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### Title

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### Permalink

<https://escholarship.org/uc/item/58k2f8m5>

### Journal

Journal of Cardiac Failure, 15(1)

### ISSN

1071-9164

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### Publication Date

2009-02-01

### DOI

10.1016/j.cardfail.2008.09.002

Peer reviewed



Published in final edited form as:

*J Card Fail.* 2009 February ; 15(1): 24–30. doi:10.1016/j.cardfail.2008.09.002.

## A Comparative Study of Pain in Heart Failure and Non-Heart Failure Veterans

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### Abstract

**Background**—Progress has been made in addressing pain in specific diseases such as cancer, but less attention has focused on understanding pain in nonmalignant states, including heart failure (HF).

**Methods and Results**—From March 2006 to June 2007, 672 veterans were surveyed and scores for the Brief Pain Inventory, pain distress, clinically significant pain levels (moderate to severe pain), and pain locations were compared using univariate and multivariate models. Fifteen percent of the final sample had HF (95/634). In our study, the HF patients were older ( $P < .000$ ), reported lower levels of general health ( $P = .018$ ), had more co-morbidities ( $P < .000$ ), were more likely to have a history of cancer ( $P = .035$ ), and suffered more chest pain and fewer headaches ( $P = .026$ ,  $P = .03$ , respectively) than their non-HF cohorts. When controlling for age, co-morbidity and cancer disorders, HF and non-HF patients did not differ in pain severity, interference, distress or locations. Of the patients currently experiencing pain, 67.3% of HF patients and 68.4% of non-HF patients rated their pain as moderate or severe (pain  $\geq 4$  on a 0 to 10 scale).

**Conclusions**—Although HF has not been identified as a painful condition, this study suggests the burden of pain is significant for both HF and non-HF ambulatory care patients.

### Keywords

Palliative care; non-malignant pain; chronic pain; symptoms

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The relief of pain and suffering is a primary goal for all healthcare professionals and is fundamental to excellent chronic illness care. Although clinicians and researchers have made progress toward this goal in specific diseases such as cancer, progress in other conditions such as heart failure (HF) has been inconsistent.<sup>1</sup> The Study to Understand Prognoses and Preferences of Outcomes and Risks of Treatments (SUPPORT)<sup>2</sup> characterized pain prevalence in HF and found that 41% of HF patients suffered moderate to

severe pain in the last 3 days of life. Small studies suggest the incidence of pain for patients dying of HF might be comparable to those dying of lung and colon cancer.<sup>3-6</sup> Alternatively, a hospice study found that only 3% of HF patients reported chest pain, and 20% reported other sources of pain.<sup>7</sup> Unfortunately, clinicians may underrecognize the burden of pain and other symptoms in patients with HF.<sup>8,9</sup>

Heart failure is a lethal, disabling disease that is increasing in incidence throughout the world.<sup>10,11</sup> Approximately 5 million people in the United States (U.S.) are diagnosed with HF.<sup>12</sup> Furthermore, HF accounts for 12 to 15 million office visits and 6.5 million hospital days each year.<sup>11</sup> Currently, approximately 10% of the U.S. population aged 65 or older experience HF.<sup>13</sup> However, as the U.S. population ages, the prevalence of HF is expected to increase, due in part to recent pharmacological advances that have resulted in patients living longer with the debilitating effects of HF.<sup>10,14</sup> Although dyspnea and fatigue are considered the hallmarks of HF, patients may suffer from myriad symptoms, including pain, insomnia, cough, and anxiety as their disease progresses and end of life approaches.<sup>3,6,15-17</sup> Research efforts are needed to address the alleviation of symptoms, such as pain, that may improve quality of life and self-management skills.<sup>5,6</sup>

Clinicians and researchers would benefit from better descriptions of the prevalence and etiology of pain in HF patients.<sup>9,14,18</sup> Although the incidence of pain is beginning to be recognized in advanced HF, the symptomatic burden of HF in ambulatory patients is even less well characterized. Knowledge of the characteristics of pain in patients with HF is important because symptoms, including pain, may interfere with the traditional goals of HF management, including self management,<sup>9</sup> improving or maintaining functional status<sup>19</sup> and improving quality of life.<sup>20</sup> Furthermore, a description of pain locations and how pain in HF patients compares with pain in the general ambulatory population, in which chronic pain is well recognized as a serious problem, is lacking.

As part of a larger study to understand routine pain screening and management practices in veterans, we conducted a pilot, exploratory comparison of pain characteristics in HF and non-HF ambulatory care patients. The aims of this study were: 1) to describe the characteristics (location, intensity and distress) of pain in ambulatory patients with HF, and 2) to compare pain in HF and a general outpatient population.

## Methods

### Study Design

Data from the Helping Veterans Experience Less Pain (HELP-Vets) Study, a cross-sectional, visit-based, cohort study were analyzed to answer the research questions.

### Study Sample

The HELP-Vets study recruited patients who were veterans of military service from 8 Veterans Administration (VA)-owned or contract sites in 3 large urban counties (Los Angeles, Ventura, and Orange) in the Veterans Integrated Service Network (VISN) 22 from March 2006 to June 2007. We randomly sampled visits at all sites until March 2007 and then conducted additional interviews at cardiology clinics until June 2007. Two sites were large academic medical centers, 2 were medium-sized outpatient facilities, and 4 were small community-based outpatient clinics. Veterans were approached after a visit with their providers and screened for inclusion criteria. We required eligible veterans to have had their vital signs measured, to pass a brief cognitive screening test,<sup>21</sup> to possess intact hearing, to speak and understand English, to agree to allow review of their medical records, and to have not participated previously. To ensure an adequate sample of both healthy and frail participants, we interviewed every other veteran who reported his or her health as excellent,

very good or good, and every veteran who reported his or her health as fair or poor. Of the 6,138 people approached for study inclusion, 939 were eligible. A total of 650 completed the interview (69.2% response rate). Age, ethnicity and pain levels were similar for eligible veterans who did and did not choose to participate in the study ( $P > .05$ ). Of those who completed the interview, 634 veterans had complete data on the dependent pain measures and were the subject of this report. Of these, 95 (14.6%) veterans were non-heart transplant patients with a clinical diagnosis of diastolic or systolic HF recorded on their medical records.

## Procedures and Measures

Institutional review boards at each clinical site approved the study. After obtaining informed consent from participants, a trained research assistant administered a questionnaire that included standardized measures, including the following analyzed for this study:

**Brief Pain Inventory (BPI):** The BPI is a 15-item survey widely used in clinical practice and research.<sup>22,23</sup> Four items evaluate pain severity by asking patients to rate their current, worst, least and average pain in the prior week. Seven items assess pain interference by asking patients to rate how much in the prior week pain interfered with various activities such as mood and walking ability. Within a 0 to 10 scale, higher numbers indicate a high level of severity, and an average of ratings provides overall severity and interference scores. In a study of patients with nonmalignant pain, Cronbach's alpha coefficients for the BPI severity and interference scales range from 0.82 to 0.95.<sup>23</sup> Cronbach's alpha scores in the HELP-Vets sample were 0.91 and 0.95 respectively. Correlations between the BPI and the SF-36 Bodily Pain Score (another commonly used measure of pain) range from 0.61 to 0.74, and provide evidence of construct validity.<sup>23</sup>

We also assessed sociodemographic variables (age, gender, education and ethnicity), self-reported health (very poor/poor, fair or good/excellent),<sup>24</sup> brief screening measures of anxiety (Generalized Anxiety Disorder Scale [GAD]-2, range 0 to 6),<sup>25</sup> and depression (Patient Health Questionnaire [PHQ]-2, range 0 to 6).<sup>26</sup> In previous research, the GAD-2 performed well (area under the curve [AUC] = 0.91) as a screening tool for anxiety disorders.<sup>25</sup> The PHQ-2 includes 2 items about the frequency of depressed mood and anhedonia over the prior 2 weeks, which are core items for a diagnosis of depression, from the PHQ-9.<sup>26</sup> In an ambulatory care population, a PHQ-2 score of  $\geq 3$  had a sensitivity of 83% and a specificity of 92% for major depression.<sup>27</sup>

We also included questions related to the overall pain distress or bother during the prior week ("not at all," "a little bit," "somewhat," "quite a bit" or "very much") and their current pain level (range 0 to 10). In addition to the BPI, veterans were asked to report the presence or absence of specific types of pain including headaches, pain in chest, stomach pain, back pain, or pain in the arms, legs, or joints during the prior 4 weeks.

Items derived from chart review were used to assess comorbidities in two ways. First, a Seattle Index of Comorbidity (SIC) score (range 0 to 23) was created with medical record data.<sup>27</sup> This index, which includes age, smoking, self-reported health status and chronic health conditions, was developed in an outpatient Veterans' population as part of the Ambulatory Care Quality Improvement Project (ACQUIP) to predict all-cause mortality and hospitalization. Information related to age, smoking, self-reported health status and chronic health conditions are included in the index. The index delineates all-cause mortality at 2 years (AUC=0.71). In addition, the SIC was a significant predictor of hospitalizations for the 2-year interval ( $P < .00005$ ).<sup>27</sup> To examine the unique contribution of HF to pain and to address concerns about multicollinearity, we modified the SIC to exclude HF as a factor. Second, measures for clinical conditions including mental health diagnoses (from

documentation of the presence or absence of clinically relevant depression, post-traumatic distress disorder or schizophrenia), musculoskeletal conditions (from documented presence or absence of back pain or osteoarthritis), and the presence or absence of cancer, excluding non-melanoma skin cancer, were evaluated for all veterans.

## Analysis

All data were transferred into SPSS Version 15 for analysis. Measures of central tendency, including frequencies, means, ranges and standard deviations, were used to describe sample characteristics. In bivariate analyses, continuous variables were compared, using independent sample t-tests, and categorical variables were compared by Chi-squares. Because instances of missing data were few ( $\leq 3\%$ ), we used mean substitution techniques; we found similar results using sensitivity tests deleting the few instances of patients who lacked data. A Generalized Linear Model (GLM) was used to conduct analyses of covariance (ANCOVA) for continuous variables (BPI severity and interference, pain distress and pain  $\geq 1$ ), controlling for baseline differences in age, cancer disorders and comorbidities. Logistic regression models controlled for baseline differences and examined the binary variables of pain locations and moderate or severe pain levels. Significance level was set at  $\alpha = 0.05$  for all analyses.

## Results

### Baseline Characteristics

Heart Failure and non-HF patients differed in demographics (Table 1) and clinical characteristics (Table 2). The HF cohort was older than their non-HF counterparts ( $P < .000$ ), experienced more comorbidities ( $P < .000$ ) including cancer diagnoses ( $P = .035$ ). Self-reported health ratings were lower in HF patients compared with the non-HF population ( $P = .018$ ). Populations did not differ on brief self-reported measures of anxiety (GAD-2,  $P = .399$ ) or depression (PHQ-2,  $P = .187$ ). Compared to non-HF patients, those with HF were more likely to have a history of coronary artery disease ( $P < .000$ ), COPD ( $P = .000$ ), peripheral vascular disease ( $P = .001$ ), diabetes mellitus ( $P = .004$ ), pneumonia ( $P = .000$ ), stroke ( $P = .002$ ), tobacco use ( $P = .001$ ), and they were less likely to have a history of alcoholism ( $P = .033$ ).

In bivariate analyses (Table 3), there were no differences between cohorts in BPI severity, interference, pain “right now” or moderate or greater pain intensity (pain  $\geq 4$ ). Heart failure patients suffered more chest pain ( $\chi^2 = 4.96$ ,  $P = 0.026$ ) and fewer headaches ( $\chi^2 = 4.71$ ,  $P = 0.03$ ) than their non-HF cohorts. Although not statistically significant, nearly 52% of HF patients ( $n = 50$ ) and 65% ( $n = 351$ ) of non-HF patients reported pain  $\geq 1$  “right now” ( $\chi^2 = 1.93$ ,  $P = .165$ ). Of the patients currently experiencing pain, 67.3% of HF patients and 68.4% of non-HF patients rated their pain as moderate or severe (pain  $\geq 4$ ,  $\chi^2 = 0.02$ ,  $P = .880$ ). When we controlled for the effects of age, comorbidity and cancer using logistic regression, there were no differences between HF and non-HF cohorts in incidence of headaches (HA) (odds ratio (OR) = 0.74, 95% CI = 0.44 – 1.25,  $P = .258$ ), or chest pain (OR = 1.53, CI = .93 – 2.53,  $P = .095$ ).

## Discussion

This pilot exploratory study uniquely compared the characteristics of pain in ambulatory patients with HF and other conditions. Our findings suggest the mitigation of pain remains a challenging goal regardless of the underlying disease process. Both HF and non-HF patients reported a high prevalence of any pain (e.g., pain “right now”  $\geq 1$ ). The incidence of pain in HF that we found is consistent with other recent studies<sup>9,28,29</sup>; however, this investigation

provides new information related to the severity of pain for HF patients. Of the patients reporting pain  $\geq 1$ , approximately 67% of HF patients rated their pain as moderate (pain  $\geq 4$ ) or severe (pain  $\geq 7$ ). Moderate pain and severe pain are considered clinically significant<sup>30</sup> and may adversely affect key goals of HF management such as self care, quality of life and functional well-being.<sup>9</sup>

More than a third of HF patients reported chest pain and, consistent with expectations, chest pain was more prevalent in HF than non-HF patients. The prevalence of chest pain reported in this study is similar to that reported by Anderson et al.<sup>31</sup> in their comparison of symptoms in patients managed in a palliative-care setting with those in a HF clinic. Recent research suggests HF patients with chest pain experience worse outcomes than HF patients without chest pain.<sup>17,32</sup> Letterman et al.,<sup>32</sup> found that chest pain in HF was associated with prolonged hospital stays, higher intensity care and higher mortality. In addition, evidence from the Carvediol or Metoprolol European Trial (COMET) suggests that the presence of chest pain in HF patients is associated with mortality and all-cause hospitalizations.<sup>17</sup> Chest pain related to angina is considered responsive to nitrates. We found that headaches were more frequent for non-HF patients than HF patients, an unusual finding considering the widespread use of nitrates to control angina and optimize preload. This finding may be related to headache tolerance observed with long-term nitrate use.<sup>33</sup>

With regard to specific sources of pain, three quarters of veterans reported musculoskeletal pain. Clinician documentation of musculoskeletal sources of pain was found in only one quarter of cases. This discrepancy may be because patients accept musculoskeletal pain as a normal consequence of aging and choose not report it to their primary-care providers. However, given the prevalence of moderate and severe pain among veterans, this may be because veterans are reluctant to discuss pain with providers. Accordingly, health care providers should consistently ask about the presence and impact of pain regardless of a patient's primary diagnosis. The burden of musculoskeletal pain has been reported previously in epidemiological studies of general outpatients,<sup>34,35</sup> and its effects on physical functioning<sup>36-38</sup> and psychosocial well-being<sup>39-41</sup> are well documented.

We found no major differences between HF and non-HF patients in pain locations, intensity and distress when controlling for baseline differences of age, cancer disorders and comorbidities. A factor possibly contributing to this finding is the diverse nature of our HF sample (all stages of HF, and both systolic and diastolic dysfunction). In addition, we found a high prevalence of depression and anxiety in both HF and non-HF patients, variables thought to influence pain perception.<sup>39,42-44</sup> Previous research suggests depression and anxiety may be more prevalent in HF patients,<sup>45-47</sup> although that relationship was not seen in our study. In addition, many studies examining the prevalence of psychological variables recruit patients from cardiomyopathy clinics<sup>28,31,45,48,49</sup> where patients' diseases may be more advanced than in the patients we enrolled. We drew patients for this study primarily outside ambulatory-care waiting rooms.

The incidence of pain reported in this study may also reflect other aspects of pain not easily assessed by quantitative methods. Pain may be experienced beyond the physical symptom domain to include psychosocial and spiritual suffering. Veterans may suffer spiritual pain<sup>50</sup> from loss of meaning and purpose in life; or they may experience social pain from the contraction of support circles secondary to limited interactions with others.<sup>46</sup> Psychological pain and distress may result from concerns about caregiver's burdens or patients' uncertain disease trajectories.<sup>10,51</sup> These problems might create a sense of suffering that may be described by some individuals as pain.<sup>52</sup>



The findings from this study underscore the need for very careful determination of the origin of pain among all patients because pain incidence is substantial, and the specific treatment of noncardiac pain in HF is complex. The use of nonsteroidal anti-inflammatory drugs (NSAIDs) are contra-indicated in HF because they blunt the benefits of diuretics and angiotension-converting enzyme inhibitors (ACEI) and may contribute to sodium retention.<sup>53,54</sup> Research suggest NSAIDs may lead to a greater than 10-fold increase in HF hospitalizations in susceptible patients.<sup>55,56</sup> Second, most HF patients are managed with complex drug regimens and suffer from multiple comorbidities. These circumstances increase the risk of both polypharmacy and concomitant drug interactions,<sup>54</sup> and they may limit the choices of available pain medications. Additionally, diabetes is prevalent in HF, which increases the risk of neuropathic pain. Tricyclic antidepressants, used to treat neurogenic pain or depression (possibly more prevalent in HF<sup>46,47</sup>) should be used with caution because their negative inotropic effect and possible proarrhythmic effect.<sup>14</sup> Corticosteroids, frequently used for inflammatory musculoskeletal pain, are also used with caution secondary to their effects on sodium retention and fluid overload.<sup>54</sup> Although a review of specific interventions for the management of acute and chronic noncardiac pain in HF is beyond the scope of our paper, Wheeler and Wingate<sup>54</sup> provide a detailed analysis of pharmacological and non-pharmacological measures to address pain syndromes in patients with HF.

Although pharmacological interventions are challenging, a variety of non-pharmacologic interventions that may improve pain management in HF are available. All patients, regardless of their underlying disease processes, may benefit from raising expectations about palliation of their pain and symptoms and from clinicians encouraging them to request referral when pain relief is inadequate.<sup>57</sup> Providers should assess patient attitudes that may impair patients' pain reporting and consequent pain management. In a study of cancer patients, Ward and colleagues<sup>58</sup> identified the patient belief that pain is inevitable as contributing to increased pain and suffering. Some patients may be fearful that discussing pain and symptoms may portend disease progression.<sup>58,59</sup> Concerns about addiction risks are a particular provider and patient concern with opioid use, and both patients and providers may benefit from education about the effectiveness of opioid medications. Healthcare agencies should prioritize continuing education for all health providers to address gaps in knowledge, foster positive attitudes and improve specific symptom management skills. Enhanced interdisciplinary collaboration may promote successful management of the myriad psychological, social and spiritual needs of patients living with chronic pain and progressive disease.

## Limitations

Our study has several potential methodological limitations. Although the BPI may not capture qualities of pain to determine whether a patient's pain is somatic, visceral or neuropathic, it demonstrates sound psychometric properties and remains the standard pain assessment tool in research. Because our study is not population-based, the absolute frequencies of pain may not be applicable to all HF patients or other ambulatory-care populations. Because we included every patient in fair or poor health and every other patient with excellent or good health, we may have found higher pain severity and more advanced illness, although those who agreed to participate in this study were similar in self-reported health, pain severity, and other measures than were those who chose not to participate. Ejection fractions and New York Heart Association classifications were not consistently recorded in patient records, precluding their inclusion into the analysis, although the chartbased measures of HF we used are valid.<sup>60,61</sup> Because our HF sample included both systolic and diastolic dysfunction, these findings reflect diverse pain experiences although that also increases the generalizability of our findings. Finally, because the VA system

provides care mainly to men<sup>62</sup> and may be a safety net for patients with lower socioeconomic status,<sup>63</sup> our study may not reflect community populations. However, because the VA is known for excellence in chronic-illness care, our study shows how persistent these issues are even in a system where routine pain screening and management are a national priority.<sup>64</sup>

## Conclusion

Although pain is not considered a key component of HF, our findings suggest that both HF and non-HF patients suffer significant levels of moderate to severe pain, regardless of etiology. More than half of both cohorts reported pain “right now,” and approximately two thirds of these individuals rated their pain as moderate or severe. Fifty-five to seventy-five percent of all veterans reported musculoskeletal back or joint pain, and chest pain was reported by 35% of HF and 24% of non-HF patients. To maintain functional status and optimize self management, healthcare providers must anticipate and address pain in HF patients, especially from musculoskeletal and cardiac sources.

Ferrell and Coyle suggest, “Pain that is diminished, ignored, or doubted is pain that leads to suffering.”<sup>52(p.49)</sup> Historically, nurses have addressed pain by giving voice to those who suffer silently, advocating for compassionate care, and providing comfort and emotional support when it is impossible to eradicate pain completely.<sup>52</sup> Our study underscores the importance of this mission and reinforces the need for improved multidisciplinary models of care to address pain, especially in populations in which it is not sufficiently recognized.

## Acknowledgments

Supported by a grant (IIR03-150) from the Veterans Administration Health Services Research and Development. Dr. Karl Lorenz was supported by a VA HSR&D Career Development Award.

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**Table 1**

Baseline Demographic, Clinical, and Psychological Sample Characteristics (N = 634)

|  | <b>HF (n = 95)</b>     | <b>Non-HF<br/>(n = 539)</b> | <b>P Value</b> |
|--|------------------------|-----------------------------|----------------|
| Male, n (%)  | 91 (95.8%)             | 511 (95.7%)                 | .97            |
| Mean age<br>(range, SE)  | 67.03<br>(45–87, 1.12) | 61.63<br>(23–93, 0.56)      | .000**         |
| Educational level, n (%)   |                        |                             | .56            |
| Less than college graduate                                       | 58 (63%)               | 320 (59.8%)                 |                |
| College graduate   | 34 (37%)               | 215 (40.2%)                 |                |
| Race, n (%)  |                        |                             | .17            |
| African American   | 26 (27.4%)             | 142 (26.6%)                 |                |
| Caucasian  | 55 (57.9%)             | 260 (48.7%)                 |                |
| Other  | 14 (14.7%)             | 132 (24.7%)                 |                |
| Self-reported<br>health, n (%)                                   |                        |                             |                |
| Good/Excellent   | 25 (26.6%)             | 234 (43.5%)                 | .02            |
| Fair   | 44 (46.8%)             | 203 (37.7%)                 |                |
| Poor/Very poor   | 25 (26.6%)             | 100 (18.6%)                 |                |
| Mean Seattle Index<br>of Comorbidity<br>(range, SE) <sup>†</sup> | 5.81<br>(1–14, 0.12)   | 5.45<br>(0–15, 0.12)        | .000**         |
| Mean self-reported<br>mental health<br>(range, SE)               |                        |                             |                |
| GAD-2  | 1.56 (0–6, 0.20)       | 1.75 (0–6, .09)             | .40            |
| PHQ-2  | 1.62 (0–6, 0.20)       | 1.97 (0–6, .09)             | .19            |

Significant at  $P < .05$ .

HF, heart failure.

\*\* Significant at  $P < .001$ .<sup>†</sup> Seattle Index of Comorbidity modified to exclude heart failure.

**Table 2**

Presence of Specific Comorbidities Including Causes of Pain (Unadjusted)

| Comorbidity                                  | HF (n = 95),<br>n (%) | Non-HF<br>(n = 539),<br>n (%) | P Value |
|--|-----------------------|-------------------------------|---------|
| Coronary artery disease                      | 63 (66.3%)            | 129 (23.9%)                   | .000*** |
| COPD, emphysema,<br>bronchitis, asthma       | 24 (47.4%)            | 111 (20.6%)                   | .000*** |
| Cancer (other than<br>non-melanoma skin)     | 19 (20.0%)            | 65 (12.1%)                    | .035*   |
| Depression                                   | 39 (41.1%)            | 204 (37.8%)                   | .554    |
| PTSD or anxiety disorder                     | 25 (26.4%)            | 115 (26.3%)                   | .281    |
| Tobacco use                                  | 75 (78.9%)            | 330 (61.2%)                   | .001*** |
| Alcoholism                                   | 17 (17.9%)            | 153 (28.4%)                   | .033*   |
| Other drug of<br>abuse/dependence            | 18 (18.9%)            | 114 (21.2%)                   | .626    |
| Peripheral vascular disease                  | 16 (17.0%)            | 36 (6.7%)                     | .001*** |
| Diabetes mellitus                            | 27 (49.5%)            | 183 (34.0%)                   | .004**  |
| Pneumonia                                    | 14 (14.7%)            | 27 (5.0%)                     | .000*** |
| Stroke                                       | 16 (16.8%)            | 38 (7.1%)                     | .002**  |
| Low back pain                                | 26 (27.4%)            | 193 (35.8%)                   | .111    |
| Degenerative joint<br>disease/osteoarthritis | 26 (27.4%)            | 123 (22.8%)                   | .335    |

COPD, chronic obstructive pulmonary disease; HF, heart failure; PTSD, post-traumatic stress disorder.

\*  $P < .05$ .\*\*  $P < .01$ .\*\*\*  $P \leq .001$ .

**Table 3**

Bivariate Pain Comparisons for HF and Non-HF Patients (Unadjusted)

|   | HF Group<br>(n = 95),<br>mean<br>(range, SD) | Non-HF Group<br>(n = 539),<br>mean<br>(range, SD) | P Value |
|---|--|---|---------|
| Brief pain inventory                        |  |   |         |
| Pain interference                           | 3.79 (0–10, 3.17)                            | 4.04 (0–10, 3.18)                                 | .47     |
| Pain severity                               | 3.42 (0–10, 2.81)                            | 3.77 (0–10, 2.64)                                 | .24     |
| Pain distress or bother<br>in the last week | 3.04 (1–5, 1.32)                             | 3.27 (1–5, 1.37)                                  | .14     |
| Pain location                               |  |   |         |
| Stomach                                     | 30 (31.9%)                                   | 172 (32.0%)                                       | .99     |
| Back  | 52 (55.3%)                                   | 324 (60.3%)                                       | .36     |
| Arms, legs, joints                          | 67 (71.3%)                                   | 406 (75.6%)                                       | .37     |
| Headaches                                   | 25 (26.6%)                                   | 206 (38.3%)                                       | .03*    |
| Chest                                       | 33 (35.1%)                                   | 130 (24.2%)                                       | .03*    |
| Pain ≥1                                     | 50 (51.8%)                                   | 351 (64.8%)                                       | .165    |
| Pain rated moderate<br>(≥4) or severe(≥7)** | 35 (67.3%)                                   | 229 (68.4%)                                       | .88     |

HF, heart failure.

\*  $P < .05$ .

\*\* If pain “right now” rated ≥1.