

Assessment of Nurses' Knowledge Regarding Nursing Management of Heart Failure in Teaching Hospitals of Kirkuk City: A Comparative Study

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Abstract:

Background: Heart failure (HF) is a progressive disease that worsens over time and occurs as a result of the heart muscle's inability to pump blood sufficiently. Heart failure affects millions of people and poses a major public health challenge.

The Aim of the Study: To assess and compare the knowledge levels of nurses about nursing management of heart failure patients in two teaching hospitals of Kirkuk City.

Methodology: A comparative, cross-sectional design was used to conduct this study. A non-probability (purposive) sampling technique was used to recruit 82 nurses who provide care in the cardiac care units of two teaching hospitals in Kirkuk City. The research tool was designed by the researcher, and is composed of two parts: **Part I:** about demographic and professional data and **Part II:** regarding knowledge, consisting of 12 questions in the form of multiple-choice, focused on nursing management of heart Failure. Data were collected through face-to-face interviews and then analyzed and interpreted using the application of Statistical Package for Social Sciences (SPSS), version 26.0, utilizing descriptive and inferential statistics.

Results of the study: At Azadi Teaching Hospital, 51.2% of nurses had average knowledge, 41.5% had good knowledge, and 7.3% had poor knowledge. At Kirkuk Teaching Hospital, 68.3% of nurses had average knowledge, 24.4% had a good knowledge level, and 7.3% had poor knowledge.

Conclusion: The study concluded that the majority of nurses had average knowledge in both hospitals.

Recommendation: The study recommended the need to intensify training courses and encourage nurses to participate in these courses to move to optimal knowledge levels.

Keywords: Nurses, Knowledge, Nursing Management, Heart failure.

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1. INTRODUCTION

Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality worldwide, with millions of deaths reported annually (WHO, 2025). The incidence of heart failure (HF) cases continues to rise due to population growth and aging, becoming a public health problem (Groenewegen et al., 2020). HF is a life-threatening clinical syndrome

affecting at least 60 million people worldwide (Becher et al., 2022). In the Middle East, it is estimated that around 1.35 million patients are receiving medical care for heart failure. Heart failure is characterized by inability of the heart to pump blood sufficiently to supply the body with its needs (Alshammari et al., 2025).

HF is also known as congestive heart failure (CHF) and manifests with dyspnea, fatigue, and edema (Shams et al., 2025). Risk factors are ranging from non-modifiable traits such as advanced age, sex, and inherited cardiomyopathy to lifestyle-related conditions such as obesity and hypertension (Khan et al., 2024). HF is classified based on left ventricular ejection fraction (LVEF) into reduced ejection fraction, mildly reduced ejection fraction, and preserved ejection fraction (Heidenreich et al., 2022). Heart failure patients face serious complications such as blood clotting events. Modern healthcare focuses on preventative measures, emphasizing lifestyle changes and exercise (Ghani et al., 2023). Management strategies include an integration of lifestyle modifications and using medication like diuretics, ACE inhibitors, and beta-blockers. Also include advanced interventions such as the use of cardiac resynchronization therapy (CRT) via implanted cardiac electronic devices (Chaudhry et al., 2024). Due to the gradual nature of heart failure, caring for patients with heart failure is challenging; priority should be given to immediate interventions that target the cause of heart failure and prevent its onset and deterioration (Demissie et al., 2021).

Nurses play a pivotal role in the comprehensive management of heart failure patients, which includes assessment and close monitoring of vital signs, symptoms, fluid volume status, and daily weight (Fraser et al., 2024). Furthermore, nursing roles include managing medications, early detection of complications, promoting activity tolerance, providing psychological support to relieve anxiety and minimize feelings of powerlessness, and patient education (Hinkle et al., 2022).

Since management of heart failure requires skills and knowledge aimed at providing high-quality care, nurses' knowledge has a direct impact on patient health outcomes. While a previous international study has revealed variations in nurses' knowledge levels between two public hospitals (Azevedo et al., 2018), there is a notable lack of comparative studies addressing this issue in Iraq, specifically within Kirkuk City. Therefore, this study is necessary to bridge this gap by comparing nurses' knowledge across two different teaching hospitals, thus showing the levels of nurses' knowledge and developing their knowledge by identifying the educational and training needs to ensure the delivery of high-quality care.

METHODOLOGY:

Design of the Study: A comparative and cross-sectional design was used to conduct this study.

Sampling and Setting of the Study: The data was collected from 82 nurses working in cardiac care units of two teaching hospitals (41 nurses from each hospital) in Kirkuk City using a purposive, non-probability sampling method.

Instrument of Data Collection: A researcher-designed questionnaire was used in this study to collect data from participating nurses, composed of two parts. **Part 1** is about demographic and professional characteristics, which include age, sex, level of education, years of service, and participation in training courses concerning cardiac care (including the number, location, and duration of courses). **Part 2** contains 12 questions in the form of multiple-choice focused on nursing management of heart failure.

Eligibility Criteria

Inclusion Criteria

- Both sex (male and female)
- All nurses who provide nursing care in the cardiac care unit (morning and night shifts) in two teaching hospitals
- Nurses with more than one year of work.

Exclusion Criteria

- Nurses who refused to participate in the study.
- The ill nurses or on leave

Approvals and Data Collection Process:

After obtaining official approvals from the College of Nursing at Kirkuk University, the Kirkuk Health Department, the administrations of Azadi Teaching Hospital and Kirkuk Teaching Hospital, and the informed consent of the participating nurses, data was collected through individual, face-to-face interviews using a researcher-designed questionnaire. Each interview lasted 25 to 40 minutes.

DATA ANALYSES:

After the data collection process was completed, the data were organized, coded, entered, and analyzed through descriptive and inferential statistics, using the application Statistical Package for Social Sciences (SPSS), version 26.0.

RESULTS:

The findings reveal that no statistically significant differences between Azadi Teaching Hospital and Kirkuk Teaching Hospital regarding their demographic and professional characteristics ($P>0.05$), indicating that the sample is homogeneous in all studied demographic and professional characteristics.

Table (1): Demographic and Professional Characteristics

List	Characteristics		No	%
1	Age (Year) M±SD= 27.8±3.6	23 – 28	54	65.9
		29 – 34	23	28
		35 – 40	5	6.1
		Total	82	100
2	Sex	Male	34	41.5
		Female	48	58.5
		Total	82	100
3	Marital status	Single	45	54.9
		Married	37	45.1
		Divorced	0	0
		Widowed	0	0
		Total	82	100
4	Education level	Secondary school	0	0
		Diploma	2	2.4
		Bachelor	79	96.4
		Master	1	1.2
		Total	82	100
5	Years of Work	1 – 5	47	57.3
		6 – 10	30	36.6
		11 – 15	4	4.9
		16 +	1	1.2
		Total	82	100
6	Training courses	None	35	42.7
		1 – 2	36	43.9
		3 – 4	11	13.4
		Total	82	100
7	Location of training courses	None	35	42.7
		Inside Iraq	47	57.3
		Outside Iraq	0	0
		Total	82	100
8	Days of training courses M±SD= 8.7±16.7	≤ 5	54	65.8
		6 – 15	15	18.3
		16 – 30	10	12.2
		31 +	3	3.7
		Total	82	100

No: Number, %: Percentage, M: Mean, SD: Standard deviation

Table (1) displays the distribution of demographic and professional characteristics

Table (2): Mean Score and Assessments of Items for Nurses' Knowledge about Management of Heart Failure

List	Knowledge Scale	Azadi Hosp. (n=41)			Kirkuk Hosp. (n=41)			Statistical test		
		f(%)	Mean	Assess	f(%)	Mean	Assess	χ^2	P-value	C.S
1	Which nursing assessment indicates worsening heart failure	Incorrect 11(26.8)	.73	Good	15(36.6)	.63	Average	.901	.342	N.S
		Correct 30(73.2)			26(63.4)					
2	What is the first sign of low cardiac output in a patient with heart failure	Incorrect 15(36.6)	.63	Average	18(43.9)	.56	Average	.456	.499	N.S
		Correct 26(63.4)			23(56.1)					
3	Which abnormal sound indicates fluid buildup in the lungs of a patient with heart failure	Incorrect 14(34.1)	.66	Average	20(48.8)	.51	Average	1.809	.179	N.S
		Correct 27(65.9)			21(51.2)					
4	What is the purpose of daily body weight monitoring in a patient with heart failure	Incorrect 12(29.3)	.71	Good	15(36.6)	.63	Average	.497	.481	N.S
		Correct 29(70.7)			26(63.4)					
5	What is the appropriate time to administer oral diuretics to a patient with heart failure	Incorrect 16(39)	.61	Average	12(29.3)	.71	Good	.868	.352	N.S
		Correct 25(61)			29(70.7)					
6	What is the correct route to administer dopamine to a patient with heart failure	Incorrect 8(19.5)	.80	Good	11(26.8)	.73	Good	.617	.432	N.S
		Correct 33(80.5)			30(73.2)					
7	What is the purpose of checking laboratory results for a patient receiving both digoxin and a diuretic	Incorrect 15(36.6)	.63	Average	19(46.3)	.54	Average	.804	.370	N.S
		Correct 26(63.4)			22(53.7)					
8	What is the clinical manifestation of digoxin toxicity in a patient with heart failure	Incorrect 16(39)	.61	Average	20(48.8)	.51	Average	.792	.373	N.S
		Correct 25(61)			21(51.2)					
9	What is the most common adverse effect of angiotensin-converting enzyme inhibitors	Incorrect 15(36.6)	.63	Average	18(43.9)	.56	Average	.456	.499	N.S
		Correct 26(63.4)			23(56.1)					
10	What is the appropriate nursing care when a patient with heart failure is delirious or anxious	Incorrect 12(29.3)	.71	Good	20(48.8)	.51	Average	3.280	.070	N.S
		Correct 29(70.7)			21(51.2)					
11	What dietary recommendation is typically given to a patient with heart failure	Incorrect 14(34.1)	.66	Average	17(41.5)	.59	Average	.467	.494	N.S
		Correct 27(65.9)			24(58.5)					
12	What physical activity is recommended for a patient with heart failure after discharge	Incorrect 15(36.6)	.63	Average	19(46.3)	.54	Average	.804	.370	N.S
		Correct 26(63.4)			22(53.7)					

f: Frequency, %: Percentage, χ^2 : Chi-square, *P*: Probability value, C.S: Comparison significant, N.S: Not significant

Poor= 0.00 – 0.33, Average= 0.34 – 0.67, Good= 0.68 – 1.00

Table (2) presents the assessment of items for nurses' knowledge about the management of heart failure. The findings indicate that nurses demonstrate average assessments in most of the items. The result also showed no statistically significant differences were found between the two hospitals in any items ($P>0.05$).

Table (3): Assessment of Total Nurses' Knowledge about Management of Heart Failure

Knowledge	Scores	Azadi Hosp. (n=41)				Kirkuk Hosp. (n=41)				Total (N=82)			
		No	%	M	SD	No	%	M	SD	No	%	M	SD
Management of Heart Failure	Poor	3	7.3	8.02	2.162	3	7.3	7.02	2.055	6	7.3	7.52	2.156
	Average	21	51.2			28	68.3			49	59.8		
	Good	17	41.5			10	24.4			27	32.9		
	Total	41	100			41	100			82	100		

No: Number, %: Percentage, M: Mean of total score, SD: Standard deviation

Poor= 0.0 – 4.0, Average= 4.1 – 8.0, Good= 8.1 – 12.0

Table (3) shows the results of the assessment of the total nurses' knowledge in two teaching hospitals in Kirkuk City. The results indicate that despite the slight difference in knowledge levels between the two hospitals, the nurses in total have average knowledge.

DISCUSSION:

Part I: Discussion of Demographic and Professional Characteristics of the Study Sample as shown in Table1:

The results in Table (1) show that concerning the age of the participants, the highest proportion (65.9%) of nurses were within the age group (23-28 years). This may be attributed to the fact that cardiac care units (CCU) rely on young staff due to their physical capabilities that enable them to move patients, change their positions, and perform cardiopulmonary resuscitation when necessary in critical cases.

Regarding the gender of the study sample, the majority of nurses (58.5%) were female. This may be due to the fact that the nursing profession attracts more females than males.

About marital status, the results show that more than half of nurses (54.9 %) were single. In the researcher's view, this higher prevalence of single nurses may be attributed to the age factor, where the majority of participants (65.9%) were young (23-28 years), or to the fact that nurses in this age tend to prioritize career stability.

Concerning educational level, the results show that the highest percentage of nurses (96.4%) had a bachelor's degree. This high percentage may be attributed to that hospital's administration's emphasis on assigning college graduates to provide care in cardiac care units. This is a positive indicator as these units require high levels of knowledge and skills.

Regarding years of work, more than half of the nurses (57.3%) have less than 6 years of work. This may be attributed to the age factor, as the highest percentage of the study sample is young.

About training courses, the highest proportion (43.9%) of nurses received 1-2 training courses; all courses were within Iraq, and most of them (65.8 %) were short in duration, not exceeding five days.

Part II: Discussion of Nurses' Knowledge about Nursing Management of Heart Failure as shown in Tables 2 and3:

The results in Table (2) concerning comparing nurses' knowledge about nursing management of heart failure patients between two teaching hospitals in Kirkuk City show comparable assessments in most items (an average assessment); this may be attributed to the unity in the academic curricula of nursing graduates, the content of training courses, and the levels of education of nurses in both hospitals. The statistical test revealed no significant differences between the two hospitals in any items ($P > 0.05$).

The results in Table (3) show that the majority of nurses in each hospital demonstrated average knowledge. At Azadi Teaching Hospital, 51.2% of nurses have average knowledge and 41.5% have good knowledge. On the other hand, at Kirkuk Teaching Hospital, 68.3% of nurses have average knowledge and 24.4% have good knowledge. The percentage of those with poor knowledge was 7.3% in each hospital.

Regarding total knowledge levels, the results in Table (3) indicate that the majority of nurses(59.8%)who participated in the study(N=82)demonstrated an average level of knowledge,32.9% had a good knowledge level, while only a small minority (7.3%) fell into the poor knowledge category.

In the researcher's view, the results of this study demonstrate an acceptable level of knowledge, clearly evidenced by the low percentage of nurses with poor knowledge. This indicates that the nursing staff in Kirkuk's teaching hospitals possesses a solid foundation of knowledge that can be further developed through intensive training programs to raise their knowledge level from an average to optimal level.

Conclusions:

This study was conducted to assess and compare the knowledge level of nurses regarding nursing management of heart failure in cardiac care units of two teaching hospitals in Kirkuk City. Despite the slightly higher scores recorded at Azadi Teaching Hospital compared to Kirkuk Teaching Hospital, the nurses participating in this study generally demonstrated an average level of knowledge.

Recommendations:

The study recommends intensifying training courses and encouraging nurses to participate in these courses and not be satisfied with local training programs.

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