

# KNOWLEDGE AND COMFORT OF HEART FAILURE DISCHARGE EDUCATION AMONG STAFF NURSES

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## INTRODUCTION

### Problem

- There are approximately 5.7 million adults in the United States diagnosed with heart failure (Centers for Disease Control and Prevention [CDC], 2016).
- Between 2014 and 2016, an estimated 58.6 hospitalizations per 1,000 Medicare beneficiaries were attributed to heart failure (CDC, 2019).
- Heart failure costs the United States approximately \$30.7 billion each year (CDC, 2019).

### Literature Review

- A self-management education program consisting of basic anatomy and physiology, risk factors, symptoms and diagnosis, management, diet and exercise, and medications and side effects produced statistically significant improvements in quality of life (QOL) in patients with heart failure with a mean total change in QOL of 6.97 (standard deviation [SD] = 6.47) for the intervention group and 0.93 (SD = 3.67) for the control group ( $p < 0.001$ , Abbasi et al., 2018).
- Heart failure patients in Vietnam, participating in the Optimize Heart Failure Program, which included education regarding diet, exercise, weight control, and detection of worsening heart failure symptoms at home saw a decrease in readmission rates at 30 days (8.3%) and at 60 days (12.5%, Phuong et al., 2019).
- In a randomized controlled trial, self-care behaviors in patients that were introduced to a multidisciplinary management program (MDMP) consisting of discharge education, physical exercise, and follow-up after discharge revealed improvements in self-care behaviors at both 90 (-6.90 ± 1,  $p < 0.001$ ) and 180 days (-8.29 ± 0.88,  $p < 0.001$ , Chen et al., 2018).

## PICOT

In staff nurses working at a Midwest Academic Center, on the cardiovascular floor (P), how does an evidenced based education intervention (I) compared to current practice (C) increase staff nurse knowledge and comfort with heart failure discharge education (O) within a 5-week period (T)?

## OBJECTIVES

1. 75% of all staff nurses working on the cardiovascular floor complete both pre- and post-intervention surveys.
2. 10% increase in staff nurse knowledge of heart failure discharge education based on scores from the *Nurses' Knowledge of Heart Failure Education Survey*.
3. 10% increase in staff nurse comfort of heart failure discharge education based on scores from the *Questionnaire of Nurses Comfort Educating and Frequency Delivering Patient Education on Heart Failure Themes*.
4. Staff nurses will view the intervention as acceptable, appropriate, and feasible.

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## MATERIALS AND METHODS

**Setting and Population:** The setting for this Quality Improvement Project was the cardiovascular floor at University of Missouri Health Care. UMHC is a large academic teaching hospital, serving residents from all of Missouri. The population included staff nurses employed on UMHC's cardiovascular floor.

**Design:** Intermediate testing post-test design using convenience with purposive sampling.

- The *Nurses' Knowledge of Heart Failure Education Survey* and *Questionnaire of Nurses Comfort Educating and Frequency Delivering Patient Education on Heart Failure Themes* were administered to participants before education intervention (May 2021) and after education completion (April 2021).
- The *Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure* was administered after education completion (April 2021).

The Questionnaire of Nurses Comfort Educating and Frequency Delivering Patient Education on Heart Failure Themes

Please rate each of the following items from 1 (completely uncomfortable) to 7 (completely comfortable) and indicate the frequency delivering education on each topic from 0 (never) to 10 (always).

Item	Comfortability (1-7)	Frequency (0-10)
<b>Medications</b>		
Why taking an ACE/ARB		
Why taking a beta-blocker		
Why taking a loop diuretic		
Why taking digoxin		
Why taking an aldosterone antagonist		
Why taking warfarin, or an atrial fibrillation		
Why taking aspirin		
Expected effects of a beta blocker		
Adverse effects from taking a beta blocker		
Adverse effects of taking an ACE/ARB		
<b>Low sodium diet</b>		
Why maintain a 2000mg/day sodium diet		
How to identify sodium in packaged foods		
How to read a food label		
How to decrease sodium intake at a restaurant		
How to decrease sodium intake when snacking		
How to decrease sodium when at a relatives'		
What salt substitutes are OK to use		
<b>Activity and exercise</b>		
Why exercise: education frequency		
Types of exercises/activities recommended		
Types of exercises/activities to avoid		
How to tell when exercising is too much		
What to do if you become fatigued when exercising		
<b>Sexual activity</b>		
<b>Fluid restriction</b>		
Why restrict fluids		
Steps to measure and monitor fluid intake		
What counts as fluids		
<b>Daily weight monitoring</b>		
Why weigh self every day		
Procedure for weighing self		
When to report weight to doctor/nurse		
What to report when speaking to doctor/nurse		
<b>Signs and symptoms of fluid overload</b>		
When is it important to monitor for fluid overload		
What to look for		
How often to monitor fluid overload		
When to notify someone of increasing fluid levels		
<b>Signs and symptoms of worsening condition</b>		
When is it important to monitor for fluid overload		
What to look for		
How often to monitor signs/symptoms		
When to notify someone of worsening condition		
<b>Heart failure beliefs</b>		
What causes heart failure		
What heart failure means		
Heart failure is chronic/relapsing		
Heart failure may shorten life, cause premature death		
Heart failure can be controlled by lifestyle action		
Regular office visits are important, even when feeling fine		

Nurses' Knowledge of Heart Failure Education Survey

Please indicate true or false to the following statements.

Statement	True	False
1. Patients with heart failure (HF) should drink plenty of fluids each day.		
2. As long as no salt is added to foods, there are no dietary restrictions for patients with HF.		
3. Coughing and nausea/poor appetite are common symptoms of advanced HF.		
4. Patients with HF should decrease activity and most forms of active exercise should be avoided.		
5. If the patient gains more than 3 pounds in 48 hours without other HF symptoms, they should not be concerned.		
6. Swelling of the abdomen may indicate retention of excess fluid due to worsening HF.		
7. If patients take their medications as directed and follow the suggested lifestyle modifications, their HF condition will not return.		
8. When patients have aches and pains, aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen should be recommended.		
9. It is okay to use potassium based salt-substitutes like "No Salt" or "Salt Sense" to season food.		
10. If patients feel thirsty, it is ok to remove fluid limits and allow them to drink.		
11. If a patient adds extra pillows at night to relieve shortness of breath, this does not mean that the HF condition has worsened.		
12. If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the HF condition has worsened.		
13. Lean deli meats are an acceptable food choice as part of the patient's diet.		
14. Once the patient's HF symptoms are gone, there is no need for obtaining daily weights.		
15. When assessing weight results, today's weight should be compared with the patient's weight from yesterday, not the patient's ideal or "dry" weight.		
The following 3 statements reflect signs or symptoms that patients may have. Mark True (Yes) or False (No) to signify that a patient should notify their HF physician of these signs or symptoms:		
16. BP recording of 80/56 without any HF symptoms.		
17. Weight gain of 3 pounds in 5 days without symptoms.		
18. Dizziness or lightheadedness when arising that disappears within 10-15 minutes.		
19. New onset or worsening fatigue.		
20. New onset or worsening of leg weakness or decreased ability to exercise.		

## RESULTS

### Demographics:

- Ten of the participants (90.9%) identified as female and one of the participants (9.09%) identified as male.
- One hundred percent of participants were Caucasian.
- The mean age of the participants was 30.73 (median of 27).
- The mean years of experience as a registered nurse was 6.91 (median of 3).

### Results

- A paired samples t-test was conducted to compare the self-report scores of participants comfortability, frequency, and knowledge of heart failure before the education sessions and after the education sessions.
- Only question 15 produced a large statistically significant change of ( $M = -0.5$ ,  $SD = 0.6$ ,  $p = .016$ ,  $d = -.87$ ).
- The greatest change in comfortability was seen in the low sodium diet and activity and exercise categories.
  - Question 14, in the low sodium diet category, revealed a large statistically significant change ( $M = -2.2$ ,  $SD = 1.4$ ,  $p = .00$ ,  $d = -1.56$ ).
  - Question 21, in the activity and exercise category, revealed a large statistically significant change ( $M = -2.0$ ,  $SD = 1.9$ ,  $p = .007$ ,  $d = -1.03$ ).
- The greatest change in frequency was seen in the low sodium diet and activity and heart failure beliefs.
  - Question 12, in the low sodium diet category, revealed a large statistically significant change ( $M = -2.64$ ,  $SD = 1.21$ ,  $p = .00$ ,  $d = -2.19$ ).
  - Question 41, in the activity and exercise category, revealed a large statistically significant change ( $M = -2.45$ ,  $SD = 1.76$ ,  $p = .001$ ,  $d = -1.40$ ).
- Mean scores ranged between 3.81 and 4.82 out of five for *The Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure*.

## CONCLUSIONS

- Limitations:
  - Small sample size
  - Inconclusive questions on the *Nurses' Knowledge of Heart Failure Survey*
- Objective 1 not met with only 39% of staff nurses working on the cardiovascular floor completing both pre- and post- intervention surveys
- Object 2 was partially met with a 10% increase in staff knowledge displayed in six questions
- Objective 3 was met with at least a 10% increase in staff nurse comfortability and frequency delivering heart failure education
- Objective 4 was met with a mean score between 3.81 and 4.82 for the acceptability, appropriateness, and feasibility of the project
- Educational sessions provided bi-weekly helped increase the comfortability and frequency of delivering heart failure education among staff nurses.
- Repeat studies using larger sample sizes would provide more accurate and statistically significant data.
- Future research must focus on the most appropriate means of delivering heart failure self-care education to both staff nurses and patients.

The Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure

Please rate each statement from 1 to 5, with 1 being least applicable and 5 being most applicable.

Construct	Item	Rating	
Acceptability	This EBP seems fine		
	This EBP seems good enough		
	This EBP will do		
	This EBP meets my approval		
	This EBP meets my needs		
Appropriateness	This EBP is satisfactory		
	I have no objection to this EBP		
	This EBP is pretty good		
	This EBP is appealing		
	I like this EBP		
Feasibility	I welcome the use of this EBP		
	This EBP seems right		
	This EBP seems fitting		
	This EBP seems realistic		
	This EBP seems workable		
Feasibility	This EBP seems practical		
	This EBP seems workable		
	This EBP seems implantable		
	This EBP seems possible		
	This EBP seems doable		
Feasibility	This EBP seems doable		
	This EBP seems challenging		
	This EBP seems easy to use		

## REFERENCES

1. Albert, N. A., Cohen, B., Liu, X., Best, C. H., Aspinwall, L., & Pratt, L. (2015). Hospital nurses' comfort and frequency of delivering heart failure self-care education. *European Journal of Cardiac Nursing*, 14(5), 431-440. <https://doi.org/10.1177/1474515114540756>
2. Albert, N. A., Collier, S., Sumodi, V., Wilkinson, S., Hammel, J. P., Vopat, L., Willis, C., & Bittel, B. (2002). Nurses' knowledge of heart failure education principles. *Heart & Lung*, 31(2), 102-112. <https://doi.org/10.1067/mhl.2002.122837>
3. Centers for Disease Control and Prevention (CDC, 2016). *Heart failure fact sheet*. [https://www.cdc.gov/dhds/p\\_data\\_statistics/fact\\_sheets/fs\\_heart\\_failure.htm](https://www.cdc.gov/dhds/p_data_statistics/fact_sheets/fs_heart_failure.htm)
2. CDC. (2019). *Interactive atlas of heart disease and stroke tablets*. <https://nccd.cdc.gov/DHDS/Atlas/Default.aspx?state=MO>
3. Weiner, B. J., Lewis, C. C., Stanick, C., Powell, B. J., Dorsey, C. N., Clary, A. S., Boynton, M. H., & Halko, H. (2017). Psychometric assessment of three newly developed implementation outcome measures. *Implementation Science*, 12(108). 10.1186/s13012-017-0635-3