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Journal article

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This is an Accepted Manuscript of an article published as:

Stawnychy, M. A., Ringel, J. B., Riegel, B. and Sterling, M. R. (2022). Better preparation and training determine home care workers' self-efficacy in contributing to heart failure self-care better preparation. *Journal of Applied Gerontology*, 42(4), pp. 651-659.

<https://doi.org/10.1177/07334648221113322>

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Published in final edited form as:

*J Appl Gerontol.* 2023 April ; 42(4): 651–659. doi:10.1177/07334648221113322.

## Better Preparation and Training Determine Home Care Workers' Self-Efficacy in Contributing to Heart Failure Self-care

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### Abstract

**Objective:** Identify determinants of home care workers' (HCW) self-efficacy in contributing to heart failure (HF) self-care.

**Methods:** Secondary analysis of a survey (n=328) examining characteristics of HCWs caring for adults with HF in New York. Self-efficacy assessed using Caregiver Self-Efficacy in Contributing to Self-Care Scale. Standardized scores range 0–100; 70 points indicate adequate self-efficacy. Characteristics determined by self-efficacy (low vs. adequate). Prevalence ratios with 95% confidence intervals (PR [95%CI]) were estimated using multivariable Poisson regression with robust standard errors.

**Results:** HCWs with adequate self-efficacy had at least some prior HF training (55% vs 17%,  $p<.001$ ) and greater job satisfaction (90% vs 77%,  $p=.003$ ). Significant determinants for adequate self-efficacy were employment length (1.02 [1.00–1.03],  $p=.027$ ), preparation for caregiving (3.10 [2.42–3.96],  $p<.001$ ), and HF training (1.48 [1.20–1.84],  $p<.001$ ).

**Conclusion:** Home care agencies and policy-makers can target caregiving preparation and HF training to improve HCWs' confidence in caring for adult HF patients.

### Introduction

Home care workers provide essential support for adults with chronic illness. There are nearly 3.5 million home care workers, which include home health aides, attendants, and personal care aides, in the U.S. (Bureau of Labor Statistics, 2019). This number is expected

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**Declaration of Conflicting Interests:** the Authors declare that there is no conflict of interest.

to grow 34% by 2029. This is in part due to the rapidly aging US population, but also due to the rising movement of adults who want to age in place and avoid nursing homes (Binette, November 2021; Bureau of Labor Statistics, 2019). The type of support that home care workers provide can be for short or long terms and varies from assisting with personal care (e.g., activities of daily living and instrumental activities of daily living), to assisting with medical self-care (e.g., reminders to take medication, tracking weight), to monitoring vital signs and reporting changes in a client's condition (Bureau of Labor Statistics, 2019). As the number of older adults with chronic illness grows, home care workers are tasked with supporting the more complicated care needs of these adults (Campbell et al., 2021).

More than a third of Medicare beneficiaries discharged from the hospital for heart failure (HF) are discharged home with home health care services (Sterling, Kern, et al., 2020). HF is a chronic and progressive syndrome of cardiac impairment that requires a level of routine patient self-care to prevent hospitalization (Jonkman et al., 2016; Riegel et al., 2016; Riegel et al., 2021). An estimated 6 million U.S. adults are affected by HF with prevalence expected to increase 46% by 2030 (Virani et al., 2020). While HF may impact younger adults, it is more common as we age, particularly in adults over 80 years old. Certain illnesses (i.e., coronary heart disease, hypertension, diabetes) are risk factors for HF and their co-occurrence may complicate medication and lifestyle management. HF is managed at home through the process of self-care, which maintains health through health promoting practices and managing illness (Riegel et al., 2016). Self-care can be divided into three domains (maintenance, symptom perception and management) and may be influenced by the contributions of caregivers like home care workers (Riegel et al., 2016; Sterling, Dell, et al., 2020; Vellone, Barbaranelli, et al., 2020; Vellone et al., 2019). Self-care maintenance involves adherence to treatment and healthy lifestyle behaviors. Home care workers provide patients with HF self-care maintenance support through activities like low-sodium diet preparation and assistance with prescribed physical activity (New York State Department Of Health, 2007). Symptom perception relates to recognizing, monitoring and interpreting symptoms of HF (e.g., shortness of breath or edema). Home care workers support this self-care domain by actively monitoring symptoms with the patient and correctly interpreting their significance (Riegel et al., 2016; Sterling, Dell, et al., 2020). After symptoms are recognized, self-care management support ensures a proper response by following the patient's care plan and deciding when to contact the care team or emergency services (Riegel et al., 2016; Sterling, Dell, et al., 2020).

Understanding home care workers' contribution to HF self-care is important given the prevalence in which home care workers care for adults with HF. Many older adults prefer to age-in-place and will need support from this growing workforce (Binette, November 2021). Contribution to HF self-care may be influenced by a myriad of factors including home care worker training, perceived preparedness for caregiving, and self-efficacy (Sterling, Barbaranelli, et al., 2020). Self-efficacy refers to the belief that one is confident and capable in performing an action to reach a desired effect or goal (Bandura, 1998). Caregiver self-efficacy influences the caregivers' contribution to the process of HF patient self-care maintenance, symptom monitoring, and management, which in turn influence patient and caregiver outcomes (Vellone et al., 2015; Vellone et al., 2019). In the home care setting, caregiver self-efficacy is the home care worker's belief in their abilities to assist the client

with self-care (Vellone et al., 2019). A recent study by our team investigating the association between home care workers' caregiving preparedness and their contribution to HF self-care found that this association was mediated by self-care self-efficacy (Sterling, Barbaranelli, et al., 2020). These findings signal that self-care self-efficacy may be an important intervention target for this workforce. While this study established a relationship between caregiving preparedness and self-efficacy, it did not explore other potential predictors of self-efficacy, such as age, educational level, or training (Frey et al., 2020; ten Koppel et al., 2019). Thus, the objective of this study is to build on previous work and identify the determinants of home care workers' self-efficacy in their abilities to contribute to HF self-care. Identifying the determinants of home care workers' self-efficacy in assisting with HF self-care has the potential to inform interventions and policies that better support home care workers' caregiving contributions and the care that HF patients receive in the home.

## Method

This is a secondary analysis of a cross-sectional study that examined the experiences of home care workers caring for adults with HF, and in particular the influence of home care worker perceived preparedness, mutuality, and self-efficacy on their contribution to HF self-care (Sterling, Barbaranelli, et al., 2020). The study was conducted in partnership with the Home Care Industry Education Fund (Education Fund), a benefit fund of the 1199 Service Employees International Union (1199SEIU) United Healthcare Workers East, the largest healthcare union in the U.S. The 1199SEIU Home Care Industry Education Fund is a non-profit organization that provides education and training services to 75,000 home care workers employed by 55 agencies across New York, N.Y. and trains between 15–20,000 home care workers per year. In addition, individual home care agencies in New York, N.Y. that were not affiliated with the Education Fund were approached directly to participate to diversify the sample. Paper surveys were actively promoted and distributed by staff to home care workers during regularly scheduled meetings at the Education Fund and home care agency headquarters between August 2018 through May 2019. Education Fund staff and individual home care agencies were given a script to approach home care workers when they attended these meetings. Eligibility criteria was assessed by self-report and included the following: greater than one year of job experience, cared for at least one HF patient in the past year, and able to read and write in English. Surveys were developed with the community partner and piloted and refined with home care workers ahead of the study. The survey took 30 minutes to complete and home care workers were eligible to participate in a raffle upon completion. The Institutional Review Board of Weill Cornell Medicine approved the main study (IRB Protocol #1706018271). All procedures complied with the Declaration of Helsinki.

## Measurement

### Participant Characteristics

The survey collected sociodemographic data and characteristics related to home care experience and employment. Sociodemographic attributes included age, gender, race/ethnicity, born in the US (yes, no) and educational attainment. Home care experience and

employment characteristics included self-reported years worked as a home care worker, number of HF patients cared for in the past (1–5, 6–10, 11–15, >15), current home care agency size, and amount of prior HF-specific training (none, a little, some, or a lot). Preparedness was assessed with the Caregiver Preparedness scale (Archbold et al., 1990), and validated with home care workers (composite reliability coefficient = 0.86) (Sterling, Barbaranelli, et al., 2020). Preparation for caregiving refers to the caregiver's perception of their preparedness to accomplish role tasks and consists of eight items scored on a five-point Likert scale (Archbold et al., 1990). These items regarded preparedness to care for the patient's physical and emotional needs, handle the stress of caregiving, respond to emergencies, and get help.

**Caregiver Self-Efficacy In Contributing To Patient HF Self-Care**—Caregiver self-efficacy in contributing to patient HF self-care was assessed using the 10-item Caregiver Self-Efficacy in Contributing to Self-Care Scale, which was derived from the Self-Care Self-Efficacy Scale (Yu et al., 2021). The Self-Care Self-Efficacy Scale measures patient self-care self-efficacy and items were transformed to assess the same content for caregivers. For example, “How confident are you that you can follow the treatment plan you have been given?” was transformed to, “In reference to the person you care for, how confident are you that you can follow the treatment plan you have been given?” Individual items are scored on a 5-point Likert scale and the average score is standardized on a 0 to 100 scale. Scores of 70 points or higher on the patient version of the Self-care of Heart Failure Index v6.2 indicate self-care adequate enough to prevent exacerbations of HF (Riegel et al., 2009). The Caregiver Self-Efficacy in Contributing to Self-Care Scale was previously validated with home care workers (model-based internal consistency coefficient = 0.955) (Sterling, Barbaranelli, et al., 2020).

## Statistical Analysis

Home care workers were divided into two groups based on whether or not their Caregiver Self-Efficacy in Contributing to Self-Care Scale scores were considered adequate. A predetermined cutoff score of 70 points to determine self-care adequacy is consistent with prior research on patient self-care (Vellone, Barbaranelli, et al., 2020). Home care workers scoring 70 or more points were considered to have adequate self-care self-efficacy. Those scoring less than 70 points had low self-efficacy. Characteristics between low vs. adequate self-efficacy groups were compared using chi-square, ANOVA and Wilcoxon rank-sum tests. Due to the high prevalence of adequate self-efficacy in the sample, the association between the predictors and adequate self-efficacy was assessed using Poisson models with robust standard errors. When outcomes are common, using Poisson regression yields prevalence ratios which are less likely to be overestimated and are easier to interpret than odds ratios (Zou, 2004). Crude and fully adjusted prevalence ratios and 95% confidence intervals were calculated. Multiple imputation with chained equations was used to account for any bias due to missing values (Rubin & Schenker, 1991). Variables with the most missing cases included hours per week spent with HF patient (n=32), age (n=19), preparation for caregiving (n=15), and race/ethnicity (n=13). All statistical analysis was run using Stata 14.

There was a very small percentage of males in the sample and thus gender was excluded from the main analysis. A sensitivity analysis including gender was conducted, however. Additionally, 10 participants were excluded from the analysis due to missing information on agency. These participants were included back into the sample in a second sensitivity analysis.

## Results

A total of 328 home care workers comprised our study sample. They were predominantly female, non-Hispanic black, and had a mean age of 48 years (Table 1). The majority were not born in the U.S. and had a high-school education or some college. Overall, participants had a median of 9 years of experience as home care workers.

Less than half (45.5%) of the home care workers in this study had adequate HF self-care self-efficacy. The mean scores for self-efficacy were very low for home care workers in the low self-efficacy group compared with those reporting adequate self-efficacy ( $38.5 \pm 17.4$  vs.  $87.6 \pm 9.8$ ,  $p < .001$ ). Sociodemographic characteristics and years of experience were similar across those with adequate vs. inadequate self-efficacy. Home care workers with low self-efficacy spent more hours with the patient (22 vs. 12,  $p = .076$ ) and generally were employed by larger home care agencies, although these distinctions were not significant in the regression models. Compared to home care workers with low self-efficacy, those with adequate self-efficacy cared for either fewer than 6 (78% vs 68%,  $p = .002$ ) or > 10 HF patients (11% vs 8%,  $p = .002$ ), had more prior HF training (54.8% vs. 17.0%,  $p < .001$ ), felt better prepared for caregiving ( $4.6 \pm .5$  vs.  $3.4 \pm .9$ ,  $p < .001$ ), and were generally more satisfied with their jobs (89.5% vs. 76.7%,  $p = .003$ ).

In an unadjusted model (Table 2), greater duration in the occupation, greater perceived preparation for caregiving, and more HF training were significantly associated with adequate self-efficacy. These results did not change with the addition of covariates in the fully adjusted model. Preparation for caregiving made the greatest contribution to home care workers' self-efficacy: that is, every one-point increase in perceived preparation for caregiving was associated with a threefold increase in the prevalence of reported adequate self-efficacy (3.10 [2.42–3.96],  $p < .001$ ). Additionally, HF training was associated with nearly 50% greater prevalence of adequate self-efficacy (1.48 [1.20–1.84],  $p < .001$ ) and more experience in the occupation was associated with greater self-efficacy (1.02 [1.00–1.03],  $p = .027$ ). Age, race/ethnicity, native born status, and education were not significant.

A sensitivity analysis was conducted adjusting for gender in the full model. These results were consistent with the main analysis (Supplemental Material, Table 3). A second sensitivity analysis was performed that included imputed agency information for 10 participants who were missing agency size (Supplemental Material, Table 4). Results in this fully adjusted model were similar for perceived preparation for caregiving and training; however, the length of time as a home care worker was no longer significant in this model.

## Discussion

This secondary analysis of a diverse group of agency-employed home care workers identified the determinants of their self-efficacy in their contribution to HF self-care. Better perceived preparation for caregiving, more training in HF, and a longer length of employment were each significantly associated with having adequate self-efficacy. The largest contributions were from perceived preparation for caregiving and HF training. These results are notable as the latter two factors are modifiable through education. Identifying modifiable determinants that may improve home care workers' ability to contribute meaningfully to HF care is important since the prevalence of HF continues to increase (Virani et al., 2020). Alongside these trends, home care workers are being called upon to care for older and more complex HF patients while facing numerous training and retention challenges (Jones et al., 2015; Spetz et al., 2019). Improving their self-efficacy has the potential to increase their contribution to HF self-care, which may have lasting impacts on both workers and patients.

Home care workers' perceived caregiving preparedness was the largest contributor to adequate self-efficacy. A study with family and non-family caregivers of adults with HF similarly reported a significant association between better perceived caregiver preparedness and higher self-efficacy (Vellone, Biagioli, et al., 2020). There are no known interventions that focus on preparing home care workers for the physical and emotional needs of adults with HF and the stress of HF caregiving. However, interventions with family caregivers of persons with dementia and in palliative care illustrate that preparedness is modifiable and offer methods that may be employed with home care workers to improve their caregiving preparedness. Huang et al. (2013) successfully used a problem-solving with skill-building approach with family members caring for relatives with dementia. Family needs assessments followed by care planning improved palliative caregiving preparedness in both a one-on-one intervention (Hudson et al., 2013) and in groups (Holm et al., 2016). The latter 3-session psychoeducational intervention taught caregivers what to expect, how to handle situations, and how to manage their and their partners' emotions (Holm et al., 2016). Home care workers are typically educated in groups making a group approach particularly salient. In addition to needs-based skill-building and problem-solving approaches, interventions may directly target caregiving stress. The ability to respond to stress related to caregiving is an important aspect of caregiving preparedness (Archbold et al., 1990). One such intervention delivers stress-reducing skills-based content via a virtual health coaching model to reduce stress in caregivers of adults with HF (Riegel et al., 2019). Being prepared to take care of the patient's physical and emotional needs is a fundamental aspect of home care (Campbell et al., 2021). Like family caregivers, home care workers may benefit from exposure to education and skills associated with preparedness for caregiving, such as handling stress and taking care of emotional needs (Archbold et al., 1990). Agencies and employee unions may assess staff perceived preparedness and subsequently provide appropriate training that is periodically reinforced.

HF-specific training was another important determinant of adequate self-efficacy among home care workers. This finding is similar to studies involving palliative care nurses and healthcare assistants in long-term care facilities that found that palliative care-specific

education was associated with higher self-efficacy in communication (ten Koppel et al., 2019) and delivery of palliative care (Frey et al., 2020). The relationship between skills-based training and self-efficacy is supported by self-efficacy theory (Bandura, 1977). Despite calls for improving training (Spetz et al., 2019) and the frequency in which home care workers provide HF care, this study and others have found that home care workers' lack HF training (Sterling, Dell, et al. 2020). Home care worker training varies from no requirements to 40 hours for personal care aides and 75 or more hours for home health aides. Initial training does not typically include illness-specific content other than meal preparation for diabetes (New York State Department Of Health, 2007). In a recent qualitative study, home care workers describe wanting more information on HF signs and symptoms, medications, and diet (Leung et al., 2020). They report struggling when dealing with patient non-adherence to medical advice and report wanting stress-reducing communication skills (Leung et al., 2020). Communication training for home care workers is basic. For example, the New York State curriculum allots 45 minutes to communication, which includes interacting with individuals with special needs and does not include communication during stressful situations or navigating family dynamics (New York State Department Of Health, 2007). These types of relationship communication skills have been tailored to dementia and taught to nursing aides (Dijkstra et al., 2015), as well as tailored for end-of-life communication (ten Koppel et al., 2019). Nursing aides decreased their distress after receiving either one or two communication training sessions. Sessions were composed of education, observation, and feedback. Prior studies have found that while home care workers are frequently involved in HF care, many feel frightened by the disease and desire HF training to feel more confident caring for their clients (Leung et al., 2020; Sterling et al., 2018). Not only could HF specific training for this workforce improve workers' self-efficacy, it could lead to career advancement opportunities, such as the advanced home health aide which allows aides with additional training to perform at a higher skill level (Campbell et al., 2021).

The length of employment as a home care worker was weakly associated with having adequate self-efficacy. Similarly, longer employment was weakly associated with higher communication self-efficacy for palliative care staff (ten Koppel et al., 2019). While the latter study is not a close comparison, it did evaluate self-efficacy in caring for a specific patient population. In addition to the weak association between length of employment and self-efficacy for home care workers, there was a surprising lack of association between their HF experience and self-efficacy. One would expect self-efficacy to increase as one gains experience and mastery caring for greater numbers of patients (Bandura, 1977). This was evident in a study where palliative care experience was the strongest predictor of care delivery self-efficacy (Frey et al., 2020). In fact, home care workers with low self-efficacy in the current study tended to have cared for more patients with HF. There are a few possible reasons for this. First, caring for additional patients with HF may have exposed workers' knowledge gaps and training deficiencies detailed above. Second, by caring for more patients with potentially more severe disease, home care workers may have encountered situations for which they did not feel fully prepared. For example, home care workers of HF patients reported challenges managing HF emergencies (Leung et al., 2020). Finally, since the survey lacked temporality on when the care was provided to HF patients, it could be



that workers with current low self-efficacy but who cared for many HF patients did so in the distant past. The findings imply that simply spending more years at work, even if those years include heart failure experience, are insufficient to improve self-efficacy.

### **Implications for the Home Care Workforce**

Targeting the self-efficacy of home care workers may have implications beyond the care of any one person with HF. Greater feelings of competence, conceptually similar to self-efficacy, are associated with workplace well-being, positive affect, and effort, as well as less strain, burnout, and turnover (Van den Broeck et al., 2016). Turnover, which has detrimental impacts on care quality, continues to plague this workforce and has been exacerbated by the COVID-19 pandemic (Spetz et al., 2019; Tyler et al., June 1, 2021). Additionally, a lack of training may be viewed as negatively impacting home care worker occupational health (Grønset Grasmø et al., 2021). Considering that U.S. adults, if hospitalized, generally choose being discharged to home vs. to a skilled nursing facility (Binette, November 2021), older adults in need of home care assistance may find themselves without this valuable resource. Thus, one way to retain workers and improve job quality is through the provision of training, education, and programs that increase self-efficacy (Campbell et al., 2021). Such programs may also contribute to work satisfaction and career advancement (Campbell et al., 2021; Grønset Grasmø et al., 2021; Tourangeau et al., 2014). Future interventions and evaluations of training programs will be needed to establish if improving home care workers' self-efficacy leads to improved adult patient care and outcomes.

### **Strengths and limitations**

A major strength of this study is that it is the first to describe and compare home care workers based on their self-efficacy for contributing to HF self-care. Additionally, the scales were validated in the home care worker population (Sterling, Barbaranelli, et al., 2020). The data includes a broad representation of home care agencies from one large U.S. city and the home care workforce represented shares some demographic similarities (age, gender, and education) with the U.S. average. However, it differed in terms of the proportions of white and black home care workers and may not be generalizable to other geographical areas. Participants were recruited through our community partner and the total number of home care workers approached for participation, the number declined and reasons for refusal are unknown. The cut-off point for the SCHFI is validated in patient populations and may not be directly applicable to caregivers. Study conclusions are limited by the nature of cross-sectional data.

### **Conclusion**

Self-efficacy is necessary to be able to effectively contribute to self-care. Home care workers with adequate self-efficacy were better prepared for caregiving, had more HF-specific training, and were employed longer. Our findings suggest that preparation for caregiving and providing specific education on HF may be intervention targets to improve home care workers' self-efficacy. Home care agencies and policy makers can implement educational strategies to prepare the home care workforce for the complex care needs of adult HF patients. Improved education and training have the potential to increase workforce retention,

and ultimately improve the lives of both home care workers and the people for whom they care.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

**The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article:** This work was supported by National Heart, Lung, and Blood Institute (Grant # K23HL150160)

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**What this paper adds**

- Preparation for caregiving and prior training in heart failure were the largest determinants of home care workers' self-efficacy
- The amount of experience caring for patients with heart failure was not associated with adequate self-care self-efficacy
- Home care agencies can target their workers' self-efficacy by improving illness-specific continuing education, particularly preparation for HF caregiving

**Applications of study findings**

- Adults and older adults with heart failure who receive home care may benefit from a better trained and more prepared workforce
- Home care agencies and policy-makers interested in the retention of home care workers may focus on preparing the home care workforce for heart failure caregiving
- Future evaluations of training programs will be needed to establish if improved home care worker self-efficacy leads to better adult patient care and outcomes

**Table 1.**

Characteristics among Home Care Workers, by Low vs. Adequate Self-efficacy

Characteristics	Total	Low Self Efficacy (<70)	Adequate Self Efficacy (≥70)	p-value
N	328	182 (55.5%)	146 (44.5%)	
Age (in years), mean (SD)	48.0 (13.5)	47.1 (14.3)	49.2 (12.4)	.18
Gender: Female	307 (94.2%)	168 (92.8%)	139 (95.9%)	.24
Race/Ethnicity				.23
Non-Hispanic White	28 (8.9%)	18 (10.3%)	10 (7.1%)	
Non-Hispanic Black	137 (43.5%)	66 (37.7%)	71 (50.7%)	
Hispanic	74 (23.5%)	46 (26.3%)	28 (20.0%)	
Asian/Pacific Islander	17 (5.4%)	10 (5.7%)	7 (5.0%)	
Other	59 (18.7%)	35 (20.0%)	24 (17.1%)	
Education				.59
No degree or some high school	72 (22.4%)	40 (22.3%)	32 (22.4%)	
Completed high school or GED	136 (42.2%)	74 (41.3%)	62 (43.4%)	
Some college	50 (15.5%)	32 (17.9%)	18 (12.6%)	
College degree or higher	64 (19.9%)	33 (18.4%)	31 (21.7%)	
Born in the United States: No	236 (72.2%)	132 (72.9%)	104 (71.2%)	.73
Hours per week spent with HF patient, median (IQR)	19.0 (8.0, 36.0)	22.0 (10.0, 36.0)	12.0 (8.0, 35.5)	.08
Length of time as a home care worker (in years), median (IQR)	9.0 (4.0, 15.0)	8.0 (4.0, 13.0)	10.0 (4.0, 17.0)	.10
Number of patients cared for with HF				.002
1–5	239 (72.9%)	123 (67.6%)	116 (79.5%)	
6–10	59 (18.0%)	45 (24.7%)	14 (9.6%)	
>10	30 (9.1%)	14 (7.7%)	16 (11.0%)	
Agency size				.05
Small (<1500)	96 (29.3%)	52 (28.6%)	44 (30.1%)	
Medium (1500–6000)	191 (58.2%)	100 (54.9%)	91 (62.3%)	
Large (≥6000)	41 (12.5%)	30 (16.5%)	11 (7.5%)	
Job satisfaction				.003
Extremely/somewhat dissatisfied	57 (17.6%)	42 (23.3%)	15 (10.5%)	
Extremely/somewhat satisfied	266 (82.4%)	138 (76.7%)	128 (89.5%)	
Preparation for caregiving, mean (SD)	3.9 (0.9)	3.4 (0.9)	4.6 (0.5)	<.001
Heart Failure Training				<.001
No/a little training	217 (66.2%)	151 (83.0%)	66 (45.2%)	
Some/a lot of training	111 (33.8%)	31 (17.0%)	80 (54.8%)	
Self-care self-efficacy, mean (SD)	60.4 (28.5)	38.5 (17.5)	87.6 (9.8)	<.001

Note. HF = heart failure

**Table 2.**

Association between Home Care Worker Characteristics and Adequate Self-efficacy

Characteristics	Crude		Model 1		Model 2	
	PR (95% CI)	p-value	PR (95% CI)	p-value	PR (95% CI)	p-value
Hours per week spent with HF patient	0.99 (0.99,1.00)	.21	1.00 (1.00,1.01)	.36	1.00 (1.00,1.01)	.49
<b>Length of time as a HCW (in years)*</b>	1.02 (1.00,1.03)	.02	1.02 (1.00,1.03)	.01	1.02 (1.00,1.03)	.03
Number of patients cared for with HF <sup>a</sup>						
6–10	0.49 (0.30,0.79)	.003	0.70 (0.48,1.02)	.06	0.72 (0.47,1.10)	.13
>10	1.10 (0.77,1.57)	.61	0.91 (0.66,1.26)	.58	0.94 (0.68,1.30)	.69
Agency size <sup>b</sup>						
Medium (1500–6000)	1.04 (0.80,1.35)	.77	1.00 (0.82,1.22)	.99	1.08 (0.87,1.35)	.49
Large ( > 6000)	0.59 (0.34,1.02)	.06	1.18 (0.80,1.74)	.41	1.21 (0.79,1.87)	.38
Satisfied with Job	1.84 (1.17,2.90)	.01	1.25 (0.91,1.73)	.17	1.10 (0.77,1.55)	.61
<b>Preparation for caregiving</b>	3.23 (2.40,4.34)	<.001	2.96 (2.37,3.69)	<.001	3.10 (2.42,3.96)	<.001
<b>Some/a lot of training</b>	2.37 (1.88,2.99)	<.001	1.48 (1.23,1.79)	<.001	1.48 (1.20,1.84)	<.001
Age	1.01 (0.99,1.02)	<.001			1.00 (0.99,1.01)	.80
Race/ethnicity <sup>c</sup>						
Non-Hispanic Black	1.42 (0.84,2.41)	.19			1.21 (0.80,1.84)	.36
Hispanic	1.05 (0.59,1.87)	.87			1.16 (0.74,1.81)	.53
Asian/Pacific Islander	1.12 (0.52,2.41)	.76			1.11 (0.61,2.03)	.72
Other	1.11 (0.62,2.00)	.73			1.12 (0.69,1.83)	.65
Not born in the US	0.96 (0.73,1.25)	.74			0.97 (0.78,1.21)	.79
Education <sup>d</sup>						
Completed high school or GED	1.03 (0.75,1.42)	.84			1.06 (0.80,1.41)	.68
Some college	0.82 (0.52,1.29)	.39			0.76 (0.56,1.04)	.09
College degree or higher	1.10 (0.77,1.58)	.60			1.22 (0.90,1.65)	.21

Note. HCW = home care worker; HF = heart failure; PR = Prevalence Ratio; CI = Confidence Interval. Crude model includes variables using imputation. Model 1 does not include participants missing agency size, other missing values are imputed. Model 2 includes all variables with imputation except participants missing agency size.

Characteristics in bold are significant at  $p < .05$  in Model 2.

\* the increase in prevalence of adequate self-efficacy for every year increase in time spent as a HCW.

<sup>a</sup> Compared with 1–5 patients care for with HF

<sup>b</sup> Compared with small agency size (<1500)

<sup>c</sup> Compared with Non-Hispanic White

<sup>d</sup> Compared with No degree or some high school