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Editor's Choice

Gender Differences in Use of Complementary and Integrative Health by U.S. Military Veterans with Chronic Musculoskeletal Pain

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A B S T R A C T

Aims: The Veterans Health Administration promotes evidence-based complementary and integrative health (CIH) therapies as nonpharmacologic approaches for chronic pain. We aimed to examine CIH use by gender among veterans with chronic musculoskeletal pain, and variations in gender differences by race/ethnicity and age.
Methods: We conducted a secondary analysis of electronic health records provided by all women ($n = 79{,}537$) and men ($n = 389{,}269$) veterans age 18 to 54 years with chronic musculoskeletal pain who received Veterans Health Administration-provided care between 2010 and 2013. Using gender-stratified multivariate binary logistic regression, we examined predictors of CIH use, tested a race/ethnicity-by-age interaction term, and conducted pairwise comparisons of predicted probabilities.
Results: Among veterans with chronic musculoskeletal pain, more women than men use CIH (36% vs. 26%), with rates ranging from 25% to 42% among women and 15% to 29% among men, depending on race/ethnicity and age. Among women, patients under age 44 who were Hispanic, White, or patients of other race/ethnicities are similarly likely to use CIH; in contrast, Black women, regardless of age, are least likely to use CIH. Among men, White and Black patients, and especially Black men under age 44, are less likely to use CIH than men of Hispanic or other racial/ethnic identities.
Conclusions: Women veteran patients with chronic musculoskeletal pain are more likely than men to use CIH therapies, with variations in CIH use rates by race/ethnicity and age. Tailoring CIH therapy engagement efforts to be sensitive to gender, race/ethnicity, and age could reduce differential CIH use and thereby help to diminish existing health disparities among veterans.

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Opioid Misuse and Chronic Pain Among Women Military Veterans

A national public health emergency, the opioid epidemic has resulted in extraordinary numbers of accidental injuries, infectious diseases, and premature deaths (Hedegaard, Warner, & Miniño, 2017; U.S. Surgeon General, 2016), contributing to a historically unprecedented shortening of American life expectancy (Kochanek, Murphy, Xu, & Arias, 2017). U.S. military veterans being treated for chronic pain are at a heightened risk for these adverse outcomes (Bohnert et al., 2014; Gaither et al., 2016), and women veterans may be especially impacted. Specifically, more women veterans than men are prescribed opioids for chronic pain (Kroll-Desrosiers et al., 2016; Mosher et al., 2015) and women veterans are more likely to have multiple pain condition diagnoses (Higgins et al., 2017; Weimer et al., 2013), self-report moderate to severe pain (Higgins et al., 2017), and have co-occurring mental health problems (Finlay et al., 2015; Higgins et al., 2017; Howe & Sullivan, 2014). These factors are well-established predictors of adverse health outcomes among veterans with chronic pain (Dobscha, Morasco, Duckart, Macey, & Deyo, 2013; Edlund, Steffick, Hudson, Harris, & Sullivan, 2007). Findings underscore a critical need to better understand the gender-specific health services needs, use, and outcomes of veterans being treated for chronic pain.

Limited Research on Complementary and Integrative Health and Gender in Veterans

Historically, opioid medications have been used in Veterans Healthcare Administration (VA) clinical settings despite acceptability of nonpharmacologic therapies for many pain patients (Howe & Sullivan, 2014; Simmonds, Finley, Vale, Pugh, & Turner, 2015). Signifying a major shift in practice, complementary and integrative health (CIH) therapies (e.g., meditation, yoga, acupuncture) are now being offered throughout the VA as nonpharmacologic approaches for chronic pain because they have been found to be beneficial for some types of chronic pain and its physical and mental health comorbidities (Bawa et al., 2015; Goyal et al., 2014; Hempel et al., 2014; Hilton et al., 2017; MacPherson et al., 2017; Miake-Lye et al., 2016; Nahin, Boineau, Khalsa, Stussman, & Weber, 2016). Expansion of the provision of CIH therapies as a nonpharmacologic treatment for pain in the VA was mandated by Congress in the 2016 Comprehensive Addiction and Recovery Act (U.S. Government Publishing Office, 2016). However, most of what is known about use of CIH therapies has been provided by general population studies of civilians (Clarke, Black, Stussman, Barnes, & Nahin, 2015; Nahin et al., 2016; Stussman, Black, Barnes, Clarke, & Nahin, 2015; Upchurch & Rainisch, 2015). Such studies report that common correlates of CIH use are diagnosed chronic physical and mental health conditions (Adams et al., 2017; Burke, Lam, Stussman, & Yang, 2017; Cramer et al., 2016a; 2016b) and also sociodemographic characteristics (Zhang, Leach, Bishop, & Leung, 2016), particularly female gender (Burke et al., 2017; Cramer et al., 2016a; 2016b; Park, Braun, & Siegel, 2015), non-Hispanic White race/ethnicity (Burke et al., 2017; Cramer et al., 2016a; 2016b), and higher socioeconomic status (Cramer et al., 2016a; 2016b; Park et al., 2015), with mixed findings regarding age (Adams et al., 2017; Cramer et al., 2016a; 2016b).

A critical limitation in knowledge is that gender differences in the use of CIH therapies have been understudied, particularly in veteran populations. Also of potential import but little examined is that use of CIH therapies by veteran populations may vary by race/ethnicity and age, for example, because of race/ethnic and age-related differences in factors that facilitate or impede CIH use such as economic resources and cultural/health beliefs (Chao, Wade, Kronenberg, Kalmuss, & Cushman, 2006; Goldstein, Ibrahim, Frankel, & Mao, 2015; Hsiao et al., 2006). We addressed these gaps by conducting secondary analyses of data from a national population study (Taylor et al., 2018) of VA users age 18 to 54 years with chronic musculoskeletal pain to examine whether there are gender differences in the prevalence and predictors of CIH therapy use, and whether any effect of gender is further moderated by race/ethnicity and age. The results of this analysis could point to gender-specific policy and practice solutions for addressing chronic pain. As such, it could lay a foundation for strengthening the health achieving capabilities of women and men veterans with chronic pain.

Methods

Study Design and Participants

We conducted secondary analyses of electronic health record (EHR) data of a retrospective cohort of veterans age 18 to 54 with chronic musculoskeletal pain receiving VA health care anytime from 2010 to 2013 (see parent study for details; Taylor et al., 2018). Briefly, informed by prior research (Goulet et al., 2016; Tian, Zlateva, & Anderson, 2013) we defined chronic musculoskeletal pain as having two or more occurrences during 2010 through 2013 of either 1) any *International Classification of Disease, 9th Clinical Modification* (ICD-9-CM) chronic pain codes recorded at visits separated by more than 30 days within 1 year or 2) any of 201 common musculoskeletal ICD-9-CM codes and two or more patient-reported pain scores of 4 or greater (on a 0–10 scale) within a 90-day period (Taylor et al., 2018). The use of CIH therapy was determined by analyzing structured and unstructured data fields (e.g., clinical notes; Taylor et al., 2018). These data encompassed 79,537 women and 389,269 men. Use of these data for research purposes was approved by the VA Institutional Review Board.

Measures

The dependent variable is use of any CIH therapy (yes/no) during 2010 through 2013, occurring after first diagnosis of chronic musculoskeletal pain during that timeframe. CIH therapy was defined as any use of meditation, yoga, tai chi, acupuncture, chiropractic care, biofeedback, guided imagery, therapeutic massage, or hypnosis.

The key independent variable is gender. One moderator variable is race/ethnicity, defined according to five categories: 1) Hispanic/Latino and non-Hispanic/Latino categories of 2) White, 3) Black, 4) other (i.e., Asian, Native Hawaiian, other Pacific Islander, Native American, Alaskan Native, other), and 5) missing (representing 5%). To better understand the characteristics of this group, and per other research (Long, Bamba, Ling, & Shea, 2006), we included the missing race/ethnic category. A second moderator variable is age, coded into three categories: 18 to 34, 35 to 44, and 45 to 54 years of age.

Other patient characteristics are marital status and two proxy indicators of socioeconomic status: 1) health insurance type (e.g., Medicaid enrollees are generally poorer and sicker) and 2) copayment status, because patients with copayments tend to have more income and less disability. Patient need for care is