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Chronic Pain and Pain Management among Older Veterans

Juyoung Park, PhD

ABSTRACT

The aim of the study was to examine chronic pain in older veterans (65+) and the pain treatment that they received at the Veteran Medical Center. Using a cross-sectional research design, a survey was administered to 107 older veteran participants with self-reported chronic pain recruited from outpatient centers of the Veterans Administration Medical Center: Pain Management Center, Geriatric Clinic, Arthritis Treatment Center, Mental Health Clinic, and Primary Care Clinic. Severity of pain, functional status, depression, spirituality, social support, and social network were assessed, and demographic data were collected. A majority of the participants (92.5%, n = 99) reported having had chronic pain for more than 6 months and having suffered from chronic pain, including back pain, knee pain, hip pain, and foot/toe pain. For chronic pain management, 17.8 % (n = 19) of the participants had received treatment from a pain specialist in the pain management clinic, but most of the participants (82.2%, n = 88) had received pharmacological treatment from their primary care doctor or other specialist, rather than specialized pain therapy. The prevalence of chronic pain is fairly high in older veterans, although most were receiving pain medication. The study analyses revealed that lower levels of functional status, higher levels of depressive symptoms, and lower levels of spirituality were associated with higher levels of pain intensity. Health care providers could ensure that routine screening for chronic pain is a part of their regular interaction with patients. They should be able to identify and address major barriers to effective pain management in older adults.

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Background

Pain is a prevalent problem in managing daily life for community-dwelling older adults (American Geriatrics Society [AGS], 2002). This population in particular suffers from chronic pain conditions, including arthritis, osteoporosis, osteoarthritis, rheumatoid arthritis, lower back pain, and fibromyalgia (AGS Panel, 2009; Cole, 2002; Herr, 2002a). Statistically, between 20% and 70% (Carmaciu et al., 2007) of older adults (age 65+) have pain-related problems (AGS, 2002; Helme & Gibson, 1999). The prevalence of chronic pain increases with age; research has reported 57% prevalence of chronic pain in adults 65 to 74 years old and 62% prevalence in adults over 75 years old (Elliott, Smith, Penny, Smith, & Chamber, 1999). However, 45% to 80 % of older adults have substantial pain that is inadequately treated (AGS, 2002).

Melzack defined chronic pain as “a continuous physiological state of pain in which the pain symptoms become problematic and expanded to include more than just physiology” (as cited in Bernstein et al., 2007, p. 12). Because chronic pain is continuous, it is likely that psychological and social/environmental factors may act in addition to the original damaged tissue and contribute to the intensity and persistence of the pain (Gatchel, 2004). Thus, chronic pain presents psychological symptoms

and behavioral consequences, as well as physical symptoms (Brookoff, 2000). Chronic pain has been associated with depression, anxiety, somatic complaints, financial hardship, and social withdrawal (Finlayson & Davis, 1994; Reid, Tinetti, Brown, & Concato, 1998). Chronic pain is an important contributor to suffering, greater functional limitation, and even pain-related disability in older adults (AGS, 2002; Bruckenthal, Reid, & Reisner, 2009; Hughes et al., 2006; Schieffer et al., 2005), as well as increased health care utilization costs (Bruckenthal et al., 2009; Schieffer et al., 2005).

Rustøen et al. (2005) reported that a greater number of associated chronic diseases contributed to higher pain intensity and longer pain duration in their older subjects than in younger counterparts. Pain-related factors that may increase the risk for disability in the older age group include pain intensity, number of pain locations, and pain duration (Scudds & Robertson, 2000). Chronic pain may increase substantial health, psychological, and social problems; contribute to physical disability and functional impairment; and be associated with depression, anxiety, social isolation, and increased health care costs (AGS, 2002; Gureje, Von Korff, Simon, & Gater, 1998).

Chronic pain impacts a large proportion of the general population, including military veterans. In

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<http://health.usf.edu/publichealth/fphr/index.htm>

70

particular, the prevalence of pain-related disability in older veterans was 56 %, and pain intensity was a strong predictor of severe disability in the population (Barry, Guo, Kerns, Duong, & Reid, 2003). Veterans are more likely than nonveterans to experience pain and pain-related disabilities due to the injuries from their military services (Randall, Kilpatrick, Pendergast, Jones, & Vogel, 1987; Ullrich, Jensen, Loeser, & Cardenas, 2008). VA patients tend to be older, less educated, unemployed, and earning lower incomes than non-VA patients and the general U.S. population (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). However, compared with nonveterans with a low income level, veterans are more likely to access medical support, including physical and mental health services, and social support/network (e.g., VA transportation system, support groups; Wilson & Kizer, 1997). In particular, veterans who are 65 years or older are eligible to receive health care services from both the VA health care systems and private doctors through Medicare (Fisher, Chang, Bubolz, & Malenka, 1992).

Research has demonstrated that older age (Leveille, Ling, Hochberg, Resnick, & Bandeen-Roche, 2001; Snih, Markides, Ray, & Goodwin, 2001; Werhagen, Budh, Hultling, & Molander, 2004), poor health status (Siddall, McClelland, Rutkowski, & Cousins, 2003), unemployment, mental disorders (Benjamin, Morris, McBeth, Macfarlane, & Silman, 2000), lower education levels (Turner, Cardenas, Warms, & McClelland, 2001), and lower levels of family support (Cano, 2004; Jamison & Virts, 1990) are associated with chronic pain. Older age has been associated with high levels of pain prevalence in some empirical studies (Demirel, Yllmaz, Gencosmanoglu, & Kesiktas, 1998; Summers, Rapoff, Varghese, Porter, & Palmer, 1991), but other studies have found that level of pain interference was greater among the youngest and oldest age groups (Putzke, Richards, & Dowler, 2000).

The main objective of this study was to identify characteristics associated with chronic pain (pain intensity, pain intensity, pain location, duration of chronic pain, cause of chronic pain) and the extent of use of pain treatment regimens (pain medications, nonpharmacological treatment) by older veterans attending a VA medical center. The study examined the correlation between physical (functional status), psychological (depressive symptoms, spirituality), and social variables (social support and social network) and pain intensity.

Materials and Methods

Participants, Procedure, and Recruitment Site

Veteran participants were recruited from five centers affiliated with the Baltimore Veterans

Administration Medical Center (BVAMC): Pain Management Center, Geriatric Clinic, Arthritis Treatment Center, Mental Health Clinic, and Primary Care Clinic. These outpatient clinics were selected as a recruitment site based on convenience sampling and the fact that these clinics (except the Pain Management Center) primarily serve older adults.

To be eligible for participation in the study, each participant in the study met the following criteria: (a) age 65 years or older, (b) living in the community and noninstitutionalized at the time of the study, (c) having chronic pain for at least for 3 months, (d) taking opioid medications for at least 1 month, and (e) able to speak and read English. Persons with cognitive impairment, such as dementia or Alzheimer's disease, were excluded from the study. To identify these exclusions, the researcher administered a 6-item screener (Callahan, Unverzagt, Hui, Perkins, & Hendrie, 2002) derived from the Mini-Mental State Examination (MMSE) to identify persons with cognitive impairment. A score of 24 points or less indicates a sensitivity of 87% and specificity of 83.1% for predicting dementia (Hendrie et al., 1995). Any potential participant who made one or more errors on this screener was asked to complete a modified version of the Community Screening Instrument for Dementia (mCSI-D; Boustani et al., 2006). In the current study no potential participant made an error on the first part of the mCSI-D.

To identify eligible patients, electronic medical records were reviewed at the VA clinics, using the Computerized Patients Record System (CPRS). Eligible patients were invited to respond to the survey. Data collected between October 13, 2008, and February 5, 2009, from 107 veteran participants were included in the study.

Study Design and Procedure

The study was approved by University of Maryland, Baltimore, Institutional Review Board (IRB) and the BVAMC Research and Development Committee. Signed informed consent and Health Insurance Portability and Accountability Act (HIPAA) consent were obtained from each participant. Participants were offered the choice of completing the survey independently or receiving assistance from the researcher or research assistant, who read the survey questions and recorded the participant's verbal responses. A majority of the participants (73.8%, $n = 79$) received assistance to complete the survey. The average time for an interview was 35-40 minutes (range = 25-90 minutes).

Measuring Pain Intensity and Pain Interference

The Brief Pain Inventory (BPI; Cleeland et al., 1996) is a widely used, reliable, and valid instrument that assesses pain history, location, intensity, and

activity interference. This short form consists of 15 items that include two multi-item scales measuring pain intensity and impact of pain on functioning and well-being (Cleeland, 1991; Williams, Smith, & Fehnel, 2006). This variable is calculated as the mean of ratings of pain interference with general activity, mood, walking, and work (including housework), relations with others, sleep, and enjoyment of life. Each item is rated on a scale of 0 = *Does Not Interfere* to 10 = *Completely Interferes* (Cleeland, 1991). The BPI includes the items of pain relief, pain quality, and perceived cause of pain. The instrument describes pain in terms of intensity of physical sensation and interference with function consistent with the way in which pain is described in some widely used generic measures of pain (Williams et al., 2006). In this study pain intensity score used in the analysis was the calculated mean score of the four pain intensity subscales (i.e., worst, least, average, and current pain during the previous week), using a scale of 0 = *No Pain* to 10 = *Pain as Bad as You Can Imagine* (Cleeland et al., 1996).

Functional Status

The Older American Resources and Services Activities of Daily Living (OARS ADL) is a validated and comprehensive measure of functional status in older adults with chronic pain (Fillenbaum, 1988; McCusker, Bellavance, Cardin, & Belzile, 1999). The scale includes 14 items: 7 items assess Instrumental Activity of Daily Living (IADL), which include use of a telephone, travel, shopping, meal preparation, housework, taking medicine, and management of finance, and 7 items assess physical ADL, including eating, dressing and undressing, grooming, walking, getting in and out of bed, showering, and continence (Fillenbaum, 1988). Each item is rated on 3-point scale, with a higher score indicating greater independence: 2 = *Performs the Activity without Help*, 1 = *Performs the Activity with Some Help*, and 0 = *Completely Unable to Perform the Activity* (Fillenbaum, 1988; Thomas, Rockwood, & McDowell, 1998). Three summary scales are computed: (a) an IADL total score, which is the sum of all 14 items (range 0-14); (b) a physical ADL score (range 0-14); and (c) a total score (range 0-28). The scale provides a comprehensive assessment of older persons in various settings (Fillenbaum, 1988).

Depressive Symptoms (CESD-10)

Depressive symptoms in respondents were assessed via the CESD-10 (Andersen, Malmgren, Carter, & Patrick, 1994). This scale is used to assess the degree of depressive symptoms during the previous week. The CESD-10 measures the level of depressive symptoms but does not identify diagnostic categories of depressive disorder. A score greater than 10 (cut-off score) indicates significant

symptoms in need of further assessment. The CESD-10 has been reported to have excellent psychometric properties, with an internal reliability of Cronbach's $\alpha = .85$ (Boey, 1999). The CESD-10 indicates good predictive accuracy when compared to the 20-item version of the CES-D ($k = .97, p < .001$; Andersen et al., 1994).

Spirituality

The Spiritual Well-Being Scale (SWBS), developed by Ellison (1983), is a 20-item scale that assesses spirituality. The SWBS consists of two subscales: Religious Well-Being (RWB) and Existential Well-Being (EWB). The present study utilized only the EWB subscale of the SWBS in data analysis. Each item response is rated on a 6-point Likert-type scale of 1 = *Strongly Disagree*, 2 = *Moderately Disagree*, 3 = *Disagree*, 4 = *Agree*, 5 = *Moderately Agree*, and 6 = *Strongly Agree*. The EWB subscale is a self-assessment of the respondent's sense of life purpose and life satisfaction. The SWBS has strong test-retest reliability, with correlation coefficients of total score $r = .93$ (RWB = .96 and EWB = .86). Internal consistency has been shown to be good, with Cronbach's α of .89 for the total scale (RWB = .87 and EWB = .78).

Social Support

The ENRICH Social Support Instrument (ESSI; Mitchell et al., 2003) is a 7-item instrument used to assess social support among older adults. The ESSI was developed to identify various type of supports: structural (partner), instrumental (tangible help), and emotional (caring) support. The categories are 1 = *None of the Time*, 2 = *A Little of the Time*, 3 = *Some of the Time*, 4 = *Most of the Time*, 5 = *All of the Time*. The instrument has a range of scores from 8 to 34, with 18 and lower representing the lowest quartile. Internal consistency was acceptable for the 7-item scale, $\alpha = 0.86$ (Mitchell et al., 2003).

Social Network

The Lubben Social Network Scale (LSNS-6; Lubben & Gironde, 2000) was used to assess social integration and screen for social isolation in a community-dwelling population. The LSNS-6 produces a total score, ranging from 0 to 30, and two subscores of social networks: (a) family (3 items), and (b) friends and neighbors (3 items). Each of the items is scored from 0 (no social support networks) to 5 (high social support networks). In the present study the Cronbach's α for internal consistency of the LSNS-6 was .81 (Family subscale $\alpha = .85$, Friends subscale $\alpha = .85$), which was similar to findings from previous studies.

Statistical Analyses

The collected data were entered into SPSS™ 16.00 (SPSS Inc., Chicago) for cleaning and analyzing data. The data cleaning included (a)

studying a random sample of 10% of the surveys to confirm that data were entered correctly, and (b) performing frequency distributions on all variables to identify whether erroneous values had been input. Analyses of descriptive statistics and measurement of Pearson's correlation coefficients were conducted. First, descriptive statistics were analyzed to identify the characteristics of the study sample, including demographics, overall health status, type of health services, and type of pain and pain management. Second, Pearson's correlation coefficients were calculated to test the relationship between each variable (functional status, depressive symptoms, spirituality, social support, or social network) and pain intensity.

Results

Sample Demographic Characteristics

Sample characteristics are presented in Table 1. The veteran participants comprised 105 men (98.1%) and 2 women (1.9%), a disproportionate gender distribution. The participants ranged in age from 65 to 88 years ($M = 73.9$, $SD = 6.01$); approximately half of the participants (50.5%, $n = 54$) were in the *young old* age group (ages 65 to 74 years). Of the 107 participants, 57.9% ($n = 62$) self-reported as Caucasian/White and 42.1% ($n = 45$) as African American. Most of the participants (88.8%, $n = 95$) reported that they belonged to an organized religion; 69.5% ($n = 66$) identified as Protestant, 27.4% ($n = 26$) as Catholic, 1.1% ($n = 1$), as Jewish, and 2.1% ($n = 2$) as other religions (i.e., Jehovah's Witnesses).

Regarding the participants' reported highest level of education, 21.5% ($n = 23$) had completed high school, 29% ($n = 31$) had completed some college or had a college degree, and 7.5% ($n = 8$) had earned an advanced degree. However, 28.1% ($n = 30$) of the participants had not graduated from high school and 12.1% ($n = 13$) had completed only a GED; 1.9% ($n = 2$) did not report their highest level of education.

Concerning marital status, 43.9% ($n = 47$) of the participants were married, 22.4% ($n = 24$) were widowed, and 24.3% ($n = 26$) were either divorced or separated. With regard to current living situation, 43% ($n = 46$) were living with a spouse, 16.8% ($n = 18$) were living with children, and 34.6% ($n = 37$) were living alone. Slightly more than half (51.7%, $n = 46$) of those who responded to the income question reported earning less than \$20,000 as a household annual income; 17.8% ($n = 19$) did not disclose household income.

With regard to types of health insurance, participants reported utilizing Medicare (88.8%, $n = 95$) and/or the VA Health Care System (92.5%, $n = 99$), but 11.2% ($n = 12$) did not claim Medicare. In addition, 17.8% ($n = 19$) reported that they held

private insurance as well as Medicare. Regarding the type of health care services received, most of the participants (94.4%, $n = 101$) went only to the VA hospital for health services and did not visit a private doctor; 17.8% ($n = 19$) went to private doctors as well as the VA medical center. Of the 107 participants, 79.4% ($n = 85$) suffered from arthritis/joint problems, 71% ($n = 6$) reported back pain/problems, 34.6% ($n = 37$) had been diagnosed with cancer, 13.1% ($n = 14$) had osteoporosis, 35.5% ($n = 38$) had been diagnosed with type II diabetes, and 38.3% ($n = 41$) had heart disease.

Only 17.8% ($n = 19$) of the participants were currently receiving treatment from a pain management clinic; the rest received pain treatments (pharmacological therapy) from their primary care doctor or other specialist (rheumatology clinic, mental health clinic, or orthopedic), rather than specialized pain therapy. Health status was measured by asking participant to rate their health as *excellent*, *very good*, *good*, *fair*, or *poor*; 39.3% ($n = 42$) rated their health status as *fair*, 45.8% ($n = 49$) as *good* or *very good*, and 13.1% ($n = 14$) as *poor*. Although about one third of the participants (32.7%, $n = 35$) reported more than five painful conditions (injured body parts or illness), 47.6% ($n = 51$) rated their overall health as *very good* or *good*. More than half of the participants (58.9%, $n = 63$) reported that their musculoskeletal chronic pain resulted from disease, such as arthritis, rheumatoid arthritis, osteoporosis, or degenerative disc; 25.2% ($n = 27$) reported chronic pain from injury, and 7.5% ($n = 8$) reported that the cause of chronic pain was undetermined. A majority of the participants reported suffering from musculoskeletal conditions, such as lower back pain (57.9%, $n = 62$), knee pain (51.4%, $n = 55$), foot pain (31.8%, $n = 34$), or hip pain (23.4%, $n = 25$). (Table 2 identifies the reported pain locations.) More than half of the participants (58.9%, $n = 63$) reported that their chronic pain resulted from disease, such as arthritis, rheumatoid arthritis, osteoporosis, or degenerative disc; 25.2% ($n = 27$) reported chronic pain from injury, 13.1% ($n = 14$) reported that the cause of chronic pain was undetermined, and 2.8% ($n = 3$) did not remember the cause of their chronic pain.

Regarding duration of pain, a majority of the participants (92.5%, $n = 99$) reported having had chronic pain for more than 6 months, and 7.5% ($n = 8$) reported chronic pain for more than 3 months but less than 6 months. Pain intensity was measured in terms of worst pain, least pain, average pain, and current pain. On a scale of 0 to 10, the mean level of worst pain was 7.6 ($SD = 2.2$), the mean level of least pain was 3.7 ($SD = 2.48$), the mean level of average pain was 5.6 ($SD = 2.09$), and the mean level of current pain was 4.2 ($SD = 3.16$). These ratings

reflected high levels of chronic pain. On a scale of 0-10, pain interference in various activities was reported: general activity ($M = .06$, $SD = 2.82$), mood ($M = 4.6$, $SD = 3.63$), walking ability ($M = 6.3$, $SD = 3.21$), and normal work ($M = 6.5$, $SD = 3.1$).

Pain Treatment for Older Veterans

For chronic pain management, the participants were receiving pharmacological and nonpharmacological pain therapy regimens. Regarding pharmacological pain treatment, 17.8 % ($n = 19$) of the participants were receiving opioid medication from a pain specialist in the pain management clinic; the rest (82.2%, $n = 88$) received medication from a primary care doctor or other specialist (rheumatology clinic, mental health clinic, or orthopedic clinic), rather than specialized pain therapy. More than one third (37.4%, $n = 40$) of the participants were taking over-the-counter pain medications, such as acetaminophen or naproxen, as an additional pain reliever. A majority of the participants (75.7%, $n = 81$) reported taking opioid medication(s) more than 4 months, 15.9% ($n = 17$) for 30 to 60 days, 4.7% ($n = 5$) for 3 to 4 months, and 3.7% ($n = 4$) for 2 to 3 months.

Regarding alternative pain management, 30% of the participants ($n = 32$) were currently participating in or had previously received nonpharmacological treatment (e.g., physical therapy, biofeedback, massage, spinal cord stimulation), 10.3% ($n = 11$) were currently receiving physical therapy or had received it in the past, and 6.5% ($n = 7$) were currently using a transcutaneous electrical nerve stimulation (TENS) machine or had used it in the past. Similar reports were given for other types of therapy: spinal cord stimulation (0.9%, $n = 1$), acupuncture (0.9%, $n = 1$), biofeedback (1.9%, $n = 2$), exercise (10.3%, $n = 11$), massage (0.9%, $n = 1$), or heat pad (0.9%, $n = 1$). Although slightly less than one third (30%) of the participants were receiving nonpharmacological therapy, 55.8% ($n = 58$) agreed that it is important to try alternative ways of managing pain, such as relaxation, biofeedback, physical therapy, or TENS units in addition to medication, but none wanted to replace their current pain medication with nonpharmacological pain therapy. Compared to a small proportion (30%, $n = 32$) of the participants who had received nonpharmacological treatment for pain, all participants were taking pain medication and 26.2 % ($n = 28$) were currently taking more than one pain medication (combination of opioids and nonsteroidal anti-inflammatory drugs [NSAIDs]).

In this study 22.4% ($n = 24$) of the participants were receiving counseling services for psychiatric

disorders in the VA mental health clinics (e.g., major depression, Generalized Anxiety Disorder, Post Traumatic Stress Disorder) and 35.5% ($n = 38$) were taking psychoactive medications prescribed by a psychiatrist or primary care physician: Benzodiazepine (21.1%, $n = 12$), antidepressants (43.9%, $n = 25$), anticonvulsants (3.5%, $n = 2$), antipsychotics (8.8%, $n = 5$), or unidentified medications (22.8%, $n = 13$).

A majority of the participants were connected to an informal social network such as family, friends, or neighbors; 85 % ($n = 91$) reported five more family members who could help them when needed and 90% ($n = 97$) reported or more friends who could help them. Only a few participants (9.3%, $n = 10$) depended on formal support mechanisms: Meals on Wheels (0.9%, $n = 1$), adult day care center (0.9%, $n = 1$), or senior center (8.4%, $n = 9$). None of the participants was connected with a pain support group. More research is needed to investigate the role of formal social support that can systematically help older adults to manage chronic pain.

Relationships among Pain Intensity and Other Variables

The relationship between pain intensity and biopsychosocial factors (physical disability [OARS ADL], depression [CESD-10], spirituality [EWB], social support [ESSI], and social network [LSNS-6]) were investigated using Pearson product-moment correlation coefficients. (Table 3 provides the mean and standard deviation for each variable.)

Although there was a positive correlation between BPI and age ($r = .128$, $n = 107$), no statistical significance ($p = .189$) between the two variables was found. A negative correlation ($r = -.369$, $n = 104$, $p < .0005$) between functional status and pain intensity was identified; lower levels of functional status were related to higher levels of pain intensity. There was a positive correlation ($r = .564$, $n = 103$, $p < .0005$) between depression and pain intensity, with high levels of depressive symptoms associated with higher level of pain intensity. There was a negative correlation ($r = -.274$, $n = 98$, $p = .006$) between spirituality and pain intensity, with lower levels of spirituality associated with high levels of pain intensity. There was a negative relationships between social network and pain intensity ($r = -.055$, $n = 107$, $p = .575$) and between social support and pain intensity ($r = -.049$, $n = 107$, $p = .617$); no statistically significant relationship was found between social network or social support and pain intensity. (Table 4 records correlations and statistical significance between pain intensity and biopsychosocial variables.)

Table 1. Demographic Characteristics of the Sample (N = 107)

Characteristic and category	N	%
Age		
Young old (65 to 74 years)	54	50.5
Mid old (75 to 84 years)	49	45.8
Oldest old (85≤)	4	3.7
Gender		
Female	2	1.9
Male	105	98.1
Race/ethnicity		
Caucasian	62	57.9
African American	45	42.1
Asian	1	0.6
Marital status		
Single/never married	10	9.3
Married	47	43.9
Separated	5	4.7
Divorced	21	19.6
Widowed	24	22.4
Income		
Less than \$10,000	16	15.0
\$10,000-\$19,999	30	28.0
\$20,000-\$34,999	13	12.1
\$35,000-\$49,999	16	15.0
\$50,000-\$99,999	11	10.3
\$100,000 or more	2	1.9
Did not disclose	19	17.8
Type of disease/injury ^a		
Arthritis/joint problem	85	79.4
Back pain problems	76	71.0
Cancer	37	34.6
Osteoporosis	14	13.1
Type II diabetes	38	35.5
Heart disease	41	38.3
Migraine Headache 35 33.0		
Fibromyalgia	4	3.7
Stroke	10	9.3
Multiple Sclerosis	1	0.9
Hip Fracture	8	7.5
Type of clinic		
Pain management center	19	17.8
Non-pain management center	88	82.2
Total number of analgesics used concurrently		
1	78	72.9
2	25	23.4
3	2	1.9
4	1	0.9

^aSome participants were diagnosed with more than one disease.

Table 2. Location of Pain as Reported by Participants

Location	<i>N</i>	%
Head	9	8.4
Neck	29	27.1
Shoulder	56	52.3
Upper back	18	16.8
Lower back	62	57.9
Arms	15	14.0
Elbows	4	3.7
Wrists	11	10.3
Hands	33	31.0
Thigh	23	21.5
Hips	25	23.4
Chest	7	6.5
Abdomen	13	12.1
Legs	35	32.7
Knees	55	51.4
Ankles	8	7.4
Feet	34	31.8
Toe	5	4.7

Table 3. Mean and Standard Deviation of Score for Each Scale (*N* = 107)

Scale	Mean	<i>SD</i>
Brief Pain Inventory (BPI)	22.94	15.07
Older American Resources and Services Activities of Daily Living (OARS ADL)	24.20	4.06
Center for Epidemiologic Studies Depression Scale-10 (CESD-10)	8.7	6.03
Existential Well-Being subscale of the Spiritual Well-Being Scale (EWB)	28.04	9.01
ENRICH Social Support Instrument (ESSI)	28.04	5.77
Lubben Social Network Scale (LSNS-6)	15.81	6.24

Table 4. Pearson Product-Moment Correlations between Measures of Risk Factors and Opioid Medications Misuse

Risk factor measure	<i>p</i>	<i>r</i>
Older American Resources and Services Activities of Daily Living (OARS ADL)	< .0005	-.357**
Center for Epidemiologic Studies Depression Scale-10 (CESD-10)	< .0005	.564**
Existential Well-Being subscale of the Spiritual Well-Being Scale (EWB)	.006	-.274**
Lubben Social Network Scale (LSNS-6)	.575	-.055
ENRICH Social Support Instrument (ESSI)	.617	-.049
Age	.189	.128

***p* < .01 (2-tailed).

Discussion

This study was an attempt to provide insight into the nature of chronic pain (intensity, location, duration, and cause) and pain management in older veterans. The high prevalence of chronic pain in older adults is consistent with previous research (e.g., Clark, Bair, Buckenmaier, Gironda, & Walker, 2007; Ullrich et al., 2008) identifying that veterans were more likely to experience greater pain and pain-related problems than nonveterans. In particular, older veterans in the study had a high frequency of chronic pain despite receiving pain treatment. The findings in the current study revealed that a majority of the participants had had chronic pain for at least 6 months, with most reporting that they had suffered from chronic pain for years. Consistent with the findings from previous studies (AGS Panel, 2009; Manchikanti et al., 2001), the most common type of chronic pain resulted from musculoskeletal conditions. Common sites of musculoskeletal pain included lower back, knees, feet, and hips. Among them, lower back (57.9%, *n* = 62) and knee (*n* = 55, 51.4%) were the most common pain sites in the study sample. In particular, a significant number of older adults reported having suffered from pain in lower extremity areas, including hips, legs, knees, ankles, and feet (see Table 2).

Based on the prevalence rates of pharmacological and nonpharmacological pain therapy reported in the study, pharmacological treatment is typically used in preference to nonpharmacological therapies to manage chronic pain in the elderly (Benshoff, Harrawood, & Koch, 2003; Dowling, 2006; Herr, 2002b; Podichetty, Mazance, & Biscup, 2003). Many participants reported that it is easier to ingest a pill than to try nonpharmacological pain management. Most older veterans lacked information about nonpharmacological pain treatment, and few had received recommendations for such treatment from physicians or other health care professionals. There was a discrepancy between the number of participants who had received in the past or were currently receiving nonpharmacological therapies (30%, *n* = 32) and those who agreed that it is important to try nonpharmacological therapies (55.8%, *n* = 58). Not every participant who supported the significance of nonpharmacological therapy was receiving such treatment due to the following reasons: (a) Their health insurance (e.g., Medicare, VA health care) did not pay for nonpharmacological therapies (physical therapy, acupuncture, biofeedback, cognitive behavioral therapy, or massage), (b) they could not afford this type of intervention because there is limited coverage of

treatment for nonpharmacological pain therapy from Medicare or VA health care, (c) these therapies had not been suggested to them by health care professionals as a treatment option, or (d) they lacked information about various types of nonpharmacological therapy.

Although nonpharmacological approaches have been shown to reduce chronic pain and emotional problems related to chronic pain and to minimize adverse events or side effects associated with pain medication (Dominick et al., 2004), few intervention studies have measured the effectiveness of nonpharmacological pain therapies (Palinkas & Kabongo, 2000). Given the study results about nonpharmacological therapies, more intervention studies should be conducted to identify the effectiveness of treatments and to identify successful nonpharmacological pain therapies, including acupuncture (Brinkhaus et al., 2006; Wang, Kain, & White, 2008), massage (Cherkin et al., 2001; Walach, Guthlin, & Konig, 2003), and cognitive-behavioral therapy (CBT; Pilowsky, 1993; Schieffer et al., 2005).

This convenience sample of 107 older veterans received pain treatment and other special care for conditions related to chronic pain. The major challenges in obtaining effective pain management for veterans are the inconsistency of pain assessments (Gaglies & Melzack, 1997; Larue, Fountain, & Colleau, 1997), poor follow-up, or insufficient provision of education to older patients and their families (Larue et al., 1997). This problem could be related to the current study's finding that 82.2% ($n = 88$) of the participants had received pharmacological pain management from primary care physicians or other specialists rather than from specialists in pain therapy and had not received appropriate patient education regarding pain management from health care professionals. Although the use of a multidisciplinary model for pain management has been prevalent (Sieppert, 1996), a majority of the participants in the current study received only pain medication, rather than pain treatment from a pain clinic that provides multidisciplinary interventions. Most important, informational about the large variety of nonpharmacological pain therapy regimens, as an option for pain management, should be provided by health care professional to patients with chronic pain.

The results revealed that lower levels of functional status, higher levels of depressive symptoms, and lower levels of spirituality were associated with higher levels of pain intensity. A significant inverse relationship was found between functional capacity and pain intensity ($r = -.369$, $n = 104$, $p < .0005$), such that lower functional status was related to higher pain intensity, which is consistent

with the literature that reports that older adults with lower functional capacity are more likely to report higher pain intensity (Kazis et al., 1998).

There was a positive correlation ($r = .564$, $n = 103$, $p < .0005$) between depression and pain intensity; higher levels of depressive symptoms were related to higher pain intensity. The findings in the present study regarding association between depressive symptoms and pain intensity in older adults was consistent with findings reported in the literature (e.g., Manchikanti et al., 2007; Rivera, Singh, & Fellows, 2005; Schieffer et al., 2005). Based on this finding, it is suggested that older veterans who are receiving pain treatment should also be assessed for depression and be considered for mental health services due to possible comorbidity of chronic pain and depression. It is important for health care workers to examine factors associated with chronic pain to correctly diagnose and treat these symptoms in this population. In particular, older adults without prior mental health services are likely to require more thorough assessment.

A significant inverse relationship between spirituality and pain intensity was identified in the study. Spiritual well-being has been found to correlate with quality of life in patients with chronic disease, such as rheumatoid arthritis (Cooper-Effa, Blount, Kaslow, Rothenberg, & Eckman, 2001). There is apparently a spiritual dimension to chronic pain; evidence supports that spirituality has been beneficial to some people suffering from chronic pain (Sundbloom, Haikonen, Niemi-Pynttari, & Tigerstedt, 1994). In an empirical study by Dalmida (2006), praying and meditation was used as a method of pain management more frequently than intravenous opioid medication, pain injections, relaxation, touch, or massage. Spirituality may be associated with immune system functioning and its effect on health by enhancing the ability to cope with stress, resulting in better health practices, increased social interaction, and greater satisfaction with quality of life (Dalmida, 2006).

Although no statistically significant relationship between social network or social support and pain intensity was found in the current study, family or community could provide older adults with significant informational, emotional, material/financial, and physical support to manage chronic pain and improve quality of life (Chong, 2007). Health care professionals in VA health care systems may help older adults to connect to formal support resources, including pain support groups.

The state of Florida has the fastest-growing veteran population in the United States, with approximately 1.7 million veterans (Department of Veterans Affairs, 2010). Older veterans are most

likely to increase because the highest concentrations of Korean War and World War II veterans tend to be in retirement areas in Florida (Richardson & Waldrop, 2003). In order to provide health care services to these veterans, seven VA Medical Centers and 34 community-based outpatient clinics are located in Florida. Each VA Medical Center has a chronic pain rehabilitation program and/or physical and occupational services. The chronic pain rehabilitation program provides a multidisciplinary approach to pain management to help veterans with chronic pain to cope with their conditions. A multidisciplinary and collaborative team is composed of a physician, nurses, pharmacist, social worker, and physical/occupational therapist. The James A. Harley Veterans Hospital in Tampa was honored for providing one of the most comprehensive chronic pain rehabilitation programs in United States (Florida Department of Veterans Affairs, 2009).

Health care providers in Florida VA medical centers and associated outpatient clinics who specialize in treating geriatric patients could ensure that routine screening for chronic pain and pain-related diseases (e.g., osteoarthritis, osteoporosis) is a part of their regular interaction with older patients, and the providers could refer patients to a multidisciplinary pain management team for comprehensive treatments. Pain specialists should be able to identify and address major barriers to effective pain management in older adults. It is strongly recommended that pain specialists introduce nonpharmacological pain therapies to older veterans as a treatment option.

Certain limitations in the current study should be noted. First, the study used a cross-sectional design, which did not allow causal inference. Second, unlike other studies focusing on female nonveterans recruited from the general population, a small number of female participants were included in the sample because VA Health Care serves a highly disproportionate number of male participants with chronic pain; thus, the findings of the study may not be generalizable to female veterans. Third, the use of self-reported data may lead to validity issues due to possible incorrect memory and/or social desirability issues. However, participants were advised that they could decline to answer sensitive questions and that all responses would be confidential.

Pain exerts a significant influence on the quality of life of older adults. Understanding chronic pain in older adults is somewhat complex due to multiple factors in the aging process that have significant impact on the pain experience and the assessment and management of pain in this population. Due to the complexities of the aging process, older adults are

likely to confront obstacles and challenges in relation to managing chronic pain (Yonan & Wegner, 2003).

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