Improving Discharge Education and Outcomes for Patients with Heart Failure

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Abstract

Background:

Heart failure (HF) remains one of the most common causes of hospitalization and 30-day readmissions globally, leading to significant morbidity, mortality, and healthcare costs. One major contributor to high readmission rates is insufficient patient education at discharge, resulting in poor self-management, medication non-adherence, and delayed recognition of worsening symptoms. There is a pressing need to develop and implement structured discharge education programs that can effectively enhance patient understanding, promote self-care behaviors, and ultimately improve outcomes.

Objective:

This study aimed to evaluate the impact of a structured discharge education program on 30-day readmission rates, patient self-efficacy, and adherence to treatment regimens among patients hospitalized with heart failure.

Methods:

A prospective, single-center, pre-post intervention study was conducted from January 2024 to December 2024 at a tertiary care hospital. Adult patients hospitalized with a primary diagnosis of heart failure were enrolled and assigned either to a control group receiving standard discharge instructions or to an intervention group receiving a structured, multi-component education program. The program included personalized education sessions delivered by heart failure nurse specialists, simplified written materials, teach-back techniques, and scheduled follow-up phone calls after discharge. Primary outcomes included 30-day all-cause hospital readmissions. Secondary outcomes assessed changes in patient self-care confidence, medication adherence, diet compliance, and follow-up appointment attendance. Statistical analyses were performed using Chi-square and t-tests.

Results:

A total of 200 patients were enrolled, with 100 in each group. Baseline demographic and clinical characteristics were comparable between groups. The 30-day readmission rate was significantly lower in the intervention group (12%) compared to the control group (22%) (p = 0.03). Patients in the intervention group demonstrated significantly higher mean scores on the Self-Care of Heart Failure Index (75 ± 10 vs. 62 ± 12; p < 0.001), indicating improved confidence and ability to manage their condition. Furthermore, adherence to prescribed medication regimens (92% vs. 78%; p = 0.01) and recommended dietary guidelines (85% vs. 70%; p = 0.02) was notably better in the intervention group. Attendance at scheduled follow-up appointments was also higher among patients receiving structured education (88% vs. 72%; p = 0.01).

Conclusions:

The implementation of a structured discharge education program significantly improved patient outcomes, reducing 30-day readmissions and enhancing self-management behaviors among patients with heart failure. Personalized education, reinforced by the teach-back method and timely follow-up communication, proved effective in bridging knowledge gaps and promoting adherence. These findings highlight the critical role of comprehensive discharge planning in heart failure care and suggest that hospitals should prioritize structured education programs as a standard component of discharge processes. Further research is warranted to assess the long-term sustainability and cost-effectiveness of such interventions across diverse patient populations and healthcare systems.

Keywords

Heart Failure, Discharge Education, Patient Outcomes, Readmissions, Self-Care, Structured Intervention, Teach-Back Method.

INTRODUCTION

Heart failure (HF) is a complex clinical syndrome characterized by the heart's inability to pump sufficient blood to meet the body's needs. It affects more than 64 million people globally and remains a major cause of morbidity, mortality, and repeated hospitalizations. In the United States alone, HF is responsible for over one million hospital admissions annually, and approximately 20% of these patients are readmitted within 30 days of discharge. The burden of heart failure extends beyond clinical outcomes, imposing a heavy financial strain on healthcare systems and significantly diminishing patient quality of life.

One of the most consistently identified factors contributing to high readmission rates is inadequate discharge education. Many patients leave the hospital without a clear understanding of their condition, medication regimens, dietary restrictions, or the importance of monitoring and responding to worsening symptoms. Consequently, patients often fail to adhere to treatment recommendations or delay seeking medical attention when symptoms escalate, leading to preventable readmissions. Studies have shown that patients often retain less than half of the information provided during standard discharge processes, particularly when complex medical terminology is used or when education is delivered without assessing patient understanding.

Effective discharge education is recognized as a cornerstone of successful heart failure management. It plays a critical role in empowering patients to take an active role in their own care, improve adherence to therapies, and recognize early warning signs that require medical intervention. The American Heart Association (AHA) and the Heart Failure Society of America (HFSA) recommend structured educational interventions, including the use of simple, clear language, repeated education sessions, visual aids, and the teach-back method to verify patient understanding.

Despite the availability of evidence-based guidelines, real-world implementation of structured discharge education remains inconsistent across healthcare settings. Time constraints, staffing shortages, and lack of standardized protocols often result in variability in the quality and delivery of patient education. This inconsistency leaves many patients vulnerable during the critical transition from hospital to home, where self-care becomes essential.

Recognizing these challenges, there is growing interest in developing structured, patient-centered discharge education programs tailored to the needs of individuals with heart failure. These programs aim to ensure that patients not only receive critical information but also comprehend and feel confident in applying it. Components such as individualized education sessions led by trained healthcare professionals, easy-to-read written materials, verification of understanding through the teach-back technique, and early post-discharge follow-up have emerged as promising strategies to improve outcomes.

This study was conducted to evaluate the impact of implementing a structured discharge education program on patient outcomes among individuals hospitalized with heart failure. Specifically, we sought to determine whether such an intervention could reduce 30-day hospital readmission rates, enhance patient confidence in self-care, and improve adherence to medications, dietary recommendations, and scheduled follow-up visits. We hypothesized that patients receiving structured education would demonstrate better post-discharge outcomes compared to those receiving standard discharge instructions.

METHODS

Study Design

This was a prospective, single-center, pre-post intervention study conducted between January 2024 and December 2024 at a tertiary care hospital.

Participants

Eligible participants included adults (≥18 years) admitted with a primary diagnosis of heart failure (both reduced and preserved ejection fraction) who were medically stable for discharge. Patients with cognitive impairment or those discharged to skilled nursing facilities were excluded.

Intervention

The intervention group received a structured discharge education program developed based on American Heart Association (AHA) guidelines. Key components included:

•	A one-on-one education session with a heart failure nurse specialist,
•	Written materials with low health literacy formatting,
•	A teach-back method to confirm understanding, and
•	Follow-up phone calls at 48 hours and 7 days post-discharge.

The control group received standard discharge instructions according to hospital policy.

Outcomes

The primary outcome was 30-day all-cause readmission rate. Secondary outcomes included patient self-reported confidence in managing HF (assessed by the Self-Care of Heart Failure Index, SCHFI) and adherence to medication, diet, and follow-up appointments.

Statistical Analysis

Comparative analyses between groups were conducted using Chi-square tests for categorical variables and t-tests for continuous variables. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 200 patients were enrolled, with 100 patients in each group. Baseline demographics were similar between groups.

- 30-day readmission rates:
o Intervention group: 12%
o Control group: 22%

(p = 0.03)

- Self-Care of Heart Failure Index (SCHFI) scores:
o Intervention group mean score: 75 ± 10
o Control group mean score: 62 ± 12

(p < 0.001)

- Adherence to medication and diet was significantly higher in the intervention group (medication adherence: 92% vs. 78%, p = 0.01; diet adherence: 85% vs. 70%, p = 0.02).

Patients who participated in structured education were also more likely to attend their scheduled post-discharge appointments (intervention: 88% vs. control: 72%, p = 0.01).

DISCUSSION

The findings of this study demonstrate that a structured discharge education program significantly improves clinical and self-care outcomes for patients hospitalized with heart failure. Patients who participated in the intervention exhibited a markedly lower 30-day readmission rate, higher levels of self-reported confidence in managing their condition, and better adherence to critical components of heart failure care, including medication compliance, dietary management, and follow-up appointment attendance.

One of the most striking results was the 10% absolute reduction in 30-day readmission rates among patients who received structured education. This aligns with previous studies suggesting that patient-centered discharge education interventions can substantially mitigate the revolving-door phenomenon often seen with heart failure admissions. Reducing readmissions not only alleviates the strain on healthcare systems but also signifies better quality of life for patients, as they experience fewer acute exacerbations and interruptions in their daily lives.

The success of the intervention likely stems from several key factors. First, individualized, one-on-one education sessions allowed healthcare providers to tailor information to each patient's specific needs, level of understanding, and cultural context. Second, the use of the teach-back method provided immediate feedback on comprehension, enabling educators to identify and address gaps in knowledge during the session itself. Third, structured follow-up phone calls at 48 hours and 7 days post-discharge reinforced learning, offered timely support, and encouraged early intervention in response to symptom worsening, preventing avoidable hospital returns.

Importantly, improvements were not limited to clinical outcomes. The intervention group scored significantly higher on the Self-Care of Heart Failure Index (SCHFI), indicating a greater ability and confidence in self-managing heart failure at home. High self-efficacy is a well-established predictor of better long-term outcomes in chronic disease management, suggesting that the benefits of structured education may extend well beyond the initial 30-day post-discharge window.

These results also highlight the multidimensional nature of effective heart failure management. Medication adherence and dietary compliance were significantly higher among intervention patients, supporting the notion that knowledge alone is insufficient without proper reinforcement, engagement strategies, and clear communication. Moreover, improved follow-up attendance reflects enhanced patient engagement with their care plan — a critical factor in maintaining stability and detecting early signs of decompensation.

However, despite these promising findings, several challenges and limitations must be acknowledged. The intervention requires additional time and resources, including trained personnel dedicated to patient education. In busy hospital environments where staffing and time constraints are ongoing challenges, integrating structured education into routine care may be difficult without institutional support and process redesign. Future quality improvement initiatives should focus on embedding structured education into standard discharge workflows to ensure sustainability and scalability.

Another limitation of this study is its single-center design, which may limit the generalizability of results. Additionally, we relied partly on patient self-reporting for secondary outcomes such as medication and diet adherence, which could introduce reporting bias. Larger, multicenter studies with longer follow-up periods and objective measures of adherence (such as pharmacy refill rates or dietary logs) are warranted to validate and extend these findings.

Finally, while this study demonstrated that structured education improves short-term outcomes, future research should explore its long-term effects on survival rates, quality of life, and healthcare utilization over six months to one year. Investigating the cost-effectiveness of structured discharge education programs will also be crucial to support widespread adoption and policy changes favoring such interventions.

CONCLUSION

In conclusion, this study provides strong evidence that a structured, patient-centered discharge education program significantly

enhances patient outcomes following hospitalization for heart failure. By improving patient knowledge, self-efficacy, adherence, and reducing readmissions, structured education addresses critical gaps in heart failure care transitions. Healthcare institutions should prioritize the development and implementation of standardized, evidence-based discharge education protocols as an essential component of comprehensive heart failure management strategies.

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