



## Original Article



## Knowledge Attitude and Practice of Nutritional Management of Acute Pancreatitis among General Surgery Residents of Tertiary Care Hospital

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## ABSTRACT

Nutritional management is a critical component in the treatment of acute pancreatitis, yet its integration into clinical practice among surgical residents remains suboptimal. **Objectives:** To evaluate the knowledge, attitude, and practice of general surgery residents regarding nutritional management in a tertiary care hospital. **Methods:** A descriptive, cross-sectional study was conducted among 106 general surgery residents at the District Headquarters Teaching Hospital, Narowal. Residents with a minimum of six months of clinical experience who provided informed consent were included. Data were collected using a structured, validated questionnaire comprising three sections: knowledge (multiple-choice questions assessing evidence-based nutritional practices), attitude (Likert scale responses on perceptions and confidence in nutritional management), and practice (self-reported adherence to guidelines and barriers faced). Descriptive statistics summarized participant characteristics, while inferential analysis assessed correlations, with  $p < 0.05$  considered statistically significant. **Results:** The mean knowledge, attitude, and practice scores were  $72.3\% \pm 12.4\%$ ,  $80.7\% \pm 10.2\%$ , and  $68.5\% \pm 15.3\%$ , respectively. While most residents acknowledged the importance of early enteral nutrition (84.9%), only 36.8% adhered to evidence-based guidelines in practice. Significant barriers included resource limitations (64.2%) and inadequate training (52.8%). A positive correlation was observed between knowledge and attitude scores ( $r=0.48$ ,  $p < 0.01$ ). **Conclusions:** It was concluded that this study highlights discrepancies between knowledge, attitude, and practice in the nutritional management of acute pancreatitis. Despite healthcare providers demonstrating positive attitudes, adherence to evidence-based guidelines remain suboptimal due to resource limitations and insufficient training. Implementing targeted education and structured training programs can enhance compliance with best practices and improve patient outcomes.

## INTRODUCTION

Common in the digestive system, acute pancreatitis (AP) can present itself in many different ways, from a minor ailment self-limiting to major issues fatal to the individual [1]. AP is still a main source of disease and death even if its occurrence varies greatly worldwide; this is particularly true in tertiary care environments where severe cases are transferred. AP management has evolved greatly, and nutritional treatment has grown in significance in improving patient conditions [2, 3]. Controlling the inflammatory response, reducing the risk of infection, and accelerating the healing process generally depends on starting the proper dietary assistance early on [4]. AP

patients' diet was traditionally largely controlled by bowel rest and complete parenteral nutrition (TPN). New studies, meantime, point to early enteral nutrition (EN) as a preferable choice. Better outcomes including fewer infections, shorter hospital stays, and lower death rates depend on EN [5]. This generally helps to maintain the stomach intact and stops the movement of germs. Following the best dietary recommendations is still challenging even with these advances, particularly in cases with limited resources or when healthcare professionals are ignorant of the most recent evidence-based recommendations [6, 7]. In the treatment of patients with



AP, surgical fellows—especially those nearing the end of their training are rather crucial. The way patients are cared for depends much on what first-line caregivers know, feel, and do (KAP) regarding nutritional management [8]. In tertiary care facilities, where severe AP is more common, it is quite crucial to ensure that staff members follow effective dietary guidelines and are well-informed. Studies have revealed, however, that healthcare professionals vary in practice and produce less-than-ideal results depending on whether they follow these criteria or not [9, 10]. Not much is known about the knowledge, attitudes, and behaviours of surgical residents in Pakistan, even though there is increasing evidence that dietary control influences AP. Most research done thus far has concentrated on clinical results or patient-handling techniques. Few have examined the level of knowledge and readiness of the caregivers personally. Finding solutions and means of improving training and exercise depends on closing this disparity.

Acute pancreatitis requires timely and appropriate nutritional management, particularly early enteral feeding, to improve patient outcomes and reduce complications. However, in clinical practice, there is often a gap between evidence-based nutritional guidelines and actual implementation by healthcare providers. Limited data exist on the knowledge, attitude, and practice (KAP) of general surgery residents regarding nutritional management of acute pancreatitis in tertiary care settings in Pakistan. This study aims to ascertain the knowledge, opinions, and practices of general surgery trainees in a tertiary care hospital about nutritional management of acute pancreatitis. The findings will provide us with knowledge about present practices, highlight areas where education is required, and enable us to develop particular strategies to enhance treatment for acute pancreatitis.

## METHODS

This cross-sectional study examined general surgery residents at the District Headquarters (DHQ) Teaching Hospital Narowal, to assess the knowledge, attitude, and practices regarding properly managing their acute pancreatitis. From January 16 to March 21, 2024, there were three months of study effort. Participating in the study were all DHQ hospital general surgery residents. These residents were selected as the target group since they have advanced field experience caring for patients with acute pancreatitis and a lot of experience overall. The sample size was calculated using the formula for single proportions, assuming an estimated proportion ( $p$ ) of 0.5,  $asn=Z^2 \cdot p \cdot (1-p) / d^2$ . Where:  $Z$  is the standard normal variate corresponding to a 95% confidence level (1.96),  $p$  is the estimated proportion of residents with adequate knowledge of nutritional management (0.5) and  $d$  is the margin of error, set at 10% (0.1). To account for potential

non-response, the sample size was increased by 10%, resulting in a final sample size of 106 residents. A convenience sampling technique was used to include all eligible residents available during the study period. General surgery residents both male and female aged 25 to 35 years actively involved in patient care at DHQ Teaching Hospital, Narowal, during the study period were included. Residents who were on leave, unavailable for participation, or outside the specified age range were excluded. Using a standardized questionnaire already tested [10], with an eye on three primary categories, information was gathered. To follow evidence-based standards, the knowledge component examined how well residents recognized when, what kind, and how to provide nutritional support to individuals with acute pancreatitis. Participants in the attitude piece were asked what they believed to be the value of nutritional management and how confident they were in their abilities to manage these types of situations. Finally, the practice domain gathered data on individuals' stated degree of adherence to clinical nutritional management guidelines. Participants received the questionnaire in person, and their responses were gathered anonymously to respect their privacy and inspire honesty. The acquired data were examined using version 26 of the Statistical Package for the Social Sciences (SPSS). Descriptive statistics was applied to compile the findings. There were found frequencies and percentages for binary variables. Means and standard deviations emerged for continuous variables. By aggregating the significant questions in every area, one may determine the knowledge, attitude, and practice scores. Those who obtained more than 75% in an area were judged to have "adequate" knowledge, a "positive" attitude, or "good" behaviour. Comparisons between residents with adequate and inadequate scores were made using the chi-square test for categorical variables and an independent t-test for continuous variables. Participation in the study was voluntary, and informed consent was obtained from all participants. The questionnaire was anonymized, and no identifying information was collected to ensure participant confidentiality.

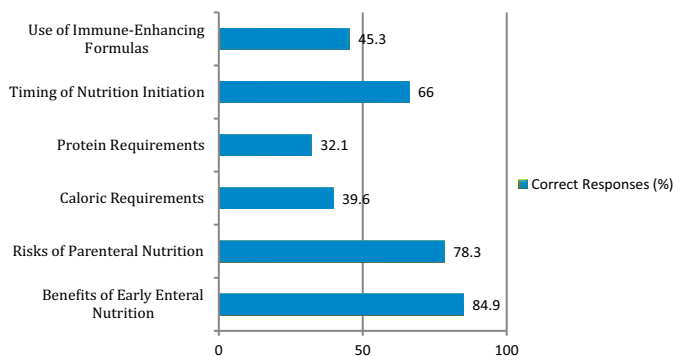
## RESULTS

A total of 106 general surgery residents participated in the study, achieving a response rate of 100%. The mean age of the participants was  $29.4 \pm 2.1$  years. Of these, 73 participants (68.9%) were male, and 33 (31.1%) were female. The mean residency experience was  $3.8 \pm 0.5$  years. Additionally, 21 participants (19.8%) had attended workshops or seminars on nutritional management within the past year as shown in Table 1.

**Table 1:** Demographic Characteristics of Study Participants

Characteristics	Frequency (%)
Total Participants	106
Age (Years) Mean $\pm$ SD	29.4 $\pm$ 2.1
<b>Gender</b>	
Male	73 (68.9%)
Female	33 (31.1%)
Residency Experience (Years) Mean $\pm$ SD	3.8 $\pm$ 0.5
Attended Nutritional Workshops	21 (19.8%)

The mean knowledge score among the participants was 72.3%  $\pm$  12.4%. A total of 49 residents (46.2%) were categorized as having adequate knowledge, scoring above 75%. Among the domains assessed, 90 participants (84.9%) correctly identified the benefits of early enteral nutrition in reducing complications of acute pancreatitis, and 83 (78.3%) recognized the risks associated with parenteral nutrition. However, only 42 participants (39.6%) correctly estimated daily caloric needs and 34 (32.1%) identified protein requirements accurately. Residents who had attended workshops demonstrated significantly higher knowledge scores than those who had not ( $p < 0.01$ ) (Figure 1).

**Figure 1:** Knowledge Scores by Domains

The mean attitude score was 80.7%  $\pm$  10.2%. Out of the participants, 71 (67%) demonstrated a positive attitude toward nutritional management. A total of 94 participants (88.7%) agreed that early nutritional intervention improves patient outcomes, while 81 (76.4%) expressed confidence in discussing nutritional strategies with colleagues. However, only 44 participants (41.5%) felt confident in independently managing nutritional therapy for severe cases. Residents with higher knowledge scores were more likely to exhibit positive attitudes ( $p < 0.05$ ) (Table 2).

**Table 2:** Attitude Responses by Domains

Attitude Statements	Agree (%)	Neutral (%)	Disagree (%)
Early Nutrition Improves Patient Outcomes	88.7%	7.5%	3.8%
Confidence in Discussing Nutritional Strategies	76.4%	15.1%	8.5%
Confidence in Independently Managing Nutrition	41.5%	34.0%	24.5%

Importance of Nutritional Education in Residency	82.1%	11.3%	6.6%
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The mean practice score was 68.5%  $\pm$  15.3%. Only 39 residents (36.8%) adhered to evidence-based guidelines in practice. A total of 60 participants (56.6%) reported recommending enteral nutrition as the first-line therapy frequently, whereas 33 (31.1%) occasionally relied on parenteral nutrition due to logistical challenges. Furthermore, 68 participants (64.2%) identified resource limitations as a major barrier, while 56 (52.8%) cited insufficient training as another significant obstacle (Table 3).

**Table 3:** Practice Scores by Domains

Practice Parameters	Frequently (%)	Occasionally (%)	Rarely/ Never (%)
Use of Enteral Nutrition	56.6%	31.1%	12.3%
Reliance on Parenteral Nutrition	31.1%	42.5%	26.4%
Use of Evidence-Based Guidelines	36.8%	41.5%	21.7%
Barriers (Lack of Resources)	64.2%	-	35.8%
Barriers (Inadequate Training)	52.8%	-	47.2%

Correlation analysis revealed a significant positive correlation between knowledge and attitude scores ( $r = 0.48$ ,  $p < 0.01$ ). A moderate correlation was observed between attitude and practice scores ( $r = 0.39$ ,  $p < 0.05$ ), while the correlation between knowledge and practice scores was weak ( $r = 0.26$ ,  $p = 0.08$ ) (Table 4).

**Table 4:** Correlation between Knowledge, Attitude, and Practice Scores

Variables Correlated	Correlation Coefficient (r)	Significance (p)
Knowledge and Attitude	0.48	<0.01
Attitude and Practice	0.39	<0.05
Knowledge and Practice	0.26	0.08

## DISCUSSION

This study assessed the knowledge, attitude, and practice of general surgery residents regarding the nutritional management of acute pancreatitis. The findings revealed adequate knowledge and positive attitudes among the participants, but significant gaps in the practical application of evidence-based guidelines. While the majority recognized the importance of early enteral nutrition, fewer participants were confident in estimating caloric and protein requirements or independently managing nutritional therapy, highlighting areas requiring improvement. Residents who had attended workshops demonstrated significantly better knowledge and attitudes, emphasizing the role of targeted educational interventions. Despite positive attitudes, less than 40% of the residents adhered to evidence-based guidelines, citing resource limitations and insufficient training as primary barriers. The weak correlation between knowledge and

practice further underscores the disconnection between theoretical understanding and clinical implementation. The average knowledge level seen matches what other research conducted in tertiary care environments has discovered [11, 12]. Those investigations revealed that individuals lacked sufficient knowledge about some topics, including protein and calorie estimation. Early enteral feeding was generally regarded to be beneficial, which conforms to global guidelines for treating acute pancreatitis [13-15]. But the lack of confidence in managing nutritional therapy on one's own is reminiscent of what has been observed elsewhere where surgical residency programs provide little official nutritional instruction. Attitude scores in this study were greater than in several international investigations, in which fewer participants felt that a nutritional intervention would help to improve results. This variation could be due to people's increasing awareness of the significance of nutrition in their field of work, which could result from new guidelines stressing multidisciplinary approaches [16, 17]. Practice scores matched those observed in similar environments, where adhering to evidence-based guidelines proved less than ideal. About one-third of the participants required parenteral nutrition, which is comparable to issues people throughout the world deal with such as lack of finances or means of procurement [18, 19]. Furthermore, the significant role resources play as a barrier corresponds with what studies in areas with inadequate resources reveal. This emphasizes how difficult it is, on a systemic level, to follow dietary guidelines [20].

This study is limited by its single-center design and relatively small, non-random sample, which may reduce generalizability. Self-reported practices may also introduce response bias, overestimating actual adherence to guidelines. The cross-sectional nature of the study prevents assessment of changes over time or causality between variables. Future research should include multi-center studies with larger sample sizes and incorporate interventional training programs to evaluate improvements in knowledge and clinical practice regarding nutritional management in acute pancreatitis.

## CONCLUSIONS

It was concluded that while general surgery residents in a tertiary care hospital possess adequate knowledge and positive attitudes toward the nutritional management of acute pancreatitis, their clinical practices remain suboptimal due to training gaps and institutional barriers. Strengthening institutional support and implementing targeted educational initiatives can enhance adherence to evidence-based nutritional management strategies, ultimately improving patient care.

## Authors' Contribution

Conceptualization: MZM

Methodology: MBB

Formal analysis: US, ZAC

Writing and Drafting: MZM, RH, ZM

Review and Editing: MZM, RH, ZM, MBB

All authors approved the final manuscript and take responsibility for the integrity of the work

## Conflicts of Interest

All the authors declare no conflict of interest.

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