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EXPERIENCE AND MANAGEMENT OF CHRONIC PAIN AMONG PATIENTS WITH OTHER COMPLEX CHRONIC CONDITIONS

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Abstract

Objective—Managing multiple chronic health conditions is a significant challenge. The purpose of this study was to examine the experience and management of chronic pain among adult patients with other complex chronic conditions, specifically diabetes and heart failure (HF).

Methods—We surveyed 624 U.S. Department of Veterans Affairs primary care patients in three study groups: 184 with HF, 221 with diabetes and 219 general primary care users. We compared health status and function between those with and without chronic pain within the three study groups. Among those with chronic pain, we compared pain location, severity and treatment across groups.

Results—More than 60% in each group reported chronic pain, with the majority reporting pain in the back, hip or knee. In all groups, patients with chronic pain were more likely to report fair or poor health than those without pain ($P < .05$). In the HF and diabetes groups, a higher percentage of patients with pain were not working because of health reasons. Of those with pain, more than 70% in each group took medications for pain; more than one-half managed pain with rest or sedentary activities; and less than 50% used exercise for managing their pain.

Discussion—Chronic pain is a prevalent problem that is associated with poor functioning among multimorbid patients. Better management of chronic pain among complex patients could lead to significant improvements in health status, functioning and quality of life and possibly also improve the management of their other major chronic health conditions.

Keywords

Chronic Pain; Multi-morbidity; Pain Management

Chronic pain is a prevalent condition that has significant negative effects on individuals and the healthcare system. Approximately one-third of adults have chronic or persistent pain and the prevalence of chronic pain increases with age.¹⁻³ Chronic pain has been linked to limitations in activities of daily living and loss of employment, as well as to increased medical expenditures and poor self-rated health.^{4, 5}

Although the negative effects of chronic pain have been well described, an increasing number of adults suffer from multiple chronic conditions⁶ and the experience of chronic pain among these patients is not well understood. In particular, we know little about the type and severity

of chronic pain experienced by these patients or the strategies they use to manage their pain. Moreover, little is known about the extent to which chronic pain might influence function, perceived health status and ratings of care quality among individuals with other chronic health conditions.

Managing the competing demands of multiple chronic health conditions is a significant challenge for many patients and their primary care providers.⁷ Chronic pain is of particular concern as a comorbid condition considering its prevalence among older persons, who also tend to have other chronic conditions, and its association with increased disability, poorer health status and decreased quality of life in general.^{3, 8, 9} Prior work also suggests that among patients with other chronic illnesses chronic pain is associated with greater reported difficulty performing certain essential self-management activities.^{10, 11} Consequently, better understanding how different conditions interact is essential for improving both quality of care and health outcomes for these complex patients.^{6, 7, 11-13} In addition, a thorough understanding of how patients with chronic conditions manage chronic pain is critical for developing effective strategies to assist patients with managing their different health conditions.^{6, 7, 11-13}

Accordingly, the objective of this study was to examine the experience and management of chronic pain among general medicine patients receiving primary care through the U.S. Department of Veterans Affairs (VA) healthcare system and in particular those with other serious chronic illnesses, namely diabetes and chronic heart failure (HF). The high co-occurrence of chronic conditions in the VA patient population^{14, 15} allows a detailed description of the impact of chronic pain in the presence of another chronic illness. Specifically, we focused on: 1) How does chronic pain affect perceived health status and function in patients with different chronic health conditions? 2) How does the location, severity, and treatment of chronic pain vary among patients with different chronic conditions? and, 3) How satisfied are patients with chronic pain and other chronic conditions with the quality of their care in general and specifically for chronic pain?

MATERIALS AND METHODS

Sample and Data Collection

In fall of 2004, surveys were mailed to three randomly selected patient samples. These samples, identified using national VA data sources,¹⁶ consisted of 300 patients with a primary or secondary diabetes diagnosis code (i.e., ICD-9-CM codes 250.x) associated with two outpatient visits or at least one inpatient visit in Fiscal Year (FY) 2003 (October 1, 2002 to September 30, 2003) and at least one outpatient visit in FY2004; 300 patients with a primary or secondary chronic heart failure diagnosis code (i.e., ICD-9-CM codes 401.01, 402.11, 402.91, 404.01, 404.11, 404.91, 428.0, 428.1, 428.9) associated with two outpatient visits or at least one inpatient visit in FY2003 and at least one outpatient visit in FY2004; and 300 patients, regardless of diagnosis, with two outpatient visits or at least one inpatient visit in FY2003 and at least one outpatient visit in FY2004. The initial sample selection criteria for identifying patients with diabetes and those with heart failure were based on a previously validated algorithm¹⁷ and the visit in FY2004 was used to ensure that the identified patients were still using the VA health care system. We included the final group of patients because we were interested in whether the prevalence and impact of chronic pain might differ between those with specific chronic conditions and a general primary care patient population.

All responses were anonymous. We did not collect gender information as part of the survey since in general the VA patient population is predominately (> 90%) male.¹⁸ Human Subjects approval for this study was provided by the VA Ann Arbor Healthcare System IRB.

Measures

To assess health status, we used the general health perceptions question (SF-1) from the SF-36, which asks patients to rate their health in general as excellent, very good, good, fair or poor.¹⁹ Respondents were also asked to identify which, if any, conditions they had, from a list including chronic heart failure, heart disease, stroke, hypertension, diabetes, cancer, kidney disease, liver disease, ulcer, eye disease, lung disease, depression or post-traumatic stress disorder (PTSD), peripheral neuropathy, and arthritis. Each respondent's indicated conditions were counted and a sum of total health conditions was created, with a possible range from 0 to 14. We included two measures of patient functioning. First, survey participants were asked about their current employment status and in particular about whether they were not employed due to poor health. Employment status is a measure of psychosocial functioning and an important aspect of daily life that is affected by chronic pain.²⁰ Second, respondents were asked how much total time they spent during the past week walking for exercise (none, less than 30 minutes, 30-59 minutes, 1-3 hours and more than 3 hours) and then how much time was spent doing other aerobic exercise (e.g., swimming, bicycling). Responses to both questions were summed, using the mid-point of each category as the approximate number of minutes spent exercising: "none"=0 minutes, "less than 30 minutes"=15 minutes, "30-59 minutes"=45 minutes, "1-3 hours"=120 minutes, "more than 3 hours"=180 minutes, to derive the total number of minutes of physical activity during the past week.²¹ In addition, to assess overall care quality all respondents were asked to rate the quality of care they received from VA during the past year using a 1 to 5 scale, with 1=excellent, 2=very good, 3=good, 4=fair, 5=poor. General demographic information, including age, race, education and marital status were also collected as part of the study survey.

Patients were identified as having chronic pain, if they responded yes to the following question: "Have you had pain that was present most of the time for six months or more during the past year?"^{10, 11, 22} Respondents who reported chronic pain were asked additional, pain-specific questions including the location (body part) where they experienced pain and use of various treatments (e.g., medications, physical therapy, injections) and strategies (e.g., relaxation techniques, exercise) for managing pain. Respondents were also asked whether during the past year they had been treated or evaluated at a clinic specializing in pain treatment. Using measures adapted from the Medical Outcomes Study,¹⁹ patients were asked to describe their average level of pain during the past four weeks on a scale from 0 to 10 (0 = none, 10 = as bad as can be imagined) and the number of days in the past four weeks (0 to 28 days) pain interfered with the things they do. Patients were also asked to rate the quality of care they received from the VA for chronic pain using the same categories used to rate quality of care overall.

Analysis

Bivariate analyses (chi-square tests and t-tests) were conducted to examine the association between chronic pain and patient demographic characteristics, health status, function and overall ratings of care quality within each of the three sample groups. We used chi-square analyses and analysis of variance to assess differences in pain location, severity, functional interference, management, and ratings of pain care quality by those reporting chronic pain across the three groups. Missing responses for any of the medical treatment or self-management items were treated as non-receipt or use of that item. Analyses were conducted using SAS 9.1 (SAS Institute Inc., Cary, NC) and Stata version 9.0 (Stata Corp., College Station, TX). All reported P values are two-tailed with a $P < .05$ considered statistically significant.

RESULTS

The survey response rates were 68% for those with HF, 76% for those with diabetes and 77% for the general primary care sample. As shown in Table 1, slightly more than 60% of

respondents reported chronic pain, a figure that was consistent across the samples. The average age of the study participants reflects an older population ranging from 66 to 74 years (with an actual range of 30 to over 90 years of age). Respondents with chronic pain were significantly younger than those without pain in the diabetes and general primary care samples. A lower percentage of HF patients with chronic pain had at least a high school education compared to their non-pain counterparts. There were no other significant demographic differences between those with and without chronic pain within the study groups.

In each of the study groups (Table 1), a significantly higher percentage of patients with chronic pain reported having fair or poor health status compared to patients in that group without pain. Across all groups, those with chronic pain had a greater number of health conditions, which was primarily due to a higher number of patients with chronic pain who reported having arthritis or degenerative joint disease (data shown in Appendix). Also, of note, however, is the high level of morbidity in this population even among the general primary care sample with both those with and without pain reporting more than two chronic conditions on average. The most frequently reported condition in the general group was hypertension (63%), which was also prevalent among the other two study groups (68% and 72% of those with HF and diabetes, respectively). Among the general group 26% also had diabetes and 6% heart failure.

Although a high percentage of the study patients were retired, among patients with HF and diabetes, chronic pain was still associated with being unable to work due to health. Across all groups, patients with chronic pain reported spending less time exercising and a lower percentage rated their overall quality of care as good, very good or excellent compared to those without pain. However, these differences were not statistically significant in all of the groups.

Location, Severity and Treatment of Chronic Pain

Among patients with chronic pain (Table 2), the most frequently identified pain locations were similar across patient groups, consisting of the upper or lower back and hip or knee. Patients in each sample reported limitations in their activities due to their pain on more than 60% of the days in the past four weeks (ranging from 17 days for those with diabetes to 21 days for those with heart failure, NS). The average level of pain or physical discomfort, measured on a 0 to 10 scale with 10 being as bad as you can imagine, was significantly higher for those with heart failure, 6.4 compared to 5.8 and 5.6 for the diabetes and general medicine groups, respectively ($P < .01$).

Patients in all of the groups reported using many medical and home treatments for their pain. More than 70% of patients in each sample took medications for pain and about one-third of patients (ranging from 32% in the general medicine group to 38% of those with heart failure) reported visiting a pain clinic in the past year. Physical therapy, massage, and injections were used by less than 20% of patients in each group. Approximately one-half of patients in each group, however, treated their pain with ice, heat, biofeedback, relaxation techniques, or herbs. A majority of patients in each group reported managing pain by resting or engaging in sedentary activities (e.g., reading, watching TV), while a smaller percentage used exercise for managing their pain. This was especially true in the heart failure group with only 23% of patients reporting use of exercise compared to 41% in the diabetes group and 38% in the general medicine group ($P < .01$). Finally, the percentage of patients rating the quality of the pain care they received as “good”, “very good” or “excellent” ranged from 68% in the diabetes group to 78% among those with heart failure.

DISCUSSION

Chronic pain is a prevalent problem among VA primary care patients. The prevalence estimate of 60% of patients in our sample reporting chronic pain is consistent across patient groups,

regardless of the presence of other chronic health conditions, and is similar to estimates found in other surveys of VA patients.^{10, 23} Our results also show that even among patients with other complex chronic health conditions, presence of chronic pain is associated with significantly poorer self-rated health, lower functional status and lower ratings of overall quality of care. Thus, better addressing chronic pain along with addressing disease-specific issues is necessary for improving patient quality of life and well-being.

How patients with different health conditions experience and manage chronic pain appears fairly consistent across patient subgroups. Reported pain locations were similar across groups, suggesting that most of the pain complaints in this population may be musculoskeletal rather than from a disease-specific cause, such as diabetic neuropathy. Across all study groups, patients with chronic pain report that their pain is of greater than moderate severity and that their pain interferes with activities on a majority of days. Those with heart failure appeared to be the most affected, reporting slightly higher levels of pain and pain-related interference than the other study groups. However, these findings could be related in part to the severity of their underlying disease considering that the heart failure patients in general report poorer health.

In each of our groups, patients with chronic pain reported high levels of medical treatment and medication taking for pain, and high levels of home treatment for pain. These results show that even among patients with other serious chronic illnesses, patients with chronic pain are actively seeking to treat their pain, but that despite their efforts most continue to experience pain-related functional impairment and the majority are dissatisfied with the quality of care for their pain. The fact that patients with chronic pain have lower ratings of overall quality of care than patients without pain and their ratings of care quality for pain are lower than overall quality suggests that pain issues are influencing patients' satisfaction with care. Since pain care satisfaction ratings are likely related to pain relief,²⁴ the low ratings for satisfaction with pain care may also indicate an unmet need for better pain control.

The study results also suggest that there may be considerable opportunity to improve pain care by educating and supporting patients in the use of more effective self-management strategies. The patients in this study, like those with chronic pain in prior studies,²⁵ not only use multiple strategies for coping with pain but also report using pain management strategies that may not be effective and could actually be counterproductive. For example, our results show a majority of patients report treating pain with rest or sedentary activities, while fewer than half report treating pain with exercise. Although exercise may not be an appropriate pain management strategy for every patient, studies have shown that exercise is associated with reduced pain and improved function, while rest and inactivity are associated with increased pain and an increased risk of subsequent disability.²⁶⁻²⁸ Moreover, physical activity or exercise therapy are an important part of managing most other chronic health conditions, including diabetes and heart failure.^{29, 30} In addition to not selecting exercise specifically as a pain management strategy, our results show that patients with chronic pain spend significantly less time exercising than patients without chronic pain. Therefore, they may not reap the benefits of exercise for their other health conditions.^{27, 28, 31, 32} It is possible that patients are not aware of the role exercise can play in pain management. Consequently, a potential strategy for improving pain management could focus on increasing patients' awareness of the role of exercise in improving health and managing pain. Approaches to assist patients with becoming more physically active are also needed.

Limitations of this study include that the study samples, while representative of the VA, may not be representative of other patient populations, including patient populations with a high proportion of female patients or a younger population. In addition, the standard limitation of a mailed, cross-sectional survey apply: The results are based on the subset of those within each sample who responded, the data are self-report, and we cannot determine the directionality

of the observed relationships. It is always possible that the subset of patients who respond to a survey are in some way not typical of the population that they are meant to represent, although that concern is modified somewhat by the relatively high response rates to these surveys. Finally, the general patient sample had a heterogeneous mix of chronic conditions, including diabetes and heart failure. However, this group is representative of general VA primary care patients, who have a high degree of morbidity and both the heart failure and diabetes groups also had a heterogeneous mix of other chronic conditions.

Chronic pain is a significant health problem among complex multimorbid patients. The negative impact of chronic pain on health status and patient function among patients with other chronic health conditions indicates that continuing efforts are warranted to address this important health issue. Patients' reports of high interference from pain and pain severity, despite the use of multiple medical and self-management strategies, and their relatively low ratings of pain care quality compared to overall health care quality, suggest a need for better pain management and pain relief. This need could be addressed in part by the use of more effective self-management strategies. Better management of chronic pain among complex patients could lead to significant improvements in health status, functioning and quality of life and possibly also improve the management of their other major chronic health conditions.

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References

1. Portenoy RK, Ugarte C, Fuller I, Haas G. Population-based survey of pain in the United States: differences among white, African American, and Hispanic subjects. *J Pain* 2004;5(6):317–328. [PubMed: 15336636]
2. Harstall C. How Prevalent Is Chronic Pain? *Pain Clinical Updates* 2003;XI(2):1–4.
3. Elliott AM, Smith BH, Penny KI, Smith WC, Chambers WA. The epidemiology of chronic pain in the community. *Lancet* 1999;354(9186):1248–1252. [PubMed: 10520633]
4. Emptage NP, Sturm R, Robinson RL. Depression and comorbid pain as predictors of disability, employment, insurance status, and health care costs. *Psychiatr Serv* 2005;56(4):468–474. [PubMed: 15812099]
5. Mantyselka PT, Turunen JH, Ahonen RS, Kumpusalo EA. Chronic pain and poor self-rated health. *JAMA* 2003;290(18):2435–2442. [PubMed: 14612480]
6. Wolff JL, Starfield B, Anderson G. Prevalence, expenditures, and complications of multiple chronic conditions in the elderly. *Arch Intern Med* 2002;162(20):2269–2276. [PubMed: 12418941]
7. Piette JD, Kerr EA. The impact of comorbid chronic conditions on diabetes care. *Diabetes Care* 2006;29(3):725–731. [PubMed: 16505540]
8. Kerns RD, Otis J, Rosenberg R, Reid MC. Veterans' reports of pain and associations with ratings of health, health-risk behaviors, affective distress, and use of the healthcare system. *J Rehabil Res Dev* 2003;40(5):371–379. [PubMed: 15080222]
9. Brooks PM. The burden of musculoskeletal disease--a global perspective. *Clin Rheumatol* 2006;25(6):778–781. [PubMed: 16609823]
10. Krein SL, Heisler M, Piette JD, Makki F, Kerr EA. The effect of chronic pain on diabetes patients' self-management. *Diabetes Care* 2005;28(1):65–70. [PubMed: 15616235]

11. Krein SL, Heisler M, Piette JD, Butchart A, Kerr EA. Overcoming the influence of chronic pain on older patients' difficulty with recommended self-management activities. *Gerontologist* 2007;47(1): 61–68. [PubMed: 17327541]
12. Starfield B, Lemke KW, Bernhardt T, Foldes SS, Forrest CB, Weiner JP. Comorbidity: implications for the importance of primary care in 'case' management. *Ann Fam Med* 2003;1(1):8–14. [PubMed: 15043174]
13. Fortin M, Bravo G, Hudon C, Vanasse A, Lapointe L. Prevalence of multimorbidity among adults seen in family practice. *Ann Fam Med* 2005;3(3):223–228. [PubMed: 15928225]
14. Yu W, Ravelo A, Wagner T, et al. Prevalence and Costs of Chronic Conditions in the VA Health Care System. *Med Care Res Rev* 2003;60(3Suppl):146S–167S. [PubMed: 15095551]
15. Selim AJ, Fincke G, Ren XS, et al. Comorbidity assessments based on patient report: results from the Veterans Health Study. *J Ambul Care Manage* 2004;27(3):281–295. [PubMed: 15287217]
16. Murphy PA, Cowper DC, Seppala G, Stroupe KT, Hynes DM. Veterans Health Administration inpatient and outpatient care data: an overview. *Eff Clin Pract* 2002;5(3 Suppl):E4. [PubMed: 12166925]
17. Krein SL, Hayward RA, Pogach L, BootsMiller BJ. Department of Veterans Affairs' Quality Enhancement Research Initiative for Diabetes Mellitus. *Med Care Jun;2000* 38(6 Suppl 1):I38–48. [PubMed: 10843269]
18. Goldzweig CL, Balekian TM, Rolon C, Yano EM, Shekelle PG. The state of women veterans' health research. Results of a systematic literature review. *J Gen Intern Med* 2006;21(Suppl 3):S82–92. [PubMed: 16637952]
19. Ware JE Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med Care* 1992;30(6):473–483. [PubMed: 1593914]
20. Turk DC, Dworkin RH, Revicki D, et al. Identifying important outcome domains for chronic pain clinical trials: An IMMPACT survey of people with pain. *Pain*. Oct 13;2007 In press available on line
21. Lorig, K.; Stewart, A.; Ritter, P.; Gonzalez, V.; Laurent, D.; Lynch, J. Outcome measures for health education and other health care interventions. Thousand Oaks, CA: Sage Publications; 1996.
22. Gureje O, Von Korff M, Simon GE, Gater R. Persistent pain and well-being: a World Health Organization Study in Primary Care. *JAMA* 1998;280(2):147–151. [PubMed: 9669787]
23. Crosby FE, Colestro J, Ventura MR, Graham K. Survey of pain among veterans in Western New York. *Pain Manag Nurs* 2006;7(1):12–22. [PubMed: 16490732]
24. Tan G, Jensen MP, Thornby JI, Anderson KO. Are patient ratings of chronic pain services related to treatment outcome? *J Rehabil Res Dev* 2006;43(4):451–460. [PubMed: 17123185]
25. Barry LC, Gill TM, Kerns RD, Reid MC. Identification of pain-reduction strategies used by community-dwelling older persons. *J Gerontol A Biol Sci Med Sci* 2005;60(12):1569–1575. [PubMed: 16424290]
26. Gill TM, Allore H, Guo Z. Restricted activity and functional decline among community-living older persons. *Arch Intern Med* 2003;163(11):1317–1322. [PubMed: 12796067]
27. van Tulder MW, Koes B, Malmivaara A. Outcome of non-invasive treatment modalities on back pain: an evidence-based review. *Eur Spine J* 2006;15(Suppl 1):S64–81. [PubMed: 16320031]
28. Roddy E, Zhang W, Doherty M. Aerobic walking or strengthening exercise for osteoarthritis of the knee? A systematic review. *Ann Rheum Dis* 2005;64(4):544–548. [PubMed: 15769914]
29. Sigal RJ, Kenny GP, Boule NG, et al. Effects of aerobic training, resistance training, or both on glycemic control in type 2 diabetes: a randomized trial. *Ann Intern Med* 2007;147(6):357–369. [PubMed: 17876019]
30. Fleg JL. Exercise therapy for elderly heart failure patients. *Clin Geriatr Med* 2007;23(1):221–234. [PubMed: 17126764]
31. Manini TM, Everhart JE, Patel KV, et al. Daily activity energy expenditure and mortality among older adults. *JAMA* 2006;296(2):171–179. [PubMed: 16835422]
32. Morey MC, Pieper CF, Sullivan RJ Jr, Crowley GM, Cowper PA, Robbins MS. Five-year performance trends for older exercisers: a hierarchical model of endurance, strength, and flexibility. *J Am Geriatr Soc* 1996;44(10):1226–1231. [PubMed: 8856003]

Table 1
Comparisons of patients with and without chronic pain within each group

Report chronic pain	Heart Failure N = 184			Diabetes N = 221			General Primary Care N = 219		
	65%	61%	61%	65%	61%	61%	65%	61%	61%
	Chronic pain N=120 n (%) mean ± SD	No chronic pain N=64 n (%) mean ± SD	P	Chronic pain N=135 n (%) mean ± SD	No chronic pain N=86 n (%) mean ± SD	P	Chronic pain N=133 n (%) mean ± SD	No chronic pain N=86 n (%) mean ± SD	P
Demographics									
Age (years)	72±11	74±9	NS	67±11	72±9	<.01	66±12	70±10	<.01
White	89(77)	49(78)	NS	101(78)	73(86)	NS	109(83)	78(92)	NS
High school education or more	76(64)	53(83)	<.01	95(73)	61(73)	NS	114(86)	63(76)	NS
Married or living with a partner	81(68)	41(64)	NS	91(69)	60(72)	NS	96(73)	58(70)	NS
Health status and function									
Health status "fair" or "poor"	91(76)	38(59)	<.05	81(60)	24(28)	<.001	72(54)	23(27)	<.001
Number of health conditions (0 – 14) [†]	5.7±1.8	4.8±1.7	<.01	4.4±2.0	3.8±1.7	<.05	3.3±2.0	2.3±1.7	<.001
Employment [‡]									
Not working due to health	40(33)	6(10)	<.001	23(18)	5(6)	<.05	24(18)	8(10)	NS
Retired	78(65)	53(84)	.01	87(67)	64(77)	NS	79(60)	57(69)	NS
Employed	9(8)	6(10)	NS	19(15)	19(23)	NS	31(23)	18(22)	NS
Other (e.g., student)	5(4)	0	NS	7(5)	3(4)	NS	7(5)	2(2)	NS
Minutes per week of exercise	71±76	105±90	.01	99±82	115±99	NS	91±82	123±101	<.05
Ratings of overall quality of care									
Quality of overall care from VA rated as "good," "very good" or "excellent" [§]	97/111(87)	51/54(94)	NS	107/127(84)	75/76(99)	.001	106/124(85)	73/78(94)	NS

	Heart Failure N = 184	Diabetes N = 221	General Primary Care N = 219
Report chronic pain	65%	61%	61%
	<p>Chronic pain N=120 n (%) mean ± SD</p> <p>No chronic pain N=64 n (%) mean ± SD</p>	<p>Chronic pain N=135 n (%) mean ± SD</p> <p>No chronic pain N=86 n (%) mean ± SD</p>	<p>Chronic pain N=133 n (%) mean ± SD</p> <p>No chronic pain N=86 n (%) mean ± SD</p>
	P	P	P

* The denominator used to calculate the percentage varies slightly due to item non-response, which is less than 5% for most items.

† Sum of total conditions identified from the following list: chronic heart failure, heart disease, stroke, hypertension, diabetes, cancer, kidney disease, liver disease, ulcer, eye disease, lung disease, depression or post-traumatic stress disorder (PTSD), peripheral neuropathy, and arthritis

‡ Percentages do not sum to 100 as some respondents selected more than one employment category, e.g., 18 people indicated they were retired and not working due to health.

§ Excludes responses from 54 respondents, 10 who indicated they did not receive care from VA and 44 who did not respond to the question. The number that did not respond ranges from 13 in the heart failure group to 16 in the general group but the number with pain vs. no pain does not differ by more than one within groups.

Table 2

Comparisons of pain location, severity and treatment across groups

	Heart Failure (N=120) n (%) mean ± SD	Diabetes (N=135) n (%) mean ± SD	General Primary Care (N=133) n (%) mean ± SD	P-value
Location of pain				
Pain in upper or lower back	69 (58)	81 (60)	78 (59)	NS
Pain in hip or knee	71 (59)	70 (52)	72 (54)	NS
Pain in feet	61 (51)	58 (43)	54 (41)	NS
Pain in neck or shoulders	63 (53)	51 (38)	61 (46)	NS
Pain in past four weeks				
Days pain interfered with activities	21 ± 9	17 ± 11	19 ± 11	NS
Severity of pain (0 to 10 scale)	6.4 ± 2.0	5.8 ± 2.1	5.6 ± 2.2	< .01
Medical treatments for pain				
Taking medications for pain	94 (78)	100 (74)	105 (79)	NS
Went to a pain clinic in past year [†]	46 (38)	46 (34)	42 (32)	NS
Received physical therapy for pain in past	11 (9)	10 (7)	19 (14)	NS
Received massage for pain in past year	18 (15)	14 (10)	19 (14)	NS
Received injections for pain in past year	14 (12)	14 (10)	22 (17)	NS
Self-management strategies used for pain				
Treated pain with ice or heat, biofeedback, relaxation techniques or meditation or prayer, or herbs	67 (56)	65 (48)	74 (56)	NS
Treated pain with rest or sedentary activities	84 (70)	77 (57)	81 (61)	NS
Treated pain with exercise	28 (23)	56 (41)	50 (38)	< .01
Ratings of quality of care received for pain				
Quality of care received from VA rated as "good," "very good" or "excellent" [*]	67/86 (78)	61/90 (68)	64/93 (69)	NS

* Excludes responses from 129 respondents, 109 who did not receive pain care from VA and 10 who did not respond to the question.

[†] Includes any visit for evaluation and/or treatment.