

2018 Health Related Behaviors Survey

Health Promotion and Disease Prevention Among the Reserve Component

The Health Related Behaviors Survey (HRBS) is the U.S. Department of Defense's (DoD'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 that might affect military readiness or the ability to meet the demands of military life. The Defense Health Agency asked the RAND Corporation to revise and field the 2018 HRBS among members of both the active component and the reserve component. This brief discusses findings for the reserve component.

This brief reviews results for physical activity, weight status, screen time, annual physical assessment, health insurance status, sleep health, and use of substances to stay awake. Some of the HRBS results are also compared with Healthy People 2020 (HP2020) objectives established by the U.S. Department of Health and Human Services for the general U.S. population. Because the military differs notably from the general population (for example, military populations are more likely to be young and male than is the general population), these comparisons are offered only as a benchmark of interest.

Physical Activity

The military has fitness standards that are aimed at encouraging physical fitness because physical fitness

is essential for a ready force. Poor physical fitness is associated with injuries and chronic conditions that can adversely impact military readiness. Good physical fitness has also been associated with mental resilience and physical endurance.

HP2020 sets objectives for moderate physical activity (MPA), vigorous physical activity (VPA) and muscle (or strength) training for the U.S. population. These targets include

- at least 47.9 percent engaging in MPA for at least 150 minutes per week or VPA for at least 75 minutes per week
- at least 31.3 percent engaging in MPA for more than 300 minutes per week or VPA at least 150 minutes per week
- at least 24.1 percent engaging in muscle-strengthening activities on two or more days per week.

The 2018 HRBS found that reserve component members compared favorably to each of these standards. Altogether, 67.2 percent (confidence interval [CI]: 66.1–68.3) of reserve component members reported MPA for at least 150 minutes per week or VPA for at least 75 minutes per week, and 41.6 percent (CI: 40.4–42.8) reported MPA for at least 300 minutes per week or VPA for at least 150 minutes per week. In addition, 43.1 percent (CI: 41.9–44.3) of reserve component members reported strength

training at least three days per week. The proportion of reserve component members who reported strength training at least three days per week exceeded the HP2020 goal for twice-weekly strength training.

Weight Status

Nearly 40 percent of the general U.S. population is classified as obese, increasing their risk for early mortality and several chronic diseases. HP2020 sets objectives for weight status for adults aged 20 or older based on the following Centers for Disease Control and Prevention body mass index (BMI)¹ categories.

- underweight: less than 18.5 kg/m²
- normal weight: 18.5–24.9kg/m² (HP2020 target: at least 33.9 percent of the population)
- overweight: 25.0–29.9 kg/m²

¹ BMI is calculated as weight in kilograms (kg) divided by height in meters squared (m²).

- obese: 30 or more kg/m² (HP2020 target: no more than 30.5 percent of the population).

It is important to note that BMI is an indirect measure of body fat, and more-muscular service members might have been misclassified as overweight or obese.

Overall, the 2018 HRBS found that, among reserve component members at least 20 years of age, 31.4 percent (CI: 30.2–32.5) were of normal weight. This is roughly comparable to the HP2020 goal that 33.9 percent of persons at least 20 years of age be of normal weight. In addition, 19.0 percent (CI: 18.1–20.0) of reserve component members were obese. Although the military is meeting the HP2020 goal that no more than 30.5 percent of persons at least 20 years of age be obese, the percentage of overweight service members could still cause concern. However, as noted, very muscular individuals might be incorrectly classified as overweight or obese based on standard BMI cutoffs.

Methods

RAND fielded the 2018 HRBS among active component and reserve component U.S. military service members between October 2018 and March 2019. The survey of the reserve component included five reserve branches—Air Force, Army, Marine Corps, Navy, and Coast Guard—and two National Guard branches—Air National Guard and Army National Guard. The 2018 HRBS was a web-based confidential survey, which allowed researchers to target reminders to nonresponders and to reduce survey burden by linking responses to administrative data.

The sampling frame used a random sampling strategy stratified by service branch, pay grade, and gender. The overall weighted response rate for the survey was 9.4 percent, yielding a final analytic sample for the reserve component of 16,475 responses. To address missing data, RAND researchers used imputation, a statistical procedure that uses available data to predict missing values. To represent the reserve component population, they weighted responses to account for the oversampling of service members in certain strata. This research brief reports point estimates and 95-percent CIs.*

RAND researchers tested differences in each outcome across levels of key factors or by subgroups—service branch, pay grade, gender, race/ethnicity, and age group—using a two-stage procedure based on a Rao-Scott chi-square test for overall differences across levels within a single factor and, if the overall test was statistically significant, two-sample *t*-tests that explored all possible pairwise comparisons between levels of the factors (for example, men versus women). Readers interested in these differences should consult the full 2018 HRBS reserve component final report at www.rand.org/t/rr4228.

This brief is one of eight on the reserve component; this brief and six of the other seven each correspond to a different chapter in the full report, with the eighth presenting an overview of all findings and policy implications. A similar series of eight briefs discusses findings for the active component.

* CIs provide a range in which the true population value is expected 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.

Screen Time

Screen time—time spent looking at a desktop or laptop computer, television, smartphone, tablet, or other hand-held device or gaming system—is generally a sedentary behavior. As such, it is associated with a greater risk of obesity and mortality. Indeed, research shows that screen time is a risk factor for many cardiometabolic diseases and mortality, independent of time spent exercising.

In the 2018 HRBS, 65.4 percent (CI: 64.3–66.6) of reserve component members reported spending one to four hours per day looking at screens, and 26.4 percent (CI: 25.3–27.5) reported spending five or more hours per day looking at screens. Although there were few significant differences between services in screen time, junior enlisted personnel were the most likely to report spending five or more hours per day looking at screens.

Annual Physical Assessment

Routine medical exams are used to identify asymptomatic illnesses, provide early intervention, and encourage healthy behavior. These exams have been shown to save lives through early detection of cancer and chronic conditions and to save money. The military requires that every service member complete an annual face-to-face medical assessment. These are called Periodic Health Assessments, and they are also used to evaluate individual readiness to deploy.

The 2018 HRBS asked respondents whether they had received a routine medical check-up in the previous 12 months. *Routine check-up* was defined as a general physical exam, not an exam for a specific injury, illness, or condition. Overall, 71.6 percent (CI: 70.4–72.7) of reservists reported receiving such an assessment.

Health Insurance Status

The proportion of uninsured individuals in the United States has steadily decreased over the past decade, in large part because of the Affordable Care Act. In 2018, 91.5 percent of Americans had public or private health insurance,² though this proportion was still short of the HP2020 goal that 100 percent of Americans have

² Edward R. Berchick, Jessica C. Barnett, and Rachel D. Upton, *Health Insurance Coverage in the United States: 2018*, Washington, D.C.: U.S. Census Bureau, P60-267, 2019 (<https://www.census.gov/library/publications/2019/demo/p60-267.html>).

health insurance of some kind. Health insurance status is particularly important for reservists because non-active-duty service members are generally not DoD health care beneficiaries, and deferred health care caused by lack of insurance could threaten medical deployability.

Overall, 92.0 percent (CI: 91.1–92.8) of reserve component respondents reported having some kind of health insurance. This falls short of the HP2020 goal but is comparable to the insurance rate for the general public. Reservists of junior ranks were less likely than others to report having health insurance.

Sleep Health

According to HP2020, sufficient sleep is categorized as at least seven hours per 24-hour period among U.S. adults 22 and older and eight hours per 24-hour period for those 18 to 21. Lack of sufficient sleep is associated with daytime sleepiness, fatigue, diabetes, cardiovascular disease, obesity, and depression. The 2018 HRBS asked respondents how much sleep they got on average in a 24-hour period over the past 30 days, how sleep affected their energy levels, and whether they took any prescription or over-the-counter medications to aid sleep.

Across all branches of the reserves, 45.4 percent (CI: 44.2–46.6) of respondents met the HP2020 standards for sufficient sleep. This is lower than the 68.3 percent of all Americans who meet HP2020 sleep guidelines and the HP2020 goal that 72.8 percent of Americans meet these guidelines. In addition, 19.0 percent (CI: 18.1–19.9) of reservists reported moderate to severe lack of energy caused by poor sleep, and 6.2 percent (CI: 5.6–6.7) reported using prescription or over-the-counter sleep medications at least three days per week over the previous 30 days.

Use of Substances to Stay Awake

Energy supplements in the form of caffeinated beverages, over-the-counter medications, and prescription medications can boost endurance and assist with anaerobic activities. They can also have negative consequences, such as sleep loss, anxiety, and palpitations.

The 2018 HRBS asked respondents to report the frequency of past-30-day use of energy drinks, over-the-counter medications, and prescription

medications to stay awake. Overall, 11.4 percent (CI: 10.6–12.2) of reserve component members reported using energy drinks at least three times weekly in the past 30 days to stay awake. Few reported using medications to stay awake: 1.2 percent (CI: 0.9–1.5) of reserve component members reported using over-the-counter medications at least three times weekly in the past 30 days to stay awake, and 2.0 percent (CI: 1.6–2.3) reported using prescription medications at least three times weekly in the past 30 days to stay awake.

Comparisons with the Active Component

To compare HRBS results for the active and reserve components, RAND researchers constructed regression models that controlled for the demographic characteristics of the respondents. Significant differences they identified for reservists relative to active component members included

- greater obesity
- lower levels of physical activity
- greater levels of strength training
- lower levels of screen time
- greater amounts of sleep and better sleep quality
- lower likelihood of using energy drinks to stay awake.

Conclusions and Policy Implications

The reserve component roughly meets HP2020 goals for normal weight. One reason could be the prevalence of physical activity among members: Most reservists

exceed HP2020 goals for physical activity and strength training. Reserve component members were also more likely to report frequent strength training and better sleep health than active component members were. Nevertheless, reserve component members were less likely to meet HP2020 weight and activity goals than active component members were. This could be problematic when these reservists are called up for active-duty service.

Perhaps more concerning are the proportions of reservists who did not report having an annual physical exam in the past year and who reported the lack any health insurance. Recent physical exams are required for deployment, and the lack of insurance could cause reservists to postpone exams. DoD, the services, and the Coast Guard should seek to improve reserve component compliance with physical examinations. They also might wish to designate a health care navigator to assist reserve component units with low health insurance rates and increase the number of members who are insured through the public or private marketplace.

Limitations

The response rate is considered low for survey research. Although low response rates do not automatically mean that survey data are biased, they do increase the possibility of bias. As with any self-report survey, social desirability bias is a possibility, especially for sensitive questions and topics. For some groups that make up a small percentage of the overall DoD population, survey estimates might be imprecise and should be interpreted with caution.

This brief describes research conducted in the Forces and Resources Policy Center of the RAND National Defense Research Institute and documented in 2018 *Department of Defense Health Related Behaviors Survey (HRBS): Results for the Reserve Component*, by Sarah O. Meadows, Charles C. Engel, Rebecca L. Collins, Robin L. Beckman, Joshua Breslau, Erika Litvin Bloom, Michael Stephen Dunbar, Mary Lou Gilbert, David Grant, Jennifer Hawes-Dawson, Stephanie Brooks Holliday, Sarah MacCarthy, Eric R. Pedersen, Michael W. Robbins, Adam J. Rose, Jamie Ryan, Terry L. Schell, and Molly M. Simmons, RR-4228-OSD, 2021 (available at www.rand.org/t/RR4228). To view this brief online, visit www.rand.org/t/RB10117z2. 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.

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