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A State-of-the-Art Review of Teach-back for Patients and Families with Heart Failure: How Far Have We Come?

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Abstract

Background -—Heart failure (HF) prevalence has risen for more than a decade. Effective patient and family education strategies for HF are needed on a global scale. One widely used method of education is the Teach-back method, where learners are provided information, then their understanding assessed by "teaching it back" to the educator.

Purpose -—This state-of-the-art review paper seeks to examine the evidence focusing on the Teach-back method of patient education and patient outcomes. Specifically, this paper describes: 1) The Teach-back process; 2) Teach-back's effect on patient outcomes; 3) Teach-back in the context of family care partners; and 4) Recommendations for future research and practice.

Conclusions -—Study investigators report the use of Teach-back, but few describe how Teach-back was utilized. Study designs vary widely, with few having a comparison group, making conclusions across studies challenging. The effect of Teach-back on patient outcomes is mixed. Some studies showed fewer HF readmissions after education using Teach-back, but different times of measurement obscure understanding of longitudinal effects. HF knowledge improved across most studies after Teach-back interventions, however, results related to HF self-care were mixed. Despite family care partner involvement in several studies, how they were included in Teach-back or associated effects are unclear.

Clinical implications -—Future clinical trials that evaluate the effect of Teach-back education on patient outcomes such as short and long-term readmission rates, biomarkers, and psychological measures are needed, as patient education is the foundation for self-care and health-related behaviors.

> Education is the most powerful weapon which you can use to change the world.
> Nelson Mandela

Introduction

Patient education is the first step on the path toward better health. As the US population ages and advanced therapies improve and prolong the lives of persons with heart failure

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(HF), patients and family care partners (a.k.a. caregivers) who manage HF require patient education. Patient education is a Class 1 recommendation for HF management.[1] Studies and meta-analyses that have tested the effect of interventions focused on HF self-care demonstrate a significantly reduced risk for HF hospitalizations, all-cause mortality and improved quality of life.[2–5] However, patient education is essential to engage in self and family care.

The prevalence of HF has maintained a steady rise for more than a decade with an increase in the age-adjusted death rate.[6] The incidence of HF with preserved ejection fraction (HFpEF) is rising, reflecting increases in known risk factors such as diabetes and obesity that are associated with the development of HFpEF.[7] Patient education and how best to deliver, assess, and measure the outcomes that reflect patient education is now needed on a global scale. One often-advocated and widely used type of patient education is the Teach-back method where patients are provided information, then their understanding of that information assessed. This state-of-the-art review paper seeks to evaluate the evidence focusing on the Teach-back method of patient education and outcomes. Specifically, this paper describes: 1) The process of Teach-back; 2) How Teach-back has been utilized to impact patient outcomes; 3) Teach-back in the context of family care partners; and 4) Recommendations for clinicians and future areas of research.

Teach-Back Method Defined

Teach-back is conceptualized as a two-fold process: First, information is provided and second, knowledge is assessed (Figure 1). This process is iterative, allowing the educator to dialog with the patient using the patients' own words. After information is provided, the educator asks the patient to "Teach-back" their understanding of the presented information. The educator can assess for knowledge gaps, reinforce and tailor patient knowledge, and engage in unstructured discussion. Teach-back is time-efficient because the educator can address knowledge gaps directly, rather than re-state information the patient may already know. This method of teaching is also agile, as it supports all levels of health literacy. [8–10] Health literacy is one social determinant of health (SDOH) and low health literacy can act as a barrier to HF self-management.[11] Data show that self-care programs involving Teach-back can reduce mortality and hospitalizations in low literacy adults.[12] Additionally, because Teach-back supports the process of eliciting the patient's own words, the educator gains insight into the patients' grasp of self-care knowledge and attitudes and ultimately, behavior.

The exact origin of Teach-back is unclear, but there are examples of similar methods from patient-centered health interventions. For example, a more than 4-decades old study that tested a patient satisfaction intervention describes a process of asking patients to restate what information they were provided.[13] Decades later, an example of "closing the loop" communication was described in a study of adults with low literacy, in which patients stated their understanding of diabetes self-care.[14] The primary study aim was to measure the extent to which patient recall and comprehension of diabetes self-care was assessed by health care providers. Study investigators found that patients who participated in the self-care teaching assessment were more likely to obtain better glycemic control.

Teach-Back Considerations

The Teach-back process requires considerations (Table 1) concerning the patient, educator and setting in which the teaching will take place. At the patient-level, the patient needs to feel well enough to listen and absorb information. Learning may also be influenced by other patient-level factors such as patient engagement, motivation toward self-care, health literacy, education level, family/friends indicating social support, cultural considerations, hearing and vision health, health status (e.g., pain level, cognition), and financial resources.[15] Patient mental health is a particularly important factor. For example, depressed mood and anxiety has been associated with poor self-care in several studies[16,17] and in individuals with moderate to severe depression, self-care was associated with decreased survival.[18]

In addition to patient-level considerations, the educator must be skilled in teaching essential HF self-care skills. Educational resources to support effective HF education are also required. Available media for HF self-care include patient videos, brochures, websites, patient phones, and tablets/computers. These resources are necessary to support both the patient and educator in teaching and learning. [11,19] The educator also must understand how to use Teach-back as a teaching strategy. Nurses most often provide HF patient education and require comprehension and practice in using the Teach-back method.

The setting for patient teaching is also an important consideration. The environment may pose challenges such as excessive noise, interruptions, or need for ongoing imaging or care needs. Creating an environment that facilitates effective patient education requires substantial administrative support. At minimum, health systems must be prepared to make adequate investments of time, resources, and structures for patient education initiatives to be successful.[19,20] For example, data from one study show that effective patient education may require as much as 37 or more minutes per educational session to allow adequate patient knowledge acquisition.[21] In fact, longer teaching times were significantly associated with correctly answered Teach-back questions ($p < .001$). Further, appropriate resources for written and verbal language translation are needed for patients without English language proficiency.

Identification of Teach-back Literature: Methods

To identify literature relevant to the use of the Teach-back method in HF patient education, a multi-database search of PubMed, CINAHL, and Web of Science was conducted with assistance from a biomedical librarian (DW; March 23, 2022; Figure 2). Full search algorithms can be found in Supplement 1. Articles were required to involve the use of Teach-back in persons with HF and/or their family care partners. If other chronic illness populations were represented, the article was included when persons with HF were a population of focus. All dates and article types (e.g., original research, reviews, protocols, etc.) were included. Articles were excluded from the review if they were conference abstracts, not peer-reviewed (e.g., news articles, theses/dissertations) or if they were not published in the English language. Articles were also excluded if their content focused on clinician knowledge and use of Teach-back, rather than on use of Teach-back with patients/families.

The search returned 79 items after de-duplication, which were then independently reviewed against the inclusion/exclusion criteria by the authors who have expertise in HF education (JHE, JTB). Determinations were compared and any discrepancies discussed and resolved by consensus. Article screening resulted in exclusion of 54 articles and other works: 27 were excluded for not meeting content criteria, 18 were not peer reviewed, 8 were conference abstracts, and 1 was a duplicate paper not originally identified during de-duplication. One additional paper was excluded for data reporting issues that precluded interpretation of its results. A total of 24 papers met inclusion criteria and are part of this review. The final literature includes 14 original research works, 4 reviews, and 6 protocol papers.

Teach-Back's Impact on Patient Outcomes

The fundamental importance of patient teaching centers on patient outcomes. The effect of the Teach-back method of patient education on outcomes has most often been studied in relation to HF readmissions, HF self-care, and HF knowledge. In this next section of the paper, we will provide an overview of the effect of Teach-back on these three patient outcomes (Table 2).

Hospital Readmission—Hospital readmission is the most studied outcome across research and quality improvement (QI) projects involving Teach-back for HF. Four QI projects measured the effects of patient education using Teach-back on HF readmissions.[22–25] One large, multisite QI project to reduce hospital readmissions included more than 90% of hospitals in South Carolina.[23] Patient education using the Teach-back method was utilized in 32% of participating hospitals. Patients included were hospitalized for acute myocardial infarction (AMI), pneumonia, HF, and chronic obstructive pulmonary disease (COPD). The authors reported that Teach-back training was provided but did not include details on the content or process. Results included significant decreases in all-cause readmission rates for patients with AMI, HF and COPD (Table 2). While these results are encouraging, few details were given on how Teach-back was implemented, how staff were trained in Teach-back, or over what time period readmissions were followed.

The three remaining QI projects were all single-center projects, and all found decreased HF readmission rates after implementing disease management programs involving Teach-back. One QI project took place in a military hospital where patients (N=84) and caregivers received patient education utilizing the Teach-back method.[25] Patient HF knowledge was reassessed at a follow up appointment. Thirty-day readmission rates were decreased as compared to prior project initiation, although there was no side-by-side comparison group. A QI project that took place in a rural community hospital described extensive staff nurse training on HF education and Teach-back strategies.[22] Prior to implementing patient education, nurses completed a pre and post-test to demonstrate competency with HF educational content and Teach-back strategies. Patients (N=61) were educated using the Teach-back method during hospitalization, and later received a follow-up call within 48 hours of discharge that incorporated the Teach-back tool. Investigators reported decreased 30-day readmission rates after implementation of this program. The third QI project described patient education and Teach-back strategies in specific detail.[24] A set of standardized HF patient education questions were developed by the authors. Clinical

staff were required to complete an online education module to standardize the elements of the Teach-back process. Next, patients were educated over 3 days using questions that addressed knowledge, attitudes, and behaviors. Interestingly, questions addressing attitudes assessed the possibility of behavior change. For example, when asked about the importance of reducing salt in the diet, a patient indicated no intention of reducing dietary salt, despite demonstrating knowledge that it was important. Documentation of the teaching encounter was entered as a progress note in the chart. During a 3-month evaluation period, readmission rates were numerically lower for patients who received Teach-back education (n=180) as compared to patients who did not (n=289), but statistical comparisons were not provided.

Contrary to the QI projects, two prospective cohort studies with historical comparison groups did not find reduced 30-day all-cause or HF-related hospital readmission rates.[21,26] In one study, nurses provided daily HF education and then asked each participant to answer four Teach-back questions the end of each session.[21] Two nurses provided the personalized education for all 276 participants and included families if possible. The four Teach-back questions included content on diuretics, weight gain, high salt foods, and HF symptoms. In another study, video education was utilized to decrease hospital readmissions.[26] Participants (N=70) were provided with a tablet computer to view 26 HF self-care videos (3-4 minutes each, 1 hour 24 minutes in-total) and their learning assessed using Teach-back. Participants were encouraged to watch all videos within seven days of discharge. However, it is unclear how Teach-back was utilized and what learning was assessed. One additional small cohort study (N=22) implemented a standardized educational program using Teach-back for home care patients. Using pre-post comparisons, the investigators found no significant reductions in readmission rates.[27]

Researchers have also examined the effect of education involving Teach-back on readmissions in two randomized controlled trials (RCTs).[28,29] Notably, just one group of investigators followed patients (N=200) for an extended period of time (12 months) and found the risk of readmission in the intervention group decreased by 30%.[29] In this trial, two HF specialist nurses used multimedia education during one 60-minute session and concluded with the Teach-back approach. Despite their promising results for 1-year readmissions, no reductions were found at their earlier time points (1 or 3 months).[29] The other trial was conducted by investigators in Vietnam.[28] In this study, nurses were trained in the Teach-back method and provided 60-minute teaching sessions. The researchers found no difference in hospitalization rates at one and three months between the control and intervention groups. However, they did find fewer hospitalizations occurred among females and in individuals with fewer comorbidities. Of note, approximately 75% of study participants were aged between 20 and 59, reflective of a younger population compared to other countries.

In summary, the data are unclear regarding the effectiveness of HF education using the Teach-back method to reduce readmissions. Interestingly, one group of investigators using a RCT design followed patients for 12 months and found significant reductions in readmissions, whereas almost all other investigators focused solely on 30-day readmissions. Longer follow up times may better inform the HF patient education trajectory and its relationship with hospital readmissions. Variability in measurement may also partly explain mixed study results, as readmissions were not measured consistently across studies (e.g.,

some investigators used all-cause readmissions, others examine HF-related readmissions only). Data outcomes may also vary due to substantial differences in research design (RCT, QI and cohort, etc.) and analytic methods. And finally, it is unclear whether Teach-back was consistently utilized within and across studies, as most investigators did not describe detailed use of Teach-back methodology and/or clinician use of Teach-back.

Knowledge & Self-Care of Heart Failure

Increasing patients' and family care partners' ability to manage HF at home is another important goal of HF education. To capture this, investigators commonly measure HF knowledge in patients and families after an education intervention. However, while HF knowledge is a foundational component of HF self-care, knowledge alone does not ensure self-care success.[15] Commonly, investigators measure both HF knowledge and HF self-care in tandem. HF knowledge was a target endpoint in in four RCTs[28–31] and two prospective cohort studies.[21,26] Across studies, measurement of knowledge varied, and specific instruments are described throughout this section. HF self-care was also measured in most studies, and one additional QI project[24] measured HF self-care only (i.e., no knowledge measurement). All but one research group measured self-care using the Self-Care of Heart Failure Index v6.2[32] which measures HF self-care maintenance (e.g., taking medications, eating a low salt diet, etc.), self-care management (recognizing and responding to worsening symptoms), and self-care confidence (self-efficacy in HF self-care behaviors).

HF knowledge and self-care generally improved in the two prospective cohort studies.[21,26] In one study, HF video education was evaluated using a video series viewed during the 7 days post-discharge. Knowledge was measured using the Atlanta HF Knowledge Test[33] and significantly increased between the pre- and post-tests.[26] Results relating to self-care were more mixed, with significant improvements in self-care maintenance, but no change in self-care management or confidence. In the other prospective cohort study, knowledge retention was assessed in response to daily HF inpatient education delivered via Teach-back (self-care was not measured).[21] The four Teach-back questions used in the education intervention were also used to assess knowledge. After Teach-back a substantial proportion of participants (84%) demonstrated a reasonable level of knowledge prior to discharge (3 or more questions correct), and most (77%) retained that knowledge in the week after discharge. Two additional findings related to HF knowledge may be of particular clinical utility: 1) Patients with cognitive impairment were less likely to demonstrate adequate knowledge in response to Teach-back, and 2) More time spent providing Teach-back education was associated with better knowledge.

The QI project was unique in that it was conducted within a home care program rather than in inpatient settings and/or HF clinics.[27] Investigators did not assess patient knowledge, but did assess changes in self-care and tested a specialized HF plan of care executed over 8 home visits. A major component of this care plan was patient education for HF home management, and each visit was mapped to include specific educational objectives taught and assessed using the Teach-back method. Like the cohort studies, results were mixed, with improvements observed in HF self-care maintenance and self-care confidence, but no change in self-care management.

All four RCTs with HF knowledge and self-care as endpoints were multi-component educational interventions that involved some combination of 1:1 teaching and provision of supplementary materials (typically written, e.g., a HF manual).[28–31] Most investigators[29–31] integrated multimedia video education, and a scale and HF diary were provided in two of the studies.[28,30] Three of the study investigators used interventions that were delivered in a single session,[28–30] while the remaining study involved four consecutive sessions.[31] Education was most commonly nurse-delivered, and educational session length varied across and within studies. Booster education sessions, often involving Teach-back, were delivered in all but one study,[29] with the first booster session provided approximately two weeks after the main intervention session. The number and timings of post-intervention measurements varied across studies, but all researchers included at least one measurement within 2-3 months after the initial intervention.

The most commonly used instrument to measure HF knowledge across RCTs was the Dutch HF Knowledge Scale (DHFKS), a well-validated tool that assesses knowledge of general HF information, treatments, and symptoms.[34] Only one RCT had neutral findings for HF knowledge across studies using this instrument.[29] This study also had neutral findings for self-care. Notably, this intervention did not include a booster educational component as found in the other studies. The remaining study investigators found improved HF knowledge, but mixed findings for HF self-care.[28,31] One observed a significant increase in patient knowledge in the Teach-back group compared to control,[28] but increases in self-care were only significant in the self-care maintenance dimension. In the other study, all groups received an education intervention (no control/comparison group) and all groups had significant increases in knowledge and self-care.[31] However, the two groups receiving 1:1 education with Teach-back (as compared to multimedia education alone) had the highest knowledge scores at the end of the study. There were no differences between groups on HF self-care.[31] A fourth RCT used the intervention's Teach-back questions as the knowledge measure (rather than the DHFKS) and found significant increases in patient knowledge in the Teach-back intervention group.[30] Similar to other studies, self-care results were again mixed, with improvement in only one self-care dimension. However, the dimension with significant improvement was HF self-care management, the only study to observe significant changes in this dimension of self-care.

In summary, HF knowledge and HF self-care were common endpoints across studies using Teach-back and were typically measured together. Despite substantial variability in overall study design, intervention components, and measures, HF knowledge results were relatively consistent, with most studies observing significant improvement in HF knowledge in response to Teach-back interventions. Results related to HF self-care were mixed, but self-care maintenance (as opposed to management or confidence) was the most common dimension to significantly improve. While positive findings related to self-care are not as consistent as clinicians, researchers and educators would hope for, within-person disconnects between knowledge and self-care are a common phenomenon. Knowledge attainment does not immediately impart self-care skill, and most knowledge-focused interventions in HF and cardiovascular disease report mixed results for self-care outcomes.[15]

Teach-back in the Family Care Context—Many persons with HF have one or more family care partners involved in their care. Family care partners (also commonly referred to as “family caregivers”) are family members and/or close friends or community members that provide unpaid support in managing HF.[35] Current guidelines recommend the inclusion of family care partners in HF care, particularly in the context of HF education and hospital-to-home transitions.[36] In line with this recommendation, all but three of the original research papers in this review mention family care partners in the context of their Teach-back interventions.[23,29,37] One intervention was designed specifically for care partners (i.e., no patients were enrolled), and demonstrated promising effects, such as high levels of satisfaction and significant reductions in care-related burden.[38] Some study interventions that primarily focused on patient education but included care partners also report beneficial effects, such as increased engagement or satisfaction with care.[25,26] Apart from any potential benefits, however, in most studies it is difficult to determine how family care partner inclusion was operationalized. The most common way investigators described family care partner inclusion was to refer to the education target as “patient and/or family” (or similar), or to simply note that care partners were included if available.

Some investigators provided additional details about their approach to family care partner inclusion. Interestingly, these studies were all QI projects. In one study, educators were explicitly directed to assess care partner knowledge through Teach-back assessments whenever possible.[39] This was a distinct step in the intervention procedure, separate from the patient learning assessment. In another project, investigators rejected the assumption that the patient would always be the best target for education. Instead, identifying the “key learner” was an important early step in Teach-back education. If this “key learner” was not the patient, then specific effort was made to include them in all Teach-back sessions.[24] In another study that used video education, care partner inclusion occurred during the video-watching portion of the intervention, and the choice to include care partners during this step was left to patient preference.[26] However, whether care partners were included in Teach-back sessions or assessments was unclear.

The question of *whose* knowledge is being assessed during Teach-back is also a common point of ambiguity across studies that mention care partner inclusion. Also unclear is whether care partners are active learners in Teach-back sessions, passive observers, or variable depending on family dynamics or educator preference. This information is important for understanding variability in operationalization of family Teach-back within and between studies, and for understanding whether the persons receiving the education were those primarily responsible for implementing self-care in daily life. Taken together, these issues may impact investigators’ capacity to evaluate an intervention’s efficacy or effectiveness. Going forward, including more detail about family care partner inclusion in study results or protocol papers (e.g., in appendices or supplements, given typical space limitations) may help advance research in family-centered HF education and care. Additionally, it may help clinician educators gain insight into which strategies for integrating care partners might work best for the families they are trying to support.

Summary

The Use of Teach-back Methodology: Overall, it is difficult to determine the actual role Teach-back itself plays in these studies. All trials were multicomponent interventions where Teach-back was combined with other intervention elements, obscuring potential independent effects. Integration of Teach-back within complex multicomponent interventions also creates challenges in identifying studies, as reference to Teach-back may appear only briefly or not at all within the larger intervention description. Additionally, most investigators did not provide a detailed explanation of how Teach-back was implemented or how central it was to the intervention as a whole. Notably, limited information on Teach-back implementation is a common issue across the broader literature on Teach-back education.[40] Variability in intervention components, dose (both initially and over time), and measurement (both instrument and timing), also create uncertainty around Teach-back's potential effects on clinical and person-centered outcomes, and the duration of those effects. Finally, it is unclear in most studies how clinicians were trained to use the Teach-back method, calling into question intervention fidelity across studies.

Teach-Back Method on Outcomes: While some results are promising, the data are equivocal regarding the effectiveness of HF education using the Teach-back method on outcomes. Across studies, significant improvements were most consistently observed for HF knowledge, with all but one study demonstrating positive effects. Improvements in HF self-care and HF readmissions, or outcomes more distal to knowledge acquisition, were less consistently observed. For HF readmissions, variability in study designs and measurement were substantial, and likely obscure some potential effects. Further, most studies did not have a comparison group. Overall, it is unclear whether Teach-back caused or was associated with decreased readmissions. For HF-self-care, mixed results are not surprising. If an education intervention is successful in transferring knowledge – which most were – knowledge is only the first foundational step to successful self-care of HF. For adequate self-care, patients and families need to develop skills to put that knowledge to action.[15]

What's Missing?

Future studies that evaluate the effect of Teach-back education on patient outcomes are needed in many areas. Historically, Teach-back methodology was first described to improve patient satisfaction.[13] Reviewed studies did not include measures of patient satisfaction, however patient engagement with self-care may be enhanced by patient satisfaction. The effect of Teach-back education on objective markers of HF progression (e.g., NT-proBNP, soluble ST2) have yet to be studied, although a recently published protocol paper describes the use of biomarker outcomes (NT-proBNP).[41] Psychosocial measures such as depression, anxiety, social support and quality of life are also understudied. Objective indicators of patient self-care behaviors (e.g., medication adherence, self-care adherence, attendance at follow up appointments) are also largely missing, as are measures of symptom perception and burden. And finally, greater inclusion of endpoints such as mortality, emergency department visits, and HF hospitalizations are critical to understanding the effect of education on patient clinical outcomes.

Study design, quality, and implementation are also important considerations. Study designs, particularly RCTs, with consistent, longer-term follow-up are needed to help us understand both short and long-term outcomes of Teach-back, and if/when additional education is needed. Integration of family care partners should also be considered, as patient self-care may be bolstered when both patient *and* care partner have adequate HF knowledge.[42] Additionally, Teach-back requires consistent and methodical training, documentation and research, and staff who are educated in HF self-care. In some studies, it is unclear whether the investigators were able to implement Teach-back with this level of rigor. In some studies, it is also unclear who is represented, as demographic information (e.g., race, ethnicity) is not consistently reported. While Teach-back is known to support health literacy, delivering Teach-back across diverse populations, in languages other than English, using cultural humility principles, is needed.[43] And finally, use of Teach-back also requires administrative support to provide staffing for patient teaching and the time to measure the effects of Teach-back on patient outcomes.[20] More research is needed to understand the influence of setting and support on the capacity of the educator and effectiveness of the education.

Limitations of the Review

This state-of-the-art review was written to allow for provision of important context for both researchers and clinicians, and to offer an in-depth discussion of what is necessary to push the field forward. As such, this paper is not a systematic review. While we provide explicit description of the search, abstraction, and synthesis methodologies (Supplement 1), we do not undertake a formal evaluation of bias or review the methods within/across articles as is typically found in systematic reviews. Given the heterogeneity of teach-back interventions and the preponderance of relatively small studies with varying degrees of rigor, a systematic review of this literature following current PRISMA guidelines would be a valuable future contribution to advancing the science of Teach-back in heart failure. Another limitation of this review is that studies may have been missed due to the tendency of Teach-back to be embedded within multicomponent interventions, poorly described, and potentially not explicitly named. Another limitation is that Teach-back data is not found worldwide. The effects of Teach-back and its use across diverse populations, in languages other than English, were explored only in papers written in English.

Conclusions

In this paper we sought to describe the process of Teach-back, how Teach-back has been utilized to impact patient outcomes in HF, and what future work is needed to advance our understanding of Teach-back. HF education using Teach-back has been examined in both cohort studies and RCTs, as well as QI projects. The most commonly tested outcomes across studies are readmissions, HF knowledge, and HF self-care. Although fairly consistent improvements in HF knowledge were observed in response to interventions with Teach-back, results related to readmissions and HF self-care were equivocal. Additionally, studies that involve Teach-back are highly heterogeneous, and often contain limited detail on how Teach-back was implemented, both in terms of educator training and operationalization with patients and families. Additionally, Teach-back is almost always combined with other intervention components, making it difficult to disentangle independent effects. Despite this, the Teach-back method remains a recommended educational strategy with important

advantages, including its focus on hearing and centering patients and families, its capacity to tailor education directly to learner needs, and its ability to support learning at all levels of health literacy.[9–11] Because of these advantages, rigorous research to better understand how Teach-back may be optimized holds great potential for advancing health and health equity for persons with HF and their family care partners.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Declaration of interest (Funding sources):

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What's New?

- Teach-back education is commonly recommended, but effectiveness has not been established, leaving many gaps for clinical practice and research
- HF studies utilizing Teach-back are heterogeneous, preventing understanding of independent Teach-back effects
- Including Teach-back may improve HF knowledge, but it is unclear the impact on HF self-care and hospital readmissions

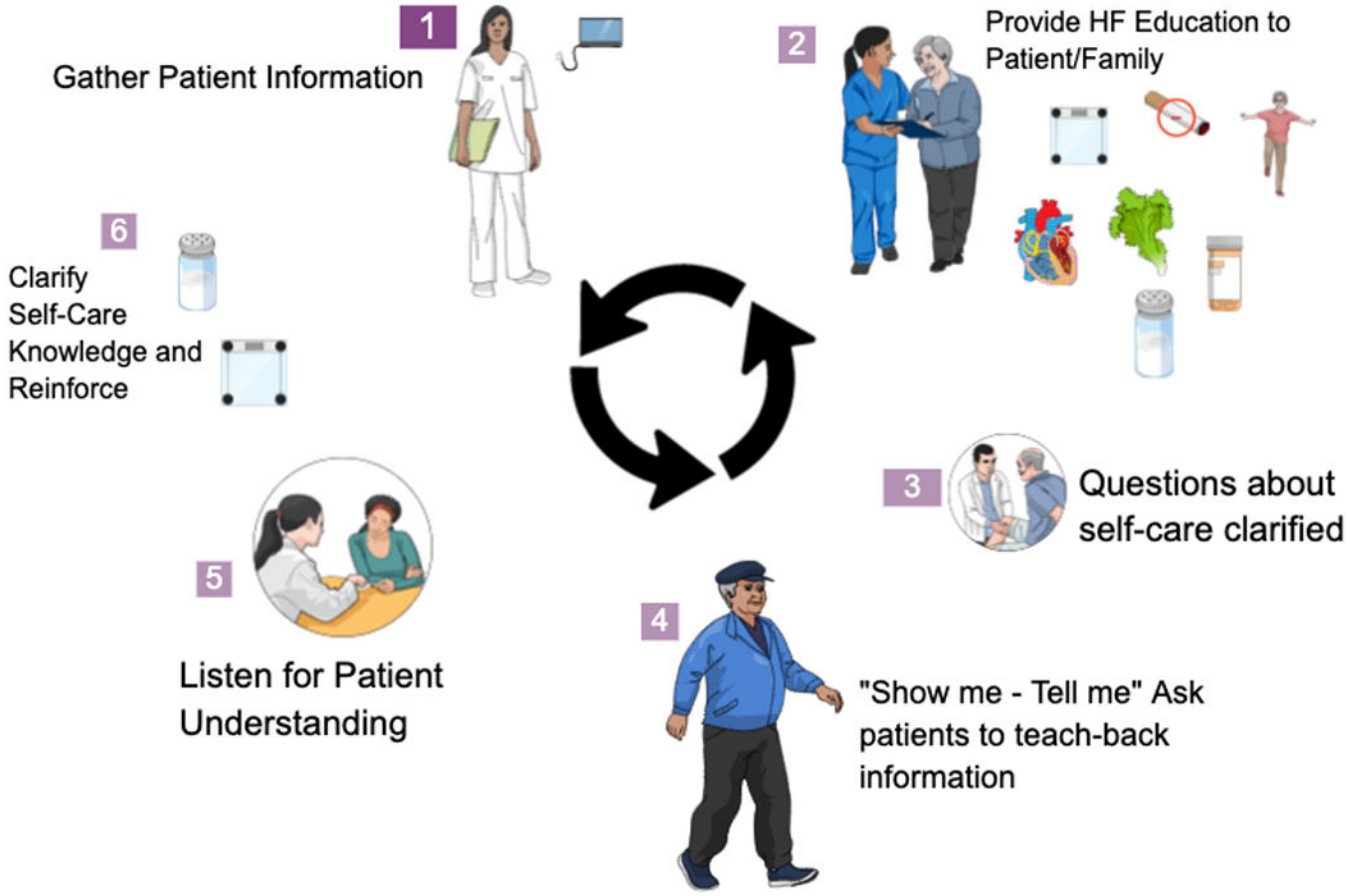

Figure 1:
The Teach-back Process

Table 1.

Potential Challenges to Effective Patient Education

Potential Challenge	Potential Solutions
Patient Challenge	
Health Status/Illness	Ensure patient symptoms minimized, hearing aids, glasses and support devices provided.
Health Literacy and Numeracy/Education Level	Ask patients how they learn best; ask patients their highest grade level achieved; provide grade level appropriate education. Consider assessing health literacy using the Rapid Assessment of Adult Literacy in Medicine or other validated measures.[45]
Family Care Partner Involvement	Identify if there are family members/friends involved in the patient's care, and if so, how they are involved and what education they need; assess care partner understanding with teach-back independently, if possible.
Cultural Considerations	Adopt cultural humility principles in the education and advocacy of all patients and families (be open and committed to learning cultural experiences/beliefs from patient/family rather than stereotyping, self-reflect on your own bias/beliefs/assumptions, recognize/change power imbalances, hold institutions accountable.[44]
Cognitive Impairment	Ask patients and care partners if they have noticed cognitive changes or decline. Consider administering measures of cognitive function (e.g., Mini-cog)[46] and/or requesting formal evaluation and involvement with family care partners and/or friends.
Depression/Psychological Considerations	Ask patients and care partners about changes in mood or levels of anxiety. Consider utilizing measures of depression or anxiety (e.g., PHQ-9, GAD-7). Understand mental health resources that are available, and actively facilitate patient/family access to those resources.[47,48]
Lack of Patient Engagement or Readiness for Change	Assess readiness to change by asking the patient if they would like to change a certain behavior. Consider using a measurement of readiness for change to such as the Health Behavior Motivation Scale, etc.[49]
Financial Barriers to HF Care	Consider types of insurance or measurement of financial barriers to self-care such as Financial Strain, etc. and/or referral to social work/specialty pharmacy programs.[50]
Limited Language Proficiency	Provide materials in the language the patient is most comfortable with; appropriate use of medical translators, organize plan for follow-up in patient's preferred language, provide scripts for common interactions with the medical team (e.g., calling about symptoms).
Health System and Educator Challenges	
Administrative Support for Patient Education and Patient Environment	Consider staffing needs and opportunities for optimal patient education. Determine if patient education environment conducive to learning; appropriate resources for patient education; documentation for patient education in the medical record.
Patient Education Resources Limited	Identify needed heart failure patient education and staff training resources for use in the environment of care. Consider patient education resources at American Association of Heart Failure Nurses, Heart Failure Society of America, etc.
Unawareness of Patient Education Concepts and Education Methods	Ask patient how they learn best. For example, do they learn best with videos, written materials, demonstration, do they have a scale? Consider the American Heart Association "Rise Above Heart Failure Toolkit for Health Care Professionals" best practices for patient education.[51, 52]

TABLE 2:

SUMMARY OF INTERVENTION RESULTS ON READMISSIONS, KNOWLEDGE, & SELF-CARE

Citation	Readmissions	Knowledge	Self-Care
Axon et. al., 2016	+ [e]		
Boyde et. al., 2018	**Mixed**[f] 28 days: null 3 months: null **12 months: +**	Null	Null
Charais et. al., 2020	+ [e]		
Dinh et. al., 2019	Null	+ [f]	**Mixed** **Maintenance: +** Management: null Confidence: null
Howie-Esquivel et. al., 2014		+ [f]	**Mixed** Maintenance: null **Management: +** Confidence: null
Karami et. al., 2021		+ [a]	Null [b]
Lay et. al., 2019	Null [c]		**Mixed** **Maintenance: +** Management: null **Confidence: +**
Peter et. al., 2015	+ [e]	+ [e]	
Reid et. al., 2019	Null	+ [d]	**Mixed** **Maintenance: +** Management: null Confidence: null
White et. al., 2013	Null	+ [d]	
Vesterlund et. al., 2015	+ [e]		

"Mixed" indicates a mixture of significant and null findings on the outcome(s)

"Null" indicates null findings (no significant difference) on the outcome(s)

+ indicates significant findings on the outcome(s)

Grey-filled squares indicate that the outcome was not measured in this study

[a] Knowledge measured in family care partners only

[b] Improvements in HF self-care observed in all study groups. No significant difference between groups.

[c] Numeric reduction observed. Not statistically significant.

[d] Prospective cohort study. No comparison group.

[e] Quality improvement project