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Evaluation of Attitudes Toward Nutritional Assessment, Knowledge of Nutrition Care, and Perceived Quality of Care Among Intensive Care Nurses

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Abstract

Objective: Malnutrition in intensive care unit patients significantly affects recovery and increases morbidity and mortality. Adequate nutritional support is essential, but nutritional care is often overlooked, and intensive care nurses play a key role in nutritional management. This study aimed to assess the knowledge levels, attitudes, and perceived quality of nutritional care among intensive care nurses to identify gaps in clinical practice.

Methods: This cross-sectional study was conducted with 147 intensive care nurses working at Isparta City Hospital. Data were collected using an information form and a validated scale evaluating the importance of nutritional assessment, knowledge of nutritional care, and perceived quality of care. Descriptive statistics, t-tests, ANOVA, Pearson's correlation, and multiple linear regression analyses were used to analyze the data.

Results: The mean score for the importance of nutritional assessment was 23.39±2.92, knowledge level was 25.24±5.38, and perceived quality of care was 37.53±4.82. A significant relationship was found between positive attitudes toward nutritional care and perceived quality of care ($p<0.001$). Attitude toward nutritional care significantly predicted perceived quality of care (Adj. $R^2=0.216$, $p<0.001$). Nurses with higher levels of knowledge also perceived better quality of care.

Conclusion: Intensive care nurses generally have positive attitudes toward nutritional care, but knowledge gaps and perceived quality of care need improvement. Further studies should explore the effectiveness of different educational strategies in improving nutritional management in intensive care units.

Keywords: Nutritional assessment, intensive care units, nurses, attitude, quality of care

INTRODUCTION

Patients in intensive care units are frequently exposed to severe catabolic stress, acute illnesses, and muscle loss, which contribute to functional impairment and increase the risk of malnutrition (1). Malnutrition not only slows the recovery process but also increases the risk of complications, leading to serious clinical issues such as infections, delayed wound healing, and pressure ulcers. Therefore, ensuring adequate nutritional support for intensive care patients is a critical intervention with significant potential to improve clinical outcomes and reduce morbidity (2,3). Guidelines published by the American society for parenteral and enteral nutrition and the European society for clinical nutrition and metabolism establish standards for the nutritional management of intensive care patients (4). However, global studies have indicated that the prevalence of malnutrition in intensive care patients ranges from 15% to 68%,

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and this condition is closely associated with increased morbidity and mortality (5).

Despite numerous studies highlighting the adverse clinical outcomes of malnutrition, assessment of the nutritional status of hospitalized patients and provision of appropriate nutritional support are still widely overlooked (2,6,7). A key challenge in effectively addressing malnutrition lies in the failure to timely identify patients at risk and the limited engagement of professional nutritional support teams in the nutritional care process (6,7). Given their direct and continuous involvement in patient care, intensive care nurses, who provide round-the-clock care to critically ill patients, play a key role in nutritional management. Nurses are expected to identify patients at risk of malnutrition, monitor their nutritional processes, and implement appropriate nursing care to address potential complications that may arise during this process (8,9).

Doménech Briz et al. (9) , in a recent systematic review, highlighted that nurses lack sufficient knowledge regarding nutritional care and that their awareness of their roles in this area is not at the desired level. This lack of knowledge and awareness underscores the need for targeted educational interventions aimed at empowering nurses to play a more proactive role in nutritional management (9,10). In our country, few studies have addressed the knowledge levels, attitudes, and practices of intensive care nurses regarding nutritional assessment and care (11-15). This study aimed to describe the knowledge levels, attitudes, and practices of intensive care nurses regarding nutritional care, thereby providing an overview of the current situation. The findings from this research are crucial for identifying gaps in current clinical practice and are expected to contribute to the development of educational programs aimed at enhancing nurses' knowledge and awareness of nutritional management, as well as guiding the improvement of clinical practices in this area.

METHODS

Study Design and Setting

This cross-sectional study was conducted in May and December of 2023.

Population and Samples of the Study

The study population consisted of intensive care nurses working in the adult intensive care units of Isparta City Hospital in May 2023 (n=218). Based on the known population sampling calculation, at least 140 intensive care nurses were included in the sample, with a 95% confidence interval and a 5% margin of error. The study was completed with the participation of 147 intensive care nurses. Nurses working in intensive care for at least 1 year were included in the study. Nurses who were on leave or had a medical report during the study period and those who did not agree to participate were excluded. This study was reported according to the strengthening the reporting of observational studies in epidemiology guidelines.

Data Collection

The data collection process involved using the information form and the scale for evaluating the importance of nutritional assessment, knowledge level on nutritional care, and perceived quality of nutritional care in nurses. The intensive care nurses completed the forms through a self-report mechanism. The data collection took approximately 15-20 minutes.

Information Form: The researchers prepared this form in accordance with the literature (9-15). The form included the socio-demographic characteristics of the nurses (age, gender, education level, etc.) and their professional experiences (type of intensive care unit, nutritional care training status, etc.).

The Scale For Evaluating the importance of Nutritional Assessment, Knowledge Level on Nutritional Care, and Perceived Quality of Nutritional Care in Nurses: The scale used to measure the importance of nutritional assessment, knowledge level regarding nutritional care, and perceived quality of nutritional care among nurses was developed by Theilla et al. (16), and its Turkish validity and reliability study was conducted by Gürlek Kısacık et al. (17). This scale consists of three sections: The first section includes seven items that evaluate nurses' attitudes toward the clinical importance of nutritional assessment and their perception of nutritional assessment as a fundamental component of nursing care. The total score ranged from 7 to 28, with higher scores indicating a more positive attitude toward the importance of assessing the nutritional status of patients. In the study by Gürlek Kısacık et al. (17), Cronbach's alpha values for the scale sections were found to be 0.82 for the attitude dimension, 0.63 for the knowledge level dimension, and 0.85 for the perceived quality of care dimension. The second section contains 10 reverse-scored items that assess nurses' knowledge levels regarding nutritional care. The total score ranged from 10 to 40, with higher scores reflecting greater knowledge in nutritional care. The third section consists of nine items that evaluate nurses' perceptions of the quality of nutritional care provided in their clinical settings. The total score ranged from 9 to 45, with higher scores indicating that nurses positively evaluate the quality of nutritional care in their units. Each section was scored and evaluated independently. In this study, Cronbach's alpha values were found to be 0.83 for the

attitude dimension, 0.82 for the knowledge level dimension, and 0.88 for the perceived quality of care dimension.

Ethical Considerations

Ethics committee approval was obtained from the İstanbul University Social and Humanities Research Ethics Committee (case number: 2023/110, decision date: 03.04.2023). Institutional permission was obtained from Isparta City Hospital. The study also gathered informed consent from the nurses by informing them about the study. Furthermore, the authors have granted permission for the scale to be used. This study conformed to the principles of the Declaration of Helsinki.

Statistical Analysis

The IBM Statistical Package for the Social Sciences (version 26.0) software was used for data analysis. Frequency and percentage distributions were used to evaluate categorical variables, whereas mean and standard deviation were used for continuous variables. Independent Samples t-test and One-Way ANOVA were applied to compare quantitative continuous data between independent groups. For significant differences identified in one-way variance analysis, the Bonferroni post-hoc test was used to determine the groups responsible for the difference. The relationships between the scales were examined using Pearson's correlation analysis. Multiple linear regression analysis was performed to determine whether there was an association between variables that were significantly correlated. A p-value of less than 0.05 was considered statistically significant.

RESULTS

It was determined that the average age of intensive care nurses was 35.16±8.17 years, with 59.9% (n=88) of nurses being female and 83% (n=122) holding a bachelor's degree. The nurses had an average of 12.88±8.34 years of experience, and 52.4% (n=77) had received training in nutritional practices. The self-assessed adequacy of nurses in providing nutritional care was observed to be 5.51±2.26 (Minimum-Maximum: 0-10) (Table 1).

It was found that the mean score of intensive care nurses regarding the Importance of Nutritional Assessment was 23.39±2.92, the mean score for Knowledge Level on Nutritional Care was 25.24±5.38, and the mean total score for Perceived Quality of Nutritional Care was 37.53±4.82 (Table 2).

A statistically significant difference was also detected in the Knowledge Level dimension based on the type of intensive care unit where the nurses worked (p<0.001) (Table 3).

A positive and significant relationship was found between the perceived quality of nutritional care among intensive care nurses and their attitudes toward nutritional care (p<0.001), as well as their self-assessed adequacy in providing nutritional care (p<0.05) (Table 4).

According to the results of the regression analysis, a significant relationship was identified between attitude and perceived quality of care (R=0.476). It was found that the variables of attitude and self-assessed adequacy in nutritional care explained 21.6% of the total variance in perceived quality of care

Table 1. Socio-demographic and professional characteristics of intensive care nurses

Variable	Group	n	%
Age	21-29	50	34.0
	30-39	43	29.3
	40-53	54	36.7
	Mean±SD/Min.-Max.	35.16±8.17	21-53
Gender	Female	88	59.9
	Male	59	40.1
Education level	High school graduate	10	6.8
	Bachelor's degree	122	83.0
	Master's degree	15	10.2
Intensive care	Anesthesia and reanimation	91	61.9
	Cardiovascular surgery	11	7.5
	General	45	30.6
Years of Experience in intensive care unit	1-5	36	24.5
	6-15	58	39.5
	16-25	43	29.3
	26-35	10	6.8
	Mean±SD/Min.-Max.	12.88±8.34	1-35
Status of receiving nutrition practice training	Yes	77	52.4
	No	70	47.6
Perceived competence level in nutritional care (0-10: None-highest level)	Mean±SD/Min.-Max.	5.51±2.26	1-10

SD: Standard deviation, Min.-Max.: Minimum-maximum, n: Number

Table 2. Mean Scores of the importance of nutritional assessment, knowledge, and perceived quality of care

Scale dimensions	Mean±SD	Min.-Max.
Importance of nutritional assessment	23.39±2.92	13-28
Nutrition care knowledge	25.24±5.38	12-39
Quality of nutrition care	37.53±4.82	20-45

SD: Standard deviation, Min.-Max.: Minimum-maximum

(Adj. R^2=0.216). Attitude toward nutritional care had a significant impact on the model (β=0.448), with each 1-unit standard deviation change in this variable leading to a 0.448-unit change in perceived quality of care (t=6.08, p<0.001). However, self-assessed adequacy in nutritional care did not have a significant effect on perceived quality of care (t=1.66, p>0.05) (Table 5).

DISCUSSION

Given the high prevalence of malnutrition in intensive care patients and its negative impact on patient outcomes (3,5), this study contributes significantly to the literature by evaluating nurses' knowledge levels, attitudes, and perceived quality of nutritional care. Although various studies have been conducted on the importance of nutritional care in the literature (8,9,10,15), particularly in our country, few have focused on the role of intensive care nurses in this process (11-15). This gap highlights the originality and importance of our study, as our findings are expected to contribute to both local and international clinical practice. Our findings revealed that although nurses generally have a positive attitude toward nutritional care, deficiencies exist in their knowledge levels and perceived quality of care, indicating that these gaps need to be addressed through educational interventions. The recognition of nutritional assessment as an integral part of nursing care and the positive

Table 3. Comparison of intensive care nurses' socio-demographic and professional characteristics with the importance of nutritional assessment, knowledge, and perceived quality of care

Variable	Group	n	Importance of nutritional assessment		Nutrition care knowledge		Quality of nutrition care	
			Mean±SD	t-F/p	Mean±SD	t-F/p	Mean±SD	t-F/p
Gender	Female	88	23.60±2.62	1.09* 0.278	24.88±5.23	-0.10* 0.319	37.25±4.84	-0.86* 0.391
	Male	59	23.07±3.32		25.78±5.59		37.95±4.81	
Education level	High school graduate	10	23.30±3.37	0.02** 0.980	27.60±5.19	1.17** 0.315	37.10±4.48	0.29** 0.745
	Bachelor's degree	122	23.41±2.50		25.15±5.39		37.46±4.90	
	Master's degree	15	23.27±5.26		24.40±5.33		38.40±4.53	
Intensive care unit worked in	Anesthesia and reanimation	91	23.68±2.58	1.45** 0.237	23.71±4.53	**12.53**** **0.000** **2.3>1*****	37.53±4.82	0.24** 0.790
	Cardiovascular surgery	11	23.45±2.46		30.00±5.85		36.64±2.06	
	General	45	22.78±3.57		27.16±5.66		37.76±5.32	
Status of receiving nutrition practices training	Yes	77	23.90±2.73	2.24* 0.026	25.39±5.72	0.36* 0.722	38.18±4.47	1.73* 0.086
	No	70	22.83±3.04		25.07±5.01		36.81±5.11	

*Independent Samples t-test, **One-way analysis of variance (ANOVA), ***Bonferroni test, values indicated with p<0.05 are statistically significant

Table 4. The correlation between the importance of nutritional assessment, knowledge of nutritional care, and quality of nutritional care

		Importance of nutritional assessment	Nutrition care knowledge	Quality of nutrition care	Perceived competence level in nutritional care
Importance of nutritional assessment	r	1.0			
	p	-			
Nutrition care knowledge	r	0.018	1.0		
	p	0.832	-		
Perceived quality of nutritional care	r	**0.460**	0.086	1.0	
	p	**0.000**	0.298	-	
Perceived competence level in nutritional care	r	0.102	0.063	**0.168**	1.0
	p	0.221	0.447	**0.042**	-

r: Pearson correlation coefficient, Values indicated with p<0.05 are statistically significant

Table 5. Multiple linear regression analysis							
Model Summary	**R**	**R^2**	**Adj. R^2**	**Standard error of estimate**	**F=21.10**	**P=0.000***	**DW=1.75**
	0.476	**0.227**	**0.216**	**4.270**			
Variables		Unstandardized coefficients		Standardized coefficients	T	P	VIF
		β	Standard error	Beta			
Constant		18.805	2.909	-	6.47	0.000	-
Independent variables	Importance of nutritional assessment	0.739	0.122	0.448	**6.08**	**0.000**	1.01
	Perceived competence level in nutritional care	0.261	0.157	0.122	1.66	0.099	1.01
Dependent variables	Quality of nutritional care					Cook: 0.09	

*One-Way analysis of variance results, Adj. R^2: Adjusted R^2, Cook: Cook distance, DW: Durbin-watson, VIF: Variance inflation factor

attitudes of intensive care nurses toward this issue are crucial for improving clinical outcomes (6,8,9). In our study, we determined that nurses exhibit a positive attitude toward the importance of nutritional assessment. Similarly, the literature emphasizes that intensive care nurses hold positive attitudes regarding the importance of nutritional assessment (11,12,14,16). Additionally, our study found that 52.4% of nurses had received nutritional support training, and those who had received this training were more likely to recognize the importance of nutritional assessment than those who had not. This indicates that education has a positive effect on nurses' attitudes. It was also found that nurses considered themselves moderately competent in providing nutritional care, a finding consistent with that of Kurt and Gürdoğan (12). In this study, 58.7% of the nurses had received in-service training, and 72.9% stated that they felt moderately competent in providing nutritional care. Although education has been shown to have a positive impact on nurses' attitudes, further research is needed to determine which educational programs are most effective and assess their long-term impact. Future studies should investigate the effectiveness of different types of training, such as in-service education, certification programs, and workshops, by examining their effects on both patient knowledge levels and patient outcomes. Additionally, factors such as the frequency and duration of these programs should be considered to enhance their effectiveness. In our country, legal regulations aimed at increasing nurses' responsibilities in providing nutritional care have led healthcare institutions to initiate improvement efforts in this area. Steps such as certification of nutritional support nurses and educational activities have strengthened the role of nurses in nutritional care (18). It is well known that educational interventions improve nurses' competencies in nutritional care, positively impacting patient outcomes and enhancing the overall quality of care (19). Therefore, healthcare institutions must prioritize such educational programs. Our findings also indicate that nurses working in cardiovascular surgery intensive care units have higher knowledge levels than those working in general intensive care and anesthesia and reanimation units. This difference may be attributed to the patient profile, complexity of care, and level of multidisciplinary collaboration in cardiovascular units. These findings suggest that educational programs should be tailored to the specific needs of each unit. Future research should explore how higher levels of knowledge in cardiovascular units impact patient outcomes, providing clearer insights into the link between educational interventions and clinical improvement.

It is widely recognized that intensive care nurses' knowledge level in nutritional care is crucial for adhering to clinical guidelines and ensuring safe care. In our study, nurses perceived the quality of nutritional care they provided as inadequate. Additionally, nurses who considered their knowledge of nutritional care to be sufficient had higher scores for perceived quality of care. These findings suggest that positive attitudes directly influence perceived quality of care, which is of significant importance for improving patient care. The study revealed that nurses' positive attitudes toward nutritional care were a significant predictor of perceived quality of care.

Study Limitations

This study has several limitations. Conducting the research in a single center limits the generalizability of the results. Additionally, given that the study is descriptive, the impact of interventions aimed at improving nurses' knowledge of nutritional care could not be evaluated. Reliance on self-reported data may also

introduce bias. Future studies should collect data from multiple centers and conduct intervention studies to evaluate the long-term effects of educational programs.

CONCLUSION

In conclusion, this study found that intensive care nurses have a positive attitude toward the importance of nutritional assessment, but there are deficiencies in their knowledge levels and perceived quality of care. To address these gaps, targeted educational programs should be implemented. Furthermore, nutrition management protocols should be revised with a multidisciplinary approach, and nurses should take a more active role in this process.

Ethics

Ethics Committee Approval: Ethics committee approval was obtained from the İstanbul University Social and Humanities Research Ethics Committee (case number: 2023/110, decision date: 03.04.2023). Institutional permission was obtained from Isparta City Hospital.

Informed Consent: The study also gathered informed consent from the nurses by informing them about the study.

Footnotes

Authorship Contributions

Surgical and Medical Practices: C.P.D., M.Ç., Concept: C.P.D., M.Ç., Design: C.P.D., M.Ç., F.N.C., Data Collection or Processing: C.P.D., F.N.C., Analysis or Interpretation: C.P.D., M.Ç., Literature Search: C.P.D., F.N.C., Writing: C.P.D., M.Ç., F.N.C.

Conflict of Interest: No conflict of interest was declared by the authors.

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