

Nurses' Competencies in the Delivery of Discharge Education to Patients with Congestive Heart Failure in the Critical Care Settings

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Abstract Purpose: The study aimed to assess the level of nurses' competency on the delivery of discharge education to patients with congestive heart failure in the critical care settings. **Background:** Congestive heart failure (CHF) is regarded as one of the deadliest diseases in the world. Focusing on the well-defined discharge education and the patient's willingness to adopt patient education (PE) is an essential aspect to promote improvement on the condition of life and disease outcomes, as well as lessening the rates of re-hospitalization. **Method:** A quantitative descriptive research design was utilized in this study and a convenient nonprobability sampling technique was used in selecting the total number of 115 critical care nurses as a sample of the current study. **Result:** The result of the study shows the overall nurses' competency in delivering discharge education to patient with congestive heart failure in its 5 domains such as general information, medication, nutrition, activity, and monitoring and follow-up was 4.22 with a SD of 0.57 which denotes "high competent". Furthermore, it also revealed that there is no significant difference between nurses' gender, education qualification, and unit of assignment and their level of competency in delivering discharge education as supported by the p-value exceeded the significance level of 0.05. However, their level of experience and their level of competency in delivering discharge education are significant as supported by the p-value of .040. **Conclusion:** Nurses play a pivotal role in discharge education; therefore, their competency is essential and vital in ensuring patient's health. However, the success of discharge education does not depend entirely on the nurse's role, but it also requires the participation of the patient and their caregivers especially during the transition process from the hospital setting to the patient's home. Similar study to be conducted to assess the level of critical care nurses in providing discharge education for patients with CHF at Saudi Arabia.

Keywords: discharge education, competency, critical care, patient education, patient outcomes, patient safety

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1. Introduction

Heart failure is the leading cause of morbidity and mortality around the world, and that has a negative impact on quality of life, healthcare costs, and durability [1].

Patient discharge education after hospital confinement is an important component of congestive heart failure care. Incompetently planning discharge from the hospital and patients' non-adherence to instructions are indicated as factors that lead to the re-hospitalization of patients with heart failure, which shows the importance of a discharge plan to improve quality of life for patients [2].

The success of discharge and patient education lies solely on the ability of the nurse to transfer knowledge; their acquired patience and professionalism in teaching adults; and their skills in identifying factors that affect the health-promoting actions of an individual or patient [3].

Changing an individual's behavior is a complex task; therefore, health education practice is challenging [4,5]. There isn't much value in nurses doing health education interventions, especially in settings with a lot of work, a focus on physicians, short patient stays, and no clear protocols for developing competency in health education practice [6,5,7]. Also, nurses may not be able to teach their patients well if they don't have enough knowledge, skills, motivation, and self-confidence [8,9]. These things are necessary for competent health education practice [10].

It is noteworthy that professional competency in health education practice has not been accorded the importance it should be. Certainly, most clinical nurses recognize the need for further education and training in conducting health education [6,11]. Boosting nurses' health education competence should be tailored to personal characteristics and nurses' learning requirements and must consider appropriate factors such as having organizational support and back-up [12,13,14]. In fact, nurses in the hospital have specific needs when it comes to health education and the

factors that affect how they do it [7,15]. These needs and factors have not been fully evaluated up to this point.

In spite of the increased recognition of the importance of DE to advancing patients' outcomes, the majority of the research conducted to identify discharge problems has been based on a mixture of professional, organizational, and patient-related issues coming from observational effort or from patients' perceptions [16,17,18]. There is inadequate understanding of the DE provided to patients from nurses' perceptions. Recognizing nurses' insights into this significant nursing practice may guide researchers and clinicians in the proposal of management plans to advance DE for patients. This may subsequently improve patients' post-discharge outcomes and reduce preventable readmissions [5].

1.1. The Aim of the Study

To assess the level of nurses' competency in the delivery of discharge education to patients with congestive heart failure in the critical care units of Dr. Soliman Fakeeh Hospital.

1.2. Research Questions

1. What is the level of the critical care nurse's competency in delivering discharge education to patients with congestive heart failure?
2. Is there a significant difference between the demographics of the critical care nurses and their competency level when it comes to giving congestive heart failure patients discharge education?

2. Materials and Method

2.1. Materials

Research design; a quantitative descriptive design was used in the study to evaluate the level of the critical care nurse's competency in delivering discharge education to patients with congestive heart failure in the critical care setting of Dr. Soliman Fakeeh Hospital.

Settings; The study was conducted at the critical care units, including the intensive care unit, coronary care unit, and emergency department of Dr. Soliman Fakeeh Hospital located in Jeddah, Saudi Arabia.

Subjects; A convenient sample of 115 nurses working in a critical care facility such as the intensive care unit (ICU), coronary care unit (CCU), and emergency department (ER) of Dr. Soliman Fakeeh Hospital were enrolled in the study.

Tools; the study utilized an adopted questionnaire based on the standard hospital discharge instructions checklist by Marion General Hospital Clinical Pathway (1998). The researcher employed a survey questionnaire that was divided into two (2) parts.

Part I covered the demographic characteristics of the respondents, including gender, educational qualification, length of experience, and unit of assignment of the respondents.

Part II assessed the 5 domains of discharge education, including: a) general information (5 items), b) medication (3 items), c) nutrition (3 items), d) activity (3 items), and e) weight monitoring and follow-up (4 items) utilizing a 5-point Likert scale. All items were answerable according to their importance from (5) very important, (4) important,

(3) moderately important, (2) slightly important, and (1) unimportant. The tool has 18 items and assesses the competencies of nurses in delivering discharge education. The instrument was internally consistent and reliable, with a 0.81 using Cronbach's alpha, which indicates very good reliability.

2.2. Method

The researcher submitted the research proposal to Fakeeh College for Medical Sciences (FCMS) Institutional Review Board for review and approval. After the IRB approval, the researcher sent a letter attaching the IRB, consent form, and sample questionnaire to the Chief Nursing Officer of Dr. Soliman Fakeeh Hospital to ask permission to collect data through questionnaire distribution. After the approval, the researcher visited the ICU, CCU, and ER and gave courtesy to the nurse managers assigned to the units. Data collection was done by the researchers for 3 months from March 2022 to May 2022.

2.3. Data Collection

After the approval, the researcher talked to the available target respondents during the study and explained the purpose of the study, including its benefits and their rights to withdraw from the study at any time, and then the consent was signed. The researcher visited the critical care units five times to complete the desired number of samples. Participants were given the choice to either complete the survey on site or take it away to complete at the time and location of their convenience. Participants were instructed to drop the completed surveys in a secure data collection box that was available at each of the sites, or to return the survey to the researcher. The researcher ensured that the inclusion criteria were strictly followed to avoid any biases. The questionnaires were collected, summarized, sorted and submitted to the research statistician for analysis.

2.4. Statistical Analysis

The following statistical formulas were utilized in the study: For the descriptive statistics to answer research question 1, pertaining to the demographic characteristics of the respondents, weighted mean and standard deviation were utilized to analyze research question number 2, which assesses the competency of critical care nurses toward discharge education of patients with congestive heart failure in the critical care settings. Furthermore, t-test and ANOVA for the inferential statistics to answer research question number 3 that tested the significant differences between the respondents' demographic characteristics and their level of competency toward discharge education. The analysis of the collected data was performed using the IBM Statistical Package for Social Sciences (SPSS) 20 software. After the data were processed and analyzed, they were finally shown in text and tables.

3. Results

Table 1 showed the distribution of the respondents according to their socio-demographic characteristics. As a

result, 27.8% were males and 72.2% were females. In relation to the educational qualification of the respondents, 9.6% have a diploma degree in nursing, 81.7% have a bachelor's degree in nursing, and 8.7% have a master's degree in nursing. Regarding the length of experience of the respondents, 7.8% had less than a year of experience, 38.3% had 1-3 years of experience, 21.7% had 4-6 years of experience, and 15.7% had 7-9 years of experience, and 16.5% had more than 10 years of experience in the critical care unit. Lastly, the table displayed that 37.4% of the respondents were nurses working in the intensive care unit, 32.2% were nurses working in the coronary care unit, and 30.4% were nurses working in the emergency room. Table 2 displayed the nurses' competencies in delivering discharge education in the critical care units, focusing on 5 major domains such as general information, medication, nutrition, activity, monitoring, and follow-up. The table shows that the nurses were competent and highly competent in all items in each domain. Table 3 showed the overall nurses' competencies on discharge education per domain. Nurses reported a mean score of 4.00 with a SD of 0.71 with a verbal interpretation of competent in domain 1 related to general information; a mean score of 4.16 with a SD of 0.63 with a verbal interpretation of competent was reported for domain 2 related to medication; a mean score of 4.16 with a SD of 0.63 with a verbal interpretation of competent was reported in domain 3 related to nutrition; a mean score of 4.34 with a SD of 0.51 with a verbal interpretation of highly competent was reported for domain 4 related to activity; and a mean score of 4.40 with a verbal interpretation of highly competent was reported for domain 4 related to monitoring and follow-up. Furthermore, the nurses reported that they are highly competent in delivering discharge education in the critical care unit, as supported by an overall mean score of

4.22 with a SD of 0.57. Table 4 displayed the comparison of the nurses' demographic data and their competencies on discharge education. Regarding gender, there is no significant difference between the nurses' gender and nurses' competencies on discharge education in the critical care units. Regarding the nurses' educational qualification category, it shows a p-value of .220, which exceeds the 0.05 significance level using the statistical tool ANOVA. This indicates that there is no significant difference between nurses' educational qualifications and their competencies in discharge education. In relation to the nurses' length of experience, there is a significant difference between the nurses' length of experience and their competencies on discharge education. The table also shows that there isn't a big difference between the nurses' units of assignment and how well they know how to teach people how to leave the hospital.

Table 1. Distribution of the of the respondents according to their demographic data

Demographic data		No.	%
Gender	Male	32	27.8
	Female	83	72.2
Educational Qualification	Diploma in nursing	11	9.6
	Bachelor's degree	94	81.7
	Master's degree	10	8.7
Length of Experience	Less than 1 year	9	7.8
	1-3 years	44	38.3
	4-6 years	25	21.7
	7-9 years	18	15.7
	More than 10 years	19	16.5
Unit of assignment of the respondents	Intensive Care Unit (ICU)	43	37.4
	Coronary Care Unit (CCU)	37	32.2
	Emergency Room (ER)	35	30.4

Table 2. Distribution of Nurses' competencies towards discharge education

Items	Mean	SD	Interpretation
Domain 1: General Information			
Patients must			
Understand the medical reasons of their current confinement and what happened during the hospitalization	4.11	0.50	Competent
Have a clear understanding of their medical conditions and what must be done to continue care as an outpatient.	4.23	0.62	Highly competent
Receive an explanation of potential warning signs and symptoms that could arise.	3.60	1.26	Competent
Be provided with a 24-hour phone number for emergency situations.	3.98	0.63	Competent
Have the name of the provider responsible for their care after discharge.	4.12	0.56	Competent
Domain 2: Medication			
Patients must			
Receive instructions on the prescribed take-home medications from the physician upon discharge.	4.08	0.66	Competent
Have a list of take-home medications before discharge.	4.11	0.64	Competent
Keep a list of all current medications and the dates when Flu and Pneumococcal (Pneumonia) Vaccines was received.	4.30	0.59	Highly competent
Domain 3: Nutrition			
Patients must			
Understand and follow a low sodium (salt) diet.	4.31	0.50	Highly competent
Follow recommended amount of daily fluid intake as prescribed by the physician.	4.14	0.53	Competent
Choose foods and drinks with low or no salt and must remove dining saltshaker from the table.	4.18	0.43	Competent
Domain 4: Activity			
Patients			
Can do normal daily activities as the body allows.	4.21	0.47	Highly competent
Must know and understand the importance of taking a rest if there is a feeling of tiredness and must not over exert.	4.55	0.54	Highly competent
Must stop the activity if there is a feeling of chest pain, shortness of breath or feeling of dizziness arises.	4.28	0.52	Highly competent
Domain 5: Monitoring and Follow-up			
Patients must			
Weigh every day at the same time and document.	4.30	0.53	Highly competent
Report to the physician if he/she gain 3-5 pounds over 2 to 3 days.	4.47	0.59	Highly competent
Report if there are swelling of the feet, ankles, hands, and abdomen.	4.39	0.55	Highly competent
Report in case there is trouble sleeping or waking up short breath or coughing.	4.47	0.56	Highly competent

Table 3. Distribution of Overall of nurses' competencies on discharge education per domain

Items	Mean	SD	Interpretation
Domain 1: General information	4.00	0.71	Competent
Domain 2: Medication	4.16	0.63	Competent
Domain 3: Nutrition	4.21	0.48	Highly competent
Domain 4: Activity	4.34	0.51	Highly competent
Domain 5: Monitoring and follow-up	4.40	0.55	Highly competent
Overall competency on discharge education	4.22	0.57	Highly competent

Table 4. Difference between nurses' socio demographic characteristics and their competencies on discharge education

Demographic data		Mean	SD	p-value	Interpretation
Gender	Male	4.07	0.53	.226	Not Significant
	Female	4.27	0.60		
Educational Qualification	Diploma	4.04	0.25	.220	Not Significant
	Bachelor's Degree	4.12	0.61		
	Master's Degree	4.52	0.53		
Length of Experience	Less than 1 year	4.09	0.32	.040	Significant
	1-3 years	4.08	0.60		
	4-6 years	4.10	0.53		
	7-9 years	4.48	0.55		
	More than 10 years	4.46	0.55		
Unit of assignment of the respondents	Intensive Care Unit (ICU)	4.16	0.55	.068	Not Significant
	Coronary Care Unit (CCU)	4.31	0.59		
	Emergency Room (ER)	3.81	0.57		

* Significant p at ≤ 0.05 .

4. Discussion

The study aimed to assess the level of nurses' competency in the delivery of discharge education to patients in the critical care units. The results of the study show that nurses in the critical care facilities of Dr. Soliman Fakeeh Hospital, including ICU, CCU, and ER, were competent in the 2 domains of discharge education, particularly in general information about health education and medication. However, they reported that they were highly competent in the 3 domains of discharge education, namely: nutrition, activity, and monitoring and follow-up. It was also reported that their gender, educational qualification, and unit of assignment were not significant to their competency in delivering discharge education to patients with congestive heart failure. But they confirmed that their level of skill depends on how long they've been doing it.

It is recognized globally that nurses have an important role in providing health education to improve positive health outcomes [19,20] and the general efficiency of health care delivery [6,21,22]. Nurses play a special role in health education because they are the easiest to reach and spend most of their time in close contact with patients in the hospital [7].

The discharge education program delivers descriptions and information about medication, symptom/weight/diet management, physical activity, and other precautions due to the current health condition. The understandability and action ability of discharge education were 90.2 and 91.3 % in patients, and 94.6 and 86.8 % in nurses. The contents and methods of the program were appropriate for patients and nurses [23]. Several studies have identified the effectiveness of discharge education. The results of the study showed that it helped people remember what they had learned, helped them take better care of themselves,

and cut down on the number of times they had to go back to the hospital [24,25,26,27].

In a study conducted that mapped the knowledge, skills, and personal characteristics of clinical nurses in relation to health education competence, the exposure of potential learning requirements established an important step in professional development [28,29]. Additionally, in a study conducted by Pueyo-Garrigues et al. (2022), [21] identifies the factors that influence the level of competence in health education. The personal (intrinsic) factor, which nurses primarily, recognized as the lack of education and training during their professional development, as the ones that most influenced their practice. And the institutional (extrinsic) factors that were most often mentioned were having a lot of work to do, not having enough time, not having a supportive work environment, and not having access to learning opportunities at work.

Another study discovered that nurses commonly had some overall skills and personal qualities related to health education, while their knowledge necessary for competent practice straggled behind. In particular, nurses reported higher scores in knowledge about health education and its determinants (i.e., health as a positive concept or personal and socio-environmental factors). Clinical nurses have good health-related content knowledge, interpersonal skills, and personal qualities (e.g., they see health education as their responsibility) because these are important parts of nursing and such competence is seen as a fundamental part of nursing care [21,30].

In contrast to the previous study, it reveals that clinical nurses have lower scores in educational skills and specific knowledge about health education (i.e. the teaching-learning process, or dimensions addressed when health education is delivered) and about pedagogical methods and resources (i.e. types of behavior change

management, or current teaching resources to support patients' learning). This might be explained by the lack of importance of health education in nursing's prescribed curriculums [14,20,31]. Furthermore, the reason for this might be that nurses' highest priorities are more on tasks pertaining to urgent interventions to patients' conditions and care planning activities to reduce patient risks, not health education, or that there is a lack of facilities for health education practice [4,7]. So, putting health education into practice requires a wide range of knowledge, skills, and personal qualities, as well as support from organizations [28,32].

A study to assess the knowledge gap between a nurse and a patient or caregiver was conducted using structured discharge education that focuses on five major discharge educational topics such as medication, symptom management, weight management, dietary management, and physical activity. This demonstrates that structured discharge education programs improve the self-management of heart failure patients [33].

5. Recommendations

Based on the results of the study, the researcher recommends the following action plan to enhance and advance the level of competency of critical care nurses on discharge education. It is suggested the following:

- A similar study be done in multiple private and government tertiary hospitals in Saudi Arabia with a larger sample size, and that more research be done on the factors that affect the implementation of discharge education. These factors include nurses' beliefs and knowledge, documentation of patient education activities, collegial teamwork, educational environment in conducting discharge education, and educational foundation of knowledge on congestive heart failure.
- Using the hospital's policies as a guide, make a standard and structured procedure or process for educating people about leaving critical care.
- Start a professional development program for nurses that will teach them how to do structured discharge education.
- Use a standard discharge education checklist to tell the nurses what to include in the delivery.
- A similar study must be done at multiple sites with a larger sample size to find out how well critical care nurses teach patients with CHF before they go home.

5.1. Limitations of the Study

The study included 115 critical care nurses as a sample size and a convenient sampling procedure decreased the generalizability of the research findings.

5.2. Ethical Consideration

The ethical approval for this study was obtained from the Fakeeh College for Medical Sciences Institutional Review Board. Consent was given to the respondents

before administering the questionnaires. The respondents were assured that no threats or coercion were encountered while conducting the study, and they were free to withdraw their will to participate.

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