Assessment of Nurses' Knowledge and Performance Regarding Feeding Patients with Nasogastric Tube in Ismailia General Hospital

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Abstract

Background: Enteral tube feeding is the most common form of artificial feeding in hospitalized patients.

Aim: The present study was aimed to assess nurses' performance regarding feeding patients with nasogastric tube in Ismailia General Hospital.

Subjects and Methods: A descriptive design was used in this study. Subjects were composed of all available nurses that providing direct care to patients at Ismailia General Hospital, the study included 45 nurses.

Tools: Two tools were used for collecting data, namely a self-administered questionnaire and an observation checklist.

Results: The findings of the study indicated that nearly three-quarters of the studied nurses 71.1% had a satisfactory total level of knowledge regarding feeding administering and 62.2% of studied nurses had the unsatisfactory level of practice regarding feeding administering. Also, the most common factors which affect nurses' practice were the shortage of nursing staff; worry to be infected.

Conclusion: The majority of studied nurses had satisfactory total knowledge regarding patients with nasogastric tube feeding; while the studied nurses had unsatisfactory practice regarding patients with nasogastric tube feeding.

Key Words: Assessment – Performance – Nasogastric tube – Feeding – Nurses.

Introduction

NASOGASTRIC Tube (NGT) feeding is the most frequently used method of enteral nutrition particularly if feeding is to be used for the relatively short period. A nasogastric tube is likewise called NG tube. The NG tube is normally put in so that prepared fluid can be put down the tube to feed the client or to administer medication [1].

The NG tube was first used to deliver enteral nutrition. Some say the Italian general medical personnel, aquapendente used a silver nasogastric tube in the 1600s, while others credit the first use to John Hunter, who fed a patient using a flexible, hollow leather nasogastric tube in 1790. Levin introduced a flexible, rubber nasogastric tube in 1921, and since that time, nasogastric tubes made of polyvinyl chloride, silicone and polyurethane have gotten to be available, with polyurethane and silicone preferred because they remain soft, flexible, and nonreactive over time [2].

The use of NG tube is associated with some complications such as pulmonary aspiration, nausea, pain or bleeding due to stomach mucosal trauma, nasopharyngeal injury or ulceration, tube occlusion, tube displacement in addition to metabolic problems as dehydration, and electrolyte imbalances [3].

Administration of enteral feeding has long been considered the standard of care for patients not able to meet energy and protein requirements orally. Therefore, numerous hospitalized patients in the United States get Enteral Nutrition (EN). Approbate to the latest available statistics from the National Center for Health Statistics, patients received EN during nearly 251,000 hospital stays in 2012, and 78% of which were adults [4]. At least one million NG feeding tubes are purchased by the National Health Service in England each year, has been widely practiced since the early 1980s, complications of nutrition tube misplacement include malnutrition, pulmonary aspiration, and even death. For blind insertion, the rate of respiratory placement is usually 1-3%. Inadvertent tube placement in the esophagus was observed in 19 out of 100 blind NG tube insertions. Reported rates of tube mis-
placement on insertion and tube migration after right initial placement vary between 1.3% and 50% in adults [5,6].

Nasogastric tubes in postoperative surgical patients are usually inserted for the following reasons: To decompress the stomach of its contents, usually after abdominal surgery, to provide enteral feeding and to administer liquid medication. The use of an NG tube is suitable for enteral nutrition for up to six weeks. Polyurethane or silicone nutrition tubes are unaffected by gastric acid and can, thus, remain in the stomach for a longer period than Polyvinyl Chloride (PVC) tubes, which must be used for up to two weeks [7-9].

The nurse’s roles in delivering the tube feeding usually include insertion of the feeding tube; if the temporary tube is used; maintenance of the tube, administration of nutrition, prevention, and detection of complications associated with this form of therapy and support in the assessment of the patient’s reaction to tube feeding. The nurses’ knowledge and skill in the nasogastric tube feeding and subsequently care of nasogastric tube are important in clinical area to ensure patient safety [10,11].

Significance of the study:

Although the process of administering Enteral Nutrition (EN) may appear less complex compared with parenteral nutrition; serious harm and death can result due to potential adverse events occurring throughout the process. These events include reports of enteral misconnections, enteral access device misplacements and displacements, metabolic abnormalities, mechanical tube complications, bronchopulmonary aspiration, GI intolerance related to formula contamination, and drug-nutrient interactions [12]. Nurses are the most health care providers who are indispensable for caring of NGT patients, they have to be sufficiently informed and practically skilled in dealing with their patients. Those patients are usually needed for careful and continuous observation of their nurses so as to avoid and or prevent any common complications and problems associated with NGT feeding processes. So there is an obvious need to contribute in the improvement quality of patient care.

Aim of the study:

The present study was aimed to assess nurses’ performance regarding feeding patients with nasogastric tube in Ismailia General Hospital.

Research questions:

To achieve the aim of this study, the following questions should be answered:
Q1- What is the level of nurses’ knowledge regarding nasogastric tube feeding administering?
Q2- What is the level of nurses’ practice regarding nasogastric tube feeding administering?
Q3- What are the factors affecting nurses’ performance regarding nasogastric tube feeding?

Subjects and Methods

Research design:

A descriptive exploratory design was utilized to conduct the study. The present study was conducted at Ismailia General Hospital [Gastrointestinal Tract Department (GIT), Intensive Care Unit (ICU), Cardiac Care Unit (CCU), Intermediate Care Unit (IMCU)], starting from July 2015 to May 2016.

Subjects:

A convenient sample of all the available nurses in previous mentioned setting, total number was 45 nurses (females 42 and males 3).

Tools of data collection:

Two tools were used for collecting data:
Tool I: A self administered interview questionnaire:
Self-administered interview questionnaire was adapted from Metwaly (2013), it includes:
Part (1): Personal and demographic data of the nurses which composed of 5 open ended questions.
Part (2): Nurses’ knowledge regarding nasogastric tube feeding administration. It consists of 25 questions multiple choice and 16 false or true questions.

Scoring of the scale:

For the knowledge items, a correct response was scored (1) and the incorrect (0), with total score was (41). Knowledge was considered satisfactory if the percent score was 60% or more, and unsatisfactory if less than 60%.

Tool II: Observation checklist.

An observational checklist was developed by Metwaly (2013), to assess practice of nurses’ practice before, during and after NG feeding admonition. It is composed of 23 items.
Scoring system:

The items observed to be done were scored (1) and the items not done were scored (0). For each area, the scores of the items were summed up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a percent score. The practice was considered satisfactory if the percent score was 60% or more and unsatisfactory if less than 60%.

Field of work:

Field study was conducted during the period from the beginning of September (2015) to the end of December (2015) (4 months). The researcher visited the Ismailia General Hospital for 4 days a week (Sunday, Monday, Tuesday and Wednesday) in different shifts (morning and afternoon) to collect the data by using the previous tools.

An official permission was taken from the concerned administrative setting. Then the researcher met the studied nurses individually, explaining the purpose and nature of the study.

The interviewing questionnaire (tool I) was administered to nurses individually in the workplace and explanation of the questionnaire was done; each nurse took about 30-45 minutes to complete the questionnaire sheet. The observation checklist was utilized by the researcher to assess nurses’ practice using tool II. The assessment of nurses’ practice was done through observation. The researcher spent 5-6 hours daily in observing nurses during morning and afternoon shifts. The researcher observed each nurse three times for each skill.

Ethical considerations:

At the initial interview, each nurse was informed that his/her participation in this study is voluntary. Confidentiality and anonymity of the subjects were also assured through coding of all data. The researcher assured that the data collected and information will be confidential and would be used only for the purpose of the study.

Statistical design:

After the collection of data, it was revised, coded and fed to statistical software statistical package for the social sciences (SPSS) version (20). Microsoft office excels software was used to construct the needed graphs. After data coding the following data, manipulations were done.

Results

As regard most of the nurses aged from 20 to less 25 years (57.8%) with a mean age of 24.4±3.2 years. There was 93.3% were females. ICU was the most frequent among the studied units (46.7%). Nursing Institute was the most frequent educational attainment among the studied sample (66.7%). Forty percent of them had previous experience less than one year and about one-quarter of them had from 5 to less 10 years of experience. While (35.6%) attended previous training courses.

Fig. (1) clarified that studied nurses’ knowledge scores about care given before, during and after NG tube be feeding administration were 73.3%, 71.1%, and 68.9%, respectively. It also showed that total scores of studied nurses’ knowledge of NG tube feeding administration was 71.1%.

Fig. (2) clarified that studied nurses’ practice scores about care given before, during and after NG tube be feeding administration were 44.4%, 15.6%, and 42.2%, respectively. It also showed that total scores of studied nurses’ practice of NG tube feeding administration was 37.8%.

Fig. (3) showed that the studied nurses reported that the most common factors that affect their practice regarding NG feeding are worry to be infected (97.8%), increased workload (86.7%), there was no reward for good work (84.4%), physical fatigue as well as shift time enough or not (84.4%), there were no upgrades for efficient nurses (82.2%), shortage of nursing staff (80%), decrease their salary, there was ratio of nurses to patients (20%), and also there are opportunities for attending training course (33.3%).

![Fig. (1): Percentage distribution of nurses’ knowledge score regarding NG tube feeding administration (n=45).](image-url)
Table (1) clarified that there is no statistically significant correlation between total nursing knowledge score and practice score about NG tube feeding administration.

<table>
<thead>
<tr>
<th></th>
<th>Total knowledge score</th>
<th>r-value</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Practice before NG tube feeding administration</td>
<td>0.175</td>
<td>0.249 (NS)</td>
<td></td>
</tr>
<tr>
<td>Practice during NG tube feeding administration</td>
<td>0.138</td>
<td>0.365 (NS)</td>
<td></td>
</tr>
<tr>
<td>Practice after NG tube feeding administration</td>
<td>0.247</td>
<td>0.102 (NS)</td>
<td></td>
</tr>
<tr>
<td>Total practice score</td>
<td>0.193</td>
<td>0.203 (NS)</td>
<td></td>
</tr>
</tbody>
</table>

NS: Not Significant.

**Discussion**

Based on the results of the present study, more than half of the nurses their ages ranged between 20-25 years. Which might be related to their recent graduation, this finding goes in the same line with Shahin et al., [13], who found that three-quarters of the nurses in their study less than 25 years old. Also Mohammed and Taha, [14] found that more than half of nurses their age from 26-35 years old, while, Mula [15] found the majority of nurses’ age in his study were ranged between 35 and 45 years.

The results of the current study revealed that there are a vast majority of studied nurses' had more than one-third of them had experience less than 1 years and majority of them were females. These finding agree with Ahamed and Mondal, [3] who found that more than half of participants had less than 1 year of experience, and more than half of nurses were females. This high proportion of female nurses is most probably attributes to the fact that the study of Bio-Engineered Supplements and Nutrition (BSN (in the Egyptian universities was exclusive for females only till few years ago. This could reflect that the profession of nursing in Egypt was mostly females, and those nurses who have less than one year.

The current study showed that more than half of studied nurses had experiences less than one year, in contrast Mohammed and Taha [14] found that more than one-third of nurses had 1-4 years' experience. Moreover, Abdullah et al., [16] found that more than half of nurses in critical care settings are having more than 10 years of working experiences.

The present study revealed that two thirds of studied nurses' had nursing institute of education.
This is agreement with Amer et al., [17] who revealed that most of the nurses had more than two thirds of studied nurses had them nursing institute education, this might be related to their registration at the available institutes of nursing in governorate. Moreover, Ahamed and Mondal, [3] stated that nearly two thirds of studied nurses had nursing institute, while these findings were not in accordance with Yun et al., [18] who stated that more than half of nurses had bachelor degree. In another study done by Ameri et al., [19] the majority of nurses had bachelor degree of education.

The present study revealed that nearly one third of studied samples had training course. This helps professional nurse to keep up to date on the most recent developments in nursing and to be able to manage the demands of nursing practice. These agree with Metwaly, [20] who found that, more than half of nurses attended training courses. These findings disagree with Shehab, [21] who reported that, the majority of nurses did not receive training programs regarding NGT. Also, Amer et al., [17] found that most of the nurses did not receive any special education or in-service training about endoscope reprocessing practices.

The present study clarified that nearly three-quarters of the studied nurses had a satisfactory total level of knowledge regarding NGT feeding administering, those nurses who have less than one year of experience got higher mean knowledge score than other with significant statistics, this may be due to the new graduation had fresh knowledge, this agreement with Taha, [22] who found that the majority of nurses reported correct answers related to general knowledge about nasogastric tube. Moreover, Yalcin et al., [23] revealed that nurses who conducted nutritional assessment activities had a greater knowledge score than who did not. While this study disagreement with Ahamed and Mondal, [3] who illustrated that three-quarters of studied nurses had inadequate knowledge regarding Ryle's tube feeding.

The present study clarified that more than half of the studied nurses had an unsatisfactory level of practice regarding care given before NG tube feeding administering. These concur with Metwaly, [20] who mentioned that levels of practice as regards to pre-administration of medication via nasogastric tube were unsatisfactory less than two third and approximately one-half of the studied sample incorrectly practice this procedure. While this study disagreement with Ahamed and Mondal, [3] in their study revealed that most of the studied nurses had a satisfactory level of practiced skill regarding care given before NG tube feeding administering.

The present study illustrated that the majority of studied nurses reported that the most common factors that affect their practice regarding NGT feeding were worry to be infected, increased workload, there was no reward for good work, physical fatigue, shift time enough or not, there were no upgrades for efficient nurses, shortage of nursing staff, decrease their salary, and also there are no opportunities for attending training course especially on enteral feeding as another factor that influences their practice with nasogastric tube feeding practices. This agrees with Efstathiou et al., [24] who found that three similar factors that are perceived as obstacles to follow standard precautions. These factors were: Too busy, lack of nursing personnel and implementation of guidelines is time-consuming. In addition Metwaly, [20] mentioned that there was a statistical significance differences between feeding insertion, administering and factors affecting their compliance which are: Lack of equipment, lack of protective clothes, and the shortage of nursing staff, not attending the training course, and decreased in their salary, reported that there was enough time to provide care to all patients in the unit also, found that the work did not give chances to attend instructional class which impacts their practice with nasogastric tube insertion and bolstering practices.

The present study showed that factors affecting nurse's practice regarding nasogastric tube feeding as the nurses perceived were the absence of learning, physical exhaustion, stress to be contaminated, lack of nursing staff, diminished pay, non-appearance defensive garments, expanded workload, and there were no prizes or redesigns for effective medical attendants. This may be attributed to lack of institutional guidelines, lack experience, lack of a role model and lack of rewards and lack of encouragement. These present findings agree with Metwaly, [20] who reported that there was no compliance of nurses with nasogastric tube feeding administering practices and there were factors led to this not-compliance. These factors were the lack of knowledge, physical fatigue, worry to be infected, shortage of nursing staff, decreased salary, absence protective clothes, increased workload, there was no ratio between nurses and patients, and there were no rewards or upgrades for efficient nurses.

The present study showed that there are no significant correlation where found between total
nursing knowledge and practice about NG tube feeding administration. While this study disagreement with Ahmed and Mondal [3] who reported that there was statistical signifies moderately positive correlation between knowledge and practice of staff nurses regarding Ryle's tube feeding. In the same line Shahin et al., [26] who stated that there is a highly statistically significant correlation between participants' scores of knowledge and practice. Yun et al., [18] who stated that there is relatively low statistical significance between nurses' knowledge and their performance.

**Conclusion:**

The three-quarters of the studied nurses had a satisfactory total score of knowledge regarding feeding administering while had an unsatisfactory level of practice before, during and after NG feeding administering. Worry about getting infection and workload among studied nurses were the most common factors affecting their practice.

**Recommendations:**

1. Continuous education programs about enteral nutrition can support clinical practice and skills.

2. Establish a written update protocol of enteral nutrition to ensure enough knowledge, unified and safe nursing practice regarding feeding of patent with NGT.

3. Booklet about nasogastric tube encouraging directing should be accessible for nurses in Hospitals.

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