

HHS Public Access

Author manuscript Med Care. Author manuscript; available in PMC 2018 January 11.

Published in final edited form as:

Med Care. 2015 April; 53(4 Suppl 1): S105–S111. doi:10.1097/MLR.00000000000271.

Sex Differences in Mental Health and Substance Use Disorders and Treatment Entry Among Justice-involved Veterans in the Veterans Health Administration

Andrea K. Finlay, PhD^{*}, Ingrid A. Binswanger, MD, MPH[†], David Smelson, PsyD^{‡,§}, Leon Sawh, MPH^{‡,§,II}, Jim McGuire, PhD, MSW^{II}, Joel Rosenthal, PhD^{II}, Jessica Blue-Howells, MSW^{II}, Christine Timko, PhD^{#,**}, Janet C. Blodgett, MSc[#], Alex H. S. Harris, PhD^{*}, Steven M. Asch, MD, MPH^{††}, and Susan Frayne, MD, MPH^{#,††}

^{*}Center for Innovation to Implementation (Ci2i), Substance Use Disorder Quality Research Enhancement Initiative, VA Palo Alto Health Care System, Menlo Park, CA

[†]Division of General Internal Medicine University of Colorado School of Medicine, Community Health Services, Denver Health Medical Center, Denver, CO

[‡]National Center on Homelessness Among Veterans, Edith Nourse Rogers Memorial Veterans Hospital, Bedford, MA

[§]Department of Psychiatry, University of Massachusetts Medical School, Worcester, MA

School of Criminology and Justice Studies, University of Massachusetts, Lowell, Bedford, MA

[¶]Department of Veterans Affairs, Veterans Justice Programs

[#]Center for Innovation to Implementation (Ci2i), VA Palo Alto Health Care System, Menlo Park, CA

**Department of Psychiatry and Behavioral Sciences

^{††}Division of General Medical Disciplines, Stanford University School of Medicine, Menlo Park, CA

Abstract

Background—Over half of veterans in the criminal justice system have mental health or substance use disorders. However, there is a critical lack of information about female veterans in the criminal justice system and how diagnosis prevalence and treatment entry differ by sex.

Objectives—To document prevalence of mental health and substance use disorder diagnoses and treatment entry rates among female veterans compared with male veterans in the justice system.

Reprints: Andrea K. Finlay, PhD, Center for Innovation to Implementation, Substance Use Disorder Quality Research Enhancement Initiative, VA Palo Alto Health Care System, 795 Willow Road (152-MPD), Menlo Park, CA 94025. andrea.finlay@va.gov. The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs or the United States government.

The authors declare no conflict of interest.

Supplemental Digital Content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Website, www.lww-medicalcare.com.

Research Design—Retrospective cohort study using national Veterans Health Administration clinical/administrative data from veterans seen by Veterans Justice Outreach Specialists in fiscal years 2010–2012.

Subjects—A total of 1535 females and 30,478 male veterans were included.

Measures—Demographic characteristics (eg, sex, age, residence, homeless status), mental health disorders (eg, depression, posttraumatic stress disorder), substance use disorders (eg, alcohol and opioid use disorders), and treatment entry (eg, outpatient, residential, pharmacotherapy).

Results—Among female veterans, prevalence of mental health and substance use disorders was 88% and 58%, respectively, compared with 76% and 72% among male veterans. Women had higher odds of being diagnosed with a mental health disorder [adjusted odds ratio (AOR) = 1.98; 95% confidence interval (CI), 1.68–2.34] and lower odds of being diagnosed with a substance use disorder (AOR = 0.50; 95% CI, 0.45–0.56) compared with men. Women had lower odds of entering mental health residential treatment (AOR = 0.69; 95% CI, 0.57–0.83).

Conclusions—Female veterans involved in the justice system have a high burden of mental health disorders (88%) and more than half have substance use disorders (58%). Entry to mental health residential treatment for women is an important quality improvement target.

Keywords

veterans health; sex differences; criminal justice; mental disorders; substance use disorders; mental health services; United States Department of Veterans Affairs

Mental illness or substance use disorders are common among military veterans who are justice-involved— those detained by or under the supervision of the criminal justice system. However, the mental health and substance use disorder treatment needs of female veterans in the justice system have not been a focus of attention in the research literature. Previous studies with justice-involved veterans excluded women^{1,2} or did not examine women separately from men.³ Although women are a minority among justice-involved veterans, with increasing numbers of women in the military⁴ and in Veterans Health Administration (VHA),⁵ as well as increasing rates of women from the general population entering the justice system,⁶ it is plausible that the number of female veterans in the justice system will be expanding in the coming years. Knowledge of mental health disorder and substance use disorder diagnosis prevalence and treatment entry among justice-involved female veterans, and differences compared with their male counterparts, is needed to plan outreach, quality improvement, and treatment resources appropriately.

Sex differences in mental health disorder and substance use disorder diagnoses have been observed in the general US, veteran, and criminal justice populations. In the general population, women have a higher prevalence of depression⁷ and post-traumatic stress disorder (PTSD)⁸ and lower prevalence of alcohol abuse⁹ compared with men. Among veteran VHA patients, women have a higher prevalence of mental health disorders and lower prevalence of substance use disorders and dual diagnosis compared with men.^{10–13} For example, among Iraq/Afghanistan veteran VHA patients, 23% of women were diagnosed with depression compared with 17% of men, whereas 3% of women were diagnosed with

alcohol use disorder compared with 8% of men.¹¹ In the general criminal justice population, estimated PTSD prevalence is higher for women (41%) compared with men (20%).^{14,15} A national study of jail inmates likewise found mental health disorders more common among women (44% of women vs. 22% of men) and alcohol use disorder less common among women (37% of women vs. 48% of men). However, women had a higher prevalence of drug abuse (59%) compared with men (53%).¹⁶ Whether these patterns are the same for female veterans in the justice system is unknown.

There are several reasons to anticipate distinct mental health and substance use disorder treatment needs for women in criminal justice settings. First, incarcerated women have higher rates than men of a history of child or adult abuse,^{17,18} common antecedents to PTSD, depression, and other mental health or substance use disorders.^{19–21} Rates of military sexual trauma and childhood trauma are high in female veterans,^{22,23} thus, it is possible that these treatment needs are accentuated in the subset of justice-involved women who are military veterans. Second, type of crime also varies by sex, and could be another reason for observed sex differences in mental health and substance use disorders in this population. For example, women are arrested more frequently than men for prostitution,¹⁸ and prostitution is associated with greater violence exposure²⁴ and higher rates of mental health disorders.²⁵ Furthermore, a higher percentage of women in US state prisons than men reported using drugs when they committed their offense.²⁶

To address the health care and other needs of justice-involved veterans, the VHA created 2 programs to link them to treatment. The long-term goal of both programs is to reduce justice-involved veterans' risk for homelessness and criminal justice recidivism, facilitate their recovery, and improve their health and social outcomes by addressing their mental and medical treatment needs. Outreach is provided in justice system settings; for example, at courts and jails for veterans in the Veterans Justice Outreach (VJO) program, and in prison for veterans in the Health Care for Reentry Veterans (HCRV) program.^{27,28} However, the extent to which VHA is meeting female veterans' treatment needs through these programs and whether treatment entry differs from those of male veterans is unknown. The current study focused on veterans in contact with the VJO program because the VJO population includes veterans in justice system settings, such as courts, law enforcement settings, or jails, who would be missed in studies that recruit from prisons. This population represents an ideal target for early intervention and treatment.

The evidence base is limited, but treatment entry in the general criminal justice population appears to be at least as good for women as for men,^{29,30} although predictors of treatment entry and engagement vary by sex.³¹ It is unknown whether this finding translates to a veteran justice-involved population. While VHA has made strides to meet the mental health and substance use disorder treatment needs of female veterans,¹⁰ research on sex differences in veterans' use of VHA treatment is mixed,^{32–34} and mental health care delivery systems for women vary by VHA facility.³⁵ Women could encounter unique issues when transitioning from a criminal justice setting to a VHA mental health or substance use disorder treatment.

The current study has 4 aims. First, we document the prevalence of diagnosed mental health and substance use disorders among female veterans involved in the justice system, compared with male veterans involved in the justice system; to our knowledge, this population of women has never been examined separately before. Second, we determine whether sex differences in diagnosis prevalence persist after accounting for other sociodemographic characteristics. Third, we describe VHA mental health and substance use disorder treatment entry rates among female veterans involved in the justice system, compared with their male veteran counterparts. Fourth, we examine sex differences in treatment entry, adjusting for sociodemographic characteristics.

METHODS

Cohort

Using national VHA outpatient clinical/administrative records, we conducted a retrospective cohort study of veterans participating in the VJO program at any VHA medical center (N = 128 of 153 medical centers). A veteran was included in the sample if s/he had contact with the VJO program anytime from fiscal year 2010 (October 1, 2009) through fiscal year 2012 (September 30, 2012). We excluded veterans who did not have a face-to-face visit at a VHA facility in the 1 year period after her/his VJO visit because these veterans would not have had the opportunity to receive a diagnosis. We also excluded veterans who had an outreach visit with a prison-based specialist before their contact with the VJO program to focus on veterans entering the justice system (eg, arrested, in courts or jail) rather than veterans exiting prison and reentering the community (who are served by the separate HCRV program). This study was approved by the Stanford University institutional review board, which serves the VA Palo Alto Health Care System, and VA Palo Alto Research & Development Committee.

Measures

Demographic Characteristics—Demographic variables included sex, age, race, ethnicity, marital status, residence (living in an urban or rural area), homeless status (drawn from a homeless indicator variable, housing clinic codes and residential codes, and ICD-9 codes for housing and homelessness), and overall service-connected disability rating, indicating a disability caused by medical or psychiatric illness or injury occurring during or aggravated by military service.

Mental Health and Substance Use Disorders—A veteran was considered to have a mental health or substance use disorder if s/he had at least 1 instance of the diagnosis associated with her/his outpatient health record in the 1-year period after her/his initial VJO encounter—each patient was on a 1-year person-specific observation period. Although substance use disorders are a subset of mental health disorders, most prior studies with veterans involved in the criminal justice system, or more generally within the VHA, have distinguished substance use disorders and other mental health disorders. VJO Specialists do not diagnose mental health/ substance use disorders during their outreach visits. Diagnoses, mental health disorders and substance use disorders identified based upon ICD-9 diagnosis codes (Appendix, Supplemental Digital Content, http://links.lww.com/MLR/A823), if any,

Page 5

were determined as part of the clinical assessment of other VHA clinicians (typically a physician or psychologist) who had contact with the veteran after the VJO encounter. Dual diagnosis indicated receiving at least 1 mental health disorder diagnosis and at least 1 substance use disorder diagnosis.

Treatment Entry—We counted the number of visits to mental health disorder or substance use disorder treatment clinics for each veteran in the 1 year period after her/his VJO encounter. Clinic visits were grouped into: mental health disorder outpatient, mental health disorder inpatient, mental health disorder residential, substance use disorder outpatient, and substance use disorder residential. Patients were considered to have received pharmacotherapy for alcohol use disorder if they received a prescription for naltrexone, acamprosate, or disufiram in the year after the VJO outreach visit, and pharmacotherapy for opioid use disorder if they received methadone, buprenorphine, or naltrexone.

Analysis

We examined descriptive statistics of demographic characteristics and the prevalence of mental health disorders/ substance use disorder diagnoses by sex using χ^2 tests. We conducted a series of 18 logistic regression tests with a random effect for facility (N = 128 medical centers) to sequentially model the odds of being diagnosed with no mental health or substance use disorder, any mental health disorder, with one of 7 specific mental health disorders, with any substance use disorder, with one of 7 specific substance use disorders, or with dual diagnosis, as a function of sex, adjusting for all other demographic characteristics. To examine treatment entry, we reported the proportion of women and of men eligible (based upon their diagnosis) for each type of treatment. We conducted 9 logistic regression tests with a random effect for facility (N = 128 medical centers), to model the odds of receiving each type of treatment (limited to veterans with a diagnosis indicating a clinical need for that type of treatment) as a function of sex, adjusting for all other demographic characteristics.

RESULTS

There were 1621 (4%) women and 34,737 men who received an outreach visit from a VJO Specialist in fiscal years 2010–2012. Of these veterans, 1535 (95%) women and 30,478 (88%) men received face-to-face care at VHA in the 1-year period following their outreach visit.

Table 1 presents the demographic characteristics of the sample by sex. Women were younger, with 53% under the age of 45 compared with 36% of men (P < 0.001). Women were less likely to be married (15% vs. 21%, P < 0.001) or homeless (19% vs. 24%, P < 0.001) compared with men. More than half of women (58%) had a service-connected disability rating compared with 48% of men (P < 0.001).

Table 2 displays the percent of diagnoses for women and men and the logistic regression results showing the odds of being diagnosed. Among women, the prevalence of mental health and substance use disorders was 88% and 58%, respectively, compared with 76% and 72% among men. Women had higher odds than men of being diagnosed with a mental health

Table 3 displays the treatment entry rates. Among veterans with a mental health disorder, 98% of women and 97% of men used mental health treatment (ie, had at least 1 outpatient visit, or inpatient or residential day). Entry to substance use disorder treatment was lower: among patients with substance use disorders, 75% of women and 54% of men entered any substance use disorder treatment (ie, had at least 1 outpatient visit, residential day, or pharmacotherapy for alcohol or opioid use disorder). For outpatient visits in the 1-year observation period, women averaged 36 (SD = 40) mental health and 31 (SD = 33) substance use disorder visits versus 30 (SD = 37) and 31 (SD = 36), respectively, in men. Women had lower odds of entering mental health residential care (AOR = 0.69; 95% CI, 0.57–0.83) than men. For veterans with alcohol use disorder, 22% of women and 10% of men received pharmacotherapy (AOR = 2.24; 95% CI, 1.82–2.74). For veterans with opioid use disorder, 18% of women and 20% of men received pharmacotherapy.

DISCUSSION

Among veterans involved in the criminal justice system, we found that most women were diagnosed with a mental health disorder (88%) and more than half were diagnosed with a substance use disorder (58%). Men had a lower prevalence of mental health disorders (76%) and a higher prevalence of substance use disorders (72%). Our findings were consistent with most prior studies with veteran and criminal justice samples.^{11,12,16} Although not directly comparable due to data collection methods, the prevalence of these disorders was higher in our sample than in the general veteran and criminal justice populations, or other samples of incarcerated veterans,^{3,10,36} consistent with the notion that justice involvement and veteran status may be additive or multiplicative risk factors for these disorders. However, the sampling and type of diagnostic assessments used in these studies all vary, which may partially explain these differences. Furthermore, compared with other studies that relied on self-report, the prevalence of these disorders may be higher in the current sample because outreach Specialists from the VJO program are focused on case finding so as to link veterans with treatment they need to address their mental health and substance use disorders.

Treatment entry to mental health services was nearly universal for both women and men. However, women had lower odds of entering mental health residential treatment compared with men. Structural challenges, such as the availability of residential beds for women, or patient needs, such as being the primary caretaker of children or other family members, may account for this difference. For example, female veterans who were homeless and in VAsupported housing were more likely to have dependent children than male veterans.³⁷ Programs that integrate childcare with treatment and are women or family focused may be 1 strategy to address the needs of these women. Coordination with other agencies may be needed for families whose children are under the supervision of social services.³¹ To what

Other veteran needs that may be sex related include experiences of trauma. Compounding the fact that women in the justice system typically have experienced trauma¹⁸ is the fact that female veterans have frequently experienced military sexual trauma.²² In our sample, 51% of women are diagnosed with PTSD compared with 36% of men. Trauma-informed treatment options attentive to women's unique experiences and women-only programming may prove to be especially valuable for female veterans involved in the justice system.

For both female and male veterans in the justice system, linkage to substance use disorder treatment, particularly pharmacotherapy for alcohol or opioid use disorders, could be increased. Substance use disorder treatment is linked with reduced alcohol and drug use and less recidivism.³⁸ Integrating substance use disorder treatment into other settings, such as primary care or mental health care, is one strategy to increase entry, especially given the high prevalence of dual diagnosis in this sample. Outreach workers may also use motivational interviewing, a strategy that has been shown to be effective at increasing entry into treatment among veterans in jail³⁹ or homeless veterans.⁴⁰

Women received pharmacotherapy for alcohol use disorder more than men, but less than a quarter received this treatment. Receipt of pharmacotherapy for opioid use disorder was also low, consistent with treatment patterns documented among the general veteran VHA population.^{41,42} Given that these treatments are linked with reductions in substance use and less recidivism among criminal justice populations,^{43,44} strategies to improve receipt of these medications among veterans in the justice system would likely contribute to the goals of the VJO program.

Entry to and engagement in the VJO program as it relates to sex should also be examined further as it is possible that some women and men with criminal justice issues might not be seen by a VJO Specialist. With women comprising only 4% of VJO veteran VHA patients, compared with 6.5% of all veteran VHA patients,¹⁰ they represent a numeric minority—this could have implications for their care. For example, with such a small case load, VJO Specialists may have less opportunity to develop needed referral resources for female veterans. Similarly, there is a hazard that justice-involved female veterans attending mental health disorder or substance use disorder group visits could feel even more marginalized, first by virtue of being a woman and second by virtue of their justice system involvement. It is also unknown whether women are in contact with the VJO program to the same extent as men. Targeted outreach efforts may be useful to reach female veterans involved in the criminal justice system who may not yet be connected to VHA with its robust mental health disorder or substance use disorder treatment opportunities.

Strengths and Limitations

To our knowledge, this is the first national study to document the prevalence of mental health and substance use disorder diagnoses and treatment entry among female veterans in the justice system. Furthermore, we believe this is the only study in the literature to date that reports on diagnosis prevalence rates of veterans in contact with the VJO program, which

includes veterans involved in the justice system through law enforcement (eg, being arrested) and courts, a stage at which early intervention is possible; in contrast, other studies are limited to veterans in jail or prison. Although we cannot generalize beyond justice-involved veterans who are VHA patients, our results provide valuable insights about diagnostic characteristics and treatment entry among veterans involved in the criminal justice system. Our study's national scope paints a broad picture of justice-involved female veterans, benchmarked against male veterans.

There are limitations to our findings. First, our sample was limited to veterans in the VJO program, which focuses on connecting veterans with needed care. This enhanced case finding may partially explain the high rates of mental health disorders or substance use disorders in our results. We did not include veterans served by the VHA HCRV prison outreach program because they may have different health needs after prison, which are typically longer sentences or may be related to more serious crimes and/or more extensive criminal histories. Ideally, a future study would examine mental health disorder and substance use disorder prevalence among all veterans involved in the criminal justice system, including veterans incarcerated who were not able to see VHA clinicians, those not connected to VJO (eg, due to lack of access to or knowledge of the program), and/or veterans ineligible for VHA benefits. Such a study would likely necessitate much data coordination between VHA and multiple federal and state partners (eg, Medicare and Medicaid) and recruitment of veteran research participants from multiple VHA and non-VHA settings, such as primary care clinics, mental health disorder/substance use disorder treatment settings, or in community settings.

Second, our measures were limited to diagnoses culled from the VHA administrative records rather than structured diagnostic interviews, and did not detect undiagnosed or undocumented mental health or substance use disorders. Relatedly, women had more face-to-face and primary care visits than men and therefore had more opportunities to receive a diagnosis if present. However, women and men had on average 5 primary care visits and 55 (women) and 49 (men) face-to-face visits, suggesting that both groups typically had ample opportunity to receive a diagnosis. Third, we aggregated disorders into broad categories. Analysis of specific diagnoses and treatment entry as well as interviews with veteran patients would help determine if veterans are receiving needed care. Fourth, the VJO program was recently established and thus we were limited to examining entry within a 1-year period. As data accumulate, it will be possible to examine time trends in entry patterns across sex.

CONCLUSIONS

With the exceptionally heavy burden of mental health disorders and substance use disorders in female veterans involved in the justice system, which for mental health disorders exceeds even the burden seen in their male counterparts, access to mental health and substance use disorder treatment needs to be a priority in VHA. Although it is heartening that most women with mental health conditions are entering mental health treatment, it is of some concern that substance use disorder treatment entry for women is less robust. In particular, more work is needed to understand why women have lower odds of entering mental health residential

treatment and whether treatments received are meeting their needs. For both women and men, entry to substance use disorder treatment could be improved, especially pharmacotherapy for alcohol or opioid use disorders, suggesting these as initial targets for training and outreach.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

This work was supported by the Department of Veterans Affairs (VA) Substance Use Disorder Quality Enhancement Research Initiative (SUDQ-LIP1404). Dr Finlay was supported by the VA Office of Academic Affiliations Advanced Fellowship in Health Services Research and Development (HSR&D) and a Career Development Award (CDA 13-279) in VA HSR&D. Dr Timko was funded as a Senior Research Career Scientist (RCS 00-001) in VA HSR&D. Dr Harris was funded as a Research Career Scientist (RCS 14-132) in VA HSR&D. A portion of this work was also supported by the VA National Center on Homelessness Among Veterans.

References

- Greenberg GA, Rosenheck RA. Incarceration among male veterans: relative risk of imprisonment and differences between veteran and nonveteran inmates. Int J Offender Ther Comp Criminol. 2012; 56:646–667. [PubMed: 21502201]
- Pandiani JA, Rosenheck R, Banks SM. Elevated risk of arrest for Veteran's Administration behavioral health service recipients in four Florida counties. Law Hum Behav. 2003; 27:289–298. [PubMed: 12794965]
- 3. Tsai J, Rosenheck RA, J Kasprow W, et al. Risk of incarceration and other characteristics of Iraq and Afghanistan era veterans in state and federal prisons. Psychiatr Serv. 2013; 64:36–43. [PubMed: 23280456]
- 4. Hayes PM. Leading the nation in women's health: the important role of research. Women Health Issues. 2011; 21(4S):S70–S72.
- 5. Frayne, SM., Phibbs, CS., Friedman, SA., et al. Sourcebook: Women Veterans in the Veterans Health Administration Volume 2 Sociodemographics and Use of VHA and Non-VA Care (Fee). Washington, DC: Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs; 2012.
- 6. Harrison, PM., Beck, AJ. Prisoners in 2005. Washington, DC: US Department of Justice, Office of Justice Programs; 2006.
- 7. Prevention. CfDCa. Current depression among adults—United States, 2006 and 2008. MMWR. 2010; 59:1229–1235. [PubMed: 20881934]
- Kessler RC, Sonnega A, Bromet E, et al. Posttraumatic stress disorder in the National Comorbidity Survey. Arch Gen Psychiatry. 1995; 52:1048–1060. [PubMed: 7492257]
- Grant BF, Dawson DA, Stinson FS, et al. The 12-month prevalence and trends in DSM-IV alcohol abuse and dependence: United States, 1991–1992 and 2001–2002. Drug Alcohol Depend. 2004; 74:223–234. [PubMed: 15194200]
- 10. Frayne, S., Phibbs, C., Saechao, F., et al. Sourcebook: Women Veterans in the Veterans Health Administration. Volume 3. Sociodemographics, Utilization, Costs of Care, and Health Profile. Washington, DC: Women's Health Evaluation Initiative, Women's Health Services, Veterans Health Administration, Department of Veterans Affairs; 2014.
- Maguen S, Ren L, Bosch JO, et al. Gender differences in mental health diagnoses among Iraq and Afghanistan veterans enrolled in veterans affairs health care. Am J Public Health. 2010; 100:2450– 2456. [PubMed: 20966380]
- Seal KH, Cohen G, Waldrop A, et al. Substance use disorders in Iraq and Afghanistan veterans in VA healthcare, 2001–2010: implications for screening, diagnosis and treatment. Drug Alcohol Depend. 2011; 116:93–101. [PubMed: 21277712]

- Banerjea R, Findley PA, Smith B, et al. Co-occurring medical and mental illness and substance use disorders among veteran clinic users with spinal cord injury patients with complexities. Spinal Cord. 2009; 47:789–795. [PubMed: 19417763]
- Osher FC, Steadman HJ. Adapting evidence-based practices for persons with mental illness involved with the criminal justice system. Psychiatr Serv. 2007; 58:1472–1478. [PubMed: 17978259]
- Trestman RL, Ford J, Zhang W, et al. Current and lifetime psychiatric illness among inmates not identified as acutely mentally ill at intake in Connecticut's jails. J Am Acad Psychiatry Law. 2007; 35:490–500. [PubMed: 18086741]
- Binswanger IA, Merrill JO, Krueger PM, et al. Gender differences in chronic medical, psychiatric, and substance-dependence disorders among jail inmates. Am J Public Health. 2010; 100:476–482. [PubMed: 19696388]
- Messina N, Burdon W, Hagopian JD, et al. Predictors of prison-based treatment outcomes: a comparison of men and women participants. Am J Drug Alcohol Abuse. 2006; 32:7–28. [PubMed: 16450640]
- Lewis C. Treating incarcerated women: gender matters. Psychiatr Clin North Am. 2006; 29:773– 789. [PubMed: 16904511]
- Komarovskaya IA, Loper AB, Warren J, et al. Exploring gender differences in trauma exposure and the emergence of symptoms of PTSD among incarcerated men and women. J Forensic Psychiatr. 2011; 22:395–410.
- 20. Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, et al. The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. J Womens Health. 2006; 15:599–611.
- Springer KW, Sheridan J, Kuo D, et al. Long-term physical and mental health consequences of childhood physical abuse: results from a large population-based sample of men and women. Child Abuse Neglect. 2007; 31:517–530. [PubMed: 17532465]
- 22. Kimerling R, Street AE, Pavao J, et al. Military-related sexual trauma among Veterans Health Administration patients returning from Afghanistan and Iraq. Am J Public Health. 2010; 100:1409–1412. [PubMed: 20558808]
- Cox DW, Ghahramanlou-Holloway M, Szeto EH, et al. Gender differences on documented trauma histories: inpatients admitted to a military psychiatric unit for suicide-related thoughts or behaviors. J Nerv Ment Dis. 2011; 199:183–190. [PubMed: 21346489]
- 24. Oram S, Stockl H, Busza J, et al. Prevalence and risk of violence and the physical, mental, and sexual health problems associated with human trafficking: systematic review. PLoS Med. 2012; 9:e1001224.doi: 10.1371/journal.pmed.1001224 [PubMed: 22666182]
- Burnette ML, Lucas E, Ilgen M, et al. Prevalence and health correlates of prostitution among patients entering treatment for substance use disorders. Arch Gen Psychiatry. 2008; 65:337–344. [PubMed: 18316680]
- Mumola, CJ., Karberg, JC. Bureau of Justice Statistics, Special Report. Washington, DC: US Department of Justice, Office of Justice Programs; 2006. Drug use and dependence, state and federal prisoners, 2004.
- 27. Clark, SC., Blue-Howells, JH., Rosenthal, J., et al. 10NC1 Homeless Program VJO strategic plan, FY 2012–2016. Washington, DC: Department of Veterans Affairs; 2010.
- Blue-Howells JH, Clark SC, van den Berk-Clark C, et al. The US Department of Veterans Affairs Veterans Justice Programs and the sequential intercept model: case examples in national dissemination of intervention for justice-involved veterans. Psych Serv. 2013; 10:48–53.
- Hartwell S, Deng X, Fisher W, et al. Predictors of accessing substance abuse services among individuals with mental disorders released from correctional custody. J Dual Diagn. 2013; 9:11– 22. [PubMed: 23543790]
- Mallik-Kane, K., Visher, CA. Research Report. Washington, DC: Urban Institute, Justice Policy Center; 2008. Health and prisoner reentry: how physical, mental, and substance abuse conditions shape the process of reintegration.

- 31. Pelissier B. Gender differences in substance use treatment entry and retention among prisoners with substance use histories. Am J Public Health. 2004; 94:1418–1424. [PubMed: 15284053]
- 32. Maguen S, Cohen BE, Cohen G, et al. Gender differences in health service utilization among Iraq and Afghanistan veterans with posttraumatic stress disorder. J Womens Health. 2012; 21:1–8.
- Chatterjee S, Rath ME, Spiro A III, et al. Gender differences in veterans health administration mental health service use: effects of age and psychiatric diagnosis. Womens Health Issues. 2009; 19:176–184. [PubMed: 19447322]
- Montgomery AE, Byrne TH. Services utilization among recently homeless veterans: a genderbased comparison. Mil Med. 2014; 179:236–239. [PubMed: 24594455]
- Oishi SM, Rose DE, Washington DL, et al. National variations in VA mental health care for women veterans. Womens Health Issues. 2011; 21(suppl):S130–S137. [PubMed: 21724132]
- 36. James, DJ., Glaze, LE. Bureau of Justice Statistics, Special Report. Washington, DC: US Department of Justice, Office of Justice Programs; 2006. Mental health problems of prison and jail inmates.
- Tsai J, Rosenheck RA, Kane V. Homeless female US veterans in a national supported housing program: comparison of individual characteristics and outcomes with male veterans. Psychol Serv. 2014; 11:309–316. [PubMed: 24730678]
- Marsch LA. The efficacy of methadone maintenance interventions in reducing illicit opiate use, HIV risk behavior and criminality: a meta-analysis. Addiction. 1998; 93:515–532. [PubMed: 9684390]
- Davis TM, Baer JS, Saxon AJ, et al. Brief motivational feedback improves post-incarceration treatment contact among veterans with substance use disorders. Drug Alcohol Depend. 2003; 69:197–203. [PubMed: 12609701]
- 40. Wain RM, Wilbourne PL, Harris KW, et al. Motivational interview improves treatment entry in homeless veterans. Drug Alcohol Depend. 2011; 115:113–119. [PubMed: 21145181]
- 41. Harris AHS, Oliva EM, Bowe T, et al. Pharmacotherapy of alcohol use disorders by the Veterans Health Administration: patterns of receipt and persistence. Psychiatr Serv. 2012; 63:679–685. [PubMed: 22549276]
- Oliva EM, Harris AH, Trafton JA, et al. Receipt of opioid agonist treatment in the Veterans Health Administration: facility and patient factors. Drug Alcohol Depend. 2012; 122:241–246. [PubMed: 22115887]
- 43. Gryczynski J, Kinlock TW, Kelly SM, et al. Opioid agonist maintenance for probationers: patientlevel predictors of treatment retention, drug use, and crime. Subst Abuse. 2012; 33:30–39.
- 44. Finigan MW, Perkins T, Zold-Kilbourn P, et al. Preliminary evaluation of extended-release naltrexone in Michigan and Missouri drug courts. J Subst Abuse Treat. 2011; 41:288–293. [PubMed: 21696912]

TABLE 1

Demographic Characteristics of Female and Male Veteran VHA Patients Seen by Veteran Justice Outreach Specialists in Fiscal Years 2010–2012

	n	(%)	
	Female (n = 1535)	Male (n = 30,478)	Р
Age			< 0.001
< 25	63 (4)	1289 (4)	
25-34	399 (26)	5866 (19)	
35–44	358 (23)	4108 (13)	
45–54	526 (34)	9294 (30)	
55+	189 (12)	9921 (33)	
Race [*]			
American Indian/Alaskan Native	19 (1)	254 (1)	0.09
Asian	17 (1)	342 (1)	0.95
Black/African American	489 (32)	9718 (32)	0.93
White	884 (58)	18,019 (59)	0.19
Ethnicity [†]			0.77
Hispanic	98 (6)	2000 (7)	
Marital status [‡]			< 0.001
Single	616 (41)	11,907 (40)	
Married	230 (15)	6398 (21)	
Divorced/separated	633 (42)	11,095 (37)	
Widowed	37 (2)	641 (2)	
Residence [§]			0.66
Rural	326 (21)	6324 (21)	
Urban	1205 (79)	24,039 (79)	
Homeless			< 0.001
No	1248 (81)	23,110 (76)	
Yes	287 (19)	7368 (24)	
Service-connected disability rating ^{\parallel}			< 0.001
No	639 (42)	16,122 (53)	
< 50%	341 (22)	6254 (21)	
50%	555 (36)	8081 (27)	

Service-connected reflects a disability caused by medical or psychiatric illness or injury occurring during or aggravated by military service.

^{*}Missing/unknown: 2 women, 113 men.

[†]Missing/unknown: 2 women, 113 men.

[‡]Missing/unknown: 19 women, 437 men.

[§]Missing/unknown: 4 women, 115 men.

Missing/unknown: 0 women, 21 men.

VHA indicates Veterans Health Administration.

TABLE 2

Diagnosed Mental Health and Substance Use Disorders Among Female Versus Male Justice-involved Veteran VHA Patients Seen by Veterans Justice Outreach Specialists in Fiscal Years 2010–2012

	n	(%)		
	Female (n = 1535)	Male (n = 30,478)	Р	AOR (95% CI)
No mental health or substance use disorder	123 (8)	3081 (10)	< 0.01	0.95 (0.78–1.16)
Mental health disorders	1357 (88)	23,181 (76)	< 0.001	1.98 (1.68–2.34)
Depressive disorders	1023 (67)	16,705 (55)	< 0.001	1.51 (1.35–1.60)
Posttraumatic stress disorder	781 (51)	11,070 (36)	< 0.001	1.52 (1.35–1.71)
Anxiety disorders	512 (33)	6617 (22)	< 0.001	1.67 (1.49–1.88)
Bipolar disorder	321 (21)	3056 (10)	< 0.001	2.21 (1.93–2.52)
Schizophrenia	126 (8)	2486 (8)	0.94	1.00 (0.82–1.21)
Other psychosis	102 (7)	1933 (6)	0.64	1.03 (0.83–1.27)
Personality disorders	300 (20)	2862 (9)	< 0.001	2.25 (1.96–2.58)
Substance use disorders	893 (58)	21,915 (72)	< 0.001	0.50 (0.45–0.56)
Alcohol use disorder	634 (41)	17,618 (58)	< 0.001	0.48 (0.43–0.53)
Opioid use disorder	187 (12)	3867 (13)	0.56	0.92 (0.78-1.08)
Cocaine use disorder	306 (20)	7781 (26)	< 0.001	0.72 (0.62–0.82)
Amphetamine use disorder	109 (7)	1762 (6)	< 0.05	1.18 (0.95–1.47)
Cannabis use disorder	259 (17)	6105 (20)	< 0.01	0.72 (0.63–0.83)
Sedative use disorder	50 (3)	896 (3)	0.47	1.00 (0.74–1.34)
Other drug use disorders	491 (32)	11,122 (36)	< 0.001	0.80 (0.71–0.90)
Dual diagnosis	838 (55)	17,699 (58)	< 0.01	0.76 (0.68–0.84)

N=31,783. Cases with missing data (n = 230; <1%) were excluded from the logistic regression models. adjusted for age, race, ethnicity, marital status, residence, homeless status, service-connected disability rating, and a random effect for facility (N = 128 medical centers). Values in bold indicate a statistically significant sex difference.

An odds ratio >1.00 indicates that women had higher odds of being diagnosed with that disorder than men.

An odds ratio <1.00 indicates that women had lower odds of being diagnosed with that disorder than men.

AOR indicates adjusted odds ratio for presence of the condition in women versus men; VHA, Veterans Health Administration.

						TAB	-E 3
Mental Health and Substance Use D Years 2010–2012	isorder Tr	eatm	ent /	Access by Fe	male	e Ver	us Male Veterans Seen by Veterans Justice Outreach Specialists in Fiscal
	Won	nen		Men			Access
Treatment	0%) u	М	SD	u (%)	М	SD	AOR (95% CI)
Mental health disorder care *							
Outpatient visits	1324 (98)	36	40	22,430 (97)	30	37	1.19 (0.83–1.71)
Inpatient days	241 (18)	13	18	4309 (19)	16	21	0.88 (0.76–1.02)
Residential days	139 (10)	84	65	3106 (13)	86	70	0.69 (0.57–0.83)
Substance use disorder care \dot{t}							
Outpatient visits	637 (71)	31	33	15,279 (70)	31	36	1.05 (0.91–1.23)
Residential days	109 (12)	42	35	2304 (11)	36	33	1.12 (0.90–1.39)
Pharmacotherapy for alcohol use disorder $^{\sharp}$	137 (22)			1823 (10)			2.24 (1.82–2.74)
Pharmacotherapy for opioid use disorder $\hat{\delta}$	33 (18)			790 (20)			0.74 (0.50–1.10)
Other care							
Face-to-face visits	1535 (100)	55	60	30,478 (100)	49	59	1
Primary care visits	1368 (89)	5	5	25,776 (85)	5	4	1.58 (1.34–1.87)
Mean/SD are reported only for veterans who rec Values in bold indicate a statistically significant An odds ratio >1.00 indicates that women had hi An odds ratio <1.00 indicates that women had lo	eived that typ sex difference igher odds of r wer odds of r	e of ca 2. receiv eceivi	are. ing tha	at type of care the t type of care the	an me n mer		
* Limited to veterans who had a mental health di	agnosis with	the n (%) rel	oorting the numb	er of ,	/eteral	s who had at least 1 outpatient visit, or inpatient or residential day.
\vec{r} . Limited to veterans who had a substance use di	sorder diagnc	isis wi	th the	n (%) reporting t	the nu	mber o	f veterans who had at least 1 outpatient visit or residential day.
$\dot{\tau}_{\rm Limited}$ to veterans who had alcohol use disord	ler diagnosis v	with th	ie perc	centage of veteral	ns wh	o rece	ed pharmacotherapy for alcohol use disorder reported.
\hat{s} Limited to veterans with an opioid use disorder	diagnosis wi	th the	percei	ntage of veterans	who	eceive	d pharmacotherapy for opioid use disorder reported.
AOR indicates adjusted odds ratio for receipt of [American Indian/Alaskan Native, Asian, and bl and widowed], residence [rural, urban (reference medical centers).	at least 1 inst ack/African / b)], homeless	ance o Americ status	f that an, an [no (r	type of care for v d white (referenc eference), yes], a	vomei ce)], e nd sei	1 versu thnicit vice-c	s men (reference); adjusted for age [< 25 y old (reference), 25–34, 35–44, 45–54, and 55+], race [Hispanic, non-Hispanic (reference)], marital status [single, married (reference), divorced/separatec annected disability rating [none (reference), <50%, 50%], and a random effect for facility (N = 128

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript