

# Health of Those Who Have Served Report 2022



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## An Update on the Health Status and Needs of Veterans and Active Service Members

Tracy Malone, President, United Health Foundation

“It’s not just a job. It’s an adventure.” Coming out of college, this Navy slogan spoke to me, and 20 years of service lived up to that promise. I traveled the world, worked with dedicated professionals and served our country’s top leaders in the White House medical unit.

Serving in the U.S. military can be an incredible experience, but it can also be difficult, demanding and even dangerous — in times of both war and peace. During my career as a Navy nurse, I saw the devastation caused by even routine military training accidents and also witnessed the destruction on 9/11 while assigned to the Pentagon. The stress and physical demands can sometimes have a negative impact on health; on the other hand, the culture of preparedness can instill good health habits.

Recognizing the unique factors affecting the health of this population, the United Health Foundation is committed to supporting the health of all current and former members of the U.S. military and since 2016 has produced the *Health of Those Who Have Served Report* to examine and raise awareness of key trends, successes and challenges.

This year’s report shows concerning trends in mental health, with suicidal thoughts and depression among those who have served rising at twice the rate of those without military service over the last decade. What’s more, those with military service are nearly four times more likely to have hearing impairment than civilians. However, it is encouraging that, despite these and other challenges, those who have served

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One study we sponsored found that just 13% of mental health providers surveyed were delivering evidence-based, culturally competent care that meets veterans’ unique needs.

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continue to report high health status at a greater rate than the civilian population.

As we seek to address the challenges highlighted in this report, we know there is a gap in care. One [study](#) we sponsored found that just 13% of mental health providers surveyed were delivering evidence-based, culturally competent care that meets veterans’ unique needs. We have worked to address this gap through our partnership with Florida State University, creating a graduate-level program for health care professionals on military health. We invite policymakers and providers to build on and expand this work.

The exciting opportunities of military service come with a range of health impacts and needs, as this report underscores. I call on the health care community to use these findings to better understand this population and commit to providing the best care possible for those who have given their best to their country.

# Introduction

Men and women who have served often face a variety of unique health challenges and needs. As of 2021, approximately 19 million Americans have served on active duty in the United States Armed Forces — 1.2 million of whom are currently on active duty or in the Military Reserves, and more than 18 million of whom are retired.<sup>1,2</sup>

These men and women who serve in the U.S. Armed Forces play a vital role in maintaining the safety and security of our country, and it is our duty to respond to and support their health needs. We must first understand their health-related circumstances and subsequently develop solutions to address the challenges they encounter. To do so, since 2016 the *America's Health Rankings® Health of Those Who Have Served Report* has provided an up-to-date national portrait of the health and well-being of those who have served in the U.S. Armed Forces. In 2017, the [Health of Women Who Have Served Report](#) focused on the specific challenges faced by females who have served.

The 2022 *Health of Those Who Have Served Report* aims to expand on these reports, highlighting the needs of specific subpopulations, including older adults (ages 65 and older) who have served. The report illuminates 10-year trends and other findings about the similarities and differences in health and well-being between those who have served and their civilian counterparts, as well as within groups of those who have served. Through ongoing collaboration with an Advisory Committee of military, veterans and public health organizations, this important work builds on the United Health Foundation's ongoing commitment to leverage data to improve the health of men and women who have served.

## Shifting Demographics

According to the U.S. Department of Veterans Affairs (VA), the demographics of the U.S. Armed Forces will shift significantly over the next few decades.<sup>3</sup> By 2046, the veteran population is expected to decrease approximately 35% to 12.5 million.<sup>4</sup> There will also be a slight shift in age distribution, as 33.3% of veterans will be younger than 50 and 34.1% will be 70 and older (vs. 26.8% and 37.1% in 2021). Racial and ethnic diversity will continue to rise among veterans: people of color will account for over one-third (38.2%) of the total veteran population, increasing from 25.7% in 2021. Gender diversity is also increasing as women become a larger proportion of the veteran population, projected to increase from 10.7% of veterans in 2021 to 17.5% by 2046.<sup>5,6</sup>

These changes come with new health challenges and place increased demands on both the health care system and individual communities. In addition, although many service members return from active duty and combat without physical injuries and receive education, employment and other benefits associated with service, some face serious and lasting mental and physical health challenges that need to be addressed.

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- 1 U.S. Bureau of Labor Statistics. "Labor force participation rate for veterans was 46.8 percent in October 2021." *The Economics Daily*, November 10, 2022. <https://www.bls.gov/opub/ted/2021/labor-force-participation-rate-for-veterans-was-46-8-percent-in-october-2021.htm>
  - 2 Manzanetti, Z. "Military Active-Duty Personnel, Civilians by State." *Governing*, 2021. Accessed May 15, 2022. <https://www.governing.com/now/2021-military-active-duty-personnel-civilians-by-state>
  - 3 Schaeffer, K. "The changing face of America's veteran population." *Pew Research Center*, 2021. <https://www.pewresearch.org/fact-tank/2021/04/05/the-changing-face-of-americas-veteran-population/>
  - 4 Parker, K., Cilluffo, A. & Stepler, R. "6 facts about the U.S. military and its changing demographics." *Pew Research Center*, 2020. <https://www.pewresearch.org/fact-tank/2017/04/13/6-facts-about-the-u-s-military-and-its-changing-demographics/>
  - 5 Vespa, J. "Those Who Served: America's Veterans From World War II to the War on Terror." ACS-43, American Community Survey Reports, 2020. <https://www.census.gov/content/dam/Census/library/publications/2020/demo/acs-43.pdf>
  - 6 National Center for Veterans Analysis and Statistics. "Veteran Population." *U.S. Department of Veterans Affairs*, April 14, 2021. [https://www.va.gov/vetdata/veteran\\_population.asp](https://www.va.gov/vetdata/veteran_population.asp)

## Evolving Health Needs

The veteran population is changing rapidly. As the population continues to shift, emerging challenges related to veterans' health and their access to health care will continue to grow. These burdens include increased risk for chronic diseases and cancer — especially for those that are now 65 years of age or older.<sup>7</sup> Females who have served also face unique burdens; despite higher levels of education and income than civilian women, women with military service have a greater prevalence of physical and mental health concerns.<sup>8</sup>

Those returning from overseas deployments in recent years face unique combat-related circumstances and challenges as well. As a volunteer force and the largest, longest-lasting mobilization of National Guard and Military Reserves, these service members experienced more frequent and longer deployments as well as exposure to and survival of extreme stresses of combat in Iraq and Afghanistan.<sup>9</sup> At the same time, there have been unprecedented rates of behavioral and mental health concerns, such as post-traumatic stress disorder (PTSD) and traumatic brain injury (TBI).<sup>10</sup>

## Demographic shifts and unique circumstances of recent deployments result in growing health challenges.

These shifting dynamics emphasize the continued need for community leaders, public health officials, policymakers and other parties of influence to monitor the health of those who have served from a broad perspective that includes measures of the behaviors and social determinants that influence health.

## Report Objectives

The *America's Health Rankings 2022 Health of Those Who Have Served Report* provides a comprehensive national portrait that examines trends in the health and well-being of those who have ever served on active duty in the U.S. Armed Forces. It remains the only national resource to provide comprehensive population-based data and trends over time on the health of men and women who have served. The report fills an important and ongoing gap in the field and is intended for a broad range of audiences including advocates, policymakers, government officials and constituents at the national, state and local levels. The report's objectives are to:

- **Describe the health of those who have served** across 30 measures of social and economic factors, behaviors, clinical care and health outcomes. Comparisons between those who have and have not served are examined overall and by age, gender, race/ethnicity, education, income and metropolitan status.
- **Provide trends in health and well-being, improvements and challenges over time** for those who have served overall and in comparison to those who have not served by age, gender, race/ethnicity, education and income.
- **Build awareness of the breadth and magnitude of health concerns** facing those who have served overall and for specific population groups.
- **Describe the health of older adults who have served** across 11 measures of clinical care, behaviors and health outcomes.
- **Stimulate dialogue and action to** address and effectively treat the unique challenges faced by the military community, and prevent these challenges from continuing to worsen.

7 Boersma, P., Cohen, R.A., Zelaya, C.E., & Moy, E. "Multiple Chronic Conditions Among Veterans and Nonveterans: United States, 2015–2018." *National Health Statistics Reports - Centers for Disease Control and Prevention* 153 (2021). <https://www.cdc.gov/nchs/data/nhsr/nhsr153-508.pdf>

8 United Health Foundation & Military Officers Association of America. *America's Health Rankings Health of Women Who Have Served Report* (2017). [https://assets.americashealthrankings.org/app/uploads/hwwhs17\\_final.pdf](https://assets.americashealthrankings.org/app/uploads/hwwhs17_final.pdf)

9 Burnam, M.A., Meredith, L.S., Tanielian, T., & Jaycox, L.H. "Mental Health Care for Iraq and Afghanistan War Veterans." *Health Affairs* 28, no. 3 (2009). <https://www.healthaffairs.org/doi/10.1377/hlthaff.28.3.771>

10 Tanielian, T., Jaycox, L.H., eds. *Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery*. RAND Corporation (2008). <https://www.rand.org/pubs/monographs/MG720.html>

## Design

The 2022 *Health of Those Who Have Served Report* was developed with guidance from a national Advisory Committee, representing military, veteran and public health organizations, who informed the selection of health measures and other methodological features of the report. For more information on the group, see page 24.

## Data

As in previous editions, the primary source of data for this report is the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS), the world's largest annual population-based telephone survey system tracking health conditions and risk behaviors in the U.S. since 1984. With an annual sample of over 400,000 respondents, BRFSS also has one of the most robust samples of those who have served, totaling between 50,000 and 60,000 each year.

This report also draws on data from the Substance Abuse and Mental Health Services Administration's (SAMHSA) National Survey on Drug Use and Health (NSDUH), the CDC's National Health Interview Survey (NHIS) and the U.S. Census Bureau's American Community Survey (ACS). NSDUH provides national and state data on the use of tobacco, alcohol, illicit drugs and mental health in the U.S. and includes an annual sample of about 2,500 individuals who have served. NHIS is the nation's largest in-person household health survey, conducted since 1957, and includes an annual sample of nearly 7,000 individuals who have served. ACS provides social, demographic and economic data at the national, state and community levels in the U.S. and includes an annual sample of about 125,000 individuals who have served.

## Definition of Those Who Have Served

Those who have served are defined in this report as "those who have ever served in the U.S. Armed Forces." While all four data sources use this common definition, some differences exist in who is included among those with service. For more information on specific definitions used by BRFSS, NSDUH, NHIS and ACS, see page 23.

## Measures

The 2022 *Health of Those Who Have Served Report* is based on 30 measures. Informed by the latest literature

and guidance from the National Advisory Committee, the selection of these measures was driven by three criteria:

- Measures must represent overall health conditions, behaviors and care issues most pertinent to those who have served in the U.S. Armed Forces, including those addressing mental illness and chronic disease.
- Individual measures must have sufficient sample sizes to assure reliable estimates for those who have served and not served overall, and where possible, by age, gender, race/ethnicity, education, income and metropolitan status.
- Each selected measure must be amenable to change. In other words, each measure can be modified by policy or intervention to achieve measurable improvement.

## Data and Analysis

This report utilizes ten years of data, 2011 through 2020, drawn from ACS, BRFSS, NSDUH and NHIS. Data were weighted and age-adjusted into two-year periods as follows:

- **Baseline reporting period, 2011-2012:** provides a baseline by which to compare trends across editions, and over time.
- **Prior reporting period, 2017-2018:** these rates were presented as the "current" rate in the 2020 Edition and now represent the most recent interim period in the trends analysis.
- **Current, 2019-2020:** provides the most current rates and an opportunity to measure change since the prior and baseline reporting period. Unless otherwise noted, this report mainly features data from 2019-2020 and tracks progress since the baseline reporting period, 2011-2012.

## Age Adjustment

Those who have served on active duty have a different age distribution from the general U.S. population. To prevent age from skewing results, most data included in this report were age-adjusted to the 2000 U.S. Standard Population. The able-bodied measure and its disability-related components were not age-adjusted due to methodological concerns. This adjustment produces fairer, more realistic comparisons between those who have and have not served. Age-adjusted prevalence estimates should be understood as relative estimates, not as actual measures of burden. For additional information, see page 22.



## Training Providers to Better Serve Those Who Have Served

Susan Porterfield, Director, Military Veteran Mental Health Program,  
Florida State University College of Nursing

As a veteran who spent 13 years in the U.S. Air Force, I know the unique health challenges that current and former service members face — both seen and unseen. But in the nearly 30 years since I was medically discharged, no civilian doctor ever asked whether I served in the military. This experience mirrors that of many veterans and motivates my passion as an educator to best prepare current and aspiring health care professionals to meet the needs of the military population.

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Most health care providers are not aware of the health differences between those with a military background and civilians ... from different rates of depression and mental illness to chronic pain and hearing loss.

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Most health care providers are not aware of the health differences between those with a military background and civilians — many of which are illustrated in the *Health of Those Who Have Served Report*, from different rates of depression and mental illness to chronic pain and hearing loss.

To help bridge this gap, here at Florida State University College of Nursing we have developed a graduate-level certificate program in military health — supported by a grant from the United Health Foundation — to ensure our students are prepared to care for and support those who have served in the U.S. Armed Forces.

In this national online program, social workers, nurse practitioners, nurses and other providers learn what it means to serve in the military, how service affects various populations in different ways and what visible and invisible challenges these American heroes face.

To best prepare my students and tailor our courses to meet the needs of the military community, I depend on the most recent, accurate information from trusted sources like *America's Health Rankings*. This year's *Health of Those Who Have Served Report* reinforces our focus areas in our program: mental health challenges of those who have served, which are growing at a concerning pace, and veterans' unique physical health needs like chronic pain and hearing impairment.

The program seeks to cultivate clinicians and leaders who are familiar with veterans' experiences and can deliver the individualized care these patients need and deserve. I hope that through this work we can get to a point where every provider asks about patients' military service history and be better equipped to serve those who have sacrificed so much.

## Key Findings

### Overview

Since 2016, *America's Health Rankings* has examined important differences in the health of those who have served in the U.S. military compared with those who have not. The *Health of Those Who Have Served Report* continues to identify profound differences between those who have and have not served across health behaviors, social and economic factors, clinical care and health outcomes.

### This year, the report finds that compared to the general civilian population, those who have served:



Have experienced almost twice the rates of increase in mental health challenges, including **depression, frequent mental distress, mental illness and suicidal thoughts** than civilians. Females who have served self-report higher rates of mental health challenges.



Experience higher rates of **access to health care** and are less likely to report avoiding care due to cost. Some subpopulations, such as Black and Hispanic adults who have served, have lower rates of avoiding care due to cost than their civilian counterparts.



Are more likely to experience **physical health challenges**, including higher rates of chronic disease and chronic pain, and lower rates of being able-bodied; severe hearing impairment and ambulatory difficulties are notably higher among those who have served.



Have higher rates of uptake of **preventive clinical services**, including colorectal cancer screenings, annual dental visits and flu vaccination.



Are more likely to report being in **very good or excellent health**, despite ongoing — and in some cases, worsening — health challenges. However, the gap is narrowing as the rate of good or excellent health has increased for civilians since 2011-2012 while remaining essentially unchanged for those who have served.



Continue to have higher rates of **substance use**, including excessive drinking, cigarette smoking and smokeless tobacco use.



Among those ages 65 and older, have higher rates of **smoking and excessive drinking**, along with rates of depression that are lower than those of their civilian counterparts but rising more rapidly.

## Mental Health

### Mental health challenges are increasing more rapidly in those who have served.

Rates of suicidal thoughts, depression, frequent mental distress and mental illness have increased more rapidly for those who have served than in civilians since the baseline period of 2011-2012. While this pattern is the same for the civilian population and indicates an overall increase in mental health challenges, the more rapid increase in those who have served is notable. Among those who have served, the percentage reporting seriously thinking about suicide in the past year increased 51% since 2011-2012 (from 4.1% to 6.2%), compared to 32% in those without military service history (from 3.8% to 5.0%). Additionally, while those who have served reported lower rates of depression compared to their civilian counterparts in 2011-2012 (15.0% vs. 16.9%), rates have increased 27% (to 19.1% in 2019-2020) for those who have served. At the same time, rates have increased 11% (to 18.8% in 2019-2020) for their civilian counterparts.

The percentage of adults who report having serious, moderate or mild mental illness in the past year has increased 24% since 2011-2012 in those who have served (17.3% to 21.5%) compared to an increase of 14% in those who have not (18.9% to 21.5%). Similarly, the prevalence of self-reported frequent mental distress (reporting that their mental health was not good for 14 or more days in the past 30 days) has increased 29% in those who have served since 2011-2012 (from 11.3% to 14.6%) compared to only 15% (from 12.1% to 13.9%) in those who have not served.

The rates of mental health challenges are markedly higher among some subpopulation groups of those that have served. Females who have served report rates of mental illness that are 1.5 times higher (37.8% vs. 26.0%) than their civilian counterparts, and their rate of suicidal thoughts is almost twice as high (10.1% vs. 5.5%). Males who have served are 1.4 times more likely to have received a diagnosis of depression than those who have not served (17.4% vs. 12.7%).

Among those who have served, female adults are 1.5 times more likely than male adults to report frequent mental distress (19.9% vs. 13.5%), a difference that is also present in the non-serving population. Females who have served are also 1.6 times more likely to report depression (27.9% vs. 17.4%), 2.1 times more likely to have experienced mental illness in the past year (37.8% vs. 18.2%) and have 1.9 times the rate of suicidal thoughts as their male counterparts (10.1% vs. 5.4%).

Females who have served have **higher rates of mental health challenges** than males who have served.

# 2.1x▲

### Higher rates of any mental illness

37.8% of females who have served vs. 18.2% of males who have served.

# 1.9x▲

### Higher rates of suicidal thoughts

10.1% of females who have served vs. 5.4% of males who have served.

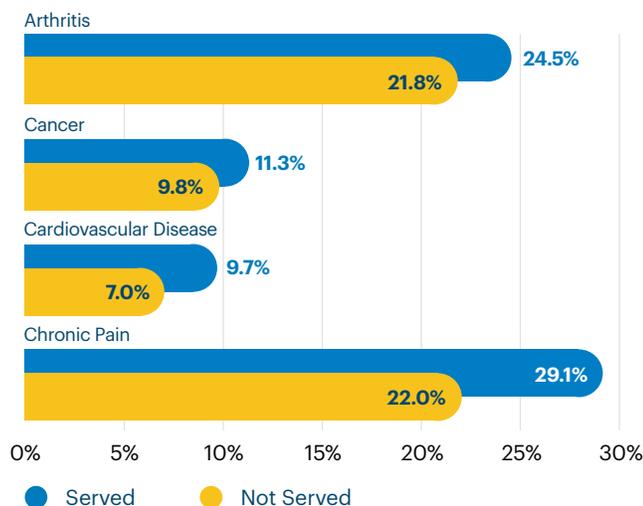
# 1.5x▲

### Higher rates of frequent mental distress

19.9% of females who have served vs. 13.5% of males who have served.

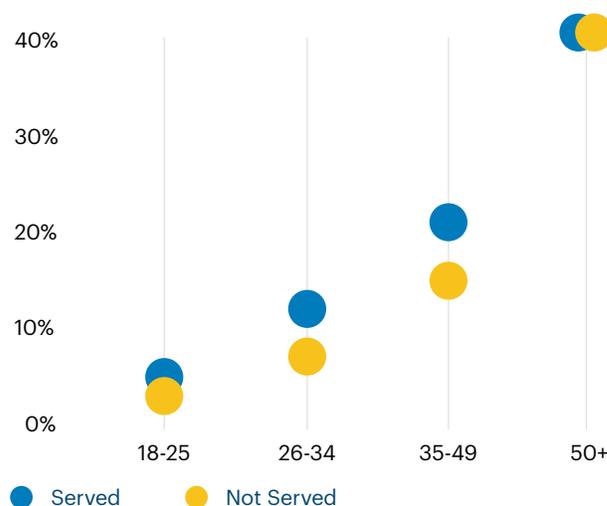
Source: CDC Behavioral Risk Factor Surveillance System and SAMHSA National Survey on Drug Use and Health, 2019-2020.

### Chronic Conditions and Chronic Pain are Higher in Those Who Have Served



Source: CDC Behavioral Risk Factor Surveillance System and National Health Interview Survey, 2019-2020.

### Arthritis by Age Group



Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

## Physical Health

### Those who have served experience higher rates of chronic conditions, chronic pain and disabilities.

Even as they are more likely to report that they are in very good or excellent health, those who have served are more likely to experience chronic pain; more likely to have arthritis, cancer, cardiovascular disease and chronic obstructive pulmonary disease (COPD); and less likely to be able-bodied.

Among those who have served, American Indians/Alaska Native adults have rates of chronic disease that are two or more times higher than one or more other racial/ethnic groups: cancer (12.6%), cardiovascular disease (14.1%) and COPD (11.1%). Similarly, those in the lowest income bracket are 2.3 and 3.3 times more likely to be diagnosed with cardiovascular disease (16.7% vs. 7.3%) and COPD (13.0% vs. 4.0%), respectively, than those earning \$75,000 or more.

Rates of arthritis are also higher among those who have served than not (24.5% vs. 21.8%). However, arthritis seems to develop at earlier ages in those who have served in the military, as those ages 26-34 are 1.7 times more likely to have been told by a health professional that they have some form of arthritis than those who have not

served (11.7% vs. 7.0%). In addition, those ages 35-49 who have served are 1.4 times more likely to report arthritis (20.6% and 14.9%) than their civilian counterparts.

Chronic pain often limits a person's ability to work and perform activities of daily living. It is also associated with higher rates of smoking and receiving opioid pain prescriptions, both of which carry a high risk of addiction.<sup>11,12</sup> Despite reporting higher rates of excellent or good health, those who have served are 1.3 times more likely to report chronic pain, defined as having pain most days or every day in the past three months (29.1% vs. 22.0%).

Notable differences appear in subpopulations between those who have served and those who have not. Asian adults with a history of military service report 2.7 times higher rates of chronic pain than their civilian counterparts (24.2% vs. 9.1%), and Hispanic adults who have served report 1.8 times higher rates of chronic pain than those who have not (30.9% vs. 17.3%). Furthermore, those in the lowest income group are 1.8 times more likely to report chronic pain than those in the highest income

11 Carroll Chapman, S.L. & Wu, L.T. "Associations between Cigarette Smoking and Pain Among Veterans." *Epidemiologic Reviews* 37, no. 1 (2015): 86-102. <https://doi.org/10.1093/epirev/mxu008>

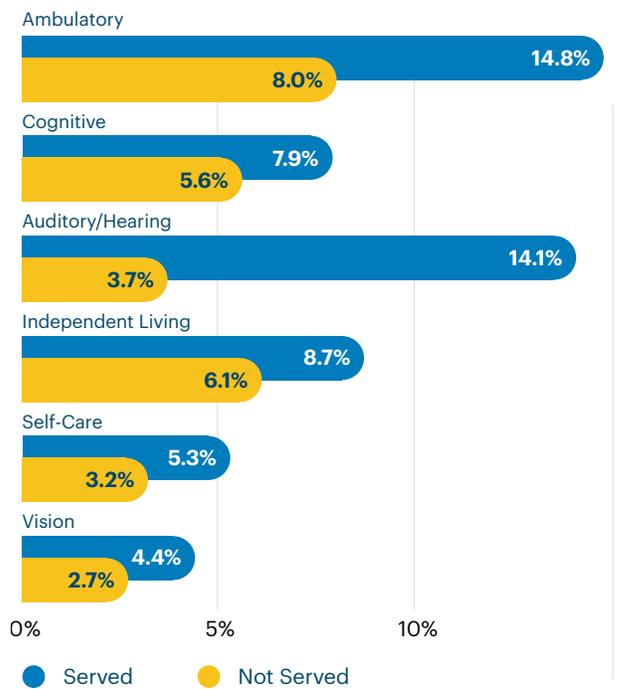
12 Volkow, N. D., & McLellan, A. T. "Opioid abuse in chronic pain—misconceptions and mitigation strategies." *New England Journal of Medicine* 374, no. 13 (2016): 1253-1263. <https://doi.org/10.1056/NEJMr1507771>

group (43.2% vs. 24.6%). In addition, among those ages 26-34, those who have served have 2.6 times higher rates of chronic pain than their civilian counterparts (27.3% vs. 10.6%).

Various disabilities are also higher among those who have served, as they are less likely to report being able-bodied than civilians (71.9% vs. 85.3%) — defined as having none of six types of difficulties: ambulatory, cognitive, hearing, independent living, self-care or vision (See Table 1 on page 18 in Appendix for definitions). Notably, those who have served are almost four times more likely to be living with severe hearing impairment (14.1% vs. 3.7%) than those who have not served, 1.9 times more likely to have ambulatory difficulties (14.8% vs. 8.0%) and 1.7 times more likely to have self-care difficulties (5.3% vs. 3.2%). They are also 1.8 times more likely than their civilian counterparts to have three or more disabilities (7.6% vs. 4.2%). People with disabilities report higher rates of frequent mental distress, are more likely to engage in poor health behaviors (e.g., smoking and physical inactivity) and are more likely to be victims of violence, abuse or neglect.<sup>13,14,15,16,17</sup>

The difference in severe hearing impairment between those who have and have not served is pronounced among certain subpopulation groups. Among American Indian/Alaska Native (17.3% vs. 5.5%), Asian (8.3% vs. 2.2%), Hispanic (10.2% vs. 2.4%) and white (15.8% vs. 4.4%) adults, those who have served had rates of hearing impairment more than three times greater than those who had not served. In addition, males who have served had rates of severe hearing impairment 3.0 times higher than females who have served (15.1% vs. 5.0%).

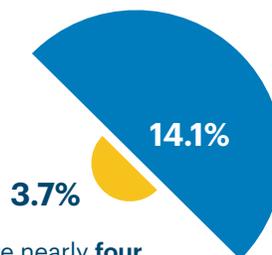
Rates of Six Types of Disabilities\* are Higher in Those Who Have Served



\*All components of able-bodied measure. Estimates are not age-adjusted.

Source: U.S. Census Bureau American Community Survey PUMS, 2019.

**3.8x**  
Hearing Impairment



Those who have served are nearly **four times more likely to have severe hearing impairment** than civilians (14.1% vs. 3.7%).

● Served ● Not Served

Source: U.S. Census Bureau, American Community Survey PUMS, 2019. Estimates are not age-adjusted.

13 Courtney-Long, E., Stevens, A., Caraballo, R., Ramon, I., & Armour, B. S. "Disparities in current cigarette smoking prevalence by type of disability, 2009-2011." *Public Health Reports* 129, no. 3 (2014): 252-260. <https://doi.org/10.1177/003335491412900307>

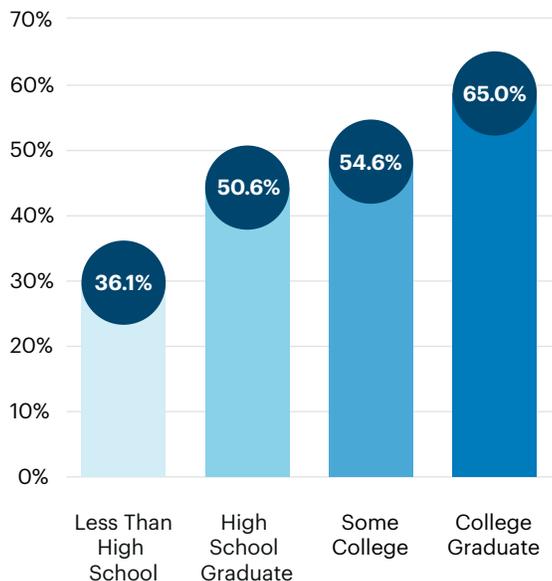
14 Weil, E., Wachterman, M., McCarthy, E. P., Davis, R. B., O'Day, B., Iezzoni, L. I., & Wee, C. C. "Obesity among adults with disabling conditions." *JAMA* 288, no. 10 (2002): 1265-1268. <https://doi.org/10.1001/jama.288.10.1265>

15 Hollis, N. D., Zhang, Q. C., Cyrus, A. C., Courtney-Long, E., Watson, K., & Carroll, D. D. "Physical activity types among US adults with mobility disability, Behavioral Risk Factor Surveillance System, 2017." *Disability and Health Journal* 13, no. 3 (2020): 100888. <https://doi.org/10.1016/j.dhjo.2020.100888>

16 Petersilia, J. R. "Crime Victims with Developmental Disabilities: A Review Essay." *Criminal Justice and Behavior* 28, no. 6 (2001): 655-694. <https://doi.org/10.1177/009385480102800601>

17 Cree, R. A., Okoro, C. A., Zack, M. M., & Carbone, E. "Frequent mental distress among adults, by disability status, disability type, and selected characteristics—United States, 2018." *Morbidity and Mortality Weekly Report* 69, no. 36 (2020): 1238. <http://dx.doi.org/10.15585/mmwr.mm6936a2>

**High Health Status Increases with Education and Income for Those Who Have Served**



Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

## High Health Status

**Consistent with past analysis, those who have served continue to self-report higher rates of excellent or very good health compared with their civilian counterparts.**

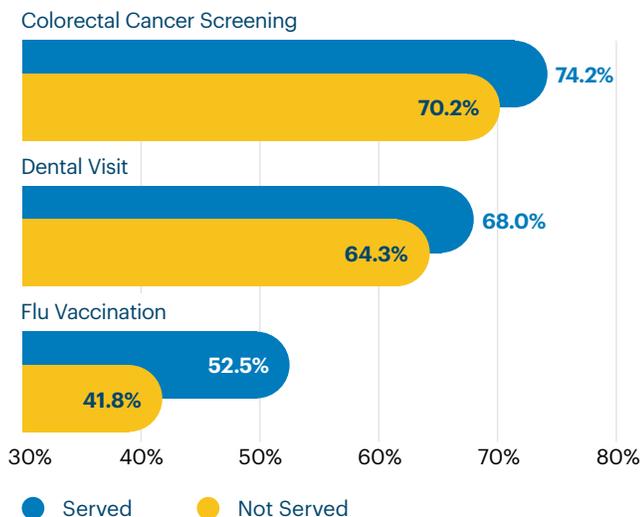
Self-reported health status is a measure of how individuals perceive their health and is an indicator of population health. It is a subjective measure of health-related quality of life that is not limited to health conditions or outcomes, but is influenced by life experiences, the health of others in one's life, support received from family and friends and other factors.

Since the baseline reporting period (2011-2012), those who have served have continued to report high health status at a higher prevalence than civilians. This year's report finds 55.5% of those who have served indicated their health is very good or excellent, compared with 53.0% of those who have not served (2019-2020). However, the gap is narrowing as the rate of high health status among the civilian population increased 4% since 2011-2012, while it remained essentially unchanged among those who have served. It will be important to consider whether these trends continue in the future and the implications for those who have served, particularly considering the health challenges they face.

Notable differences exist in high health status among subpopulation groups. The prevalence of those reporting excellent or very good health is higher among Hispanic adults who have served (52.4%) than their non-serving counterparts (39.2%), American Indian/Alaska Native adults who have served (48.0%) than those who have not (40.7%) and those with less than a high school education who have served (36.1%) than those who have not served (29.8%).

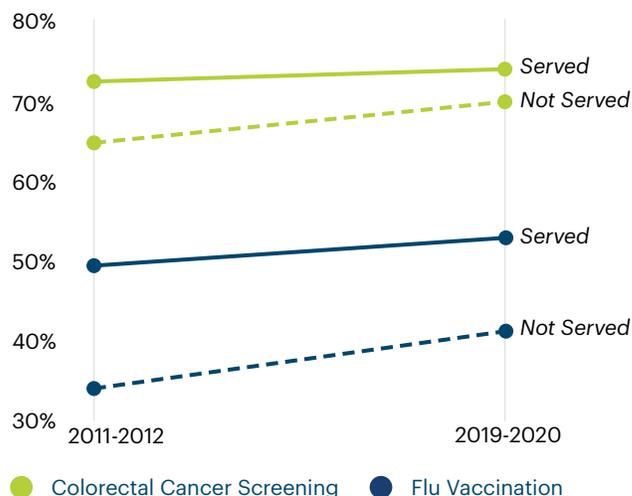
In addition, among those who have served, those with a college degree are 1.8 times more likely to report being in very good or excellent health than those with less than a high school education (65.0% vs. 36.1%, respectively). Similarly, those who earn \$75,000 or more annually are 1.8 times more likely to report high health status than those earning less than \$25,000 (65.7% vs. 36.9%).

**Preventive Care is Higher Among Those Who Have Served**



Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

**Preventive Care Trends**



Source: CDC Behavioral Risk Factor Surveillance System 2011-2012 and 2019-2020.

**Access to Health Care and Preventive Services**

**Those who have served have higher rates of access to health care and uptake of preventive clinical services, with some racial/ethnic populations reporting higher rates for each measure.**

Even as the Affordable Care Act helped to increase health insurance coverage for the civilian population since 2011-2012 (from 80.4% to 85.8%), those who have served still reported higher rates of health insurance (92.4%) in 2019-2020. In addition, they were also less likely than those who have not served to report having a time in the past 12 months when they needed to visit a doctor but could not because of cost (8.5% vs. 13.0%).

While financial barriers to health care have decreased overall over the past decade, some subpopulations continue to have lower rates of access to health care. However, having served in the military narrows the gaps. For example, Hispanic adults and those with less than a high school education who have served are both 1.3 times more likely than their civilian counterparts to have health insurance (88.5% vs. 70.6%, 80.8% vs. 64.1%, respectively). Black adults who have served are less likely to report having avoided care due to cost (8.1%), compared to 15.6% of those who have not served.

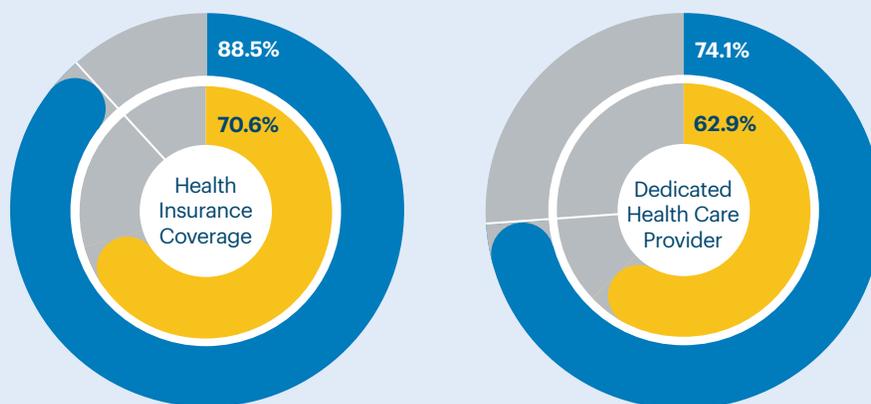
Still, among those who have served, those who graduated from college are 1.2 times more likely to have health coverage than those with less than a high school education (95.5% vs. 80.8%). American Indian/Alaska Native and Hispanic adults who have served are also 1.5 and 1.4 times more likely to report having avoided

care due to cost than white adults who have served (11.5% and 11.0% vs. 7.8%). In addition, those who have served living in non-metro areas have rates of avoiding care due to cost 1.5 times higher than those who live in metro areas (11.8% vs. 8.1%).

Financial barriers to care can cause people to forgo preventive care and treatment for minor health issues, which can worsen over time. Those who have a history of military service report higher levels of preventive screenings than those who have not served. For example, 74.2% of adults ages 50-75 who have served reported having received a colorectal cancer screening within the recommended time, compared to 70.2% of those who have not served. Over two-thirds (68.0%) of those who have served have visited a dentist in the past year, compared with 64.3% of those who have not served. Finally, adults who have served are 1.3 times more likely to report receiving a flu vaccine in the last year than those who have not (52.5% vs. 41.8%).

While those who have served are more likely than their non-service counterparts to receive recommended preventive care, those who have not served have experienced larger improvements in rates since 2011-2012. In the case of dental visits, rates for those who have served declined from 70.4% in 2011-2012 to 68.0% in 2019-2020.

Higher **access to care** for Hispanic adults who have served.



● Served ● Not Served

Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

## Hispanic Adults Who Have Served are More Likely to Report High Health Status and Access to Care

Hispanic adults are more likely than any other racial/ethnic group to report being uninsured, avoiding care due to cost and lacking a dedicated health provider. They, along with Black adults, have higher rates of diabetes, and are more likely than white adults to have poorly controlled diabetes and experience lower quality of care.<sup>18,19</sup>

While having served increases access to care and the likelihood of reporting high health

status overall, military service has a notable positive effect for Hispanic adults. Service increases the likelihood of reporting health insurance coverage by almost 18.0 percentage points; having a dedicated health care provider by 11.2 percentage points; and reporting excellent or very good health by 13.2 percentage points. It also reduces care avoided due to cost by 7.6 percentage points. All of these differences between serving and non-serving Hispanic adults are greater than those of other racial/ethnic groups.

18 Canedo, J.R., Miller, S.T., Schlundt, D. et al. "Racial/Ethnic Disparities in Diabetes Quality of Care: the Role of Healthcare Access and Socioeconomic Status." *Journal of Racial and Ethnic Health Disparities* 5 (2018): 7-14. <https://doi.org/10.1007/s40615-016-0335-8>

19 Walker R.J., Strom Williams J., Egede, L.E. "Influence of Race, Ethnicity and Social Determinants of Health on Diabetes Outcomes." *The American Journal of Medical Sciences* 351, no. 4 (2016): 366-73.4: <https://doi.org/10.1016/j.amjms.2016.01.008>

## Substance Use

### Substance use continues to be higher among those who have served.

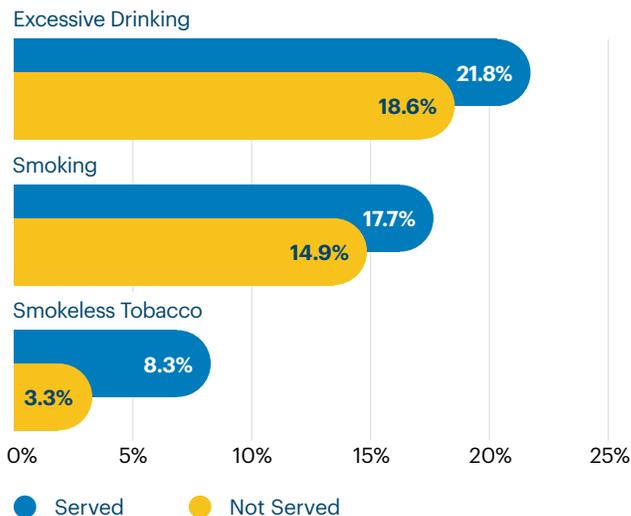
Historically, those who have served reported higher rates of excessive drinking, cigarette smoking and using smokeless tobacco than their counterparts who have not served. While rates of excessive drinking and smoking have decreased in both groups since 2011-2012, those who have served are still 1.2 times more likely to engage in these behaviors than those who have not (21.8% vs. 18.6% and 17.7% vs. 14.9%, respectively). Similarly, those who have served are 2.5 times more likely than those who have not served to use smokeless tobacco (8.3% vs. 3.3%).

For excessive drinking, those who have served with less than a high school education are 1.6 times more likely to report this behavior than their counterparts who have not served (26.0% vs. 16.6%) (See page 18 for definitions). Hispanic adults who have served have the highest rates of excessive drinking among most other racial/ethnic groups and are 1.4 times more likely to drink excessively than those without service experience (24.5% vs. 17.3%).

Smokeless tobacco use remains significantly higher among those who have served overall compared with civilians, as well as within certain subpopulations. Those who have served who have a college degree are 3.7 times more likely to use smokeless tobacco than their non-serving counterparts (7.0% vs. 1.9%). Similarly, rates are 2.9 times higher in Hawaiian/Pacific Islander adults who have served than in those who have not (8.5% vs. 2.9%). Among those who have served, smokeless tobacco use is most common among younger adults, with those ages 18-25 being 2.9 times more likely to use smokeless tobacco than those ages 50 and older (13.7% vs. 4.8%).

While cigarette smoking is higher among those who have served, some subpopulations have higher rates compared with civilians. Among Asian adults, those who have served are almost twice as likely to smoke (13.3%) as their non-serving counterparts (7.1%). Those with less than a high school education who have served and American Indian/Alaska Native adults with service experience have the highest rates of smoking compared to their civilian counterparts (41.4% and 25.7%, respectively).

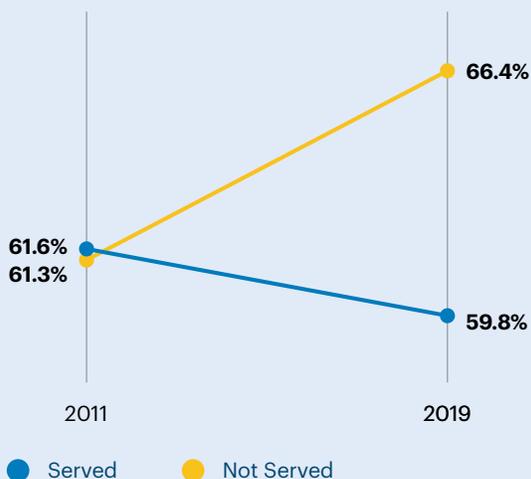
### Substance Use is Higher Among Those Who Have Served



Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

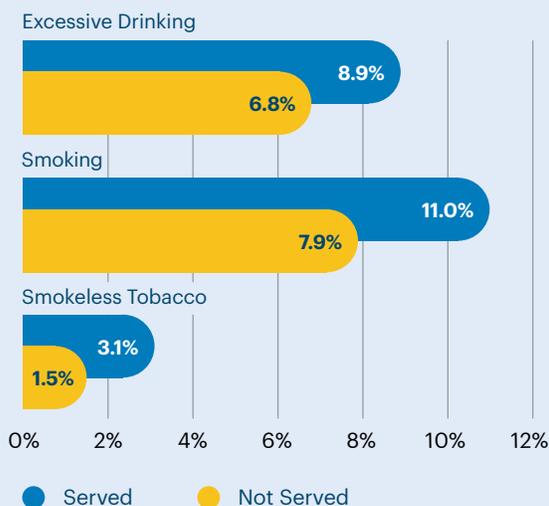
**While excessive drinking and smoking rates have decreased overall over the past decade, they are still 1.2 times more common among those who have served.**

The Percentage of Able-Bodied Seniors Has Declined Among Those Who Have Served



Source: U.S. Census Bureau American Community Survey PUMS 2011, 2019.

Substance Use in Seniors



Source: CDC Behavioral Risk Factor Surveillance System, 2019-2020.

## Spotlight on the Health of Seniors Who Have Served

There are over 8.9 million adults ages 65 and over who have served in the U.S. military.<sup>20</sup> It is important to consider how to safeguard and improve the health of all older adults, and in particular those who have served.

We considered 11 measures in the clinical care, health behaviors and health outcomes categories to identify where significant differences exist between senior adults (ages 65 years and older) who have served in the U.S. military and those who have not served. Measures included: able-bodied, arthritis, chronic obstructive pulmonary disease (COPD), dedicated health care provider, depression, excessive drinking, flu vaccination, frequent mental distress, physical inactivity, smokeless tobacco and smoking.

Overall, seniors who have served are less likely to be living free of disabilities and report higher rates of substance use and physical inactivity than their counterparts who have not served. On the positive side, they report slightly lower rates of having been diagnosed with a depressive disorder, although gender-based disparities exist and mental health issues are becoming increasingly prevalent in the senior population, irrespective of military service. Finally, rates of annual flu vaccination have increased in both groups since 2011-2012.

20 U.S. Census Bureau. "Sex by Age by Veterans Status for the Civilian Population 18 Years and Over, 2016-2020." Retrieved from <https://data.census.gov/cedsci/table?q=Table%20B21001&tid=ACSDT5Y2020.B21001>

Similar to the findings for the general population, the likelihood of being able-bodied was lower in 2019 for older adults who have served (59.8%) than for those who have not served (66.4%). Notably, the likelihood of those ages 65 and older who have served being able-bodied has decreased since 2011, while it has increased for the civilian population since 2011.

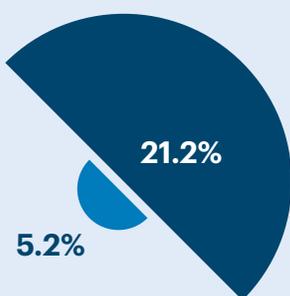
Unlike the findings for the general population, those 65 and older who have served are 1.2 times more likely to be physically inactive than those who have not (15.4% vs. 12.7%). In addition, they engage in higher levels of substance use than non-serving seniors. Almost 1 in 10 (8.9%) seniors with military experience drinks excessively, compared with 6.8% of non-serving seniors. Seniors who have served also smoke cigarettes and use smokeless tobacco at higher rates than those with no military background (11.0% vs. 7.9% and 3.1% vs. 1.5%, respectively). And while smoking rates have stagnated in the senior civilian population since 2011-2012, they have increased 18% in seniors who served in the military from 9.3% to 11.0%. On the other hand, the likelihood of excessive drinking has increased in the civilian senior population since 2011-2012 while it has remained essentially unchanged for those with a military background.

On the positive side, rates of diagnosed depressive disorders are lower in those

65 and older who have served (12.2%) than in their non-serving counterparts (14.6%). However, the prevalence of depression has increased in both groups since 2011-2012, and at a higher rate in the serving population. The likelihood of experiencing poor mental health 14 or more days out of the past 30 is similar for both groups, but it has increased 24% in seniors who served in the military since 2011-2012 while it has remained stable for those who did not serve in the military. In addition, there are gender disparities in mental health. Specifically, the rates of frequent mental distress are 1.2 and 1.3 times higher for older males (7.5%) and females (11.8%) who have served compared with those who have not (6.4% and 9.0%, respectively). In addition, female seniors who served have 1.7 times higher rates of depression (19.5% vs. 11.7%) and 1.6 times greater likelihood of reporting frequent mental distress (11.8% vs. 7.5%) than their male counterparts.

Finally, the rate of annual flu vaccination is rising in both groups, increasing 8% among those 65 and older who have served and 10% in the non-serving senior population since 2011-2012. The likelihood of flu vaccination is slightly higher for seniors with military backgrounds (67.4%) than those without (65.5%). However, Hawaiian/Pacific Islander seniors who have served have 1.3 times higher rates of flu vaccination (71.0%) than their non-serving counterparts (53.2%).

### Cigarette Use in Those Who Have Served 65+



● Making less than \$25,000 ● Making \$75,000 or more

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2019-2020.

## 4.1x

higher rate of cigarette smoking in the lowest vs. highest income bracket for those who have served 65+.

### Excessive Drinking 65+



## 1.3x

higher in 2019-2020: 8.9% of those 65 and older who served reported excessive drinking, compared to 6.8% of those 65 and older who did not serve.

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, 2019-2020.



## Conclusions

The *America's Health Rankings 2022 Health of Those Who Have Served Report* continues to highlight distinct health concerns experienced by men and women who have served in the U.S. Armed Forces. The findings of this report identify key health challenges faced by those who have served overall and for subpopulations in the areas of mental health, substance use and chronic conditions and pain. They also highlight advantages this group experiences in terms of reduced financial barriers to care and higher rates of preventive care seeking. We urge policymakers to use the findings of this report to better understand the unique health challenges of those

who have served and to support efforts to connect those who have served with the care they need. We encourage providers to focus on addressing and treating the challenges faced by this population, particularly around mental health, through culturally competent and individualized care in order to help those who have served live healthier lives and thus improve the health of all communities.

Drawing on these important insights, future research, dialogue, advocacy and policy can improve the health and well-being of all those who have bravely and selflessly sacrificed to serve this country.

## Appendix

Data were obtained from the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS), the National Health Interview Survey (NHIS), the Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health (NSDUH) and the U.S. Census Bureau's American Community Survey (ACS). Unless otherwise indicated, this report mainly features data from 2019-2020, and tracks progress since the baseline reporting period, 2011-2012.

**Table 1. Measures**

Behaviors		
Measure	Description	Source
Excessive Drinking	Percentage of adults who reported either binge drinking (four or more [women] or five or more [men] alcoholic beverages on a single occasion in the past 30 days) or chronic drinking (eight or more [women] or 15 or more [men] alcoholic beverages per week).	BRFSS
Insufficient Sleep	Percentage of adults who reported sleeping, on average, fewer than seven hours in a 24-hour period.	BRFSS (2020)
Physical Inactivity	Percentage of adults who reported doing no physical activity or exercise other than their regular job in the past 30 days.	BRFSS
Smoking	Percentage of adults who reported smoking at least 100 cigarettes in their lifetime and currently smoke daily or some days.	BRFSS
Smokeless Tobacco Use	Percentage of adults who use chewing tobacco, snuff or snus every day or some days.	BRFSS
Opioid Misuse	Percentage of adults who used heroin or misused prescription pain relievers in the past year. Misuse of prescription pain relievers is defined as use in any way not directed by a doctor, including use without a prescription of one's own medication, use in greater amounts, more often or longer than told to take a drug, or use in any other way not directed by a doctor.	NSDUH

## Social & Economic Factors

Measure	Description	Source
Avoided Care Due to Cost	Percentage of adults who reported a time in the past 12 months when they needed to visit a doctor but could not because of cost.	BRFSS
Health Insurance	Percentage of adults who have health insurance privately, through their employer or through the government.	BRFSS
Employment	Percentage of adults who are in the workforce and are either employed for wages or self-employed.	BRFSS
Food Insecurity	Percentage of adults who reported not having sufficient money to eat when and what they should or being concerned that food would run out before they have money to buy more in the past 30 days.	BRFSS

## Clinical Care

Measure	Description	Source
Colorectal Cancer Screening	Percentage of respondents ages 50-75 years who reported receiving recommended colorectal cancer screening using high-sensitivity fecal occult blood testing, sigmoidoscopy or colonoscopy.	BRFSS (2020)
Dedicated Health Care Provider	Percentage of adults who reported having one or more people they think of as their personal doctor or health care provider.	BRFSS
Dental Visit	Percentage of adults who reported visiting the dentist or dental clinic within the past year for any reason.	BRFSS
Flu Vaccination	Percentage of adults who reported receiving a flu vaccine in the past 12 months.	BRFSS
Mental Health Treatment	Percentage of adults experiencing mental illness in the past year who reported receiving any mental health treatment in the past 12 months, including inpatient care (such as hospital or residential treatment), outpatient care (such as therapy from a clinician [e.g., doctor, psychologist, counselor, social worker], outpatient clinic, partial-day hospital stay or day treatment program) or taking any prescription medications prescribed to treat a mental or emotional condition; treatment for alcohol or drug use is not included.	NSDUH

## Health Outcomes

Measure	Description	Source
Able-Bodied	<p>Percentage of adults ages 18 and older with no cognitive, visual, auditory, ambulatory, self-care or independent living difficulties. Not age-adjusted.</p> <p><b>Ambulatory:</b> Having serious difficulty walking or climbing stairs.</p> <p><b>Auditory/Hearing:</b> Deaf or having serious difficulty hearing.</p> <p><b>Cognitive:</b> Because of a physical, mental or emotional problem, having difficulty remembering, concentrating or making decisions.</p> <p><b>Self-Care:</b> Having difficulty bathing or dressing.</p> <p><b>Independent Living:</b> Because of a physical, mental or emotional problem, having difficulty doing errands alone such as visiting a doctor's office or shopping.</p> <p><b>Visual:</b> Blind or having serious difficulty seeing, even when wearing glasses.</p>	ACS (2019)
Any Mental Illness	Percentage of adults who reported having serious, moderate or mild mental illness in the past year.	BRFSS
Arthritis	Percentage of adults who reported being told by a health professional that they have some form of arthritis.	BRFSS
Cancer	Percentage of adults who reported being told by a health professional that they had any form of cancer, skin or otherwise.	BRFSS
Cardiovascular Disease	Percentage of adults who reported being told by a health professional that they had angina or coronary heart disease; a heart attack or myocardial infarction; or a stroke.	BRFSS

## Health Outcomes

Measure	Description	Source
Chronic Obstructive Pulmonary Disease	Percentage of adults who reported being told by a health professional that they have chronic obstructive pulmonary disease (COPD).	BRFSS
Chronic Pain	Percentage of adults who reported having pain most days or every day in the past three months.	NHIS
Depression	Percentage of adults who reported being told by a health professional that they have a depressive disorder including depression, major depression, minor depression or dysthymia.	BRFSS
Diabetes	Percentage of adults who reported being told by a health professional that they have diabetes (excluding prediabetes and gestational diabetes).	BRFSS
Frequent Mental Distress	Percentage of adults who reported their mental health was not good 14 or more days in the past 30 days.	BRFSS
High Health Status	Percentage of adults who reported that their health is very good or excellent.	BRFSS
Obesity	Percentage of adults with a body mass index of 30.0 or higher based on reported weight and height.	BRFSS
Suicide Attempts	Percentage of adults with suicidal thoughts who tried to kill themselves in the past year.	NSDUH
Suicidal Thoughts	Percentage of adults who reported seriously thinking about killing themselves in the past year.	NSDUH
Teeth Extractions	Percentage of adults who reported having six or more permanent teeth extracted due to tooth decay or gum disease.	BRFSS (2020)

## Methodology

Data in this report were obtained from the Centers for Disease Control and Prevention’s (CDC) Behavioral Risk Factor Surveillance System (BRFSS), the National Health Interview Survey (NHIS), the Substance Abuse and Mental Health Services Administration’s National Survey on Drug Use and Health (NSDUH) and the U.S. Census Bureau’s American Community Survey (ACS).

Data are from 2011-2020. To ensure adequate sample size to detect differences between those who have served and those who have not, in most cases two years of data were combined into three reporting periods used for this report: 2011-2012 (baseline), 2017-2018 (prior period) and 2019-2020 (current). The few exceptions include several BRFSS variables for which data is collected in even-numbered years only, as well as the “able-bodied” measure from ACS, which has a sufficiently large sample size to allow using only one year of data. Note: The COVID-19 pandemic affected data collection for all data sources, resulting in smaller sample sizes in 2020 than in prior years.

### Sample Sizes for Those Who Have Served by Source and Reporting Period

	<b>Baseline 2011-2012</b>	<b>Prior 2017-2018</b>	<b>Current 2019-2020</b>
ACS*	284,623	250,957	250,834
BRFSS	123,186	112,909	100,086
NSDUH	4,533	5,119	3,892
NHIS	14,236	10,741	5,116

\*Years used include 2011, 2017 and 2019, respectively.

Data were weighted according to each survey’s design and weighting methodology to correct for selection bias and enable the development of nationally representative estimates by demographic variables. To reflect the differing age distributions of those who have and have not served, all estimates, with the exception of those presented for the able-bodied indicator

and its disability-related components, were age-adjusted to the 2000 U.S. Standard Population. Nationally representative, age-adjusted point estimates were calculated and are included in this report for those who have and have not served overall and by gender, age, race/ethnicity, income, education and metropolitan status.

Confidence intervals for all estimates were used to assess whether differences between those who have served and civilians were significant overall and for subpopulations, whether estimates differ significantly between service member subpopulations (e.g., gender, ethnicity) and the significance of change over time. All group differences and changes over time highlighted in the report are statistically significant at the 95% confidence level.

Subpopulation categories were reported consistently across all data sources where possible. However, in some instances, categories were not comparable. Differences include the following: (1) data on the Hawaiian/Pacific Islander racial/ethnic group are not collected in the NHIS; (2) the “other” and “multiple race” categories are combined in the NHIS, whereas the other data sources separate these two groups; and (3) cutoff points for the lowest income group differ across data sources. The lowest income cutoffs are as follows:

- ACS and BRFSS: \$25,000
- NSDUH: \$30,000
- NHIS: \$35,000

In order to ensure that estimates presented are reliable, data were suppressed according to guidance provided by each data source. For the ACS, BRFSS and NHIS, estimates were suppressed if the relative standard error was greater than 30% or if the unweighted group sample size was less than 50. For the NSDUH, estimates were suppressed where estimates approximated 0 or 1 (were less than 0.00005 or greater than 0.999995), if the unweighted sample size was less than 100, or if the relative standard error was greater than 0.175 (using calculation methods suggested by the NSDUH) and if the effective sample size was less than 68.

## Limitations

The data presented in this report are reliable, nationally representative, age-adjusted estimates due to the large sample sizes of the pooled years of data, the sampling designs of the data sources and the utilization of age-standardization methods. Further, the sampling designs of these surveys ensure representation by multiple demographic variables. However, a few considerations limit interpretation of the data.

First, each of the four sources of data analyzed for this report asks different questions about military service. Both ACS and BRFSS ask whether a respondent has served on active duty in the U.S. Armed Forces. The NSDUH and NHIS ask whether respondents have served in the U.S. Armed Forces in the past, and exclude those on active duty. Thus, the definition of “those who have served” for ACS and BRFSS measures in this report includes those who have served in the past, and those currently on active duty. The NHIS and NSDUH exclude those who are actively serving. None of the surveys allow analysis by the nature of discharges, specific field of service or involvement in active combat. Only the ACS includes data on the era in which one served. Thus, changes over time could be influenced by cohort effects and may confound the interpretation of age-specific results and comparisons.

Second, while we adjusted in the analyses, samples of those who have served and those who have not may differ from one another on other demographic characteristics. Observed differences between groups may be explained not solely by military service but by other characteristics that vary across the two populations.

Third, readers should be aware that all health outcome data are self-reported, with many health outcome measures asking respondents whether a health care professional has ever told them that they have a disease or condition. This method of collecting data excludes those who may have a condition but are unaware of it due to not having sought treatment or obtained a diagnosis.

Finally, the COVID-19 pandemic affected data collection for all four data sources. In most cases, national surveys halted in-person data collection for part of 2020. When collection resumed, it was more likely to be conducted virtually than in the past. This resulted in higher non-response rates and smaller sample sizes in general. In addition, some items on potentially sensitive subjects (e.g., mental health topics, opioid misuse) experienced higher levels of non-response. This limited our ability to produce reliable estimates for those who have served overall as well as for subpopulations. In addition, due to documented uncertainties around estimates generated from the 2020 ACS, we used ACS data from 2019, even though it was not the most recent year available.

# 2022 Health of Those Who Have Served Advisory Committee

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Data in this report were obtained from and used with permission of the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS), the National Health Interview Survey (NHIS), the Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health (NSDUH) and the U.S. Census Bureau's American Community Survey (ACS).

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Texas Health Institute of Austin, Texas, conducted this project for and in cooperation with the United Health Foundation.

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# UNITED HEALTH FOUNDATION®

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