

Nurses' Knowledge Regarding Anthropometry Measurement and Clinical Assessment for Patient Undergoing Hemodialysis

AZHAR HAMZA GABER¹, IBRAHIM A. AI-ASHOUR²

¹MSc Student, University of Kufa, Faculty of Nursing, Adult Nursing Department, Iraq

²Assistant Professor, University of Kufa, Faculty of Nursing, Adult Nursing Department, Iraq.

Correspondence to: Azhar Hamza Gaber, Email: azhaarh19@gmail.com

ABSTRACT

Objective: To Assess of nurses' knowledge regarding anthropometry measurement and clinical assessment. And to find out relationship between nurses' knowledge and their demographic data.

Methodology: A descriptive study was carried out in order to achieve the stated objective, The study starting from March 2^{ed}, 2022 until the April 1st, 2022. The study was conducted in AL-Najaf AL-Ashraf Hospital, in Hemodialysis Centers of Al-Sadder Medical City; Al-Hakeem General Hospital and Al-Najaf-Teaching-Hospital. Non probability (purposive) sample was selected (80) of nurses those who work in Hemodialysis Centers. The sample have been selected according to the following criteria (Both gender of nurses, All level of education. Nurse work in Hemodialysis Centers at least 6month). A Questionnaire was designed and constructed by researcher to assess the nurses' knowledge regarding anthropometry measurement and clinical assessment. the questionnaire was prepared and constructed of two parts, PartI: Demographic Data: wich composed of (6) items which include age, gender, level of education, years of experience, participate in training course related to nutritional status assessment, developed self independently and PartII: Nurse's Knowledge regarding A-Anthropometry measurement which consist from (25) items, which include questions about how to measurement and calculate weight, hight, Body mass index, skin fold thickness, Mid upper arm circumference and Waist \Hip Ratio, And C-Clinical assessment which consist from (15) items, which include questions about clinical manifestation related to normal and abnormal nutritional status assessment. Data was analyzed by using of descriptive data analysis (frequencies, percentages, mean, standard deviation, and graphical presentation) and by using of inferential analysis, ANOVA test).

Results: According to the study's findings, the majority of the study sample had poor knowledge of anthropometry measurement and clinical assessment. Additionally, there was a highly significant difference between nurses' knowledge and their age group and years of experience at a p-value of less than 0.05. Additionally, there are no significant differences in nurses' knowledge based on their gender, level of education, participation in training courses, or develop themselves independently. According to the study's findings, (36.3%) of the population is between the ages of 26 and 30. The study sample reveals that women make up 62.5 percent of the sample gender, while men make up 37.5%. About (38.8)% and (35)% of the study sample's participants, respectively, had nursing institute qualifications.

Conclusions: According to the study's findings, nurses who work in hemodialysis centers had poor scores on both the clinical assessment knowledge test and the anthropometry measurement test. Additionally, a large percentage of nurses who work in hemodialysis centers revealed poor staff nurses knowledge on nutritional status assessment.

Recommendation: They need to be prepared for the educational program for nurses working in hemodialysis centers, particularly the nutritional status assessment for hemodialysis patients educational program, which concentrated on how to perform the anthropometry measurement procedure and how to distinguish between the signs and symptoms of malnutrition patients for all new and experienced nurses working in hemodialysis centers. Additionally, hospital policies should serve as a standardized instrument for periodic evaluations of nurses' knowledge of and attitudes toward nutritional status assessment practice in hemodialysis centers.

INTRODUCTION

Nurses must have the appropriate expertise and genuine concern for nutritional care in order to improve the nutritional status of hospitalized patients and prevent malnutrition. Florence Nightingale (1859) advised nurses to pay close attention to their diets as well. Every attentive observer of the sick will concur with her statement that thousands of patients per year go hungry in the midst of plenty due to a lack of attention to the methods that are the only ones that allow them to consume food. I would advise the nurse to think carefully about the food of her patient. Think about and keep in mind how much he has had and how much he should have right now ⁽¹⁾ An important instrument in many scientific fields is anthropometry, which is Greek for "measuring of humans." Phenotyping patients across the lifespan is one of the clinical nutrition applications used to assess growth, body composition, treatment response, and health concerns. Simple anthropometric instruments like flexible measuring tapes and calipers are progressively being replaced by quickly evolving digital technology gadgets ⁽²⁾ Height, weight, mid-upper arm circumference, body mass index (BMI), waist, hip, and limb circumferences to measure adiposity, and skinfold thickness make up the basic components of anthropometry. To gather useful data from anthropometric measures, accurate measurement equipment is needed. Weightscale, Stadiometer, Skinfoldcalipers, and Nonstretchable Tape Measure are among the usual pieces of equipment needed to take anthropometric measurements ^(3,4,5,6) Important information

regarding the dietary health of dialysis patients is obtained from anthropometric and body composition measurements. Anthropometric measures were taken as part of the Modification of Diet in Renal Disease (MDRD) and HEMO investigations to describe body size, fatness, and leanness in dialysis patients. Dialysis patients have unique anthropometric challenges, such as reduced functional status and increased comorbidity, that make nutrition assessment methods difficult⁽⁷⁾. Clinical assessment an assessment of the patient's overall health and a thorough inspection of their skin, hair, and teeth. This includes checking for pallor, performing a clinical assessment of body fat reserves, checking for muscle loss, edema, skin rashes, hair thinning, and signs of specific dietary deficiencies. Examples of specific indicators include the flag sign or the loss of hair color linked to a period of starvation, followed by recovery and the restoration of normal hair color and texture. Follicular hyperkeratosis and night blindness are brought on by vitamin A deficiency^(8,9)

METHODOLOGY

In order to find, select, process, and analyze data regarding a study topic, a research method must describe the methods utilized to collect the data. For the purpose of achieving the stated goal, a descriptive study was conducted. Dec. 14, 2021, through July 30, 2022: Study period. in AL-Najaf AL-Ashraf Hospital, in Hemodialysis Centers of Al-Sadder Medical City; Al-Hakeem General Hospital and Al-Najaf-Teaching-Hospital. An 80-nurse

nonprobability (purposive) sample from the Al-Sadder Medical City's, Al-Hakeem General Hospital, and Al-Najaf Teaching Hospital /hemodialysis center was chosen. The sample was chosen based on the following criteria: All levels of education, both genders of nurses a nurse with at least six months' experience working in hemodialysis centers; Al-Najaf Teaching Hospital and Al-Hakeem General Hospital. In order to assess the nurses' knowledge of nutritional status assessment (Anthropometry measurement and clinical assessment) using a (ABCD) assessment multiple choice questionnaire, a questionnaire was prepared and constructed by the researcher. The questionnaire was prepared and constructed of two parts: Demographic Data It consists of six components: age, gender, education level, years of experience, participation in a course on nutritional status assessment, independent development, and nurse's knowledge of nutritional status assessment (ABCD), A-Anthropometry measurement consists of (25) items, including questions regarding how to measure and compute weight, height, body mass index, skin fold thickness, mid upper arm circumference, and waist-to-hip ratio. C. Clinical assessment which consists of 15 items and asks about clinical symptoms associated to a normal and abnormal nutritional status assessment. A According to the following patterns, the items have been rated and scored: When determining whether an answer is true or correct, the scale uses a rating of (2). For items with a false or wrong response, the scale reads as (1). Twelve experts were shown a draft of the questionnaire that had been created. All of the experts were invited to assess the questionnaire; their average years of experience were 18.666 and their Standard Deviation (S.D.) was 8.835. The researcher conducted in-person interviews with every nurse. Each interview aims to inform the nurse about the study and how to complete the questionnaire in order to gain their acceptance for participation. Each nurse answered all of the questions in between 15 and 20 minutes. In the hemodialysis center, data were gathered from nurses working the morning shift and those working the nighttime shift. While the nurse was resting and not interfering with him at work, the interview was being performed. From March 2nd, 2022, through April 1st, 2022, data was collected.

Table 1: Distribution of the observed frequencies and percent of Demographical Characteristics for Study Sample

Variables	Rating	Frequency	Percent
Age Group	<= 25.00	28	35.0
	26.00 - 30.00	29	36.3
	31.00 - 35.00	9	11.3
	36.00 - 40.00	9	11.3
	41.00 - 45.00	2	2.5
	46.00+	3	3.8
Mean + S.D		29.18±6.49	
Gender	Male	30	37.5
	Female	50	62.5
Educational Level	S. school	21	26.3
	Institute	31	38.8
	College	28	35.0
Years of Services	<= 1.00	12	15.0
	2.00 - 8.00	46	57.5
	9.00 - 15.00	15	18.8
	16.00 - 22.00	4	5.0
	23.00 - 29.00	3	3.8
Mean + S.D		6.80±5.96	
Training course	Yes	23	28.8
	No	57	71.3
Developed	No	13	16.3
	Internet	48	60.0
	Library	3	3.8
	Colleagues	16	20.0

The distribution of the study sample (nurses) is shown in table (4-1) based on demographic data, with a high percentage of age group (approximately 36.3%) of age group being from (26-30)years. According to the study sample, females make up 62.5 percent of the sample population while men make up 37.5%. About 38.8% of the study sample's participants had a nursing institute degree, and 35% had a nursing college degree. For the study sample, there were about (57.5%) of years of service ranging from (2 to 8) years. 71.3 percent of the sample's participants in the training course responded "no" to the question. The nurse who developed self-knowledge independent was(60%) by internet. 60% of the nurses who independently developed their own expertise did it internet.

RESULTS

Table 2: Summary Statistics for Nurses' Knowledge toward Nutritional Status and Initial assessment for the Studied Anthropometry Measurement.

Items	Responses	Frequency	Percent	M.S	S.D	R.S.	Asses-s.
Q1:TheAnthropometry measurement components are	False	33	41.3	1.58	0.49	79.0	Pass
	True	47	58.8				
Q2:When you weight the patient, Do you ask the patient	False	30	37.5	1.62	0.48	81.0	Pass
	True	50	62.5				
Q3: When you weight the patient, Do you ask the patient to	False	30	37.5	1.62	0.48	81.0	Pass
	True	50	62.5				
Q4:During measure the height you should use	False	41	51.3	1.48	0.50	74.0	Fail
	True	39	48.8				
Q5:During measure height ask the patient to	False	31	38.8	1.61	0.49	80.5	Pass
	True	49	61.3				
Q6: During measures height, you should make sure the shoulder blades, buttocks and heels touch the	False	35	43.8	1.56	0.49	78.0	Pass
	True	45	56.3				
Q7:The Body Mass Index measurement is based on	False	56	70.0	1.30	0.46	65.0	Fail
	True	24	30.0				
Q8: Means Severe malnutrition if body mass index values are	False	43	53.8	1.46	0.50	73.0	Fail
	True	37	46.3				
Q9: Means Moderate malnutrition if body mass index values are	False	53	66.3	1.33	0.47	66.5	Fail
	True	27	33.8				
Q10: Means Mild malnutrition if body mass index values are	False	49	61.3	1.38	0.49	69.0	Fail
	True	31	38.8				
Q11: If body mass index values are ≥ 30.0kg\m ²	False	74	92.5	1.07	0.26	53.5	Fail
	True	6	7.5				
Q12: If body mass index values are ≥ 18.5kg\m ² to < 25.0kg\m ²	False	41	51.3	1.48	0.50	74.0	Fail
	True	39	48.8				
Q13: If body mass index values are ≥ 25.0kg\m ² to < 30.0m ² kg means Overweight	False	40	50.0	1.50	0.50	75.0	Pass
	True	40	50.0				
Q14:Mid Upper Arm Circumference is the circumference of	False	48	60.0	1.40	0.49	70.0	Fail
	True	32	40.0				
Q15: Where measuring of mid upper arm circumference is done by	False	23	28.8	1.71	0.45	85.5	Pass

a tape measurement	True	57	71.3				
Q16: The Mid Upper Arm Circumferences cutoffs are used to classify nutritional status in Adults	False	29	36.3	1.63	0.48	81.5	Pass
	True	51	63.8				
Q17: If mid upper arm circumferences measured value is < 185 mm mean patient with	False	66	82.5	1.17	0.38	58.5	Fail
	True	14	17.5				
Q18: If mid upper arm circumferences measured value is \geq 220 mm mean	False	48	60.0	1.40	0.49	70.0	Fail
	True	32	40.0				
Q19: The mid upper arm circumferences is measured if the patient has edema or ascites.	False	48	60.0	1.40	0.49	70.0	Fail
	True	32	40.0				
Q20: Are used to measure the thickness of the skin and subcutaneous fat using constant pressure applied over a known area	False	46	57.5	1.42	0.49	71.0	Fail
	True	34	42.5				
Q21: The Skin fold measurements can be taken at different sites of muscles area	False	54	67.5	1.32	0.47	66.0	Fail
	True	26	32.5				
Q22: The value of the Thickness Skin Fold is that of assessing	False	44	55.0	1.45	0.50	72.5	Fail
	True	36	45.0				
Q23: The Skin Fold Thickness measurement should be repeated	False	49	61.3	1.38	0.49	69.0	Fail
	True	31	38.8				
Q24: The Waist \Hip Ratio is measured at the level of	False	44	55.0	1.45	0.50	72.5	Fail
	True	36	45.0				
Q25: The Waist \Hip Ratio is taken at	False	50	62.5	1.37	0.48	68.5	Fail
	True	30	37.5				

M.S.= Mean of score, S.D.= standard deviation, R.S. = relative sufficiency, Assess. = Assessment, Fail= less than (1.5), Pass = (1.5) and more.

The mean score for the anthropometry assessment is shown in Table (4-2) to be more than 1.5 or equal for questions 1, 2, 3, 5, 6, 13, 15, and 16, and less than 1.5 for questions with a fail result.

Table 3: Final Assessment for Nurses' Knowledge toward Nutritional Status regarding (Anthropometry Measurement).

anthropometry Final Assessment	Response	Frequency	Percent	M. S	S.D	Assessment
	False	50	62.5	1.45	0.14	Poor
	True	30	37.5			
Total	80	100.0				

M.S.= Mean of score, S.D.= standard deviation, , Assess. = Assessment, poor= less than (1.5), good = (1.5) and more.

This table demonstrates that the mean score for the final anthropometry assessment is below 1.5, which is poor..

Table 4: Summary Statistics for Nurses' Knowledge toward Nutritional Status and Initial assessment for the Studied Clinical Assessment.

Items	Responses	Frequency	Percent	M.S	S.D	R.S.	Assess.
Q1: Clinical assessment of nutritional status includes checking for malnutrition by	False	45	56.3	1.43	0.49	71.5	Fail
	True	35	43.8				
Q2: The clinical assessment of nutritional status includes taking	False	48	60.0	1.40	0.49	70.0	Fail
	True	32	40.0				
Q3: The General Clinical Examination of nutritional status with special attention to organs such as	False	31	38.8	1.61	0.49	80.5	Pass
	True	49	61.3				
Q4: The signs of hair Spare and thin and hair easy to pull out are signs of the	False	49	61.3	1.38	0.49	69.0	Fail
	True	31	38.8				
Q5: Bleeding and spongy gums are signs of the deficiency of	False	30	37.5	1.62	0.48	81.0	Pass
	True	50	62.5				
Q6: Is a sign of the Vitamin A, B12, Folic acid and Niacin deficiency	False	58	72.5	1.27	0.44	63.5	Fail
	True	22	27.5				
Q7: Are the first clinical signs of Vitamin A deficiency	False	48	60.0	1.40	0.49	70.0	Fail
	True	32	40.0				
Q8: Indicates severe Vitamin A deficiency requiring medical emergency	False	57	71.3	1.28	0.45	64.0	Fail
	True	23	28.8				
Q9: That Night blindness, photophobia, blurring of vision are Signs of	False	42	52.5	1.47	0.50	73.5	Fail
	True	38	47.5				
Q10: The Spooning of nails sign of	False	42	52.5	1.47	0.50	73.5	Fail
	True	38	47.5				
Q11: That Nail Transverse lines indicate	False	57	71.3	1.28	0.45	64.0	Fail
	True	23	28.8				
Q12: That Goiter confirms Iodine deficiency	False	31	38.8	1.61	0.49	80.5	Pass
	True	49	61.3				
Q13: Is a sign of severe malnutrition	False	66	82.5	1.17	0.38	58.5	Fail
	True	14	17.5				
Q14: The Wasting of muscles assures	False	45	56.3	1.43	0.49	71.5	Fail
	True	35	43.8				
Q15: That Glossitis, Cellulitis are signs of Deficiency of Riboflavin, Niacin, Folic acid, and proteins	False	29	36.3	1.63	0.48	81.5	Pass
	True	51	63.8				

M.S.= Mean of score, S.D.= standard deviation, R.S. = relative sufficiency, Assess. = Assessment, Fail= less than (1.5), Pass = (1.5) and more.

Tables (4-6): Shows the results of the studied clinical assessment for questions (Q1, Q2, Q4, Q6, A7, Q8, Q9, Q10, Q11, Q13, and Q14). One question is assessed as failing if the mean score is less than 1.5, while the other question is assessed as passing if the mean score is 1.5 or greater.

The mean score in this table for the Clinical Final Assessment is less than 1.5, which is poor..

This table demonstrates that the final mean score for nurses' knowledge of nutritional status is less than 1.5, which is poor.

Table 5: Summary Statistics for Nurses' Knowledge toward Nutritional Status (Clinical Assessment).

Clinical Final Assessment	Response	Frequency	Percent	M. S	S.D	Assessment
	False	46	57.5			
	True	34	42.5			
	Total	80	100.0			

M.S= Mean of score, S.D= standard deviation, R.S. = relative sufficiency, Poor= less than (1.5), Good = (1.5) and more.

Table 6: Final Assessment for Nurses' Knowledge toward Nutritional Status

Final Assessment	Response	Frequency	Percent	M. S	S.D	Assessment
	False	46	57.5			
	True	34	42.5			
	Total	80	100.0			

M.S= Mean of score, S.D= standard deviation, R.S. = relative sufficiency, Poor= less than (1.5), Good = (1.5) and more.

Table 7: Analysis of variance (One Way ANOVA) Analysis of Variance of Nurses' Knowledge according to their demographic characteristics

Variables	F.	Sig.
Age	2.121	0.009 HS
Years of Services	2.769	0.000 HS
Gender	1.423	0.1 NS
Level of Education	0.965	0.5 NS
Participate	1.160	0.3 NS
Developed	0.606	0.9 NS

F=Fisher test , HS=Highly significant, NS=Non significant at P-value 0.05 and less

According to their demographic features, Table (4–11) analyzes the variation in nurses' knowledge. A p-value of less than 0.05 reveals a very significant difference between nurses' knowledge and their age and number of years of experience. There is no correlation between nurses' knowledge and their gender, level of education, training course participation, or independent development self

DISCUSSION

The majority of nurses fail the questionnaire and are unsuccessful in questions (4, 7, 8, 9, 10, 11, 12, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25) with a mean of score less than 1.5. As a result, the final assessment for the nurses' knowledge regarding anthropometry assessment is shown in table (3) with the majority of nurses' (62.5 %) knowledge regarding anthropometry assessment. (Wijedasa, 2020) in his previous study was carried out at a teaching hospital in the Western Province where staff nurses they shared that The level of knowledge for nurse staff on anthropometric measurement was study finding The majority of the participants had good knowledge (53 percent), while 38 percent of nurses had average level of knowledge and 9 percent of the nurses had poor level of knowledge about anthropometric measurements for nutritional assessments.^(10,11,12,13) According to the summary statistics in Table (4-6), the majority of nurses failed the questions (1, 2, 4, 6, 7, 8, 9, 10, 11, and 14) relating to nutritional status on the 15 items of the clinical assessment questionnaire with a mean score of less than 1.5. Therefore, in the clinical assessment's final assessment, as shown in Tables (4–7), about 57.5 percent of the study sample presented false answers to the questionnaire, while 42.5% of the study sample presented accurate answers with M.S. =1.43 and SD=0.19, indicating that the nurses' clinical assessment knowledge is poor. This arrangement with (Kobe, 2006) One hundred and one Kenyan registered nurses working at Kenyatta National hospital in Nairobi received poor results when assessed on their knowledge of clinical nutrition (14%).^(14,15,16) The results of the final (ABCD) assessment of nurses' nutritional status knowledge are shown in Table 4-10. The majority of nurses (57.5 percent) gave inaccurate answers, while 42.5 percent gave correct answers with M.S.=1.45 and S.D=0.11. Thus, we conclude that nurses' knowledge of nutritional status assessment is poor. Additionally, (Kim & Choue, 2009) discover Most nurses had favorable opinions of their patients' nutritional health and expressed a strong desire to learn more about it. However, they had little understanding of nutrition, particularly the fundamental nutritional assessment criteria that are used to determine a patient's nutritional status. In actual reality, nurses mishandled the

nutritional assessment.⁽¹⁷⁾ Additionally, it was discovered by Munuo et al. (2016) that more than half (59.4%) of the participants in their study of nutritional knowledge among health care workers in selected Dar es Salaam, Tanzanian hospitals had low knowledge of nutrition. Nurse officers had a mean score of (9.51) regarding nutritional knowledge in managing chronic kidney illnesses, which was lower than the national average of 9.8 (SD 3.12).^(18,19) According to (Schaller & James, 2005), Australian nurses had a mean score of 60% (SD = 8.4) and had poor knowledge of nutrition.⁽¹⁰⁾ While the age group's highest percentage (36.3%) from (26-30) The results of the study sample are shown in Table (5), where a p-value of 0.009 less than 0.05 indicates a highly significant relationship between nurses' knowledge and their age. This result differs from that of (Irzaij & Atiyah, 2021) who conducted a study at the AlHussain Teaching Hospital for nurses in the city of Alnasiriyah. P value =.54 indicates that the relationship between age and nursing expertise was not significant.⁽²¹⁾ Additionally, at p-value=0.000 less than 0.05, the relationship between nurses' knowledge and years of experience is highly significant. This agrees with the findings of (Crogan & Evans, 2001) who assessed an evidence-based nutrition education program for registered nurses employed in nursing homes and who, on a pretest, had an average score of 56%. Despite the educational intervention, posttest results showed an ongoing lack of basic nutritional knowledge (66 percent on average). According to statistical analysis, more experienced nurses performed nutritional assessments more frequently than less experienced nurses, scored higher on posttests than less experienced nurses, and were more frequently charge nurses or nurses completing Minimum Data Sets. and knowledge of the nurses. Even However, not all gaps in nutrition knowledge were filled by education..⁽¹²⁾ While there is no significant relationship between nurses' knowledge and gender at P value = 0.1, there is a highly significant relationship between nurses' knowledge and their years of service at p-value=0.000 less than 0.05. These results are in agreement with those of (Irzaij & Atiyah, 2021), who found no significant relationship between nurses' knowledge and gender at P value =.85. ⁽¹³⁾ Additionally, there are no statistically significant differences for other demographic data (such as education level, participation in training courses, and development of self-independence) at p-values greater than 0.05.

CONCLUSION

Our findings lead us to the conclusion that nurses working in hemodialysis centers had poor knowledge scores on the anthropometry measurement and clinical assessment assessments. Additionally, the majority of nurses working in hemodialysis centers had poor knowledge of nutritional status assessment.. In addition Age and years of experience are significantly correlated with nurses' knowledge, whereas gender, level of education, participation in training courses, and independent development of self-knowledge are not significantly correlated with nurses' knowledge.

Recommendation: Based on the study's findings, it may be advised that all new and experienced nurses working in hemodialysis centers be oriented for educational programs (especially nutritional status assessment for hemodialysis patients

educational programs that concentrated on how to perform anthropometry measurement procedures and how to differentiate between sign and symptoms of malnutrition patients). Hospital policies should be a consistent method for assessing the attitudes and knowledge of nurses working in hemodialysis centers regarding nutritional status assessment practices.

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