

COMMENTARY

Health of Veterans—Strengths and Challenges

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Unique Characteristics of Veterans

Since the end of the Civil War in 1865, a unified military force has not only protected the safety of the United States but also has anchored the nation's position as a global power. With a commitment to a military career, those who serve the nation accept exposures that put them at risks that are distinct from their civilian counterparts. Depending on the source used, the veteran population stands between 18 and 20.3 million. That means that veterans now make up only about 5% to 7% of the adult population. However, the most striking finding was the representation of female veterans—9% of veterans (approx. 1.7 million) and projected to increase to 17% by 2040. These data are important when considering the positive and negative effects of those who actively serve in the military and ultimately transition to veteran status.

The vast majority of those entering the military are healthier than those who are their age and gender-matched counterparts. This is a reflection of the military's recruitment of the healthiest and most fit members of the population due to the physical and mental demands of these careers.

Additional factors impacting veteran health relate to their demographics—specifically, minority identification, socioeconomic status, and age. The 2019 American Community Survey¹ follow-up revealed that 76.2% of veterans were non-Hispanic White, 12.3% were Black, 7.2% were Hispanic, 1.8% were Asian, and 0.8% were American Indian or Alaska Native. Post-9/11 veterans were the youngest, with a median age of 37, while Vietnam-era veterans had a median age of 71 and World War II veterans were

the oldest, with a median age of 93. The percentage of veterans age 65 or older in 2019 was 50.4%. Post-9/11 veterans have a 43% chance of having a service-connected disability—a significantly higher rate than that of veterans from other periods. These data are most significant when considering the injuries, illnesses, and diseases, often unique to their service, that potentially determine the health status of veterans.

Beyond the census data, key perspectives revolve around the most prevalent conditions that impact the health of veterans and where they receive their care. Some of these health conditions have been the focus of targeted research projects and include environmental exposures, post-traumatic disabling conditions, and other mental and behavioral health illnesses. However, more focus is needed to identify the entire scope of illnesses, injuries, and comorbid diseases impacting the health of those who have put themselves in harm's way to serve the nation.

The Veterans Health Administration (VHA) is America's largest integrated health care system and is charged with providing health care to the 9 million registered veterans meeting the enrollment criteria. To ensure a deeper understanding of the VHA and who it serves, it is important to know that of the 9 million veterans who are registered, only 6 million actually receive care from the VHA's 1225 health care facilities. Of the 6 million veterans receiving care, only 12% of males and 20% of females get all of their care from the VHA. These data clearly indicate that the majority of our nation's veterans receive their care through the civilian health care system. They access these systems through several pathways to include private insurance, Tricare, and various programs sponsored by the VHA to enhance and facilitate timely care to those veterans registered in their system.

While the Veterans Administration (VA) has long contracted with community providers, the VA Maintaining Internal Systems and Strengthening

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Table 1. JABFM Veterans Health Commentary References

Category	Title	Author	Location
Demographics	Veterans report	US Census Bureau	https://www.census.gov/newsroom/press-releases/2020/veterans-report.html
	An evaluation of the effect of military service on mortality: quantifying the healthy soldier effect	McLaughlin R, Nielsen L, et al	Annals of Epidemiology, 2008, 928–36
	Doing hegemony: military, men, and constructing a hegemonic masculinity	Hinojosa R	Journal of Men’s Studies, 2010, 18(2), 179–94
	Activity-limiting musculoskeletal conditions in US veterans compared to non-veterans: results from the 2013 National Health Interview Survey	Hinojosa R, Hinojosa MS	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5179052/
	2019 American Community Survey	US Census Bureau	Prepared by the National Center for Veterans Analysis and Statistics
	Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act		https://missionact.va.gov/# ; https://www.congress.gov/115/bills/s2372/BILLS-115s2372enr.pdf
	The meaning of health care seeking behavior and resource use among male veterans who served in the Iraq and Afghanistan wars	Nworah U	https://twu-ir.tdl.org/handle/11274/4887
Veterans’ health concerns	US military veterans’ health and well-being in the first year after military service	Vogt D, Tirell FA, et al	Am J Prev Med, 2020, 58(3), 352–60
	Health and health behavior differences: US military, veteran, and civilian men	Hoerster KD, Lehavot K, et al	Am J Prev Med, 2012, 43(5), 483–9
Musculoskeletal conditions	Post-deployment pain: musculoskeletal conditions in male and female OEF/OIF veterans	Haskell SG	https://www.hsrd.research.va.gov/publications/forum/aug12/aug12-4.cfm
Posttraumatic Stress Disorder	Genomics of post-traumatic stress disorder in veterans	Veterans Administration (VA) Cooperative Studies Program	https://www.vacsp.research.va.gov/575-B/Main.asp
	Posttraumatic stress disorder in the National Comorbidity Survey	Kessler RC, Sonnega A, et al	Arch Gen Psych, 1995, 52, 1048–60
Military sexual trauma	Sexual harassment and assault as predictors of PTSD symptomatology among US female Persian Gulf War military personnel.	Wolfe J, Sharkansky EJ, et al	J Interpers Viol, 1998, 13(1), 40–57
	The role of sexual assault on the risk of PTSD among Gulf War veterans.	Kang H, Dalager N, et al	Ann Epidemiol, 2005, 15(3), 191–5
	Prevalence of depressive and alcohol abuse symptoms among women VA outpatients who report experiencing sexual assault while in the military	Hankin CS, Skinner KM, et al	J Trauma Stress, 1999, 12(4), 601–12
	Physical and sexual abuse among women and men with substance use disorders	Ouimette PC, Kimerling R, et al	Alcohol Treat Q, 2000, 18, 7–17
	Women veterans’ experiences with domestic violence and with sexual harassment while in the military	Murdoch M, Nichol KL	Arch Fam Med, 1995, 4(5), 411–8
	Sexual assault history and suicidal behavior in a national sample of women	Ullman SE, Brecklin LR	Suicide Life Threat Behav, 2002, 32(2), 117–30

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Table 1. Continued

Category	Title	Author	Location
Traumatic brain injury	Medical profile of women Veterans Administration outpatients who report a history of sexual assault occurring while in the military	Frayne SM, Skinner KM, Sullivan LM, et al	J Wom Health Gend Med, 1999, 8(6), 835–45, https://www.dav.org/veterans/resources/military-sexual-trauma-mst/
	Women who served in Iraq seeking mental health services: relationships between military sexual trauma, symptoms, and readjustment	Katz LS., et al	Psychological Services, 2007, 4(4), 239–249
	Evaluation of universal screening for military-related sexual trauma	Kimerling R, et al	Psychiatric Services, 2008, 59(6), 635–40
	Understanding traumatic brain injury	VA	https://www.polytrauma.va.gov/understanding-tbi/index.asp
	Traumatic brain injury and concussion	Centers for Disease Control and Prevention (CDC)	https://www.cdc.gov/traumaticbraininjury/severe.html
Environmental exposures	Surveillance report of traumatic brain injury-related emergency department visits, hospitalizations, and deaths—US 2014	CDC	Centers for Disease Control and Prevention, 2019
	Shaping the future of veterans’ health care	McCauley L, Ramos KS	N Engl J Med, 2020, 383(19), 1801–4
	Physical and mental health status of Gulf War and Gulf era veterans	Dursa EK, Barth SK, et al	J Occupational and Environmental Med, 2016, 58(1), 41–6
	Gulf War veterans and Iraqi nerve agents at Khamisiyah: postwar hospitalization data revisited	Smith TC, Gray GC, et al	Am J Epidemiol, 2003, 158(5), 457–67

Integrated Outside Networks (MISSION) Act was passed by Congress in 2018. This act established a new permanent discretionary community care program, the Veterans Community Care Program, designed to expand benefits for caregivers and to determine the eligibility of a veteran for community-based care as opposed to receiving care in the VHA. The program also requires that the VA enter into contracts with private insurance networks, potentially eliminating the somewhat arbitrary administrative criteria of wait times and distance from the veteran’s home to VHA care to ensure that these veterans are getting the care they need. However, there is concern that an exodus of veterans to community care could result in a reallocation of clinical resources between VHA and the community in an attempt to secure the best-quality services for veterans. Additional questions and concerns arise as to whether community health care professionals and facilities will be equipped to provide the scope and complexity of care that many veterans require.

Unique Influential Factors

The mission orientation embedded in service members throughout their careers in uniform typically

carries over into the lives they live after they remove the uniform. This mission orientation directly influences personal decision-making and health-seeking behaviors. Soldiers are more likely to not report injuries or be examined for potential injuries than other groups. This is particularly true when considering injuries categorized as “invisible wounds of war” such as traumatic brain injuries (TBIs) and posttraumatic stress disorder (PTSD). For example, Iraq and Afghanistan war veterans have unique combat-related medical and mental health issues, including PTSD and TBIs. A 2014 study conducted by Nworah² indicated that help seeking is a complex behavior affected by personal, structural, and sociocultural factors that interplay in any given help-seeking context regardless of health care need. It should also be noted that minorities are more likely to refuse medical treatment than their White counterparts. The reasons behind this are complex at best. However, the question has been raised and should be further examined as to how much bias, conscious or unconscious, influences how physicians perceive the injuries/illnesses of minority veterans in a clinical setting. Puanc-Polanco and colleagues³ in this issue explore the

VHA approach to assigning veterans with behavioral health disorders to primary care–centered care versus specialty care. Research indicates that severe/complex major depressive disorder (MDD) cases should be treated with combined pharmacologic and psychotherapy. VHA’s programs that embed psychotherapists in primary care clinics and wide support for telepsychiatry for patients in rural areas are an excellent framework for managing MDDs. However, the weak association between severity of mental illness and treatment assignment suggests the need for further research on patient acceptability of types of care as well as the need to assess outcomes of care to better understand MDDs and other behavioral illnesses.

The need for greater clarification of the factors influencing how, why, and when veterans seek care is clear. Distinctions between health and health behaviors among military service veterans, active duty service members, National Guard/Reserve members, and civilians are essential to targeting improvements that meet the individual needs of each of these populations. Augustine and colleagues’ article⁴ focuses on access issues facing older, largely minority veterans in urban settings that result in them seeking care both within and outside of VA facilities. Kartje and colleagues⁵ also explore the patient-level factors influencing use of VHA. Additional access issues are described in the qualitative study in this issue by Ijadi-Maghsoodi and colleagues,⁶ who focus on homeless veteran families who face barriers to navigating housing, social, and health services with children, including not knowing where to seek help and difficulty connecting to health and social services in the community. Significant national attention has focused on the delays veterans experience in receiving care, but more evidence is needed to compare perceived care delays in the VHA versus in populations covered by other types of insurance. These insights highlight the importance of military culture and its relationship to what seeking help and health care means to veterans.

Unique Health and Health Care Concerns of Veterans

Approximately 200,000 service members leave active duty each year. One study of more than 10,000 veterans found that more than half of respondents found work within 3 months of leaving the military and initially felt healthy, but the study

then described a steady decline in the veterans’ ability to function well at work, which likely resulted from their health issues. Compared with officers, enlisted veterans were worse off in areas of health, employment, and social functioning. Furthermore, veterans who deployed to war zones had more health concerns than those who did not.

Factors other than referral patterns and access points for care are associated with health disparities among veterans. Data from the US population-based 2010 Behavioral Risk Factor Surveillance Survey of more than 53,000 male veterans showed that despite better health care access, veterans had poorer health and functioning than civilians and National Guard/Reserve members on several indicators. Veterans also were more likely than those on active duty to report diabetes, smoking, heavy alcohol use, and other chronic diseases. These behaviors place veterans at greater risk for chronic diseases that are best managed by interdisciplinary teams. One example is seen in the article in this issue by Zogas and colleagues⁷ describing the benefits that clinical pharmacy specialist integration into patient-centered medical homes provides to veterans. Data from the US Department of Veterans Affairs Post Deployment Integrative Care Initiative indicate 7 health conditions that confront veterans: musculoskeletal injuries, pain, mental illness, PTSD, TBI, environmental and toxic exposures, and military sexual trauma (MST).

Musculoskeletal Injuries and Pain

As previously noted, military service members tend to be healthier than same-aged nonmilitary counterparts. However, the repeated stress and trauma on military men and women during service results in musculoskeletal impairment being a leading cause of disability among the veteran population. Ironically, it is the high level of health and fitness that may be a key contributor to the high level of musculoskeletal impairment. The risks for these types of injuries begin with the intense physical training of basic training. However, they are longitudinally woven throughout a warrior’s time in the military, stemming from day-to-day duties, to physical readiness training and exercises, to predeployment activities, and to the long workdays, wearing of heavy equipment, running on uneven surfaces, and exposure to small arms fire and blasts during deployment.

A current study⁸ used the National Health Interview Survey of veterans in the civilian population to examine back/neck problems and fracture, bone/joint injury, other musculoskeletal disorders, and arthritis/rheumatism. The study concluded that veterans are almost 3 times more likely to report a back/neck problem compared with nonveterans. Spinal disorders have a severe impact on both physical and emotional health-related quality of life of veterans and are associated with severe disability and a high prevalence of depressive symptoms. Musculoskeletal problems are among the most physically disabling chronic health conditions and are more prevalent and exist longer among veterans than nonveterans. Finding that more than half of veterans' postdeployment health visits focus on lingering pain to their backs, necks, knees, or shoulders and that approximately 100,000 veterans of the Gulf War describe chronic musculoskeletal pain even 20 years after the war ended seems to further validate the study findings.

Another consideration regarding musculoskeletal disorders is the difference in prevalence between male and female veterans. This difference may represent a difference in the chronicity of musculoskeletal problems sustained during military service to include basic training, a difference in the incidence of newly reported pain between men and women over time, or a difference in the effectiveness of treatment. It is well known that there is gender bias and stigmatization in the treatment of pain when comparing men and women. Both factors may be particularly important in the VHA, where most pain treatment protocols have been developed for a largely male population. Additional research is critical to discover specific factors leading to development of chronic pain and chronic pain syndrome so that prevention and treatment protocols can be tailored to meet the needs of women veterans. In this issue, Rhon and colleagues⁹ describe the correlation between patellofemoral knee pain and mental health disorders, confirming the complexity of managing these conditions among veterans.

Mental Illness and PTSD

There is a substantial unmet need for mental and behavioral health services among veterans from all conflicts. The worrisome prevalence of suicide among veterans is known not only among clinicians serving this population in VHA but also among

private sector clinicians as well as the general public. The contribution of firearms as a method for completing a suicide is substantial in a population in which firearms training is a required skill and accessibility is so common. Newell and colleagues¹⁰ explore the feasibility of screening for firearms safety in primary care in their article in this issue.

One of the most prominent and well-recognized mental health conditions is PTSD, a condition some people develop after experiencing or witnessing a life-threatening event, such as combat, a natural disaster, or sexual assault. Studies conducted by the VA Cooperative Studies Program (VACSP)¹¹ indicate that about 25% of all veterans who have served in combat are affected by PTSD. Research by the VACSP that is currently under way is intended to help identify genes that influence and increase the risk of PTSD and to ultimately improve ways of detecting and treating the condition.

Researchers have also conducted various studies of PTSD in ethnic minorities and female veterans to better understand how race, ethnicity, and gender relate to PTSD. The sentinel study regarding PTSD and ethnic minorities was the Vietnam Veteran Readjustment Study. While the results were not entirely consistent, the overall findings concluded that most ethnic minority veterans groups have a higher rate of PTSD than White veterans. Factors contributing to these findings may have been due to ethnic minority psychological conflicts related to identification with the Vietnamese and higher exposure to war zone stressors. Minor inconsistencies aside, the trend suggested that being an ethnic minority may cause one to be more "at risk" for PTSD.

Never before in our nation's history have women served on the front lines like they are today. This means that 5 out of 10 women are experiencing combat trauma that creates a new challenge—understanding the toll of combat on the female psyche. Although both men and women experience the same symptoms (ie, hyperarousal, re-experiencing, avoidance, and numbing), some are more common for women.

Women in the military are also at higher risk for exposure to sexual harassment or sexual assault than men. Other reasons women may get PTSD more than men include (1) when women are sexually assaulted, it is more likely to cause PTSD when compared with many other events; (2) women may be more likely to blame themselves for trauma

experiences than men; (3) they have a past mental health problem (eg, depression or anxiety); (4) they have experienced a very severe or life-threatening traumatic event; (5) they were injured during the event; (6) they experienced other stressful events afterward; or (7) they do not have good social support. Future studies are needed to better understand the effects of women's exposure to both combat and sexual assault.

Military Sexual Trauma

MST is defined by the VHA as severe or threatening forms of sexual harassment and sexual assault sustained in military service. An estimated 1 in 4 female veterans and 1 in 100 male veterans in the VA health care system report experiencing MST. It is important to note that by percentage, women are at greater risk of MST, but nearly 40% of veterans who disclose MST to the VA are men.

All of the following examples are included in the definition used by the VHA: forced or coerced sexual encounters, sexual encounters perpetrated while a person is unwilling or unable to give consent, inappropriate sexual jokes or lewd remarks, unwanted physical contact that makes you uncomfortable, and repeated sexual advances or offers of something in exchange for sexual favors. Studies have shown significant deleterious physical and mental health correlates for sexual trauma, whether it occurs in the military or civilian community. However, data specific to the military confirms that sexual trauma poses as high a risk or higher for developing PTSD than combat exposure. Complicating MST is the potential for victims also experiencing intimate partner violence (IPV). Adjognon and colleagues¹² emphasize the importance of increasing the screening for IPV and describe strategies to achieve this in this issue.

In addition to PTSD, there are several other mental and medical conditions experienced by female veterans exposed to sexual assault or sexual harassment. Veterans may report interpersonal relationship difficulties manifested by trust issues, engagement in social interactions, and sexual dysfunction. They may also exhibit guilt, shame, anger, and substance misuse oftentimes complicating their ability to maintain employment. Physical health problems can manifest as chronic pain, weight or eating problems, gastrointestinal problems, and difficulty with the ability to concentrate or focus. There is a strong association with MST survivors

and certain specific medical conditions (such as obesity or weight loss, chronic pulmonary disease, liver disease, and hypothyroidism) and mental health conditions (such as bipolar disorders, schizophrenia, eating disorders and PTSD).

Because of some of the unique circumstance of the military, the health issues discussed previously may be magnified among veterans. The perpetrators are typically also military personnel, and victims often must continue to live and work with them daily. Some initial studies of MST among female veterans have found increased self-reports of depression, substance abuse, and gynecological, urologic, neurological, gastrointestinal, pulmonary, and cardiovascular conditions.

Women who experienced MST and served in Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) and sought mental health services at a VA medical center had a correlation with greater difficulty with readjustment than those who reported "being injured" and "witnessing others injured or killed." Another study examined data for all male (n = 540,381) and female (n = 33,259) veterans who had valid responses to screens for MST in 2005. Compared with negative screens, positive screens were associated with significantly increased rates of postscreen mental health treatment. A more than 2-fold increase was observed for patients without previous use of mental health. An effective screening program that promotes detection of sexual trauma and access to mental health care can help to reduce the burden of psychiatric illness for those who have experienced MST. Shepardson and colleagues¹³ describe the problem of sexual dysfunction among veterans, the impact of prior traumatic experiences, and their likelihood to seek care for these issues in their primary care homes within the VHA in this issue.

Traumatic Brain Injury

Brain injury has become the signature wound of the wars in Iraq and Afghanistan.

Each injury is unique and so is the recovery of the individual. Brain injuries are classified as mild (often equated to a concussion), moderate, and severe. In its mildest form, TBI may only result in temporary effects that last for only several hours, days, or weeks. If the injury is rated as moderate to severe, more serious damage can occur, which increases the likelihood that the veteran will be disabled.

The damage caused by TBI can result in visible physical changes. Some individuals literally have to learn how to walk, talk, communicate, and do the basics of daily life all over again. However, it is the less-visible consequences represented by changes in the person's behavior, personality, reasoning, and thinking that oftentimes have lifelong effects for veterans and their families. This is particularly true when TBI and PTSD co-occur because their symptoms essentially feed on and reinforce each other, complicating the illness. The numbers of those affected by TBI and PTSD are unclear. There are estimates that up to a third of combat veterans suffer from either PTSD, TBI, or depression. Up to 5% may suffer from all 3.

Environmental and Other Toxic Exposures

Much remains unknown or poorly characterized relative to environmental exposures and the impact on the health of veterans. The Vietnam War provides a classic example of the hazards associated with environmental exposures and military deployments. Occupational hazards are anticipated during conflicts, and the Global War on Terror era of conflicts revealed a variety of unique environmental and man-made hazards. There was the ongoing threat of chemical weapons exposure, operational temperature extremes, sand and dust storms, smoke and fire from burn pits, and inhaled particulate matter from the vaporization of armored vehicles due to roadside bombs. Exposure to nerve agents such as sarin during the Gulf War has been found not only to have acute toxic effects but also to result in long-term heart damage.

The myriad of health conditions faced by veterans, the ongoing dilemma of social needs such as homelessness and unemployment, and the fact that VHA is the largest provider of graduate medical and health sciences education in the country and affiliated with the majority of medical schools assures all who provide care to our population that they will need to understand veteran needs and excel in providing them the best care possible.

To see this article online, please go to: <http://jabfm.org/content/34/2/257.full>.

References

1. US Census Bureau. 2019. American Community Survey. Prepared by the National Center for Veterans Analysis and Statistics.
2. Nworah U. The meaning of health care seeking behavior and resource use among male veterans who served in the Iraq and Afghanistan wars. 2014. Available from: <https://twu-ir.tdl.org/handle/11274/4887>.
3. Puac-Polanco V, Leung LB, Bossarte RM, et al. Treatment differences in primary and specialty settings in veterans with major depression. *J Am Board Fam Med* 2021;34:268–290.
4. Augustine MR, Mason T, Baim-Lance A, Boockvar K. Reasons older veterans use the Veterans Health Administration and non-VHA care in an urban environment. *J Am Board Fam Med* 2021;34:291–300.
5. Kartje R, Dixon BE, Schwartzkopf AL, et al. Characteristics of veterans with non-VA encounters enrolled in a trial of standards-based, interoperable event notification and care coordination. *J Am Board Fam Med* 2021;34:301–308.
6. Ijadi-Maghsoodi R, Feller S, Ryan GW, et al. A sector wheel approach to understanding the needs and barriers to services among homeless-experienced veteran families. *J Am Board Fam Med* 2021;34:309–319.
7. Zogas A, Gillespie C, Kleinberg F, et al. Clinical pharmacist integration into veterans' primary care: team members' perspectives. *J Am Board Fam Med* 2021;34:320–327.
8. Hinojosa R, Hinojosa MS. Activity-limiting musculoskeletal conditions in US veterans compared to non-veterans: results from the 2013 National Health Interview Survey. *PLoS One* 2016;11:e0167143. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5179052/>.
9. Rhon DI, Roy TC, Oh RC, Young JL. Sex and mental health disorder differences among military service members with patellofemoral syndrome. *J Am Board Fam Med* 2021;34:328–337.
10. Newell S, Kenyon E, Clark KD, et al. Veterans are agreeable to discussions about firearms safety in primary care. *J Am Board Fam Med* 2021;34:338–345.
11. VA Cooperative Studies Program. Genomics of post-traumatic stress disorder in veterans. 2018. Available from: <https://www.vacsp.research.va.gov/575-B/Main.asp>.
12. Adjognon OL, Brady JE, Gerber MR, et al. Getting routine intimate partner violence screening right: implementation strategies used in Veterans Health Administration (VHA) primary care. *J Am Board Fam Med* 2021;34:346–356.
13. Shepardson RL, Mitzel LD, Trabold N, Crane CA, Crasta D, Funderburk JS. Sexual dysfunction and preferences for discussing sexual health concerns among veteran primary care patients. *J Am Board Fam Med* 2021;34:357–367.