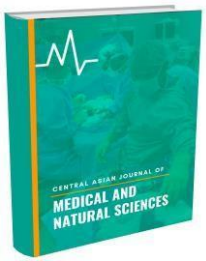

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Article

Nurses Knowledge Concerning Nasogastric Tube Care at Azadi Teaching Hospital

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Abstract: Proper care of nasogastric (NG) tubes is crucial in healthcare settings, requiring nurses to possess specialized knowledge and skills to ensure accurate tube insertion, position checking, patency, and prevention of complications. This study aimed to assess nurses' knowledge regarding NG tube care and its relationship with demographic characteristics. Conducted from November 2023 to June 2024 at Azadi Teaching Hospital in Kirkuk, Iraq, this non-experimental cross-sectional study utilized purposive sampling to include 42 nurses. Data were collected via a questionnaire and analyzed using descriptive and inferential statistics with SPSS version 22. Results showed significant socio-demographic differences ($p<0.05$), with the majority of nurses being female (69%) and aged 25-29 years (81%). Although all participants had nursing degrees, 57.1% had less than three years of experience. The study found moderate knowledge of NG tube care, with no significant relationship between nurses' knowledge and socio-demographic characteristics except for age and experience. The findings highlight a knowledge gap despite moderate NG tube care practices, suggesting the need for enhanced training and educational programs.

Keywords: Nursing practice, Knowledge, Nasogastric tubes, Patient care, Training

1. Introduction

The placement of a nasogastric (or orogastric) feeding tube (FT) is a frequently done technique in acute care wards and intensive care units (ICU) [1]. Nasogastric feeding tubes (FTs) are frequently employed for the administration of enteral nutrition (EN) and drugs. Typically, they are put without being able to see where they are going, which can result in unintentional insertion into the lungs and subsequent difficulties,[2] especially in patients with pre-existing illnesses such difficulty swallowing or changes in mental function.Various techniques have been described to verify the correct positioning of intragastric feeding tubes,[3] such as abdominal radiographs, aspirate pH testing, auscultation, and ultrasound. However, these methods have their limitations and do not offer immediate feedback to the clinician during the insertion process [4].The human body requires a diverse range of nutrients from different types of food in order to support cellular function, metabolism, growth, physical activities, reproduction, and overall health. In cases where critically ill patients are unable to consume food orally, but their digestive system is still capable of processing food, enteral feeding is utilized [5]. According to nutritional guidelines, it is recommended to initiate enteral nutrition (EN) within 24 to 48 hours of a patient's admission to the intensive care unit. This should be done after the patient's hemodynamic state has stabilized. The purpose of this is to reduce the body's

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breakdown response to injury and to preserve the integrity of the intestinal lining. A nasogastric tube is a thin and soft feeding tube that is inserted through the nose and into the stomach. It is used to deliver nutrients to patients who are unable to eat orally due to health issues or neurological swallowing disorders, upper gastrointestinal obstruction, gastrointestinal dysfunction, or malabsorption [6]. This method of enteral feeding is typically used for a short period of time, usually less than 4-6 weeks. The tube allows for the delivery of nutrients through the nasal route, down the throat, esophagus, and into the stomach, providing necessary nutritional support.The provision of adequate nutrition is a fundamental responsibility of nursing. Hence, it is imperative for nurses to possess sufficient expertise and experience in providing care to patients undergoing nasogastric tube feeding [7-8]. This includes being well-versed in the indications, contraindications, and potential complications associated with the use of nasogastric tubes [9]. Additionally, nurses should be skilled in conducting nutrition assessments, determining energy and nutritional requirements, properly inserting the nasogastric tube, confirming its correct placement, administering feedings, assessing the patient's readiness for feeding, administering medications, performing tube lavage if necessary, monitoring for and managing complications, and removing the tube once the patient's condition has improved. It is advised that nurses use evidence-based protocols and scientific recommendations to guide their practice consistently [10].

2. Materials and Methods

The present study utilized a non-experimental cross-sectional design, employing a participant group strategy from November 2023 to June 2024. The study was conducted at Azadi Teaching Hospital in Kirkuk City, which is situated in the northern area of Iraq. The study was conducted in critical units. To ensure a representative sample, a non-probability sampling method known as purposive sampling was employed. Specifically, a total of 42 nurses were selected as the study sample size at Azadi Teaching Hospital in Kirkuk city. based on the subsequent sampling method. The study had a sample size of 42 nurses who were specifically chosen to take part in the research. Experts from diverse disciplines assess the material by analyzing the nurses' requirements, relevant scientific literature, and previous studies. Adjustments are then implemented according to their comments and ideas. The researcher at Azadi Teaching Hospital develops a questionnaire interview form to gather data on nurses' understanding of nasogastric tube care. The form consists of three sections: A comprehensive literature review was conducted, expert opinions were consulted, and relevant information and data were identified in accordance with the scientific research objectives. Subsequently, a questionnaire was developed for the study, employing the self-administration technique. The demographic data includes a total of six elements, while the questionnaire consists of 71 items. All parts of the questionnaire are measured using a binary classification scale, with two options: Yes and No. An expert panel reviewed the study instruments and program's content validity, while the tools' dependability was evaluated using a test-retest approach and data from the evaluation of 10 nurses. The reliability value of 0.8 was used to evaluate the extent to which the items in a questionnaire or scale are interconnected and accurately measure the same concept. The study's findings were analyzed and evaluated utilizing statistical data analysis methods in the Statistical Package (SPSS) version 22.0. Frequencies, percentages, mean score (MS), and standard deviation (SD) are utilized in the descriptive analysis of data. Inferential data analysis is employed to derive logical inferences.

Statistical Analysis

To analyze and assess the study's findings, the following statistical data analysis procedures were used with the statistical program (SPSS) ver. (22.0).

3. Results

Table 1. Distribution of the Nurses Socio-demographic Characteristic with Comparisons Significant

Socio-demographic Characteristic	Classes	No	%	C.S. (*) P-value
Gender	Male	13	31.0	P=0.021 (S)
	Female	29	69.0	
Age Groups Yeas	< 25	5	11.9	KS=0.476 P=0.000 HS
	25 _ 29	34	81.0	
	30 _ 35	3	7.1	
	Mean ± SD	27.47 ± 5.85		
Level of Education	Nursing Institute Graduate	0	0.00	KS=0.667 P=0.000 HS
	Nursing College Graduate	42	100	
	Postgraduate	0	0.00	

(*) HS: Highly Sig. at P<0.01; S: Sig. at P<0.05; Testing based on Binomial test, and Kolmogorov-Smirnov test.

Table 2. Distribution of the studied some related variables with comparisons significant

SRv.	Classes	No	%	C.S. (*) P-value
Experience years in Nursing	1 _ < 3	24	57.1	χ^2= 0.238 P=0.004 (HS)
	3 _ < 5	11	26.2	
	≥ 5 yrs.	7	16.7	
Participation in a Nasogastric Tube training course	No	25	59.5	P=0.280 (NS)
	Yes	17	40.5	
If yes how many time	Non Applicable	25	59.5	P=0.002 HS
	One time	15	88.0	
	Two times	2	12.0	

(*) HS: Highly Sig. at P<0.01; NS: Non Sig. at P>0.05; Testing based on Binomial test, and One-Sample Chi-Square test

Table 3: Nurses Knowledge Main Domains regarding Nasogastric Tube Care

Main Domains	No.	PGMS	PPSD	Ass.
Types of NG Tube	42	35.7	26.6	M
Contraindications of NG Tube	42	55.4	24.4	M
Complications of NG Tube	42	77.6	16.6	H
Nursing considerations	42	82.4	16.1	H
Preparation	42	84.8	17.6	H
Equipments	42	75.8	16.1	H
Insertion tube feeding	42	71.1	15.2	H
Feeding and medication administration	42	69.3	13.9	H
Removing a nasogastric tube	42	78.6	15.0	H
Overall Nurses' Level of Knowledge regarding NG Tube Care	42	70.1	9.50	H

Evaluation Levels: Low (L) (0.00 – 33.33) Low (L) ; Moderate (M) (33.34 – 66.66) ; High (H) (66.67– 100).

PGMS: Percentile Grand/Global Mean of Score; PPSD: Percentile Pooled Standard Deviation

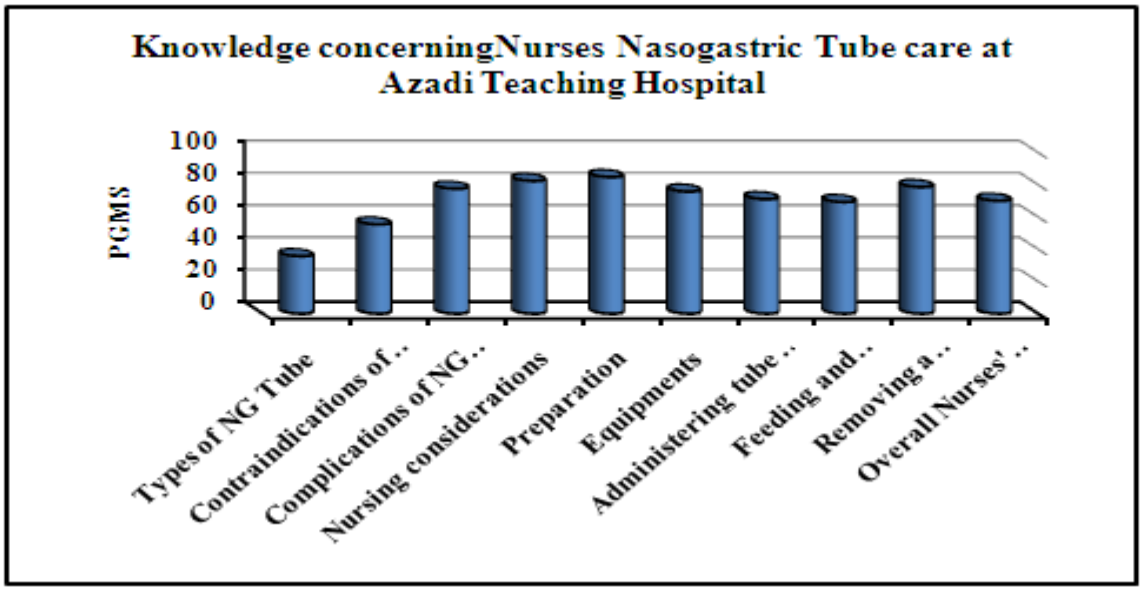

Figure 1: Bar Chart for Grand/Global mean of score concerning knowledge main domains

Table 4. Relationships of Nurse's Knowledge and their Socio-demographic Characteristic with significant levels

Demographical Characteristics and some related variables	Knowledge		
	C.C.	Sig.	C.S.
Gender	0.051	0.739	NS
Age Groups	0.112	0.766	NS
Experience years in Nursing	0.188	0.462	NS
Participation in a Nasogastric Tube training course	0.048	0.753	NS

(*) HS : Highly Sig. at P<0.01; NS : Non Sig. at P>0.05 ; S : Sig. at P<0.05 ; Testing are based on a Contingency Coefficient test

For summarizing of preceding results, weak relationships are accounted between redistribution of PGMS through the cutoff point (≤ Md, and > Md), and studied nurse's (SDCv., SRv.), since no significant relationships at P>0.05, exceptional within age groups in light of practices, where the level of experiences increases with the age of the

respondents, and according to that, it could be concludes that studied questionnaire scored concerning of nurse's knowledge and practices with reference to nasogastric tube care at Azadi teaching hospital could be amended on the studied sampling population whatever be differences among studied subjects within their (SDCv.), and some related variables.

4. Discussion

Analysis of the demographic characteristics of the results revealed that more than half of the studied nurses were female (69.0%), with the remainder being male (31.0%). The study conducted in Iraq which is in disagreement with the study results Who mentions that males have the largest study percentage at approximately 81.4%, while females have 18.6%. In general, the study's findings are comparable to those of, who discovered that the majority of nurses are females (63.7%) and males (36.3%). According to the researcher, nursing colleges prioritize females for university entrance, but society has a diverse range of cultures. In terms of age groupings, 5 (11.9%) were under the age of 25, 34 (81.0%) were between the ages of 25 and 29, and 3 (7.1%) were between 30 and 35 years old.(7.1%). The study conducted in Iraq which is in agreement with the study results who state that the highest study percentage about (62.8%) age group between (20-30) According to the report, new nurses want to work in critical care units. In terms of education, 100% of nurses have graduated from nursing colleges. The study conducted in Iraq done which is dagree with the study results Who mention that records high number of nurses (n=45; 83.3%) were graduates from nursing college From the researcher's point of view, According to administrative orders, nurses who hold a bachelor's degree are required to work in critical units and operating rooms According to "Experience years in Nursing filed" results showed that (57.1%) of the studied subjects has less than three years only,(26.2%) of the studied subjects has 3 _ < 5years of experience, and (16,7%) of the studied subjects has more than five years. The study conducted in Iraq done by (Mahmoud, 2018) This study agrees with the researcher's study, as it showed that the majority of nurses have less than five years of experience, and this may be a reason for not managing the patient better. According to a participation in a "Nasogastric Tube" training course, results showed that a more than half of nurse didn't have training course about (59.5%), and (40.5%) doing training course, and the result showed (88.0%) inert to the training course one time, and about (12.0%) inert to the training course two time. The study conducted in Iraq done This study agrees with study that showed the majority of nurses did not apply international standards in nasogastric tube care. the result of study find nurses' knowledge related to the types of feeding tubes, the research results showed that nurses have a moderate level in three items (The Levin tube is a rubber tube(50%), The Levin tube is a single lumen tube(40%), The Moss tube have three lumens(40%)).and low level in one item(The salem sump tube is a double lumen tube(11.9%)) this related to knowledge of nurse's moderate significant in totally showed PGMS(35.7). The study conducted in Malesia done The results of this study showed that there are knowledge gaps in the field of nasogastric tubes and a lack of adherence to international standards to fill this gap. From the researcher's point of view, which reflects the unsatisfactory academic education they received, the lack of tools in the hospital, or the lack of sufficient continuing education courses in the hospital. Regarding nurses' knowledge related to Equipments, the research results showed that nurses have a high level in nine items(do you think this equipment's necessary to the procedure Gloves, Nasogastric tube type, towel covering, Emesis basin, Tape, Glass of water, 60-ml catheter tip syringe, Suction equipment or tube feeding equipment)and moderate level in three items (do you think this equipment's necessary to the procedure Water-soluble substance, Straw for glass, Rubber band and safety pin)of knowledge in totally showed PGMS(75.8%). A study conducted in Iraq by [11]found that nurses possess extensive knowledge of the equipment and tools required for nasogastric tube placement

in patients. From the researcher's perspective, the reflection of academic education indicates their proficiency in knowledge, experience, and practical skills related to their understanding of necessary equipment and care for nasogastric tubes [12-13]. The study's findings indicate that there is no correlation between knowledge and practices, as well as social and demographic traits, and the distribution of some key variables. The p-value is less than 0.05. The correlation coefficients between nurses' knowledge and other factors were as follows: gender (0.736), age group (0.766), years of experience in nursing (0.462), and participation in a nasogastric tube training course (0.753) [14-15]. The correlation coefficients between nurses' practice and the following variables were as follows: gender (0.736), age group (0.017), experience years in nursing (0.360), and participation in a nasogastric tube training course (0.753).From the researcher's perspective, it is logical to expect that the relationship between the variables would have been strengthened by years of experience and training courses [16]. However, since there is no relationship observed, the lack of continuous intensive courses in this field may be the reason. According to a study conducted in Syria their findings contradict the results of a previous study that demonstrated a very significant relationship ($P<0.001$) between nurses' knowledge and practice, as well as SDCv. and SRv. However, in terms of age, the results indicated a significant relationship ($P<0.05$) [17].

5. Conclusion

The study concluded that while nurses demonstrated a high level of knowledge regarding nasogastric (NG) tube care, there were notable gaps in practice, particularly related to their experience and the completion of relevant training courses. Despite the high knowledge levels, moderate NG tube care practices were observed, which may lead to potential complications in patient care. The findings revealed significant socio-demographic differences, with most nurses being young and having less than three years of experience. However, no significant relationship was found between nurses' knowledge and their socio-demographic characteristics, suggesting that factors other than demographics might influence NG tube care practices. These results imply that targeted educational programs and ongoing training are essential to bridge the knowledge-practice gap and improve NG tube care. Future research should explore the underlying reasons for the discrepancies in practice and assess the effectiveness of continuous professional development programs in enhancing NG tube management skills among nurses.

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