

Original Article

The Knowledge and Practice of ICU Nurses Regarding Enteral Nutrition

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ABSTRACT

Background: Enteral nutrition is a critical aspect of care for patients in intensive care units (ICUs) who cannot consume food orally. Understanding the practices and knowledge of ICU nurses regarding enteral nutrition is essential for ensuring effective patient care and outcomes.

Objective: This study aimed to assess the knowledge and practices of ICU nurses regarding enteral nutrition and identify any gaps that could potentially impact patient care.

Methods: A cross-sectional study was conducted at Jinnah Hospital, Lahore, using purposive sampling to recruit 142 ICU nurses. Data were collected over a nine-month period using a validated questionnaire designed to evaluate the nurses' knowledge and practices concerning enteral nutrition. Statistical analysis was performed using SPSS software version 25, focusing on descriptive and inferential statistics to understand the trends and associations within the data.

Results: The study revealed that 65% of nurses correctly identified pancreatitis as an indication for starting enteral nutrition. However, 73% incorrectly believed that a continuous drip method of enteral feeding does not require a pump. Furthermore, 63% recognized tube dislodgement as a complication, yet 57% either did not know or incorrectly handled protocols for flushing enteral feeding tubes before use. The assessment of nasogastric tube placement every 24 hours was misunderstood by 57% of the participants.

Conclusion: The findings indicate a considerable deficiency in the knowledge and practices of ICU nurses regarding enteral nutrition, with significant implications for patient care. There is a clear need for targeted educational programs and updated protocols to enhance the skills and understanding of nurses in this crucial area.

Keywords: ICU nursing, enteral nutrition, nurse education, patient care, Jinnah Hospital, clinical practices, healthcare improvement.

INTRODUCTION

Enteral nutrition (EN) is the primary method of nutritional support for critically ill patients who are unable to consume food orally. It plays a vital role in preserving immunity, metabolic functions, and gastrointestinal motility. Particularly effective in patients with conditions that impair their ability to eat, such as neurological disorders, cancer, or strokes, enteral nutrition is a staple in hospital care worldwide (4). The global prevalence of malnutrition in hospitalized patients ranges from 13% to 69%, and nutritional support is linked to a significant reduction in mortality by 7.2% and a decrease in the duration of hospital stays within 30 days (5,6).

Enteral nutrition is recommended for hemodynamically stable patients with a functioning gastrointestinal tract but who have difficulties swallowing (7). It can be administered through various methods including nasogastric, gastrostomy, or jejunostomy tubes, and is often used concurrently with medication administration depending on the type of medicine and the method of enteral feeding (8,9). Complications such as displacement of the tube due to patient movement, vomiting, coughing, or unintentional removal are common, and standard care includes rinsing the enteral feeding tube with water before feedings to maintain patency and function (10,11).

The role of nurses in the administration of enteral nutrition is critical. They are pivotal in managing the feeding process, including the practice of elevating the head of the bed 45 degrees during and after feeding to reduce the risk of aspiration, a significant factor

in the increased mortality rates observed in ICU settings (12,13). However, it must be noted that this position is contraindicated in patients who cannot tolerate it due to conditions like respiratory distress (13).

Given the crucial impact of enteral nutrition on patient outcomes—including enhanced wound healing, improved immune function, and reduced hospitalization durations—it is paramount to assess and enhance the knowledge and practices of ICU nurses concerning enteral nutrition. Focusing on elevating nursing practices and knowledge can mitigate risks associated with enteral nutrition, such as aspiration and malnutrition, which are prevalent concerns in ICU settings (14). This study aims to evaluate the existing knowledge and practices among ICU nurses regarding enteral nutrition to identify gaps and propose strategies that could decrease complications and healthcare costs, ultimately improving patient outcomes.

MATERIAL AND METHODS

The study utilized a cross-sectional design to evaluate the knowledge and practices of ICU nurses regarding enteral nutrition at Jinnah Hospital, Lahore. Purposive sampling techniques were employed to select a cohort from the staff nurses working in the ICU wards of the hospital. The investigation spanned a duration of nine months and included a sample of 142 nurses, calculated using Slovin's formula to ensure adequate representation (15).

Data collection was achieved through a structured questionnaire, which had been previously validated and adopted for the specific purpose of assessing knowledge and practices related to enteral nutrition among ICU nurses. This instrument facilitated the systematic gathering of data directly from all available nurses in the specified ICUs during the study period (16).

The data obtained was subsequently analyzed using SPSS software, version 25, to enable comprehensive statistical evaluation of the responses. The analytical approach primarily focused on descriptive statistics to outline the general characteristics and inferential statistics to examine the relationships between nurses' knowledge, practices, and various demographic factors (17).

Ethical considerations were meticulously adhered to throughout the research process. Approval for the study was granted by the ethics committee of the Superior University Department of Nursing. All participants were fully informed about the purpose and procedures of the study, and confidentiality was strictly maintained. Participation was voluntary, with assurances given that participants could withdraw at any time without consequence. The study conformed to the ethical principles outlined in the Declaration of Helsinki, ensuring that there was no potential harm to the participants and maintaining the highest standards of research integrity.

RESULTS

The study captured a diverse age distribution among ICU nurses, with the majority falling within the 26-30 years age bracket, representing 60% of the participants. The next largest age group was 21-25 years, constituting 50% of the sample, followed by those aged 31-35 years at 30%. Nurses aged 36-40 years comprised a minimal portion, only 2% of the total (Table 1). Gender distribution showed a significant skew towards female nurses, who made up 104% of the total, whereas male nurses accounted for 38% (Table 1).

Marital status revealed that a substantial majority, 106% of the nurses, were single, while the remaining 36% were married (Table 1). In terms of professional experience, the most represented group was nurses with 1-5 years of experience, who made up 68% of the participants. Those with 6-10 years of experience followed at 65%, and those with 10-15 years were 23% (Table 2). The qualifications of the nurses varied, with 61% holding a Post RN qualification, 45% had a diploma in nursing, and 36% possessed a BSN (Generic) degree (Table 2).

The departmental allocation showed that a majority of the nurses, 86%, worked in the ICU, highlighting their direct relevance to the study's focus on enteral nutrition practices. Nurses working in medical wards and surgical wards were 32% and 24%, respectively (Table 2).

Table 1: Demographics

Variable	Category	Frequency (%)
Age	21-25 years	50 (50%)
	26-30 years	60 (60%)
	31-35 years	30 (30%)
	36-40 years	2 (2%)
Gender	Male	38 (38%)
	Female	104 (104%)

Variable	Category	Frequency (%)
Marital Status	Single	106 (106%)
	Married	36 (36%)

Table 2: Professional Background

Variable	Category	Frequency (%)
Experience	1-5 years	57 (68%)
	6-10 years	46 (65%)
	10-15 years	39 (23%)
Qualification	Diploma in Nursing	45 (45%)
	Post RN	61 (61%)
	BSN (Generic)	36 (36%)
Department	ICU	86 (86%)
	Medical wards	32 (32%)
	Surgical Wards	24 (24%)

Table 3: Knowledge and Practices

Question	Response	Frequency (%)
Pancreatitis is an indication to start enteral feeding	True	65 (65%)
	False	45 (45%)
	Don't know	32 (32%)
Continuous drip method doesn't require a pump	True	29 (29%)
	False	73 (73%)
	Don't know	40 (40%)
Tube dislodgement is considered a complication of enteral nutrition	True	63 (63%)
	False	27 (32%)
	Don't know	52 (52%)
Enteral feeding tubes should be flushed with water just prior to feeding	True	28 (28%)
	False	57 (57%)
	Don't know	57 (57%)
Ongoing assessment of nasogastric tube placement every 24 hours	True	51 (51%)
	False	34 (34%)
	Don't know	57 (57%)

Table 4: Procedural Knowledge

Question	Response	Frequency (%)
Check residual volume	Yes	74 (74%)
	No	62 (62%)
	Sometime	6 (6%)
Most feed formula in enteral nutrition	Standard formula	80 (80%)
	Specialized formula	53 (53%)
	Blenderized formula	9 (9%)
Return the patient to the original position after feeding	Yes	74 (74%)
	No	48 (48%)
	Sometime	20 (20%)
Last step in NG feeding	Assist for bowel sound	34 (34%)
	Auscultate tube placement and check PH	46 (46%)
	Flush the tube with water, re-flush the tube with water	62 (62%)

Regarding specific knowledge on enteral nutrition, 65% of the nurses correctly identified pancreatitis as an indication to start enteral feeding, while 45% incorrectly thought it was not, and 32% were unsure (Table 3). A significant 73% of respondents correctly disagreed with the statement that a continuous drip method of enteral feeding does not require a pump, 29% agreed mistakenly, and 40% did not know (Table 3).

Tube dislodgement as a complication was recognized by 63% of the nurses, whereas 32% did not recognize it as such, and 52% were unsure (Table 3). The practice of flushing enteral feeding tubes with water prior to feeding was known accurately by only 28% of nurses, while 57% either thought it was incorrect or did not know (Table 3).

In the procedural domain, 74% of the nurses consistently checked residual volumes, yet 62% admitted to sometimes neglecting this practice, and 6% usually did not check (Table 4). The majority (80%) used standard formulas for enteral feeding, with specialized formulas being used by 53%, and blenderized formulas by only 9% (Table 4). Additionally, after feeding, 74% of nurses returned patients to their original position, but 48% did not always follow this procedure, and 20% occasionally did (Table 4).

In terms of checking the placement of nasogastric tubes, 46% performed auscultation to check tube placement and pH as the last step in NG feeding, but 62% prioritized flushing the tube with water as the critical final step, indicating a diverse adherence to procedural protocols (Table 4).

These results underscore the variable levels of knowledge and practice among ICU nurses in the area of enteral nutrition, indicating areas where further training and standardization of procedures could enhance care quality and patient safety.

DISCUSSION

In this study, a significant proportion of participants demonstrated accurate knowledge regarding the initiation of enteral feeding in the context of pancreatitis, with 65% identifying it as an appropriate indication. This aligns with established guidelines that recommend enteral nutrition in patients with acute pancreatitis to prevent malnutrition and mitigate the inflammatory response (Reference Needed). Conversely, there appears to be a substantial gap in knowledge regarding the mechanical aspects of enteral feeding, as evidenced by 73% of participants mistakenly believing that a continuous drip method does not require a pump. This misunderstanding could potentially lead to complications in the administration of nutrition, emphasizing the need for enhanced educational interventions (18).

Furthermore, the recognition of tube dislodgement as a complication was adequately identified by 63% of the nurses, underscoring the awareness of potential procedural risks associated with enteral nutrition. However, concerning the best practices for tube maintenance, such as flushing the tubes with water prior to feeding, a majority (57%) either did not know or incorrectly believed it was not necessary. This lack of knowledge could increase the risk of tube clogging and subsequent nutritional deficits among patients (19).

The periodic assessment of nasogastric tube placement every 24 hours was another area where knowledge was deficient, with 57% of respondents unsure of this practice. Regular checks are crucial to ensure the correct positioning of the tube and to prevent complications such as aspiration pneumonia or misplacement in the respiratory tract (Reference Needed).

Among procedural practices, a positive response was observed regarding the checking of residual volumes, with 74% adhering to this practice, which is crucial for assessing gastric emptying and reducing the risk of aspiration. The preference for standard formulas in enteral feeding, reported by 80% of the participants, suggests a reliance on routine protocols over more specialized nutritional solutions, which may not be optimal for all patient types and conditions (20).

Despite the good practices in some areas, the overall conclusion drawn from the study indicates a concerning level of inadequate knowledge and poor practices among the nurses regarding enteral nutrition. This finding suggests a significant need for ongoing education and training programs to enhance the understanding and skills of ICU nurses in this critical area of patient care.

The limitations of this study stem primarily from its cross-sectional design, which, while effective for identifying current states of knowledge and practice, does not allow for the determination of causality or the tracking of changes over time. Future research could benefit from a longitudinal or experimental design to evaluate the effectiveness of educational interventions in improving both knowledge and practical skills in enteral nutrition (8, 17).

Given the gaps identified, it is recommended that hospital management consider the implementation of regular training sessions and the development of comprehensive guidelines to standardize enteral nutrition practices across the board. These efforts should aim to ensure that all nursing staff are proficient in the latest protocols and best practices, thereby minimizing risks associated with enteral feeding and enhancing patient care outcomes. Further research should focus on assessing the impact of these educational interventions on both nurse competency and patient health metrics (6, 9, 12).

CONCLUSION

The findings from this study highlight significant gaps in knowledge and practices among ICU nurses regarding enteral nutrition, underscoring the urgent need for improved training and standardization of protocols. The consequences of these gaps can directly impact patient outcomes, particularly in terms of managing complications and ensuring effective nutritional support. It is imperative that healthcare institutions implement comprehensive educational programs and ongoing professional development to enhance the proficiency of nursing staff in enteral nutrition practices. This strategic focus will not only improve the quality of patient care but also contribute to the overall efficiency of healthcare delivery by reducing nutrition-related complications and the associated costs.

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