. This result is similar to **Shahin (2012)** who reported that the majority of the study subjects had no previous courses.

Concerning nurses' total level of knowledge, the present result showed that about two third of the nurses under study had satisfactory level of knowledge regarding NGT feeding. This result may be due to that the majority of nurses under study were recently graduated and questions based on basic information that has been studied during the years of the study. This is similar to **Ahamed (2014)** who reported that the three quarter of the study subjects have adequate knowledge regarding Ryle's tube feeding.

Finding of this study is disagreeing with **Fashafsheh (2014)** study which stated that most nurses didn't reach adequate percentage of knowledge. This reveals that nurses' knowledge in ICU departments was low and not satisfactory. In the same line, **Abdel-Mageed (2014)** who stated study at El-Manial university hospital and reported that the majority of nurses had got unsatisfactory knowledge level.

Concerning nurses' total level of practice, findings of this study documented that more than half of the nurses under study had unsatisfactory level of practice regarding NGT feeding. There is a huge gap between the standard guidelines and what are the nurses actually practices. In researcher point of view, this may be due to lack of training sessions, absent of continuous supervision and evaluation. Also, it might be due to lack of hospital policy and no standard guidelines for administration of enteral feeding and may be due to increase in number of patients and work overload especially in ICU.

This result relatively similar to results were reported by **Shahin (2012)** who concluded that the nursing practice regarding enteral feeding is not enough and highly reflected on the improvement of the patients' nutritional status and health condition.

Regarding nurses' attitude, the present study revealed that less than half of the nurses under study had positive attitude regarding NGT feeding. As is obvious from the result, the majority of nurses under study had satisfactory level of knowledge about definition, indication, contraindication, care before, during and after NGT feeding and complication and preventive measures. Therefore, may have developed positive attitude toward NGT feeding administration. In difference with **Ahmed (2009)** who reported that more than half of the study subjects had negative attitude about problems of NGT feeding.

By the studying the relation between participants' knowledge and attitude, the current study revealed that there is a highly statistically significant relation between nurses' knowledge and their attitude. More than two third of nurses who had satisfactory level of knowledge had positive attitude. These findings were confirmed with **Azab and Abu Negm (2013)** who had a study showed significant positive relation between respondent nurses' knowledge and their attitude.

The current study illustrated that, there is highly statistically significant relation between the nurses' level of knowledge and years of experience. Although, the majority of nurses who having less than 5 years of experience had satisfactory level of knowledge. This may be due to new graduation with fresh knowledge, lack of nurses incentives to improve their knowledge and lack of desire to update their knowledge especially who working in ICU for several years. The findings were consistent with the result in the study of **Meherali, Parpio, Ali & Javed (2011)** which showed that knowledge among ICU nurses is higher in those who have higher experience and holding a special degree in intensive care.

V. Conclusion

Based on findings of the current study, it can be concluded that:

- Critical care nurses had unsatisfactory level of practice. However, they had satisfactory level of knowledge and positive attitude regarding nasogastric tube feeding among critically ill patient and there were statistically significance relation between level of knowledge, practice and attitude.
- There are significant correlation between nurses' level of knowledge and their age, years of experience and level of education.
- There are significant correlation between nurses' level of practice and their age and years of experience
- There are significant correlation between nurses' level of attitude and their years of experience.

VI. Recommendations

The results of this study projected the following recommendations:

- Designing nurses' educational program to improve their knowledge for nasogastric tube.
- Procedure book should be available in ICU as a reference for all nurses.

Recommendations for future:

- Setup a project that aims to improve nurses' performance by implementing evidence based practice.
- Ongoing monitoring of staff nurses' practice by head and charge nurses when caring for patients who receiving nasogastric tube feeding and provision of guidance to correct poor practices.

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