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Sex Differences in the Medical Care of VA Patients with Chronic Non-Cancer Pain

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Abstract

Objective—Despite a growing number of women seeking medical care in the VA system, little is known about the characteristics of their chronic pain or the pain care they receive. This study sought to determine if sex differences are present in the medical care veterans received for chronic pain.

Design—Retrospective cohort study using VA administrative data.

Subjects—17,583 veteran patients with moderate to severe chronic non-cancer pain treated in the Pacific Northwest during 2008.

Methods—Multivariate logistic regression assessed for sex differences in primary care utilization, prescription of chronic opioid therapy, visits to emergency departments for a pain-related diagnosis, and physical therapy referral.

Results—Compared to male veterans, female veterans were more often diagnosed with two or more pain conditions and had more of the following pain-related diagnoses: fibromyalgia, low back pain, inflammatory bowel disease, migraine headache, neck or joint pain, and arthritis. After adjustment for demographic characteristics, pain diagnoses, mental health diagnoses, substance use disorders, and medical comorbidity, women had lower odds of being prescribed chronic opioid therapy (AOR 0.67, 95% CI 0.58–0.78), greater odds of visiting an emergency department for a pain-related complaint (AOR 1.40, 95% CI 1.18–1.65), and greater odds of receiving physical therapy (AOR 1.19, 95% CI 1.05–1.33). Primary care utilization was not significantly different between sexes.

Conclusions—Sex differences are present in the care female veterans receive for chronic pain. Further research is necessary to understand the etiology of the observed differences and their associations with clinical outcomes.

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Conflict of Interest Statement
None declared.

Keywords

Chronic pain; veteran women; sex differences; chronic opioid therapy

Introduction

Chronic pain is prevalent in the general population and is a frequent reason for primary care visits (1, 2), though, women may be more likely than men to seek medical care for pain (3–7). Sex is also associated with important differences in patients' report of pain and certain pain diagnoses are more prevalent in women. For instance, women have a higher prevalence of severe pain (4, 8–11) and pain syndromes like migraine headache (4, 12, 13), fibromyalgia (14), oral-facial pain (4, 8), and abdominal pain (4, 8). Accordingly, women have higher health care utilization and costs associated with their pain care (15, 16). Epidemiologic data also suggests that women, especially older women, are more likely to receive chronic opioid therapy (COT) for pain (16, 17).

Chronic pain impacts up to 50% of veterans who seek care in the VA (2). Similar to civilians, female veterans are more likely to report moderate to severe pain (18) and appear to have a higher prevalence of pain (19). Little empirical information is available describing the medical care veterans receive for chronic pain based on sex. Given that the number of female veterans is rapidly increasing and that there are unique access issues for women in the VA system (20), it is important to understand potential sex differences in the medical care veterans receive for chronic pain, as outlined in the 2012 Women Veterans Task Force goals and objectives (20). This information will also help the VA improve its chronic pain care for veterans, in keeping with the 2011 Institute of Medicine report on pain care and research (21).

The main objective of this study was to determine if sex differences exist in certain types of medical care in VA patients with chronic pain. We specifically examined primary care utilization, prescription of COT, emergency department (ED) visits, and participation in physical therapy. A secondary objective was to examine sex differences in the characteristics of COT amongst veterans prescribed COT.

Methods

We extracted data for this retrospective cohort study from the Veterans Integrated Service Network-20 (VISN-20) Data Warehouse from 2008. The VISN-20 comprises Veterans Affairs (VA) medical facilities in Washington, Oregon, Idaho, and Alaska. The VISN-20 Data Warehouse contains data from the main clinical software packages of regional VA healthcare facilities and two national VA databases (22). All VA clinical contacts are recorded in an electronic medical record (EMR); data used in this study were obtained from the EMR. This study was approved by the local VA Medical Center Institutional Review Board.

Inclusion/Exclusion criteria

Veterans who received any medical care in VISN-20 during calendar year 2008 were eligible. Included subjects were patients reporting moderate to severe non-cancer pain of at least three months duration. The Numeric Rating Scale (NRS) is a validated and practical measure of pain intensity and is routinely and frequently administered to veterans presenting for care in the VA system (23). The NRS is a 0–10 scale with 0 being no pain and 10 being worst possible pain and is recorded at outpatient visits as part of the VA's "Pain as a 5th Vital Sign" initiative (23, 24). Moderate to severe chronic non-cancer pain (CNCP) was

defined as patient reported pain intensity of ≥4 on the NRS over three different months at outpatient visits during the calendar year 2008, which is consistent with the International Association for the Study of Pain (25) and VA clinical policy (26). If patients reported their first pain score of ≥4 in November or December 2008, the first two months of 2009 were considered for inclusion. We gave each patient who met the aforementioned criteria an index date on the day of the third recorded pain score ≥4 during 2008. We excluded patients if they had a cancer diagnosis in the year prior to the index date, were currently enrolled in a VA opioid substitution program or palliative care program, or had surgery within 6 months of the index date.

Data Obtained

We obtained demographic data including sex, age, race, marital status, VA facility, and VA service-connected disability status for all subjects at the index date. Measures of general health included body mass index (BMI), Charlson Comorbidity Score (27), average pain score as measured on the NRS, pain diagnoses, and mental health diagnoses including substance use disorder. We calculated BMI based on height and weight measurements at outpatient visits available on each patient's index date. We used past-year inpatient hospitalization data, and outpatient diagnoses based on International Classification of Diseases, Clinical Modification – 9th Revision (ICD-9-CM) to calculate Charlson Comorbidity scores (27). Average pain scores were based on all NRS scores obtained over 12 months after each patient's index date. We measured ICD-9-CM pain diagnoses over the 12 months before each patient's index date and classified them in the following categories: fibromyalgia, inflammatory bowel disease, low back pain, migraine headache, neck or joint pain, neuropathy, and arthritis. ICD-9-CM mental health diagnoses included major depressive disorder, dysthymic disorder, bipolar disorder, panic disorder, post-traumatic stress disorder, other anxiety disorder, and schizophrenia and were included if noted within the 12 months prior to the index date. Substance use disorders were defined as none, tobacco abuse, cannabis abuse or dependence, alcohol abuse or dependence, opioid abuse or dependence, or other drug abuse or dependence (cocaine, methamphetamine, benzodiazepine, and polysubstance). All diagnostic data were based on clinician-rendered clinical diagnoses made in the context of usual care.

We obtained specific measures of medical care related to pain including primary care utilization as defined by completed visits to a primary care provider (PCP) and documented PCP telephone encounters (provider-patient completed calls), prescription of COT (defined as prescription of ≥90 consecutive days of opioid therapy from the index date) (28), record of an emergency department visit with any pain diagnosis (acute or chronic) as the primary diagnosis, and receipt of physical therapy as measured by at least one completed physical therapy appointment. We collected all measures of medical care for 12 months following each patient's index date.

To better understand sex differences among patients prescribed COT, we performed a secondary analysis measuring the following in patients prescribed COT: average daily opioid dose converted to morphine equivalents per day (MED) (29), type of opioid prescribed (short acting opioid versus long acting opioid or both), co-prescription of a benzodiazepine, receipt of urine drug testing, and accidental or intentional drug overdose based on ICD-9-CM codes (977.9A-W, 950.5E, 855.9B). We collected all COT measures over the one year after each patient's index date.

Statistical Analysis

We analyzed demographic and clinical data using chi-square tests for categorical variables and t-test for continuous variables using SPSS software (Version 19, IBM, Armonk, New

York). We constructed logistic regression models using Stata (Version 10, Stata Corporation, College Station, Texas) to investigate associations between medical care and sex, both with and without controlling for demographic and clinical factors. These models employed standard errors that had been corrected for clustering of individual VA sites within the larger VISN-20. We adjusted for a number of covariates in a multi-step, non-automated fashion in order to better understand the observed relationship between sex and medical care differences. In the initial multivariate regression, demographic characteristics (age, sex, marital status, race, and service connection) were inserted into the model. The second multivariate regression model included demographic characteristics and pain conditions (average pain score, fibromyalgia, neck pain, arthritis, low back pain, inflammatory bowel disease, neuropathy, presence of multiple pain diagnoses). The third multivariate regression model included demographic characteristics, pain conditions, and mental health and substance use disorders (major depressive disorder, dysthymia, bipolar disorder, panic disorder, post-traumatic stress disorder, other anxiety disorder, tobacco use, alcohol abuse or dependence, cannabis abuse or dependence, opioid abuse or dependence, and other drug use or dependence). The final multivariate regression model controlled for demographic data, pain conditions, mental health and substance use disorders, and medical comorbidity as measured by the Charlson Comorbidity Score. Primary outcome measures were primary care utilization reported as visits to PCP and calls to the PCP, prescription of COT, ≥1 emergency department visits for a pain diagnosis in one year, and participation in physical therapy.

We also assessed the importance of effect modification using the significance of interaction terms in the logistic regression models. Age and average pain score exhibited significant interaction in the analysis when COT was the main outcome, thus further stratified analysis was performed to assess sex differences in medical care based on age using unadjusted and adjusted multivariate logistic regression, corrected for clustering.

Results

Demographic characteristics

We identified 17,583 veteran patients with moderate to severe CNCP occurring during calendar year 2008 who met inclusion/exclusion criteria. Of these patients, 1,945 were women (11%) and 15,638 (89%) were men. Demographic characteristics are reported in Table 1. All baseline demographic characteristics were significantly different between women and men. Women were younger, more likely to be white, and more likely to have a VA service-connected disability.

Pain and medical diagnoses characteristics

Table 1 also shows differences in pain and medical diagnostic data. Women had lower Charlson Comorbidity Scores, indicating that they had a lower burden of medical illness. Women and men's average reported pain intensity did not significantly differ (5.65 versus 5.61, $p = 0.371$, respectively). The following pain-related diagnoses were more common in women: fibromyalgia (15% versus 4%, $p = <0.001$), inflammatory bowel disease (3% versus 2%, $p = <0.001$), low back pain (53% versus 50%, $p = 0.006$), migraine headache (16% versus 9%, $p = <0.001$), neck or joint pain (71% versus 57%, $p = <0.001$), and rheumatism/arthritis (51% versus 43%, $p = <0.001$). Women were also more commonly diagnosed with two or more concurrent pain-related conditions (67% versus 56%, $p = <0.001$). In this cohort, women also had higher rates of mental health diagnoses and lower rates of substance use disorders (Table 1).

Sex Differences in medical care

The results of logistic regression to examine associations between sex and medical care are shown in Table 2. In the final model, the odds of a woman being prescribed COT were lower compared to men (AOR 0.67, 95% CI 0.58–0.78). Analyses of patients prescribed COT are shown in Table 3. Within this subgroup of patients, the average morphine equivalents per day (MED) was not significantly different between women and men (44 mg MED versus 46 mg MED, $p = 0.340$). The odds of women and men being prescribed high dose opioids (≥120 MED), being prescribed short acting versus long acting opioids, or having a drug overdose did not significantly differ. The odds that a woman prescribed COT would receive a urine drug test were lower (AOR 0.52, 95% CI 0.40–0.66), and the odds that a woman prescribed COT would also be prescribed a benzodiazepine were higher than for a man prescribed COT (AOR 1.48, 95% CI 1.14–1.91).

In the stratified analysis assessing sex differences in receipt of COT by age (Table 4), the differences between women and men were significant in all age groups, but became less pronounced in older veterans. The odds that a young woman received COT were lower than that of a young man (AOR 0.57, 95% CI 0.38–0.86). The odds that an older woman would be prescribed COT remained lower than men (AOR 0.77, 95% CI 0.61–0.96), though less so.

The odds of a woman participating in physical therapy (AOR 1.19, 95% CI 1.05–1.33) and visiting the emergency department at least once for a pain-related complaint (AOR 1.40, 95% CI 1.18–1.65) were higher than that for men. There were no statistically significant differences in regard to number of primary care visits; however, the odds of a woman calling her PCP > 10 times in one year was higher than for a man (AOR 1.20, 95% CI 1.01–1.44).

Discussion

This study elucidates sex differences in CNCP care in a large cohort of veteran patients who receive care from a VA Medical Center in the Pacific Northwest. Our results show that among veterans with CNCP, women had a higher prevalence of several pain diagnoses and were more likely to have two or more pain diagnoses. Compared to men, women with CNCP had lower odds of being prescribed COT, but higher odds of having an emergency department visit for a pain-related diagnosis, calling their PCP > 10 times, and receiving physical therapy. Of patients prescribed COT, women had lower odds of urine drug testing and higher odds of being prescribed concurrent benzodiazepines. In stratified analysis, sex differences in prescriptions of COT for CNCP were more pronounced in younger veterans than older veterans. All of the aforementioned differences persisted after adjustment for demographic and diagnostic data. These data suggest that there are opportunities to improve the pain care of female veterans in order to decrease ED visits for pain complaints, provide effective analgesia, and monitor risks of COT.

Contrary to prior research, this study did not identify significant differences between utilization of primary care visits for veteran women compared to men. Studies in the civilian population have suggested that women are more likely to seek medical care for their pain conditions (3, 4, 16) and receive COT (16, 17). Notable differences between those studies and ours is that many of the patients in the civilian studies were older (>55 years of age), privately insured, and identified via pain diagnosis rather than pain score (16, 17). Two studies in the veteran population showed that women with chronic pain had high health care utilization (7, 19). One of these studies surveyed a small cohort of veteran women in a general medicine population and found that women with CNCP reported seeing their PCPs ≥12 times in a year (19). The other study compared health care utilization between male and female veterans with chronic pain in a single VA Medical Center and reported that female

veterans had more primary care visits, physical therapy visits, and visits specifically to address a pain complaint (7). Our results did not identify significant sex differences between PCP visit utilization; though women were more likely to have more telephone contact, which may obviate the need for in-person visits. The discrepancy observed between our study and the two former studies may be attributed to differences in the samples studied—the two other studies had smaller samples and used different criteria to define chronic pain. Given the large and diverse settings of our study, the results may be more indicative of differences in health care utilization between the sexes. The absence of a significant difference in primary care utilization may be positive; however, the larger number of women seeking care in the ED and over the phone may suggest that women are not finding adequate pain treatment during their primary care visits as compared to men. Finally, the lack of difference in utilization may be explained by a large number of women seeking medical care outside of the VA system (20).

There are limited published data examining sex differences in COT prescription. The reasons for the differences in care identified in this study are not clear since women and men have similar levels of reported pain intensity and see their primary care providers at similar rates. This could suggest that women's pain is sub-optimally treated. Conversely, it could be indicative of women being offered other modalities of treatment prior to COT prescription or of positive clinical care since pain diagnoses like fibromyalgia and migraine headache may not be responsive to COT (30, 31). However, the odds of being prescribed COT persisted after controlling for these diagnoses. Women had greater odds of participating in physical therapy, which has been shown to be effective for treating disorders such as fibromyalgia and headache (30, 31). Further research will be needed to understand the observed differences in the types of treatment provided, though these data would suggest that men are prescribed COT more liberally than women in the VA system.

The results of this study are consistent with prior research examining COT prescription among women which showed that older women were more likely to be prescribed COT than younger women (17), and demonstrating it for the first time among female veterans. The reason for this difference is not clear, though possibilities might include that clinicians are less likely to trust pain reports of younger female veterans or clinicians thinking that COT is more risky in terms of abuse in younger women. Patient preference may have also played a role. Further research would be needed to elucidate this.

Among veterans who were prescribed COT, however, we found differences in their receipt of urine drug testing and prescription of benzodiazepines. Of the women who are prescribed COT, there is less monitoring of risk compared to men, despite the higher use of benzodiazepines which are known to increase the risk of side effects when concurrently prescribed with opioids. Higher rates of substance use disorders were observed in men, and previous research has shown that providers are more likely to order urine drug testing in patients with CNCP and a history of substance use disorder (32).

Limitations

There are several limitations that are important to consider when interpreting the results of this study. This study is limited by the baseline differences between men and women. Though we adjusted for a large number of potential confounders, it is possible that our results were biased by unmeasured confounders. Secondly, aspects of our inclusion sample may have resulted in a skewed sample. Participants were identified based on pain scores identified in the medical record, which may be an underestimation of pain intensity (33). This sample may also be overrepresented by high utilizers of care given our inclusion criteria of requiring three or more pain scores in a given year; however, this is a population with known high use of medical care. Additionally, the results were reliant on the accuracy

of diagnostic codes recorded in the medical record in usual care. These results were not confirmed with laboratory data or via clinical examination. We did not have access to information regarding patients' use of non-prescribed over-the-counter analgesics or other non-pharmacological modalities of pain treatment. This is a limitation since opioids may be only one part of the multi-faceted treatment for CNCP. We also were not aware if patients were receiving care outside of the VA system, this may have been a particular issue for women who may receive more of their medical care outside of the VA. Finally, patients included in the study were veterans receiving care in the Pacific Northwest and may not be generalizable to non-veterans or patients receiving care in other VAs where women's access to medical care may be different.

Summary

This study describes sex differences in key medical care factors related to the treatment of veterans with moderate to severe CNCP. The results demonstrate that female veteran patients have lower odds than male veteran patients of being prescribed COT for CNCP and higher odds of seeking pain treatment in the emergency department. Finally, the study shows that the sex difference in COT prescription is most pronounced in younger female veterans. These findings indicate that more research is needed to better understand if the observed differences are a reflection of differences in access to services, patient preference, disparate care, or sound clinical judgment.

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Table 1

Sex differences in the demographic and clinical characteristics of VA patients with chronic non-cancer pain.

	Women (N=1945)	Men (N=15,638)	*p*-value
Age, Mean (SD)	48.7 (SD 13.3)	57.1 (SD 12.5)	<0.001
Race			<0.001
White	1185 (60.9%)	9306 (56.5%)	
Black	169 (8.7%)	1023 (6.5%)	
Other	61 (3.1%)	452 (2.9%)	
Unknown/Declined to answer	530 (27.2%)	4857 (31.1%)	
Marital Status			<0.001
Married	629 (32.3%)	7867 (50.3%)	
Never Married	344 (17.7%)	1470 (9.4%)	
Widowed	123 (6.3%)	717 (4.6%)	
Separated or Divorced	819 (42.1%)	5300 (33.9%)	
Unknown	30 (1.5%)	283 (1.8%)	
VA Service Connected	1458 (75%)	10604 (67.8%)	<0.001
BMI, Mean (SD)	31.60 (SD 7.4)	31.24 (SD 6.7)	0.036
Charlson Comorbidity Score, Mean (SD)	0.68 (SD 1.0)	1.24 (SD 1.6)	<0.001
Average Pain Score, Mean (SD)	5.65 (SD 2.06)	5.61 (SD 2.08)	0.371
Presence of >1 pain diagnoses	1303 (67%)	8678 (55.5%)	<0.001
Pain Diagnoses*			
Fibromyalgia	300 (15.4%)	572 (3.7%)	<0.001
Inflammatory bowel disease	62 (3.2%)	287 (1.8%)	<0.001
Chronic Low back pain	1039 (53.4%)	7835 (50.1%)	0.006
Migraine Headache	311 (16%)	1325 (8.5%)	<0.001
Chronic Neck or Joint Pain	1387 (71.3%)	8979 (57.4%)	<0.001
Neuropathy	85 (4.4%)	1214 (7.8%)	<0.001
Arthritis	982 (50.5%)	6791 (43.4%)	<0.001
Mental Health Diagnoses			
Major Depressive Disorder	1045 (53.7%)	5722 (36.6%)	<0.001
Dysthymic disorder	183 (9.4%)	895 (5.7%)	<0.001
Bipolar disorder	207 (10.6%)	837 (5.4%)	<0.001
Panic disorder	99 (5.1%)	399 (2.6%)	<0.001
Posttraumatic stress disorder	664 (34.1%)	4107 (26.3%)	<0.001
Other anxiety disorder	368 (18.9%)	1771 (11.3%)	<0.001
Schizophrenia	61 (3.1%)	485 (3.1%)	0.933
Substance Use Disorders			
None	1416 (72.8%)	9871 (63.1%)	<0.001
Tobacco Abuse	421 (21.6%)	4468 (28.6%)	<0.001
Cannabis Abuse or Dependence	41 (2.1%)	614 (3.9%)	<0.001
Alcohol Abuse or Dependence	144 (7.4%)	2313 (14.8%)	<0.001
Opioid Abuse or Dependence	34 (1.7%)	422 (2.7%)	0.01

	Women (N=1945)	Men (N=15,638)	*p*-value
Other Drug† Abuse or Dependence	77 (4.0%)	1172 (7.5%)	<0.001

Note.

*ICD-9-CM codes include fibromyalgia 729.1–729.19, Inflammatory bowel disease 558.9, Chronic low back pain 722–722.99; 724–724.99; Migraine headache 784.0; 346.9; Chronic neck or joint pain without fibromyalgia 716–719.99; 723–723.99; 729–729.09; 729.2–729.99; Neuropathy 337.0–337.19; 356–357.99; 377–377.99; Rheumatism or Arthritis 712–712.99; 714–716.99; 720–720.99; 729–729.99.

†Includes abuse and dependence to cocaine, methamphetamine, benzodiazepine, or multiple substances.

Table 2

Unadjusted and Adjusted Analysis of Sex Differences in the Medical Care of VA patients with chronic non-cancer pain.

	Women (n=1945) n (%)	Men (n=15,638) n (%)	Unadjusted OR (95% CI)	Model 1: Adjusted OR (AOR) (95% CI)†	Model 2: AOR (95% CI)‡	Model 3: AOR (95% CI)§	Model 4: AOR (95% CI)‖
Chronic Opioid							
Prescription	532 (27.4)	5125 (32.8)					
Women			0.77 (0.67–0.90)	0.73 (0.62–0.85)	0.70 (0.60–0.82)	0.66 (0.57–0.77)	0.67 (0.58–0.78)
Physical therapy	533 (27.4)	3532 (22.6)					
Women			1.29 (1.14–1.46)	1.26 (1.12–1.42)	1.21 (1.08–1.35)	1.18 (1.05–1.32)	1.19 (1.05–1.33)
ED Visit for pain	233 (12.0)	1311 (8.4)					
Women			1.48 (1.35–1.63)	1.50 (1.28–1.74)	1.48 (1.25–1.76)	1.39 (1.17–1.66)	1.40 (1.18–1.65)
PCP Utilization							
≤ 1 visits/year	616 (31.7)	2228 (14.2)					
Women			2.79 (0.90–8.62)	2.57 (0.83–7.98)	2.69 (0.89–8.18)	2.76 (0.90–8.53)	2.78 (0.90–8.56)
2–4 visits/year	522 (26.8)	5167 (33.0)					
Women			0.74 (0.52–1.06)	0.70 (0.49–1.02)	0.72 (0.50–1.03)	0.72 (0.51–1.02)	0.71 (0.50–1.00)
5–8 visits/year	386 (19.8)	4294 (27.5)					
Women			0.65 (0.40–1.08)	0.67 (0.40–1.12)	0.66 (0.39–1.11)	0.66 (0.39–1.12)	0.66 (0.39–1.13)
≥9 visits/year	421 (21.6)	3949 (25.3)					
Women			0.82 (0.48–1.40)	0.90 (0.54–1.50)	0.87 (0.53–1.41)	0.85 (0.50–1.42)	0.87 (0.52–1.45)
PCP Call							
>10 times/year	206 (10.6)	1600 (10.2)					
Women			1.04 (0.89–1.21)	1.23 (1.05–1.43)	1.20 (1.02–1.42)	1.13 (0.96–1.35)	1.20 (1.01–1.44)

Note. All analyses clustered by VA VISN-20 Site. In all analyses, male is the reference category.

†Variables in Model 1, Demographics characteristics: age, sex, revised marital status, race, and service connection.

‡Variables in Model 2, Demographics characteristics + pain conditions: average pain score, fibromyalgia, neck pain, arthritis, low back pain, inflammatory bowel disease, neuropathy, multiple pain diagnoses

§Variables in Model 3, Demographics characteristics + pain conditions + mental health and substance use disorders: major depressive disorder, dysthymia, bipolar disorder, panic disorder, post-traumatic stress disorder, other anxiety disorder, tobacco use, alcohol abuse or dependence, cannabis abuse or dependence, opioid abuse or dependence, other drug use or dependence.

‖Variables in Model 4, Demographics characteristics + pain conditions + mental health and substance use disorders + Charlson Comorbidity Index.

Table 3

Unadjusted and Adjusted Analysis of Sex Differences in Chronic Opioid Therapy descriptors in VA patients with Chronic Non-Cancer Pain receiving Chronic Opioid Therapy

	Women (n=532) n (%)	Men (n = 5,125) n (%)	Unadjusted OR (95% CI)*	Adjusted OR (95% CI)†
Prescribed High Dose Opioids (≥120mg Morphine Equivalents per Day)	28 (5.3)	268 (5.3)		
Women			1.01 (0.73–1.38)	0.95 (0.74–1.21)
Prescribed a Short Acting Opioid Only‡	295 (55.5)	2834 (55.3)		
Women			1.00 (0.76–1.33)	1.17 (0.91–1.51)
Prescribed a Long Acting Opioid Only§	63 (11.8)	557 (10.9)		
Women			1.10 (0.82–1.48)	0.99 (0.72–1.36)
Prescribed a Short and Long Acting Opioid	174 (32.7)	1734 (33.8)		
Women			0.95 (0.75–1.20)	0.85 (0.68–1.07)
Prescribed a Benzodiazepine‖	204 (38.3)	1302 (25.4)		
Women			1.83 (1.53–2.17)	1.48 (1.14–1.91)
Urine Drug Test Obtained	103 (19.4)	1234 (24.1)		
Women			0.76 (0.63–0.90)	0.52 (0.40–0.66)
Sustained a Drug Overdose	7 (1.3)	29 (0.6)		
Women			2.34 (0.88–6.25)	2.19 (0.73–6.58)

Note. All analyses clustered by VA VISN-20 Site. In all analyses, the predictor is sex and male is the reference category.

†Variables in Model: age, average pain score, sex, major depressive disorder, Tobacco use, fibromyalgia, neck pain, arthritis, low back pain, inflammatory bowel disease, neuropathy, marital status, race, service Connection, Charlson Comorbidity Index, multiple pain diagnoses, dysthymia, bipolar disorder, panic disorder, post-traumatic stress disorder, other anxiety disorder, alcohol abuse or dependence, cannabis abuse or dependence, opioid abuse or dependence, other drug use or dependence.

‡Short-acting opioids include codeine sulfate, hydrocodone, hydromorphone immediate-release (IR), morphine IR, oxycodone IR, and propoxyphene

§Long-acting opioids include methadone, morphine sustained-release, oxycodone controlled-release, and transdermal fentanyl.

‖Benzodiazepines include alprazolam, clonazepam, clordiazepoxide, diazepam, lorazepam, oxazepam, temazepam, and triazolam.

Table 4

Sex Differences in the receipt of Chronic Opioid Therapy in VA patients with chronic non-cancer pain, stratified by age.

Age group in years	Women n=1945) n (%)	Men (n=15,638) n (%)	Unadjusted OR (95%CI)	Adjusted OR (95% CI)*
18–39 (N = 1846)	475 (24.4)	1371 (8.8)		
Women			0.57 (0.41–0.78)	0.57 (0.38–0.86)
40–59 (N = 8868)	1143 (58.8)	7725 (49.4)		
Women			0.78 (0.66–0.93)	0.75 (0.66–0.86)
≥60 (N = 6869)	327 (16.8)	6542 (41.8)		
Women			0.83 (0.66–1.05)	0.77 (0.61–0.96)

Note. All analyses clustered by VA VISN-20 Site. In all analyses, male is the reference category.

*Variables in Model: age, average pain score, sex, major depressive disorder, Tobacco use, fibromyalgia, neck pain, arthritis, low back pain, inflammatory bowel disease, neuropathy, marital status, race, service Connection, Charlson Comorbidity Index, multiple pain diagnoses, dysthymia, bipolar disorder, panic disorder, post-traumatic stress disorder, other anxiety disorder, alcohol abuse or dependence, cannabis abuse or dependence, opioid abuse or dependence, other drug use or dependence.