

Supplementary File

Appendix 1. General Characteristics of the Studies Qualified for Systematic Review

First Author, Year	Country	Study Design	Participants	Sample Size	Age ^a	Male Percent-age	Race %	Most important findings
Murray, 2009 (31)	America	Cohort	Heart failure patients in specific hospitalizations and specific emergency department visits	44	63.2 ± 8.9	20.4 %	52.1% African American	Lack of adherence to treatment and lack of health literacy skills are factors that exacerbate heart failure
Dennison, 2011 (40)	America	Descriptive, comparative study	Heart failure patients in hospitals	95	59 ± 14	51 %	68% African American	The results of this study show that poor health literacy is very common in the population with HF. Low health literacy has widely influenced the health of patients with HF and their self-care behaviors
Noureldin, 2012 (30)	America	A randomized controlled trial: Post hoc analysis	Patients with heart failure from the overall setting of care	281	63 ± 9	33 %	48% African American	HF patients with good health literacy have better adherence to cardiovascular drugs than those with insufficient health literacy.
Chen, 2014 (43)	America	Cross-sectional, correlational design	Heart failure patients	63	62.1 ± 13.7	52.4%	85.7% white	Health literacy influences knowledge about heart failure but not self-care adherence.
Como, 2018 (42)	America	Non-experimental cross-sectional	Chronic heart failure patient from urban cardiology practices	175	73.6 ± 11.5	66.9%	83% white	Self-efficacy, medication adherence and adequate health literacy play a role in improving the health status
Oscalices, 2019 (5)	Brazil	Cross-sectional	Patients admitted to the emergency room with a diagnosis of heart failure	100	63.3 ± 15.2		41% white	The low level of literacy was directly related to lower adherence and the presence of barriers to medication adherence, as well as higher rates of rehospitalization and death
Kumar, 2017 (36)	America	Cross-sectional	Patients with hemodynamically stable acute heart failure	100	57.5 ± 13.2	49%	94% African American	In this study, HL was positively correlated with level of education and reversely associated with age and was an important determinant of disease-specific illness beliefs in patients with acute HF.
Jovanic, 2018 (23)	Serbia	Cross sectional	Heart failure patients in hospitals	200	70.12 ± 9.63	59.5%	—	Health literacy is a strong predictor of quality of life
Jo, 2020 (24)	Korea	Cross-sectional descriptive	Older adults with heart failure were recruited from a tertiary care hospital	252	73.65 ± 8.08	50.4%	—	Health literacy and perceived social support were positively associated with self-care behaviors among elderly with heart failure.
Baker, 2011 (44)	America	Randomized controlled trial	Potential participants were approached at regular outpatient appointments	531	60.7 ± 13.1	52%	39% White	Telephone reinforcements of learning goals and self-care behaviors improve the knowledge, health behaviors, and HF-related QOL compared to a single education session.
DeWalt, 2012 (39)	America	Randomized controlled trial	Patients with heart failure	605	60.7 ± 13.1	52%	39% white	People with poor literacy appear to benefit more from multisession interventions than people with higher literacy.

Kolipara, 2008 (37)	America	Cross-sectional	Patients (105) admitted with presumed heart failure before their discharge (less than 48 hours before discharge time)	48	56 ± 11	67%	67% African American	Low dietary sodium knowledge was an independent risk factor for 90-day HF hospital readmission in the urban setting. Deficits in dietary sodium knowledge is one model through which low health literacy leads to adverse outcomes in patients with HF.
Laramée, 2007 (35)	America	Cross-sectional	172 subjects with heart failure and diabetes were drawn from Vermont Diabetes Information System Field Survey	172	65	46%	97% white	Over one quarter of diabetic adults with HF have limited literacy.
McNaughton, 2013 (34)	America	Prospective cohort	Patients with acute heart failure presented in 4 emergency departments	709	61.4	56.1%	52.9% white	Low numeracy was associated with greater odds of 30-day recidivism.
Mixon, 2014 (33)	America	Prospective cohort	Adults with acute coronary syndromes (ACS) and/or acute decompensated heart failure	471	59.4 ± 12.5	52.1%	80.7% white	Medication errors are present in approximately half of patients after hospital discharge, and are more common among patients with lower numeracy or health literacy.
Morrow, 2006 (32)	America	Cross-Sectional	Participants were 314 community-dwelling adults: Middle-aged and older adults	314	62.9 ± 8.5	33%	49% white	The association of cognitive abilities and literacy has important implications for health literacy models and for interventions to reduce the impact of low health literacy on health outcomes.
Peterson, 2011 (29)	America	Prospective cohort	Outpatients with heart failure	1449	74.9 ± 10.7	46.8%	82% white	Among patients with heart failure in an integrated managed care organization, low health literacy was significantly associated with higher all-cause mortality.
Tung, 2014 (28)	Taiwan	Cross-sectional	98 individuals were recruited using convenience sampling from a large medical center in Taiwan. Participants were inpatients with HF diagnosis who aged 50 years or older	98	67.4	75.5%	100% Asian	The factors associated with health literacy are hard to change and/or improve; therefore, developing innovative ways to help patients in dealing with their symptoms is needed.
Aga, 2020 (48)	America	Secondary analysis of baseline data from a randomized controlled study	The original randomized controlled trial enrolled adult patients with comorbid heart failure and type 2 diabetes at the time of hospitalization or patients with worsening heart failure in the 3 months following hospital discharge.	180	58.1 ± 10.7	65.6%	66.1% African American	This study identified the predictors of diabetes self-efficacy in people with T2D and comorbid HF. The findings suggested that T2D-HF patients with good perceived health have higher diabetes self-efficacy. The use of self-rated health would provide a quick patient-centered assessment to evaluate their confidence in performing diabetes self-care activities.
Arnold, 2005 (25)	Netherland	Cross-sectional	Consecutive patients with chronic obstructive pulmonary disease (COPD) or congestive heart failure (CHF)	121	COPD: 67.8 ± 8.5; HF: 60 ± 10.2	COPD: 67.9%; HF: 70.8%		For both COPD and CHF, self-efficacy displayed the strongest relationship with physical functioning. We suggest that not only improving physical functioning, but also enhancing self-efficacy, should be aimed in the treatment of patients with COPD and CHF

Barnason, 2010 (47)	America	Pilot study	Elderly (≥ 65 years of age) with heart failure	40	76.9 \pm 6.5	65%		Developing specific skills of medication use is an important component of education and counseling for improving self-care management in HF patients, particularly in the hospital to home transition period.
Buck, 2015 (26)	Italy	Secondary analysis of a large cross-sectional database	Italian heart failure patients	628	72.98 \pm 11.34	42.4%		Self-efficacy is important at each level of comorbidity in the self-care maintenance. Because higher comorbidity weakens the strength of the relationship between self-efficacy and self-care maintenance. Tailoring the interventions targeted self-efficacy improvement to different levels of comorbidity may be the key to reduce hospitalization and enhance quality of life.
Cousin, 2020 (46)	America	Prospective observational study	Asymptomatic patients with heart failure	153	66 \pm 11	95%	79% white	Self-efficacy was a mechanism through which gratitude was associated with medication adherence in asymptomatic patients with HF, suggesting a way to improve self-care non-pharmacologically.
Dang, 2017 (45)	America	Randomized, controlled prospective	Heart failure patients	61	55 \pm 10	64%	75% white Hispanic	A mobile phone-based software for disease management may help to improve self-care efficacy and QoL in minority, and it offers a modality to reduce ethnic disparity.
Peyman, 2020 (27)	Iran	Semi-experimental study	Heart failure patients	80	Control: 51.61 \pm 8.51; Intervention: 55.00 \pm 8.48			The implementation of educational interventions based on self-efficacy strategies could have positive effects on health promoting behaviors among heart failure patients.
Suresh, 2018 (17)	Singapore	Cross-sectional	Heart failure patients	91	> 32	82.4%		Patients at risk of poor self-efficacy and HRQoL should be candidates for structured intervention programs.
Tovar, 2016 (19)	America	Cross-sectional	Heart failure patients	346	60.4 \pm 11.8	71%	81% white	Bolstering self-efficacy may have a greater impact on self-care adherence than targeting either depression or social support alone.

^a Values are expressed as mean \pm SD.