

# 2015 Health Related Behaviors Survey

## Physical Health and Functional Limitations Among U.S. Active-Duty Service Members

The Health Related Behaviors Survey (HRBS) is the U.S. Department of Defense's flagship survey for understanding the health, health-related behaviors, and well-being of service members. Fielded periodically for more than 30 years, the HRBS includes content areas—such as substance use, mental and physical health, sexual behavior, and postdeployment problems—that may affect force readiness or the ability to meet the demands of military life. The Defense Health Agency asked the RAND Corporation to revise and field the 2015 HRBS.

In this brief, we review results for physical health and functional limitations. Specifically, we consider the prevalence of chronic medical conditions, such as high blood pressure and high cholesterol levels; physical symptoms, such as back or joint pain; and health-related functional limitations at work or at home. We note possible limitations to the data and implications of the findings. We make several comparisons to the overall U.S. population, including progress toward Healthy People 2020 (HP2020) objectives established by the U.S. Department of Health and Human Services. Because the military differs notably from the general population (e.g., service members are more likely to be young and male) and service members must be in good health to join the military, these comparisons are offered only as a benchmark of interest.

### Chronic Conditions

According to the Centers for Disease Control and Prevention, 70 percent of U.S. deaths each year are attributed to chronic diseases, and research has found that such diseases account for most health care costs in the United States. Military accession, training, and deployment, as well as health-related policies, practices, and exposures, may affect the prevalence of chronic conditions among military service members—which, in turn, may affect force readiness.

One 2015 HRBS item asked whether respondents had ever been told by a physician or health professional that they were diagnosed with high blood pressure, high blood sugar

### Methods:

RAND fielded the 2015 HRBS among active-duty U.S. military service members in the Air Force, Army, Marine Corps, Navy, and Coast Guard between November 2015 and April 2016. The survey used a random sampling strategy, stratified by service branch, pay grade, and gender (as obtained from Defense Manpower Data Center records). Respondents completed the anonymous survey online, with a response rate of 8.6 percent. This resulted in 16,699 usable surveys (of 201,990 invited to participate).<sup>1</sup> For some analyses, the number of usable surveys may differ because of differences in nonresponse for individual items. To represent the active-duty population, we weighted responses to account for the oversampling of service members in certain strata. In this research brief, we report point estimates and 95-percent confidence intervals (CIs).<sup>2</sup>

We tested differences in each outcome across levels of key factors or by subgroups—service branch, pay grade, gender, age group, race/ethnicity, and education level—using a two-stage procedure based on (1) a Rao-Scott chi-square test for overall differences across levels within a single factor and, if the overall test was statistically significant, (2) two-sample *t*-tests that explore all possible pairwise comparisons between levels of the factors (e.g., junior officers compared with noncommissioned senior officers). Readers interested in these differences should consult the full 2015 HRBS final report at [www.rand.org/t/RR1695](http://www.rand.org/t/RR1695).

This brief is one of seven, each corresponding to a different chapter in the full report. An eighth brief summarizes the entire report.

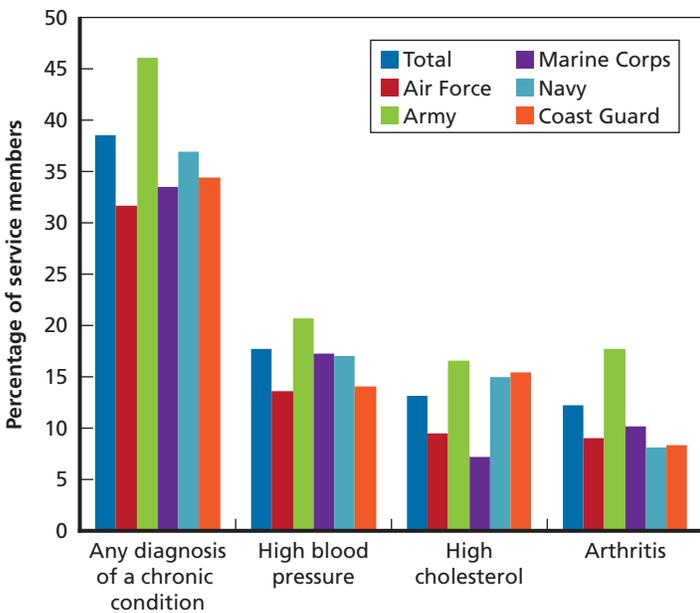
<sup>1</sup> When calculating response rates, we excluded service members whom we were unable to contact because of incorrect email or mailing addresses. The number we were unable to contact was 6,770, or 3.4 percent of the sample.

<sup>2</sup> CIs provide a range in which we expect the true population value to fall. They account for sampling variability when calculating point estimates but do not account for problems with question wording, response bias, or other methodological issues that, if present in the HRBS, might bias point estimates.

or diabetes, high cholesterol, respiratory problems, arthritis, heart disease or other heart condition, digestive ulcer, skin cancer, or some other cancer. For those conditions marked positively, the survey asked whether the respondent was currently taking medication for the problem.

Among all active-duty personnel, 38.6 percent (CI: 37.1–40.0) reported ever being told by a health care provider that they had at least one of the nine chronic conditions (Figure 1). The prevalence of at least one diagnosis ranged from 31.6 percent (CI: 29.7–33.4) in the Air Force to 46.0 percent (CI: 43.0–49.0) in the Army. The most-common provider-diagnosed conditions were high blood pressure (17.7 percent; CI: 16.5–18.9), high cholesterol (13.3 percent; CI: 12.4–14.3), and arthritis (12.3 percent; CI: 11.4–13.3). Reported prevalence of these three conditions was higher in the Army than in the other services.

**Figure 1**  
Lifetime Physician-Diagnosed Chronic Conditions, by Service Branch



Among all active-duty personnel, the prevalence of these conditions was lower than it is for the general U.S. population. Prevalence of high blood pressure and high cholesterol was also below the HP2020 target levels. However, demographic differences (particularly age and gender) between the military and general populations make direct comparisons difficult.

By pay grade, senior enlisted personnel, warrant officers, and senior officers were more likely to report one or more chronic conditions in their lifetime; half of the members of these three groups, and more than two-thirds of higher enlisted ranks and warrant officers, reported at least one

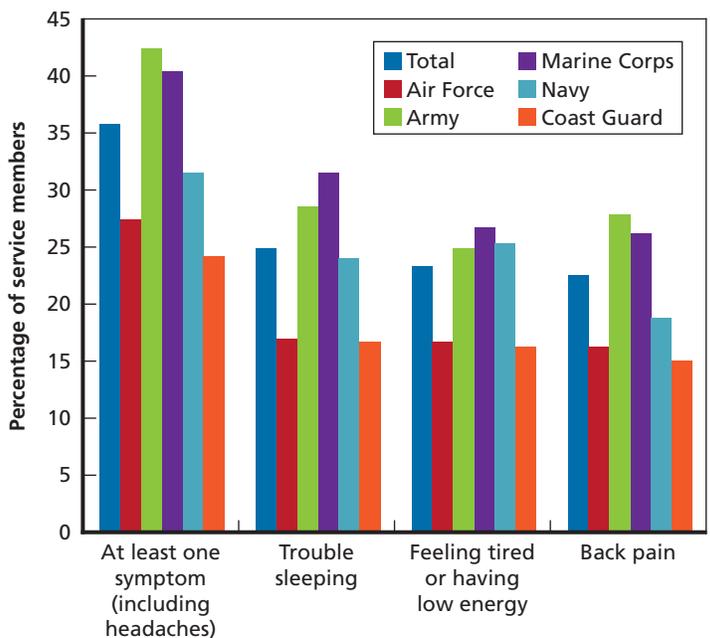
chronic condition. Because pay grade is highly correlated with age, these trends are likely due to some combination of cumulative military experience and aging. Men and women did not differ significantly in their likelihood of reporting a chronic condition.

### Physical Symptoms

Physical symptoms, such as back or joint pain, account for most outpatient visits in the general population and are associated with expensive tests and procedures. One-third of somatic symptoms do not have a disease-based explanation and are considered to be medically unexplained. Physical symptoms are common in the military, and multiple physical symptoms have been reported following deployment.

The HRBS asked respondents to complete a checklist of eight common physical symptoms—stomach or bowel problems; back pain; pain in the arms, legs, or joints; headaches; chest pain or shortness of breath; dizziness; feeling tired or having low energy; trouble sleeping—based on the Somatic Symptom Scale-8. Among all active-duty service members, 35.7 percent (CI: 34.2–37.3) reported being “bothered a lot” in the past 30 days by at least one of these symptoms (Figure 2). Respondents in the Army (42.5 percent; CI: 39.4–45.7) were the most likely to report being bothered a lot by one of these symptoms; those in the Coast Guard (24.3 percent; CI: 23.0–25.7) were the least likely. The most commonly reported symptoms were trouble sleeping (25.0 percent; CI: 23.6–26.4), feeling tired or having low energy

**Figure 2**  
Bothered a Lot by Physical Symptoms in the Past 30 Days, by Service Branch



(23.2 percent; CI: 21.9–24.6), and back pain (22.5 percent; CI: 21.2–23.9). Respondents in the Marine Corps were the most likely to report trouble sleeping or feeling tired or having low energy, while those in the Army were the most likely to report back pain.

Senior enlisted personnel and warrant officers were the most likely to report being bothered a lot by at least one physical symptom in the past 30 days, with about half of each group so reporting. Women were more likely than men to report being bothered a lot by at least one symptom (including headaches).

We also examined the relationship between being bothered a lot by at least one physical symptom (including headaches) in the past 30 days and prescription drug misuse. Among service members who reported being bothered a lot by at least one symptom, 0.5 percent reported that they misused stimulants (versus 0.2 percent among those without symptoms), 2.6 percent reported sedative misuse (versus 1.0 percent among those without symptoms), and 3.4 percent reported opioid misuse (versus 1.8 percent among those without symptoms).

### Health-Related Functional Limitations

Chronic conditions and physical symptoms may impair functioning in several domains, including work or school, social life, and family life. They may also negatively affect work performance by increasing *absenteeism* (lost work days because of a health condition) and *presenteeism* (days present at work but with performance compromised by a health condition).

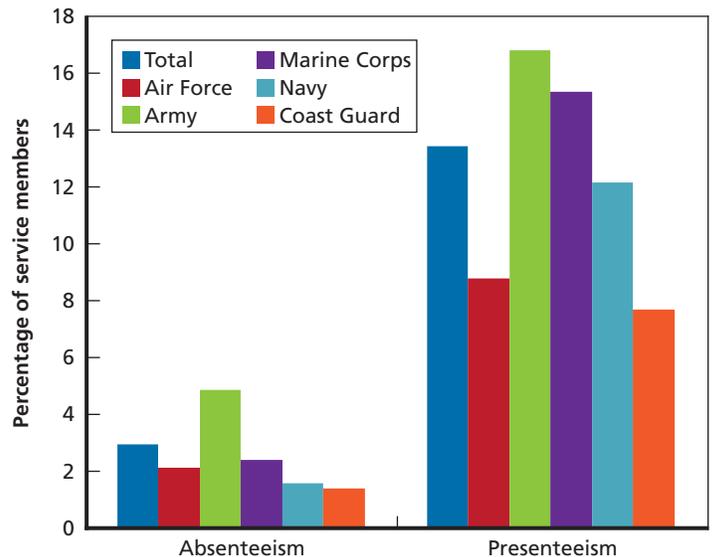
The HRBS assessed functional limitations using a modified version of the Sheehan Disability Scale. Respondents completed five items assessing the extent to which health problems affected them at work or school, in their social life, and in their family life or home responsibilities. Respondents were also asked how many days in the past 30 days their mental or physical symptoms caused them to miss work or school (absenteeism) or to feel so impaired that even though they went to work or school, their productivity was reduced (presenteeism). We defined *absenteeism* as a service member reporting being out for at least 14 days in the past 30 days, and we defined *presenteeism* as a service member being present but impaired for the same period. We defined *functional impairment* as being moderately, markedly, or extremely impaired as opposed to being mildly impaired or not impaired at all.

About one in three service members reported functional impairment in each of the three domains: work or school (33.0 percent; CI: 31.5–34.5), social life (30.0 percent; CI: 28.5–31.5), and family life or home responsibilities (30.5 percent; CI: 29.0–31.9). Functional impairment was

more prevalent among respondents in the Army, those in the senior enlisted ranks, and women.

Among all respondents, 3.0 percent (CI: 2.4–3.7) reported missing at least 14 days of work in the past 30 days because of their mental or physical symptoms (Figure 3). Absenteeism was highest in the Army (4.9 percent; CI: 3.4–6.4) and lowest in the Coast Guard (1.4 percent; CI: 1.0–1.8). Absenteeism was also higher among enlisted ranks than officers but did not differ significantly between men and women.

**Figure 3**  
Absenteeism and Presenteeism, by Service Branch



Among all respondents, 13.4 percent (CI: 12.3–14.6) reported that their work performance was compromised because of a health condition for at least 14 days in the past 30 days. Presenteeism was highest in the Army (16.8 percent; CI: 14.4–19.3) and lowest in the Coast Guard (7.7 percent; CI: 6.8–8.6). Presenteeism was also higher among the enlisted ranks and warrant officers than among commissioned officers and higher among women than men.

### Conclusions and Policy Implications

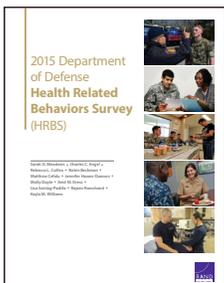
These data suggest that a substantial proportion of active-duty service members suffer from one or more medical vulnerabilities. Physical symptoms were common among service members and consistent with previous research on multiple physical symptoms in the military and in general or clinical populations. The impact of these medical vulnerabilities on overall force readiness, deployability, and organizational efficiency and cost is not well understood, but our survey findings suggest that health-related functional impairment is very common: One in three service members reported

that health limitations moderately or markedly affected their capacity to function at work or school, in their social life, or in their family life. Nearly one in seven reported that these impairments affected their performance at work for 14 days in the past month, and 3 percent reported that the impairments caused them to miss work for at least that long.

In short, these data suggest overall productivity loss because of health problems within the ranks. Therefore, the data have significant implications for productivity and suggest a need to address this issue through policies or programs that target the underlying health issues (i.e., chronic conditions, physical symptoms, and functional impairment) that lead to reduced or limited productivity.

### Limitations

HRBS response rates were lower in 2015 than in prior iterations of the survey. Low response rates do not automatically mean that the results are biased, but they do increase the likelihood that service members who responded differ qualitatively from those who did not. Those differences, then, could bias our estimates of health and health-related behavior; however, it is impossible to know whether the potential bias would result in better or worse outcomes than those observed in the data. Thus, the results of this survey should be interpreted cautiously and in conjunction with other existing data. In addition, comparing the HRBS with other civilian populations (e.g., all U.S. adults) may be difficult to interpret because of both observed (e.g., demographic) and unobserved differences between the two populations. Finally, because we altered the wording of some questions in the 2015 HRBS, the results presented in this brief may not always be comparable to prior versions of the HRBS.



This brief describes research done in the Forces and Resources Policy Center of the RAND National Defense Research Institute and documented in *2015 Department of Defense Health Related Behaviors Survey (HRBS) of Active-Duty Service Members: Final Report*, by Sarah O. Meadows, Charles C. Engel, Rebecca L. Collins, Robin Beckman, Matthew Cefalu, Jennifer Hawes-Dawson, Molly Doyle, Amii M. Kress, Lisa Sontag-Padilla, Rajeev Ramchand, and Kayla M. Williams, RR-1695-OSD (available at [www.rand.org/t/RR1695](http://www.rand.org/t/RR1695)), 2018. To view this brief online, visit [www.rand.org/t/RB9955z4](http://www.rand.org/t/RB9955z4). The RAND Corporation is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark. © RAND 2018

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