International Journal of Health Systems and Medical Sciences
ISSN: 2833-7433

Volume 03 Number 03 (2024)

www.inter-publishing.com

Article

A Comprehensive Evaluation of Nursing Practices in Nasogastric Tube Care at Azadi Teaching Hospital

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Abstract: Nasogastric tube (NGT) care is integral in various medical settings, including critical care units, for relieving intestinal obstruction and providing nutritional support. However, there exists a gap in evaluating nursing practices regarding NGT care, particularly in terms of proficiency levels and adherence to established procedures. This cross-sectional study conducted at Azadi Teaching Hospital in Kirkuk aimed to assess nursing practices in NGT care from November 2023 to June 2024. Forty-two nurses were sampled using a purposive technique, and data were analyzed descriptively and inferentially. Results indicate a mixed proficiency level among nurses, with approximately half of the evaluated aspects falling into low to moderate proficiency categories. Notably, while theoretical knowledge was relatively strong, practical application lagged behind. These findings underscore the need for specialized training, continuous education, and robust quality assurance measures to enhance patient outcomes. Improvements in NGT care practices, including tube feeding administration, medication management, and removal procedures, can be achieved through targeted interventions aimed at bolstering nurses' skills and knowledge in this critical area.

Keywords: JHealth risks, Nasogastric tube, Nutrition, Nursing practice.

Citation: Ramal Nasrdeen Muhamed Reshid, Younus Khdhur Baeez. Assessing Nursing Proficiency in Nasogastric Tube Care Iraq Study Insights. International Journal of Health Systems and Medical Sciences 2024, 3(3),172-180.

Received: 23th Apr 2024
Revised: 23th May 2024
Accepted: 30th May 2024
Published: 6th June 2024

1. Introduction

Nutritional care for critically ill individuals remains difficult. Use of the most complete physiological data has enhanced critical care unit patient assessment in several study efforts. [1] Critically ill patients need nutrition therapy. The medication slows malnutrition. Patients' metabolic status, responsiveness, and behavior during therapy affect treatment success [2,3]. A unique recommendation for each critically ill patient and situation is difficult. Examine each diagnosis, time period (early, post-resuscitated, stable, long stay), and concerns. The current evidence-based guidelines give nutritional advice for typical critical care unit clinical situations. The catabolic bodies of critically ill people need more energy and nutrition. Medical professionals increasingly acknowledge the need for sustenance in critically ill patients, therefore "nutrition support" is now "nutrition therapy". The gut or veins can supply nutrients. [4] found substantial evidence for enteral nutrition over parenteral nutrition (PN). Hospital-acquired infections and prolonged critical care

stays increase death, not pneumonia. Enteral nutrition (EN) should be started within 24–48 hours of patient admission, although parenteral nutrition (PN) may be delayed for up to seven days due to malnutrition risk [5,6]. Critically sick individuals' diets affect outcomes. Therefore, understanding how inflammation impacts a patient's nutrition and consequences is crucial [7]. Critical patients need enteral nutrition. Gastric tubes deliver food, medications, and relieve gastrointestinal pressure. Clinical outcomes, stomach intolerance, and gastroduodenal motility improve with early enteral feeding. [8,9].

Hospitalized individuals who cannot eat receive nasogastric tube enteral feeding. Enteral feeding can cause diarrhea, vomiting, constipation, lung aspiration, tube displacement, tube obstruction, hyperglycemia, and electrolyte imbalance after admission. NG tube feeding's benefits, hazards, and caregivers' opinions in a Kuala Lumpur teaching hospital's acute geriatric unit. Of 432 patients admitted to the critical care unit, 22% (96, aged 80.8 ± 7.4 years) required NG tube feeding. The study found 69% complications and 38% deaths. Some independent predictors of death include diabetes (3.34 odds ratio), aspiration pneumonia (8.15 odds ratio), poor consciousness (3.13 odds ratio), and albumin levels ≤26 g/dl (4.43)Nasogastric tubes are used for critical hospitalized patients. This simple process can be fatal if done incorrectly. Late detection or removal of poorly implanted tubes can worsen these difficulties [10,11]. The severity of the patients' condition and the need for intensive resuscitation and monitoring make fluoroscopic or endoscopic feeding tube installation impossible in radiology or endoscopy departments [12]. Tube misplacement during surgery is common. Blind insertion is safe if a portable x-ray determines tube location in the stomach before formula is given. Due to its perceived safety, nurses without qualification implant blind feeding tubes [13]. said putting a nasogastric (NG) tube via the nostril into the stomach may be uncomfortable. Incorrect NG tube insertion can injure the nose, sinuses, throat, esophagus, and stomach. [14] It may enter the lungs through the windpipe by the caregiver. People may mistakenly inhale food or drugs. This is ambition. It can induce pneumonia and other diseases. Stomach cramps, abdominal distension, diarrhea, nausea, vomiting, and medication [15] regurgitation might result from NG tube feeding. Possible NG tube blockage, rupture, and displacement. This can worsen things. NG tubes can cause sinus, neck, esophageal, and stomach ulcers and infections over time[16].

2. Materials and Methods

A cross-sectional Design had been used through the present study with the application of approach for participant group during the period November2023 to May 2024. The study was carried out in azadi teaching hospital in Kirkuk City; it is located to the North region of Iraq. The study has conducted in Critical units. In order to obtain a representative sample, On-non-Probability sampling approach (Purposive sample) consists of 42 nurses were chosen as size of study sample at azadi teaching hospital in Kirkuk city. according to the following sampling procedure: sample size of the study was 42 nurses who were selected to participate in the study. Based on an analysis of the nurses needs and the relevant scientific literature as well as earlier studies, Experts in various fields evaluate the content, and changes are made based on their recommendations and suggestions.

Nursing Practices Concerning Nasogastric Tube Care at Azadi Teaching Hospital, the researcher creates a questionnaire interview form for data collection, which includes three sections: Through an extensive review of the relevant literature, consulting expert

opinions, and after identifying information and data according to the objectives of scientific research, A questionnaire and checklist were developed for the aim of research utilizing the self-administration method. The demographic data includes a total of 6 items, the questionnaire includes 71 items, and the checklist includes 41 elements. The questionnaire items are assessed using two classification scales: Yes and No. The checklist items, on the other hand, are evaluated using three classification scales: Not Perform, Partially Perform, and Completely Perform. An expert panel reviewed the study instruments and program's content validity, while the dependability of the tools was evaluated using a test-retest approach and data from the evaluation of 10 nurses. The reliability coefficient of 0.82 was used to evaluate the extent to which the items in a questionnaire or scale are interconnected and accurately measure the same underlying concept. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 22.0.

3. Results

Utilizing the statistical software (SPSS) ver. (26.0), the following statistical data analysis techniques were employed to analyses and evaluate the study's findings. :

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 Practice Regarding Administering Tube Feeding

Items	Resp.	No.	%	MS	SD	RS%	Ev
1. Hand washing or sterilizing	Not Perform	6	14.3	1.31	0.72	65.5	M
	Partially Perform	17	40.5				
	Completely Perform	19	45.2				
2. Gloves using	Not Perform	0	0.00	1.93	0.26	96.5	H
	Partially Perform	3	7.1				
	Completely Perform	39	92.9				
3. Ensure a clean work surface when handling And preparing enteral nutrition	Not Perform	1	2.4	1.50	0.55	75.0	H
	Partially Perform	19	45.2				
	Completely Perform	22	52.4				
4. Explain the procedure to the client	Not Perform	0	0.00	1.95	0.22	97.5	H
	Partially Perform	2	4.8				
	Completely Perform	40	95.2				
5. Remains with the head of bed elevated at least 30 to 40 degrees.	Not Perform	23	54.8	0.50	0.59	25.0	L
	Partially Perform	17	40.5				
	Completely Perform	2	4.8				
6. Check placement of feeding tube	Not Perform	25	59.5	0.57	0.77	28.5	L
	Partially Perform	10	23.8				
	Completely Perform	7	16.7				
7. Flushing with 20 - 30 ml of water, preferably sterile, before giving feeding	Not Perform	0	0.00	1.69	0.47	84.5	H
	Partially Perform	13	31				
	Completely Perform	29	69				
8. Raise the syringe 12 to 18 inches above the stomach, and open the clamp. Gravity promotes movement of feeding into the stomach.	Not Perform	0	0.00	1.83	0.38	91.5	H
	Partially Perform	7	16.7				
	Completely Perform	35	83.3				
9. Flushing with 20 - 30 ml of sterile water after give feeding	Not Perform	1	2.4	1.74	0.50	87.0	H
	Partially Perform	9	21.4				
	Completely Perform	32	76.2				
10. Let the head of the bed on 30-45 degree angle for 30-60 minutes after completion feeding	Not Perform	37	88.1	0.14	0.42	7.00	L
	Partially Perform	4	9.5				
	Completely Perform	1	2.4				
11. Providing mouth care	Not Perform	13	31	0.93	0.75	46.5	M
	Partially Perform	19	45.2				
	Completely Perform	10	23.8				

The table shows that 6 (54.55%) items has a high assessed, while a moderate

assessed level were assigned 2 (18.18%) items, and leftover items 3 (7.14%) has assigned at the low assessed level.

Table 4. Nurses Practice Regarding Administering Tube Medication

Practices items	Resp.	No.	%	MS	SD	RS %	Ev.
1. Stop enteral feed before administering medication	Not Perform	7	16.7	1.24	0.73	62.0	M
	Partially Perform	18	42.9				
	Completely Perform	17	40.5				
2. Flush the enteral feeding tube thoroughly with sterile water before administering medication	Not Perform	0	0.00	1.69	0.47	84.5	H
	Partially Perform	13	31				
	Completely Perform	29	69				
3. Prepare and administer each medicine separately	Not Perform	0	0.00	1.81	0.40	90.5	H
	Partially Perform	8	19				
	Completely Perform	34	81				
4. Do not mix medicines	Not Perform	0	0.00	1.93	0.26	96.5	H
	Partially Perform	3	7.1				
	Completely Perform	39	92.9				
5. Use fresh equipment for each medicine.	Not Perform	7	16.7	0.95	0.54	47.5	M
	Partially Perform	30	71.4				
	Completely Perform	5	11.9				
6. Administer each medicine using a separate enteral syringe.	Not Perform	0	0.00	1.67	0.48	83.5	H
	Partially Perform	14	33.3				
	Completely Perform	28	66.7				
7. Flush the enteral feeding tube thoroughly after each medication is administered	Not Perform	0	0.00	1.86	0.35	93.0	H
	Partially Perform	6	14.3				
	Completely Perform	36	85.7				

The table shows results observed that 5(71.43%) items has a high assessed, while leftover items has a moderate assessed, and accounted 2(28.57%).

Table 5. Nurses Practice Regarding Monitoring A Nasogastric Tube

Practices items	Resp.	No.	%	MS	SD	RS%	Ev.
1. Assess placement of NG tube.	Not Perform	18	42.9	0.76	0.76	38.0	M
	Partially Perform	16	38.1				
	Completely Perform	8	19				
2. Assess comfort of client	Not Perform	1	2.4	1.60	0.54	80.0	H
	Partially Perform	15	35.7				
	Completely Perform	26	61.9				
3. Observe drainage from NG tube.	Not Perform	9	21.4	1.12	0.74	56.0	M
	Partially Perform	19	45.2				
	Completely Perform	14	33.3				
4. Inspect suction apparatus.	Not Perform	26	61.9	0.52	0.74	26.0	L
	Partially Perform	10	23.8				
	Completely Perform	6	14.3				
5. Assess mobility of client and respiratory status	Not Perform	5	11.9	1.43	0.70	71.5	H
	Partially Perform	14	33.3				
	Completely Perform	23	54.8				
6. Assess client's abdomen for distension and auscultate for presence of bowel sounds.	Not Perform	19	45.2	0.71	0.74	35.5	M
	Partially Perform	16	38.1				
	Completely Perform	7	16.7				
7. Observe condition of client's nostrils and oral cavity	Not Perform	9	21.4	1.10	0.73	55.0	M
	Partially Perform	20	47.6				
	Completely Perform	13	31				
8. Monitor client's nose with tape and pinned to gown allows easier movement.	Not Perform	3	7.1	1.19	0.55	59.5	M
	Partially Perform	28	66.7				
	Completely Perform	11	26.2				
9. Monitor NG tube and suction apparatus at least every 2 hours.	Not Perform	29	69	0.31	0.47	15.5	L
	Partially Perform	13	31				
	Completely Perform	0	0.00				
10. Documents description of drainage and client's response on chart.	Not Perform	42	100	0.00	0.00	0.00	L
	Partially Perform	0	0.00				
	Completely Perform	0	0.00				

The table revels that results observed that 2(20.0%) items has a high assessed, while results observed that 5(50.0%) items has a moderate assessed, and the

leftover items which were assigned at the low assessed level 3(30.0%).

Table 6. Nurses Practice Regarding Removing A Nasogastric Tube

Practices items	Resp.	No.	%	MS	SD	RS%	Ev.
1. Assess placement of NG tube.	Not Perform	18	42.9	0.76	0.76	38.0	M
	Partially Perform	16	38.1				
	Completely Perform	8	19				
2. Assess comfort of client	Not Perform	1	2.4	1.60	0.54	80.0	H
	Partially Perform	15	35.7				
	Completely Perform	26	61.9				
3. Observe drainage from NG tube.	Not Perform	9	21.4	1.12	0.74	56.0	M
	Partially Perform	19	45.2				
	Completely Perform	14	33.3				
4. Inspect suction apparatus.	Not Perform	26	61.9	0.52	0.74	26.0	L
	Partially Perform	10	23.8				
	Completely Perform	6	14.3				
5. Assess mobility of client and respiratory status	Not Perform	5	11.9	1.43	0.70	71.5	H
	Partially Perform	14	33.3				
	Completely Perform	23	54.8				
6. Assess client's abdomen for distension and auscultate for presence of bowel sounds.	Not Perform	19	45.2	0.71	0.74	35.5	M
	Partially Perform	16	38.1				
	Completely Perform	7	16.7				
7. Observe condition of client's nostrils and oral cavity	Not Perform	9	21.4	1.10	0.73	55.0	M
	Partially Perform	20	47.6				
	Completely Perform	13	31				
8. Monitor client's nose with tape and pinned to gown allows easier movement.	Not Perform	3	7.1	1.19	0.55	59.5	M
	Partially Perform	28	66.7				
	Completely Perform	11	26.2				
9. Monitor NG tube and suction apparatus at least every 2 hours.	Not Perform	29	69	0.31	0.47	15.5	L
	Partially Perform	13	31				
	Completely Perform	0	0.00				
10. Documents description of drainage and client's response on chart.	Not Perform	42	100	0.00	0.00	0.00	L
	Partially Perform	0	0.00				
	Completely Perform	0	0.00				

Ev. : Evaluation: (0.00 – 33.33) Low; (33.34 – 66.66) Moderate ; (66.67– 100) High.

The finding of table were that 7(53.85%) items has a high assessed level, while items which has a moderate assessed level are accounted 3(23.08%), and the leftover items 3(20%) were a assigned at the low level of assessed. For summarizing of preceding results, it could be conclude that nurse's practices part are not achieving at the goal of this study, since more than half of the studied item's assessed are at low and at the moderate levels 9(21.95%), and 12(29.27%) respectively, and the leftover items which has at the high level are accounted 20(48.78%) items.

Table 7. Nurses Practice Main Domains regarding Nasogastric Tube Care

Main Domains	No.	PGMS	PPSD	Ass.
Nurses Practice Regarding Administering Tube Feeding	42	64.1	14.0	M
Nurses Practice Regarding Administering Tube Medication	42	79.6	12.4	H
Nurses Practice Regarding Monitoring A Nasogastric Tube	42	43.7	18.7	M
Overall Nurses Practice Regarding Removing a Nasogastric Tube	42	64.9	11.1	M
Overall Nurses' Practice regarding NG Tube Care	42	63.1	11.8	M
Overall Nurses' Knowledge & Practices regarding NG Tube Care	42	66.57	7.33	M

Ev. : 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.

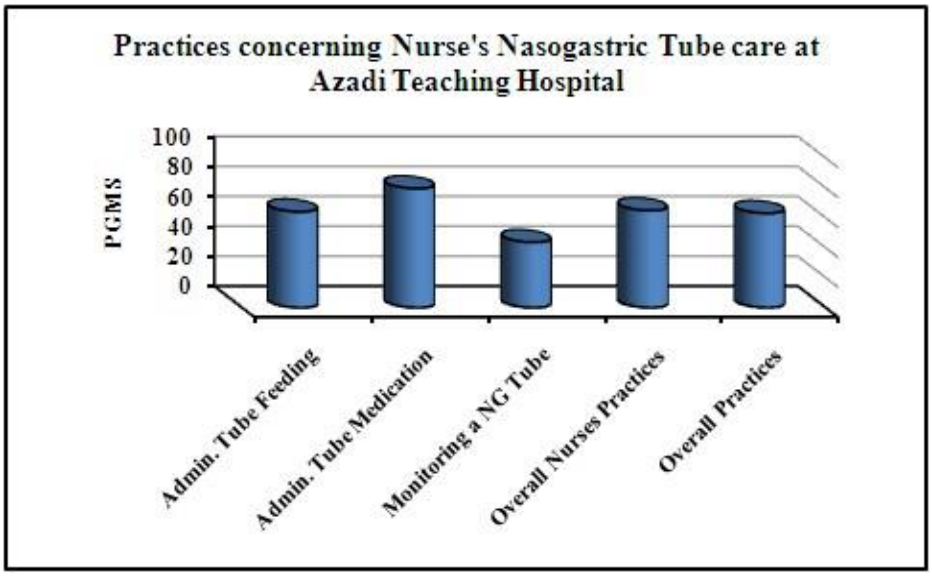

Figure 1. Bar Chart for Grand/Global mean of score concerning Practice main domains

Table 8. Relationships of Nurse's Practice and their Socio-demographic Characteristic with significant levels

Demographical Characteristics and some related variables	Practices		
	C.C.	Sig.	C.S.
Gender	0.051	0.739	NS
Age Groups	0.402	0.017	S
Experience years in Nursing	0.215	0.360	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.

4. Discussion

Regarding nurses' practice related Administering Tube Feeding, the research results showed that nurses have a high level in 6 items shows high significant regarding administrations. While three items regarding to the result shows low significant . the itmes

(hand washing and sterilizations, providing mouth care) shows moderate significations. According to research conducted in Ethiopia by [4], 53.8% of enteral nutrition practices are poor .The researcher point of view the fact points to a huge lack of understanding and observance of the most suitable methods in this life-saving sphere. It is very important that we act upon these discoveries by giving specialized instruction, ongoing learning as well as quality assurance programs which will help in increasing nursing skills so that they can deliver better patient results.

Regarding nurses' practice related Administering the Medication, through the NG tube the study show that high significant in five items which is (69%) completely preformed in Flush the enteral feeding tube thoroughly with sterile water before administering medication , Prepare and administer each medicine separately, (81%) completely preformed , Do not mix medicines, (92.9%)completely preformed Administer each medicine using a separate enteral syringe, (66.7%) completely preformed Flush the enteral feeding tube thoroughly after each medication is administered, (85.7%) completely preformed ,and in two items (Stop enteral feed before administering medication, (42.9%)Partially Perform, Use fresh equipment for each medicine,(71.4) Partially Perform) moderate significant .The result finding is similar with the study done by [5] in Jorden showed a positive impact on all studied knowledge domains, which revilse that close collaboration between pharmacists and nurses can effectively fill knowledge gaps and resolve technical issues.

According to nurses' practice related Monitoring a Nasogastric Tube, the research results showed that nurses have a high significant level in (Assess comfort of client, and Assess mobility of client and respiratory status), moderate significant level(Assess placement of NG tube, Observe drainage from NG tube, Assess client's abdomen for distension and auscultate for presence of bowel sounds, Observe condition of client's nostrils and oral(cavity, and Monitor client's nose with tape and pinned to gown allows easier movement.) items and low nonsignificant level in(Inspect suction apparatus, Monitor NG tube and suction apparatus at least every 2 hours, and Documents description of drainage and client's response on chart.)items of practice that showed PGMS(43.7%) moderate level in totally.

The result finding is similar with the study done by [16] in China showed consist with research study A large number of clinical nurses were not following international criteria when it came to nasogastric feeding. Based on the result that showed nurses' practice related Removing A Nasogastric Tube, the research results showed that nurses have a high significant of practice in seven items which Completely Perform (Check physician's order for removal of Nasogastric tube, Explain procedure to client, Gather equipment, Unpin tube from client's gown and carefully remove adhesive tape from bridge of nose, Clamp tube with fingers. Quickly and carefully remove tube while client holds his breath, Place tube in disposable plastic bag, Hand washing or sterilizing), moderate level of practice in three items which Partially Perform (Hand washing or sterilizing, Instruct client to take a deep breath and hold it, and Offer mouth care to client and make client feel comfortable) and low level of practice in three items which Not Perform (Place towel or

disposable pad across client's chest, Measure Nasogastric drainage, and Record removal of Nasogastric tube, client's response, and measurement of drainage). And in totally of practice showed PGMS(63.1%) moderate level totally. the study conduced in America done by [8] Through the results of this research, it agreed with the researcher's study, and the results showed an improvement in nurses' practice after their training course, and it was mentioned that there are different guidelines that nurses follow, but there are obstacles and reasons for applying them.

5. Conclusion

According to the findings of the survey, fewer than two-thirds of the nurses working in the critical care unit are female. Furthermore, the majority of these nurses are younger than thirty years old and have work experience of less than three years. After doing the analysis, it was concluded that they possess a significant amount of knowledge, despite the fact that there are several knowledge gaps. Nevertheless, it is of the utmost importance to confront and find solutions to these knowledge gaps. Based on the findings of the study, it was found that nurses had a moderate degree of expertise in the care of nasogastric tubes. In spite of this, the limitations in their knowledge and practices may lead to a great deal of difficulty.The research concluded that there is no connection between the factors of social and demographic traits, as well as the knowledge and practices that are taken into consideration. Years of experience and educational courses have been found to have a substantial association, according to research conducted in the scientific community. The findings of the study indicated that there was a diverse connection between the knowledge of nurses and their practice across all of the subdomains that were investigated. Although there may be variances in the correlation relationship, it is essential to recognize that there will always be correlations if there is a mistake in any information phase or action that could result in problems. This is something that must be acknowledged. Finally, based on the results the study it concluded that nurses possess moderate level of practice regarding NG Tube Care.

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