

Role of Nurses in Nutritional Assessment of Patients with Cancer

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Nutritional
Assessment of
Patients with
Cancer

ABSTRACT

Objective: To assess role of nurses in nutritional assessment of patient with cancer.

Study Design: Descriptive cross-sectional study

Place and Duration of Study: This study was conducted at the Oncology Center, Middle Euphrates Oncology Teaching Hospital, Iraq from 12th March 2025 to 31st May 2025.

Methods: Non-probability- convenience sampling method used; the sample consist of 170 nurses who work in the oncology units were selected and number of the sample determined by using Richard Geiger's equation. A specific questionnaire was prepared after an extensive review of related literature in the topic of interest phenomena. The questionnaire was divided into three parts. Content validity of the instrument is obtained by panel of 10 experts from multidisciplinary field, who have not less than 7 years of experience in their specialty. Self-report method used to collect the data by nurses in different shifts (morning and evening). The participants need about 15 to 20 minutes to complete the questionnaire. Kaiser-Meyer-Olkin (KMO) test factors analysis was used to determine the validity which recorded (0.7) which is statistically expected.

Results: Majority of females between 20-30 years, Bachelor's holders and live in urban area, regarding overall general information about nutritional assessment results recorded a fair level of knowledge, no significant association between nurse's role and their demographical characteristics.

Conclusions: The overall general information about nutritional assessment results recorded a fair level of knowledge.

Key Word: Cancer, Role, Nurses, Nutritional assessment

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INTRODUCTION

Patients at risk of malnutrition can be identified through early nutritional risk screening. It is recommended to conduct screenings at the time of diagnosis or hospital admission, as suggested by recent literature. Screenings should be repeated during therapy to refer patients for evaluations if necessary. Incorporating screening for malnutrition into the care of cancer patients is supported by evidence. The ideal under nutrition screening instrument would be quickly and easily filled out, cost effective, very sensitive, and have great specificity.¹ Among the most popular screening methods, you might find the Malnutrition Screening Tool (MST), Nutritional Risk Screening (NRS-2002) method, Malnutrition Universal Screening Tool (MUST) and Mini-Nutritional Assessment (MNA) method.²

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In order to determine the severity and root causes of malnutrition, a personalized nutritional assessment is required. Additionally, nutritional assessment is a multi-step procedure that requires more information in order to draw conclusions about nutritional status. Medical professionals should be familiar with the benefits and drawbacks of each nutritional evaluation instrument. Subjective global assessment (SGA) and objective data assessment (ODA) are the two main types of nutritional screening and evaluation procedures.³

Subjective global assessment is fast, reproducible, and has little inter-observer variation when done by qualified staff. It needs: Medical history: In addition to medical history, document changes in body weight, compare current food consumption to normal, record digestive symptoms over the past two weeks, and assess functional capacity and metabolic requirements. Also, Physical examination, including manual subcutaneous fat and muscle loss investigation and oedema and ascites testing.²

Global assessment was either obtained directly from the patients themselves or, in cases where this was not feasible, from their accompanying family members and patients were categorized as well-nourished, moderately malnourished, or severely malnourished. Objective information gathered from anthropometric, laboratory, and bioelectrical impedance analysis (BIA) measurements.^{4,5}

A method for analyzing bioelectric impedance vectors (BIVA) Applied to the evaluation of total body fat. Actually, it permits a more precise comprehension of hydration status and cell mass, which can be altered by disease states. Finding the phase angle also appears to be a criterion for predicting the outcome in cancer patients. Another option for determining lean mass is dual-energy X-ray absorptiometry (DXA), a radiation-safe method that directly measures different body parts. The two most reliable methods for determining a person's body composition are magnetic resonance imaging (MRI) and computed tomography (CT). In order to get a good idea of how much muscle there is in the skeleton, most people use tomography images of the third lumbar vertebra, or L3. Total skeletal muscle and fat tissue have been shown to correlate with a single abdomen slice (L3) on MRI. Yet, large-scale implementation of either method is now impossible.⁶

Anthropometric measurements including weight, height, body mass index (BMI), triceps fold thickness (TSF), mid-arm circumference (MAC), arm muscle circumference (MAMC) and calf circumference (CC).⁵ Adult men and women alike can benefit from using the body mass index (BMI), a well-liked and accurate anthropometric measure of obesity and nutritional and health status. Additionally, it is a solid predictor of the onset of many diseases associated with excess body fat uses a person's weight and height to calculate their body fat percentage.⁷

As a straightforward indicator of muscular strength, grip strength is suggested to be a strong indicator of sarcopenia. In indirect calorimetry, the creation of carbon dioxide and the consumption of oxygen are used to determine the amount of energy expended. The amounts of carbs, proteins, and lipids that are oxidized determine the energy equivalent of carbon dioxide production and oxygen intake. Utilisation of nitrogen in urine allows for the calculation of protein oxidation. Because swallowing is associated with obtaining food and protecting the respiratory tract, its loss leads to starvation and aspiration pneumonitis. the most reliable methods for assessing swallowing function include video fluorography and video endoscopic assessment of swallowing.³

Nurses help identify nutritionally at-risk individuals. Nurses usually undertake the first analysis upon admission to identify patients who need nutrition assessment and assistance. Nurses' nutrition evaluation in the initial few hours of hospitalization lays the scene for quality care. The nurse usually uses proven nutrition screening methods to reliably identify and refer patients to the registered dietitian nutritionist (RDN).⁸

When dietitians aren't present, as in the evenings, on weekends, or during discharge instruction, nurses are more likely to interact with patients and their families and can serve as a resource for nutrition. Dietitians may only be available for consultations in home care and

wellness settings. Hospitalized patients with minimal to moderate nutritional risk may receive basic nutrition education from their nurses, who may also supplement the dietician's counselling on the subject. When it comes to nutritional care, nurses are heavily involved in every step.⁹

When chemotherapy patients experience difficulties swallowing, the nurse takes on a crucial role in their care. When planning interventions, it's important to think about the patient's prognosis, treatment, gastrointestinal system function, eating abilities, and preferences. To maximize their effectiveness, nutritional interventions should be initiated right once and integrated into the care plan. To do this, it is necessary to regularly evaluate all patients for dietary issues and weight loss both before and after treatment.¹⁰

METHODS

This descriptive cross-sectional study was conducted at Oncology Center, teaching hospitals in the Middle Euphrates Oncology Teaching Hospital (Al-Imam Al-Sadiq, Marjan Medical City /Babylon Oncology Center, Al-Hussane /Imam Hussein Center for Cancer and Hematology Treatment and National Hospital for Oncology and Hematology) from 12th March 2025 to 31st May 2025. Non-probability- convenience sampling method used; the sample consist of 170 nurses who work in the oncology units were selected and number of the sample determined by using Richard Geiger's equation. A specific questionnaire was prepared after an extensive review of related literature in the topic of interest phenomena. The questionnaire was divided into three parts: Part one: Demographical characteristics consist of four items. Part two: This part consist one scale: nurses' role in nutritional assessment includes 15 items, adapted from Miriam-Theilla et al¹¹, translated to Arabic language to facilities data collection. Part three: This part consists 16 questions to assess the knowledge of nurses working in oncology centers about nutritional assessment, these questions adapted from sources online, translated to Arabic language to facilities data collection. Content validity of the instrument is obtained by panel of 10 experts from multidisciplinary field, who have not less than 7 years of experience in their specialty. Alteration and modification carried out in compliance to advise and opinion of the expert in order to reach the proper degree of understanding, clearness and relevance of the questionnaire to obtained. Nurses who participated in the pilot study were excluded from the original sample. Self-report method used to collect the data by nurses in different shifts (morning and evening). The participants need about 15 to 20 minutes to complete the questionnaire. Kaiser-Meyer-Olkin (KMO) test factors analysis was used to determine the validity which recorded (0.7) which is statistically expected.

RESULTS

There were 98 (57.6%) females while 72 (42.4%) males. Majority of participants 129 (75.9%) between 20-30 years old, followed by 30 (17.6%) between 31-40 years and only 11 (6.5%) between 41-50 years. More than half of the participants 89 (52.4%) held bachelor's degree in nursing, 67 (39.4%) had diploma, 13 (7.6%) had completed secondary school nursing, and 1 (0.6%) held postgraduate degree. One 163 (95.9%) resided in urban areas and 7 (4.1%) coming from rural locations (Table 1).

The results show the level of nurses' roles in nutritional assessment was high, with a mean of 2.58 and the high level in items number 1 with a mean of 2.91, while the lowest level in item number 14 with a mean of 2.16 (Table 2).

Table 3 showed the level of general information about nutritional assessment based on participants' responses to 16 questions, assessing knowledge and

understanding of key nutritional assessment principles was fair, with a mean of 1.37 and the high level in items number 5 with a mean of 1.76, while the lowest level in item number 16 with a mean of 1.16. Overall general information regarding nutritional assessment reveals that a majority of nurses 55.9% were assessed at a fair nutritional level, with a mean of 21.94 (Table 4).

The data reveals that related to sex, variable the statistical is 38.937 at 44 degrees of freedom, yielding P-value 0.688, these results indicating no significant association (NS). Similarly, for the variable age, the result is 71.696 at 88 degrees of freedom, with P-value 0.897, no significant association (NS) recorded. However, for the variable education qualification, the test statistic is 71.705 with 44 degrees of freedom, yielding p-value of 0.015, which is statistically significant (S), implying that the nurses' role is significantly associated with their education qualification (Table 5).

Table No.1: Demographical characteristics of the nurses (N=170)

Categories		No.	%
Gender	Male	98	57.6
	Female	72	42.4
Age (years)	20-30	129	75.9
	31-40	30	17.6
	41-50	11	6.5
Educational qualification	Secondary School Nursing	13	7.6
	Diploma	67	39.4
	Bachelor	89	52.4
	Postgraduate	1	.6
Residents	Urban	163	95.9
	Rural	7	4.1

Table No.2: Response of nurses related to their role in nutritional assessment

Questions	Disagree		Neutral		Agree		Mean	St.d	Level
	No.	%	No.	%	No.	%			
Nutritional assessment is important to determine the nutritional needs of the patient	1	.6	14	8.2	155	91.2	2.91	.312	High
Ongoing assessment of the patient's nutritional status is important to identify nutrient deficiencies	4	2.4	26	15.3	140	82.4	2.80	.456	High
Nurses are responsible for notifying the physician if a patient does not eat a severed meal	21	12.4	65	38.2	84	49.4	2.37	.695	Moderate
It is important to weight patients upon admission/visit	6	3.5	29	17.1	135	79.4	2.76	.505	High
Nutritional assessment should be repeated at each visit	8	4.7	40	23.5	122	71.8	2.67	.563	High
To ensure that the patient is receiving adequate nutrition ongoing assessment should take place	13	7.6	50	29.4	107	62.9	2.55	.634	High
Nutritional status effected by nursing care	7	4.1	41	24.1	122	71.8	2.68	.550	High
Patients receive complete nutritional care	17	10.0	45	26.5	108	63.5	2.54	.672	High

from dietician									
Our nursing staff monitors patients' nutritional status	19	11.2	57	33.5	94	55.3	2.44	.688	High
The nutritional assessment is performed methodically and professionally	11	6.5	49	28.8	110	64.7	2.58	.612	High
Patient require a dietician's care receive a consultation with minimal delay	11	6.5	45	26.5	114	67.1	2.61	.609	High
Nutritionists address nutritional aspect of patient care	11	6.5	43	25.3	116	68.2	2.62	.606	High
Patients receive their meals in appropriate manner as per regulations	16	9.4	53	31.2	101	59.4	2.50	.664	High
Nurses are aware whether or not a patient has completed his meal	34	20.0	74	43.5	62	36.5	2.16	.735	Moderate
Information on patient's nutritional state is effectively transmitted among health care staff	17	10.0	50	29.4	103	60.6	2.51	.673	High
General mean and standard deviation							2.58	0.598	High

High = 2.4-3, Moderate = 1.7-2.39, Low = 1-1.69

Table No.3: Response of the nurses' knowledge related to nutritional assessment for patients with cancer

Questions	False		True		Mean	St.d	Level
	No.	%	No.	%			
When assessing a patient's nutritional status, the nurse recalls that the best definition of optimal nutritional status is sufficient nutrients that?	100	58.8	70	41.2	1.41	.494	Fair
For the first time, the nurse is seeing a patient who has no history of nutrition -related problems the initial nutritional screening should include which activity?	119	70.0	51	30.0	1.30	.460	Poor
During a nutritional assessment, why is it important for the nurse to ask a patient what medications he or she is taking?	96	56.5	74	43.5	1.44	.497	Fair
When a patient tells the nurse that his food simply does not have any taste anymore. The nurse's best response?	81	47.6	89	52.4	1.52	.501	Fair
The nurses are aware that the most common anthropometric measurement include?	41	24.1	129	75.9	1.76	.429	Good
Nurses perform a triceps skinfold assessment as	139	81.8	31	18.2	1.18	.387	Poor
To determine total body fat at home, the nurse instruction the patient to obtain measurements of?	97	57.1	73	42.9	1.43	.496	Fair
assessment on 49-year-old women who has imbalanced nutrition as a result of dysphagia, which data would be expect to fined	97	57.1	73	42.9	1.43	.496	Fair
nutritional assessment on an 80yearold patient. physiologic changes can directly affect the nutritional status as	102	60.0	68	40.0	1.40	.491	Fair
A tool to rapidly and simply evaluate whether the patient is at risk to be or to become malnourished?	70	41.2	100	58.8	1.59	.494	Fair
Adequate nutritional state is determinant by?	133	78.2	37	21.8	1.22	.414	Poor
Skin fold measurements for an estimation of body fat content are usually performed by testiry?	91	53.5	79	46.5	1.46	.500	Fair
The most proper way to detect malnutrition is?	136	80.0	34	20.0	1.20	.401	Poor
a good parameter for assessment of malnutrition because it has a short half live time and it is not affected by hydration status and is independent of liver function?	130	76.5	40	23.5	1.24	.425	Poor
Renal and hepatic functions is directly influenced on the?	135	79.4	35	20.6	1.21	.406	Poor
Nitrogen balance can be used for estimation of the adequacy of.	143	84.1	27	15.9	1.16	.367	Poor
General mean and standard deviation					1.37	.453	Fair

Good =1.67-2, Fair= 1.34- 1.66 and Poor =1-1.33

Table No.4: Overall nurses' knowledge about nutritional assessment (n=170)

Level	Frequency	Percent	Mean	Std. Deviation
Poor level (16-21.33)	72	42.4	21.9412	2.23926
Fair level (21.34-26.67)	95	55.9		
Good level (26.68-32)	3	1.8		

Table No. 5: The association between nurses' role and their demographical characteristics

Nurses Role	Value	Df	P. Value	Significance
Gender	38.937	44	.688	NS
Age	71.696	88	.897	NS
Education	71.705	44	.015	S

DISCUSSION

In this study 75.9% nurses were between 20-30 years. This finding supported by study carried out by El-Khawaga¹² demonstrated that (53.3%) of the nurses age was ≤ 30 years. As the point view, the most of participating nurses were young, because these vital places require physical effort, in addition to being more receptive to participation and more capable of handling research tools such as questionnaires. In the present study, 57.6% were females, these finding are agreed with the study was performed by Miriam-Theilla et al¹¹, that demonstrate the majority of the nurses were female (86%). The logical interpretation of this point goes under that female participated more than males this is due to the fact that women constitute the majority in the nursing profession in many health institutions, which increases the likelihood of their greater representation in the study sample.

This study showed that 52.4% were bachelor degree. This result is similar with the findings of Döngel et al¹³, who found that 70.3% of nurses were bachelor holder. The results of the study showed a greater number of bachelor's degree holders due to the recent years witnessing an expansion in the opening of private colleges alongside government colleges. In addition, graduates of nursing secondary school nursing and diploma have become more willing to complete their studies to obtain a higher degree and to increase their scientific and practical knowledge and experience.

In the current study, 95.9% of nurses lived in urban areas. This finding supported by study carried out in Iraq by Armeh¹⁴, showed the most nurses in each group study-control 76.7% and 60% respectively lived in urban areas. Due to the increase in the number of rural residents moving towards cities on the one hand, and on the other hand, large areas are transforming from their rural nature to urban nature due to the increase in construction and development. According to the results of the study related to nurse's role in nutritional assessment recorded a high level. This is disagreed with a study conducted in Jordan by Al Kalaldehy & Shahein¹⁵, found that nurses demonstrate a moderate level of knowledge about their role in nutritional

assessment, despite their knowledge of the importance of nutritional assessment from a theoretical perspective, but their practical practices were below the required level.

The overall role of nurses in nutritional assessment, 73.5% demonstrated a high level with scoring between 36-45 points. These results in the same line with study carried out by Söderhamn¹⁶, who found the nurses have a lot of knowledge about their responsibility towards nutritional assessment. The results of the study, nutritional assessment may be due to several reasons, the most important of which is that nurses in these departments may be aware of the complications of malnutrition, which may be dangerous and affect all body systems. Therefore, they have an interest in nutritional assessment issues and because they have acquired practical experience as a result of their continuous dealing with cancer patients who suffer from malnutrition, which requires nutritional intervention to improve their health condition.

Regarding to the nurse's knowledge about nutritional assessment among nurses recorded a fair level of knowledge, these finding disagreed with the study carried out in Iraq by Abdhassan¹⁷ found that nurse's knowledge about nutritional assessment was at a good level.

The results of the study showed a fair level of knowledge. These results are disagreed with study carried out by Gaber & AI-Ashour¹⁸ found a poor level of knowledge. The results showed an acceptable level of knowledge due to the clinical experience gained during work, as well as the tendency of some nurses to self-educate through available scientific sources to increase their knowledge, especially among nurses interested in improving nutritional status for patients.

There is no significant ($P > 0.05$) association between nurse's role and their demographical characteristics related to (sex, age) in. indicating that these factors do not significantly influence knowledge regarding nutrition, while significant founded between nurse's role and their education qualification. These results go along with study carried out by Abdhassan¹⁷ who find statistically significant association between nurses' knowledge and education qualification.

CONCLUSION

The nurses' role toward nutritional assessment statistical results recorded a high level. Overall general information about nutritional assessment results recorded a fair level of knowledge.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Noor Ali Abdul Hussein, Sahar Adham Ali
Drafting or Revising Critically:	Noor Ali Abdul Hussein, Sahar Adham Ali
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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