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Heart Failure Training and Job Satisfaction: A Survey of Home Care Workers Caring for Adults with Heart Failure in New York City

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Background: Home care workers (HCWs), who include home health aides and personal care attendants, frequently care for adults with heart failure (HF). Despite substantial involvement in HF care, prior qualitative studies have found that HCWs lack training and confidence, which creates challenges for this workforce and potentially for patient care. Herein, we quantified the prevalence of HF training among HCWs and determined its association with job satisfaction.

Methods: We conducted a cross-sectional survey of agency-employed HCWs caring for HF patients across New York, NY from 2018-2019. HF training was assessed with, "Have you received prior HF training?" Job satisfaction was assessed with, "How satisfied are you with your job?" The association between HF training and job satisfaction was determined with robust poisson regression.

Results: 323 HCWs from 23 agencies participated; their median age was 50 years (IQR: 37,58), 94% were women, 44% were non-Hispanic Black, 23% were Hispanic, 78% completed ≥ high school education, and 72% were foreign-born. They had been caregiving for a median of 8.5 years (IQR: 4,15) and 73% had cared for 1-5 HF patients. Two-thirds received none/a little HF training and 82% felt satisfied with their job. In a fully adjusted model, HCWs with some/a lot of HF training had 14% higher job satisfaction than those with none/a little HF training (aPR 1.14; 95% CI 1.03-1.27).

Conclusions: The majority of HCWs have not received HF training. HF training was associated with higher job satisfaction, suggesting that HF training programs may improve HCWs' experience caring for this patient population. *Ethn Dis*. 2020;30(4):575-582; doi:10.18865/ed.30.4.575

Introduction

Heart failure (HF) is a chronic, progressive condition that affects 6.2 million people in the United States and is associated with a high risk of morbidity, mortality, and frequent hospitalizations.[1-3] HF requires a high degree of self-care (perceiving, monitoring, and managing symptoms),[4] which can be challenging for patients, many of whom are older adults with multiple co-morbidities, including cognitive, functional, and sensory impairments.[5-7] As such, HF patients often rely on family and paid caregivers for help at home.[8,9]

Increasingly adults with HF are relying on home care workers (HCWs) for long-term assistance and post-hospitalization care.[10-12] HCWs, who include home health aides/attendants and personal care aides and who are predominantly women and racially/ethnically diverse (Black and Hispanic/Latinx), represent one of the fastest growing sectors of the health care industry.[13] Unlike other health professionals, HCWs are with HF patients on a near-daily basis, giving them a unique vantage point from which to observe, support, and advise patients. In HF, HCWs are often asked to prepare low-salt meals, monitor weight and blood pressure, remind patients to take medications, and provide assistance during doctors' appointments.[14] Despite this high level of involvement, prior qualitative studies have found that HCWs have not received education on HF and many lack confidence while caring for patients, which creates challenges for this workforce (eg, job satisfaction, burnout, etc.) and potentially for patient care.[14,15]

Prior studies have found that HCWs express an interest in receiv-

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ing training in specific areas and that such training improves their preparation for caregiving,[16] job retention, and job satisfaction.[17-19] However, the link between HCW training and worker outcomes has, to date, not been evaluated in HF. To address these gaps, and as the foundation for future interventions, we aimed to: 1) quantify the prevalence of prior HF training among HCWs providing HF care, as well as their current levels of confidence caring for this patient population; 2) determine the association between prior HF training and current job satisfaction.

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Methods

Study Design and Population

We conducted a cross-sectional survey of HCWs caring for HF patients form August 2018 through May 2019. To do so, we partnered with Home Care Industry Education Fund, a benefit fund of the 1199 Service Employees International Union United Healthcare Workers East, which provides education and training services to 75,000 HCWs employed by 55 agencies across New York, NY. In addition, we also directly approached private home care agencies in New York, NY that were not affiliated with the Education Fund to participate to have a more robust sample. As such, paper surveys were distributed by staff to HCWs during regularly scheduled meetings at the Education Fund headquarters and to HCWs at individual home care agencies. To be eligible to participate, HCWs had to have cared for a HF patient in the last year, had more than one year of experience on the job, and be able to read and write English. Participation among home care agencies and HCWs was voluntary. All participants provided written consent. The study was approved by the Institutional Review Board of Weill Cornell Medicine.

Data Collection and Survey

The 45-item survey assessed HCWs' demographics, history of caregiving, preparedness for HF caregiving, and contributions to HF care using a combination of novel items and validated measures. The survey was piloted and refined for ease and comprehensibility with 5 HCWs who were not included in the final study. De-identified data from the (pen-and-paper) survey were entered electronically by a research assistant into Research Electronic Data Capture (REDCap), a web-based, secure, data storage program.[20]

HF Training

Prior HF training was assessed with one question, "Have you received prior HF training?" Responses were categorized with a 4-level Likert scale: never received HF training; received a little HF training; received some HF training; and received a lot of HF training.

Job Satisfaction

Job satisfaction was assessed with one question, "In general, how satisfied are you with your current job as a home care worker?" Responses were categorized with a 4-level Likert scale: extremely dissatisfied; somewhat dissatisfied; somewhat satisfied; and extremely satisfied.

Covariates

Sociodemographic information, including age, sex, race/ethnicity, highest level of education, place of birth, and years of residence in the United States, was collected from all survey respondents. Data on years spent as a paid caregiver, number of home care agencies employed by, and number of hours spent with HF patients were collected. The size of the current agency in which they were employed was also collected (small, medium, large), as this could affect organizational policies such as training programs.

The Caregiving Preparedness Scale (CPS) is an 8-item unidimensional instrument that evaluates the extent to which a caregiver feels prepared to meet the psychological and physical needs of a patient.[21] Items included

questions about participants' preparation for personal and emotional care of patients, which have previously been asked of family caregivers but not of HCWs. Responses were categorized with a 5-level Likert scale: not at all prepared; not too well prepared; somewhat well prepared; pretty well prepared; and very well prepared. The total scale score, which is a mean of all items scores, ranges between 0 and 4 with higher score indicating better preparedness.

Contribution to HF patients' care was assessed with The Caregiver Contribution to Self-Care of Heart Failure Index (CC-SCHFI),[22] a 26-item validated instrument. The CC-SCHFI comprises three subscales: self-care maintenance (10 items ask about caregivers' assistance with behaviors that patients perform to keep themselves physiologically stable, such as medication compliance and dietary adherence); self-care management (6 items ask about caregivers' ability to assist with HF symptom recognition and management); and self-care confidence (10 items ask about caregivers' confidence in assisting patients with aspects of HF-self-care). Scores for each sub-scale range from 0-100, with ≥70 indicating adequate self-care or adequate confidence with HF caregiving, respectively. Although initially validated among family caregivers, the CC-SCHFI has been found to have excellent reliability among paid caregivers.

Table 1. Characteristics of home care workers who care for adults with heart failure

Characteristics, N = 323[a]	
Age (years), median (IQR)[b]	50 (37, 58)
Sex[b]	N (%)
Male	19 (5.9%)
Female	302 (94.1%)
Race/Ethnicity[b]	
Non-Hispanic White	28 (9.0%)
Non-Hispanic Black	136 (43.9%)
Hispanic	72 (23.2%)
Asian/Pacific Islander	17 (5.5%)
Other	57 (18.4%)
Born in the United States[b]	
Yes	89 (27.6%)
No	233 (72.4%)
Education[b]	
No degree or some high school	69 (21.8%)
Completed high school or GED	135 (42.6%)
Some college	50 (15.8%)
College degree or higher	63 (19.9%)

IQR, interquartile range
a. Participants represented a total of 23 unique home care agencies.
b. Variables with missing values include age (n=19), sex (n=2), race (n=13), education (n=6), and birth location (n=1)

Data Analysis

We first performed descriptive statistics on the overall study population with frequencies and means; medians and interquartile ranges (IQRs) are reported for non-normally distributed data. Next, we examined differences in participant characteristics by HF training using *T* tests for continuous variables and chi-squared tests for categorical variables.

To test the association between HF training and job satisfaction, we used robust poisson regression; prevalence ratios (PRs) with 95% confidence intervals (CIs) were obtained. We adjusted for covariates in a step-wise fashion. The minimally adjusted model controlled for agency fixed effects, since agency size (eg, small <1,500 HCWs, medium 1,500-6,000 HCWs, and large >6,000 HCWs) is thought to influence work practices and programs. Model 2 adjusted for demographics (age, sex, race, education, US-born) and Model 3 adjusted for Model 2 covariates as well as HF care characteristics (years spent as a HCW, number of previous patients with HF).

We performed three additional sensitivity analyses. In the first, we used a mixed effects model to account for correlation within agencies. In the second, we imputed values for participants with missing agency information. The third sensitivity analysis excluded participants from one private agency since we suspected that there may be inherent differences in training of HCWs between this agency and the others.

To account for covariates (other than home care agency) with missing information, we calculated all model estimates using a multiple imputed dataset. Multiple imputation was performed with chained

Table 2. Caregiving characteristic of home care workers caring for heart failure (HF) patients

Characteristics, N = 323	
Years worked as a home care worker, median (IQR)	8.5 (4.0, 15.0)
Number of HF patients provided care	N (%)
1-5	235 (72.8%)
6-10	58 (18.0%)
>10	30 (9.3%)
Size of home care agency[a]	
Small (<1500)	93 (28.8%)
Medium (1500-6000)	189 (58.5%)
Large (≥ 6000)	41 (12.7%)
Caregiving Preparedness Scale (CPS)[b], mean (SD)	3.9 (.91)
Contribution to patients' HF self-care	
CC-SCHFI[c] - Standardized Maintenance Subscale ≥ 70	204 (63.2%)
CC-SCHFI - Standardized Management Subscale ≥ 70	73 (22.7%)
CC-SCHFI - Standardized Confidence Subscale ≥ 70	143 (44.3%)
Prior HF training	
None	130 (40.2%)
A little	84 (26.0%)
Some	80 (27.6%)
A lot	20 (6.2%)

HF, heart failure; CC-SCHFI, Caregiver Contribution to Self-Care of Heart Failure Index
a. Size of home care agency measured by the number of home care workers employed by each agency.
b. Preparation for caregiving was assessed using a validated 8-item questionnaire. Responses were categorized with a 5-level Likert scale: not at all prepared; not too well prepared; somewhat well prepared; pretty well prepared; and very well prepared. The total scale score, which is a mean of all items scores, ranges between 0 and 4 with higher score indicating better preparedness.
c. CC-SCHFI is a validated measure of caregivers' contribution to HF self-care that involves decision-making and behavioral choices to maintain physiological stability and manage symptoms when they occur for patients with heart failure. The cut-point of ≥ 70 has been consistently used to assess adequate contribution to the self-care domains. For each standardized scale, the total possible score is 100.

equations and 15 imputations were created.[23] Analyses were performed using Stata version 14.2.

Results

A total of 338 HCWs completed the survey. Among the 338, four surveys were missing information on job satisfaction and 10 were missing agency information and thus they were excluded. Our final analytic sample comprised 323 participants employed by 23 unique home care agencies across New York, NY. The characteristics of the participants are shown in Table 1. Overall, they had a median age of 50 years (IQR 37, 58), 94% were female, 44% were non-Hispanic Black and 23% were Hispanic, 78% completed ≥ high school education, and 72% were foreign-born.

With respect to caregiving experience, participants had a median of 8.5 years (IQR 4, 15) of experience as HCWs (Table 2). The majority (59%) of HCWs worked for medium-sized home care agencies (1500-1600 HCWs). In terms of HF experience, 73% of participants had cared for 1-5 HF patients, 18% had cared for 6-10 HF, and 9% had cared for more than 10 HF patients during their career. HCWs reported feeling generally prepared for caregiving (mean score 3.91 [SD .91]) and with respect to their contribution to HF patients' self-care, 63% of participants contributed adequately to maintenance activities and 23% contributed adequately to management activities. The majority of participants (56%) reported inadequate confidence with providing HF care.

Two-thirds of participants reported receiving none or a little HF training in the past, whereas one third reported receiving some or a lot of HF training in the past (Table 3). Participants who received some or a lot of training were more likely to be older, female, and non-Hispanic Black. They had more experience as HCWs (years) and were more likely to feel prepared for caregiving. They were also significantly more likely to provide adequate contribution to HF maintenance and management activities and were more likely to be confident with HF caregiving activities, compared with those with none or a little HF training.

Overall, 81% of participants reported satisfaction with being a HCW; specifically, 8.41% were extremely dissatisfied, 10.51% were somewhat dissatisfied, 37.54% were somewhat satisfied, and 43.54% were extremely satisfied. Of those who reported receiving some or a lot of training (n=109), 90% were satisfied with their job. In a crude model, compared with those with none or a little HF training, participants with some or a lot of prior HF training had 14% higher job satisfaction (PR: 1.14 [CI: 1.03, 1.26]) (Table 4). This association persisted after adjustment for demographics, agency size, years caregiving, and number of prior HF patients

Table 3. Participant characteristics by heart failure (HF) training

Characteristics	None or a Little HF Training, n = 214	Some or a Lot of HF Training, n = 109	P
Age (years), median (IQR)	47.5 (37.0, 57.0)	52.0 (40.0, 59.5)	.07
Sex			.03
Male	17 (8.0%)	2 (1.9%)	
Female	196 (92.0%)	106 (98.1%)	
Race/Ethnicity			.002
Non-Hispanic White	22 (10.7%)	6 (5.7%)	
Non-Hispanic Black	75 (36.6%)	61 (58.1%)	
Hispanic	48 (23.4%)	24 (22.9%)	
Asian/Pacific Islander	13 (6.3%)	4 (3.8%)	
Other	47 (22.9%)	10 (9.5%)	
Born in the United States			.45
Yes	56 (26.3%)	33 (30.3%)	
No	157 (73.7%)	76 (69.7%)	
Education			.94
No degree or some high school	44 (21.1%)	25 (23.1%)	
Completed high school or GED	90 (43.1%)	45 (41.7%)	
Some college	32 (15.3%)	18 (16.7%)	
College degree or higher	43 (20.6%)	20 (18.5%)	
Years worked as home care worker, median (IQR)	8.00 (4.0, 13.5)	10.00 (5.0, 17.5)	.03
Number of patients cared for with HF			.23
1-5	161 (75.2%)	74 (67.9%)	
6-10	37 (17.3%)	21 (19.3%)	
>10	16 (7.5%)	14 (12.8%)	
Size of home care agency			.06
Small (<1500)	64 (29.9%)	29 (26.6%)	
Medium (1500-6000)	117 (54.7%)	72 (66.1%)	
Large (≥ 6000)	33 (15.4%)	8 (7.3%)	
Caregiving Preparedness Scale (CPS), mean (SD)	3.69 (0.94)	4.34 (0.69)	<.001
Contribution to patients' HF self-care			
CC-SCHFI- Standardized Maintenance subscale			<.001
Not adequate contribution <70	95 (44.4%)	24 (22.0%)	
Adequate contribution ≥ 70	119 (55.6%)	85 (78.0%)	
CC-SCHFI- Standardized management subscale			.003
Not adequate contribution <70	176 (82.2%)	73 (67.6%)	
Adequate contribution ≥ 70	38 (17.8%)	35 (32.4%)	
CC-SCHFI- Standardized confidence subscale			<.001
Not adequate confidence <70	149 (69.6%)	31 (28.4%)	
Adequate confidence ≥ 70	65 (30.4%)	78 (71.6%)	

IQR, interquartile range; HF, heart failure; CC-SCHFI, Caregiver Contribution to Self-Care of Heart Failure Index.

(aPR: 1.14 [CI: 1.03, 1.27]). Results from all three sensitivity analyses were similar to the main findings.

Discussion

Among this diverse population of agency-employed HCWs with experience caring for HF patients in New York, NY, we found that HCWs readily contribute to HF patients' self-care, particularly to maintenance activities (such as checking weight and blood pressure, assisting patients with doctor appointments, preparing low salt meals, etc), and less so to management activities (such as offering advice or medication). This finding has previously only been described qualitatively and may be consistent with their scope of care. We also found that despite this contribution, the majority of HCWs have not received HF-specific training. Additionally, we found that HCWs who received some or a lot of HF training had greater

Table 4. Prevalence ratios for the association between heart failure (HF) training and job satisfaction among home care workers who care for adults with HF

Models	Some or a Lot of HF Training	
	PR (95% CI)	P
Job satisfaction[a]		
Model 1	1.14 (1.03-1.26)	.014
Model 2	1.14 (1.03-1.26)	.008
Model 3	1.14 (1.03-1.27)	.014

HF, heart failure; PR, prevalence ratio; CI, confidence interval.
a. Job satisfaction is defined as the level of satisfaction with the current job as a home care worker; responses were categorized with a 4-level Likert scale: extremely dissatisfied; somewhat dissatisfied; somewhat satisfied; and extremely satisfied.
Model 1 - adjusts for agency size.Model 2 - adjusts for model 1 and demographics (age, sex, race/ethnicity, education, US-born).Model 3 - adjusts for model 2 and caregiving characteristics (years spent as a home care worker, number of previous patients with HF).

job satisfaction, compared with those who received none or a little training. This association persisted after adjustment for socio-demographics, caregiving experience, and agency size.

There are three potential mechanisms that may explain the observed association between training and job satisfaction. One is that HF training could increase HCWs' HF knowledge, and potentially improved patients' behaviors and outcomes, all of which could improve HCWs' experience on the job. Another explanation is that HF training could empower HCWs and make them feel like more valued members of the HF team. Studies have found HCWs, who are predominantly women and minorities, are often overlooked by other medical professionals, family members, and society-at-large.[24] Additionally, they are paid low wages, endure discrimination, and are injured on the job.[13,25,26] They are generally not accepted as members of the care team by their patients, which often results in HCWs lacking feelings of respect and value.[14,24,27] We suspect that in the aforementioned pathway, HF training could improve HCWs' perception of feeling valued and invested in as a workforce, thereby improving job satisfaction. Finally, training is likely associated with a greater sense of competence and self-efficacy (confidence), which translates into higher levels of job satisfaction. It is important to note that these proposed mechanisms are not mutually exclusive and may operate simultaneously. Since we were unable to do so here, future studies should test these proposed mechanisms empirically, including the role of confidence as a mediator between training and job satisfaction.

While our findings, to our knowledge, are the first to investigate the association between training and job satisfaction among HCWs in HF, this finding has been seen among HCWs caring for community-dwelling older adults with general health conditions and those in assisted living.[27-29] For example, a study by Ejaz et al studied 644 direct care workers (nurse assistants in nursing homes, resident assistants in assisted living facilities, and home care aides in home health agencies) and found that formal training was independently and positively associated with higher job satisfaction. Similarly, Feldman et al found that HCWs who completed training and support programs had higher job satisfaction and higher retention rates.[17] In a study of 6,000 HCWs in California, Gallup et al found that patients of HCWs who completed a 60-hour training program reported fewer emergency department visits and re-hospitalizations, compared with patients of HCWs who did not complete this training program.[30] Building on previous research, our study contributes to existing evidence on the link between training and HCWs outcomes by focusing on those providing care for HF patients.

Our findings have implications for policies surrounding HCWs' training and competencies, as well as for the home care industry, and patient care at large. Currently, home health aides (a type of HCW who provides post-acute, skilled care under the supervision of a nurse) employed by certified home health agencies funded by Medicare are required to complete a minimum of 75 hours of training, which includes 16 hours of supervised practical training and 8 hours of skill demonstration in a patient care setting. In addition, they are required to complete 12 hours of in-service training annually.[31,32] Upon completion of their training, they must also complete a competency exam. This differs from the training requirements of home health attendants and personal care aides (types of HCWs who provide long-term care) employed by licensed home care agencies funded by Medicaid.[31] The training and competency assessments for these HCWs

require aides to complete 40 hours of training and 6 hours of in-service training annually. They are required to complete a competency exam, which differs by state.[33] Despite these training and certification requirements, the majority of HCWs are not required to complete any disease-specific training, which have clear implications for complex diseases like HF. Our findings suggest that disease-specific training, such as that for a prevalent illness like HF, may be one way to improve job satisfaction among HCWs, and potentially their confidence with caregiving. These finding support the need for additional training requirements for those HCWs caring for patients with complex clinical conditions. Alternatively, health care organizations may want to consider promoting these trainings during annual in-service courses, given the likely benefits they provide both providers and their patients. For example, a training program for HCWs caring for adults with Alzheimer's disease and related dementias (ADRD) was recently developed and pilot tested among HCWs in California.[34] In this study by Guerrero et al, HCWs who completed a 10-week, 35-hour training module focused on managing ADRD-related behaviors, reported greater confidence in their caregiving skills and ADRD-knowledge. Owing to the success of this program, and our findings, the development of HF-specific training is likely warranted in order to improve job satisfaction and HF knowledge, and potentially the care of HF patients.

We found that HCWs who received some or a lot of HF training had greater job satisfaction, compared with those who received none or a little training.

Strengths and Limitations

To our knowledge, our study is the first to examine the relationship between HF training and job satisfaction among HCWs, a disease in which they frequently provide care. We used purposeful sampling methodology to recruit a diverse sample of HCWs from various agencies across New York, NY. Documenting the link between training and HCW's job satisfaction and confidence in providing care has clear policy and organizational implications. We also note a couple of limitations. First, this study was conducted among agency-employed HCWs from New York, NY, which may affect its generalizability to HCWs who are privately hired by HF patients or to smaller cities or rural areas. Second, the survey was conducted in English, which limits our ability to understand the experiences of non-English speaking HCWs.

Conclusion

Despite contributing to HF patients' self-care, the majority of agency-employed HCWs received none or a little HF training and lacked confidence providing care to HF patients. In this diverse sample of HCWs, prior HF training was found to be associated with higher job satisfaction. Our findings suggest that HF training programs have the potential to improve HCWs' experience caring for this patient population.

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Conflict of Interest

No conflicts of interest to report.

Author Contributions

Research concept and design: Sterling; Acquisition of data: Sterling, Cho; Data analysis and interpretation: Sterling, Cho, Ringel, Avgar; Manuscript draft: Sterling, Cho, Ringel, Avgar; Statistical expertise: Sterling, Ringel; Acquisition of funding: Sterling; Administrative: Sterling, Cho, Avgar; Supervision: Sterling

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