

2018 Health Related Behaviors Survey

Substance Use 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 substance use, particularly use of alcohol, tobacco and nicotine products, and illicit and prescription drugs. Some of the 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.

Alcohol

Heavy drinking is a leading preventable cause of death both in the United States and worldwide and has been linked to numerous problems, such as

substance use disorders, occupational problems, relationship difficulties, and poor physical and mental health.

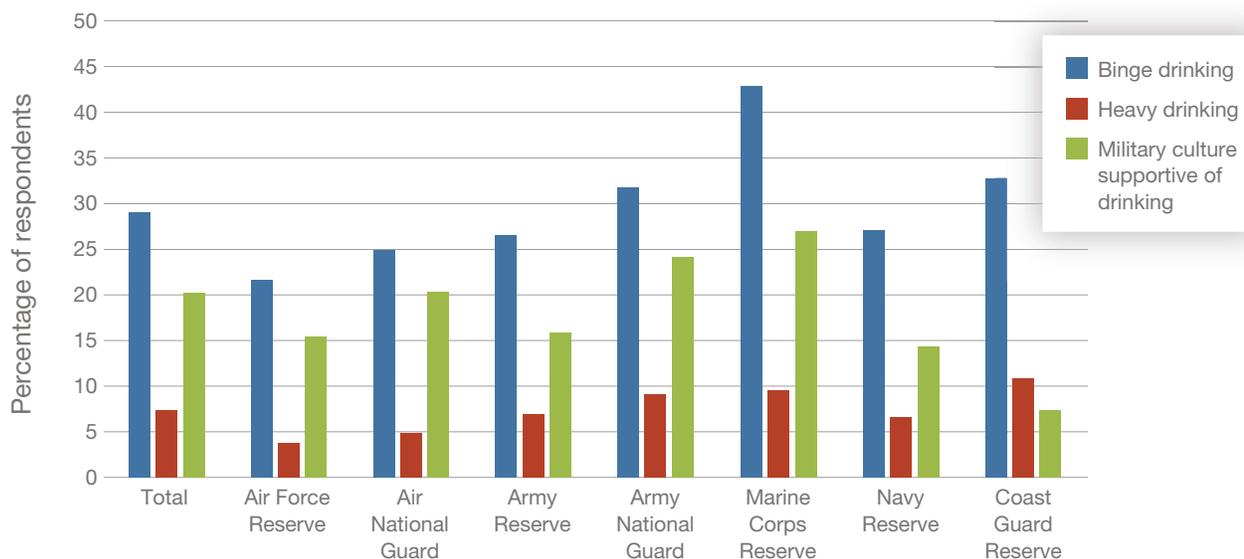
The 2018 HRBS measured *binge drinking* (defined as consuming five or more drinks on the same occasion for men and four or more drinks for women at least once in the past 30 days) and *heavy drinking* (defined as reporting binge drinking at least one day per week in the past 30 days).

The survey found that

- 29.0 percent (confidence interval [CI]: 27.9–30.1) of reserve component service members reported binge drinking in the past 30 days (Figure 1). In the most recent comparable U.S. population estimate from the National Survey on Drug Use and Health (NSDUH), 26.5 percent of adults 18 or older reported binge drinking in the past 30 days.¹ The HP2020 target for the general population is for no more than 24.2 percent of adults to engage in binge drinking.
- 7.4 percent (CI: 6.8–8.1) of reserve component service members reported heavy

¹ Substance Abuse and Mental Health Services Administration, *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables*, Rockville, Md.: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration, 2019 (<http://www.samhsa.gov/data/report/2018-nsduh-detailed-tables>).

FIGURE 1
Alcohol Use and Views on Alcohol Culture, by Service Branch



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.

drinking in the past 30 days. The most recent comparable estimate from the NSDUH for the U.S. adult population found that 8.9 percent were heavy drinkers.²

In the 2018 HRBS, 4.8 percent (CI: 4.2–5.3) of reservists reported serious consequences (e.g., being arrested, getting into a fight) from drinking in the past 12 months. In addition, 6.1 percent (CI: 5.5–6.7) reported risky drinking and driving—that is, driving when having had too much to drink or being a passenger with a driver who had too much to drink—in the past 12 months. Finally, 5.3 percent (CI: 4.8–5.9) reported productivity loss from drinking in the past 12 months.

The 2018 HRBS asked reservists about their perception of military alcohol culture—that is, whether respondents found it hard to “fit in” with their command if they did not drink, believed that drinking is part of being in one’s unit, believed that everyone is encouraged to drink at social events, or believed that leaders are tolerant of drunkenness when personnel are off duty. Altogether, 20.2 percent (CI: 19.2–21.2) of reservists agreed with at least one of these statements related to support of drinking in military culture, though Coast Guard Reserve members were least likely to agree.

Tobacco and Nicotine Products

Tobacco is the single most preventable cause of disease and death in the United States.³ Although rates of smoking have decreased over the past decade, smoking remains the cause of six in seven lung cancer deaths, one in three of all cancer deaths, and more than three

in four cases of chronic obstructive pulmonary disease.⁴ Although use of smokeless tobacco receives less attention, it has been associated with increased risk of cancer and stroke. Traditional tobacco products are not the only concern; the use of e-cigarettes has increased rapidly in recent years, with mounting evidence that their use could increase risk of cardiovascular and lung disease.

Findings from the 2018 HRBS include the following:

- 13.3 percent (CI: 12.5–14.2) of reserve component members reported being current cigarette smokers (Figure 2). HP2020 set a target of 12.0 percent for cigarette smoking among U.S. adults; in 2017, 14.1 percent of U.S. adults reported currently smoking cigarettes.⁵
- 9.9 percent (CI: 9.1–10.7) of reservists currently use e-cigarettes (Figure 2). The 2017 Behavioral Risk Factor Surveillance System suggests that 4.6 percent of U.S. adults were current e-cigarette smokers.⁶ Among reasons cited by reservists for using e-cigarettes were a perception that they were healthier than smoking cigarettes (30.8 percent, CI: 27.1–34.5), as a means to help quit smoking cigarettes (33.1 percent; CI: 29.5–36.7), and to use in places where cigarette smoking was not allowed (24.0 percent, CI: 20.7–27.3).
- 8.0 percent (CI: 7.3–8.7) of reservists currently smoke cigars, and 3.1 percent (CI: 2.6–3.5) currently smoke pipes or hookah. HP2020 set a target of 0.3 percent for cigar smoking, and 3.8 percent of U.S. adults currently smoke cigars.⁷ HP2020 did not set a target for pipe or hookah use, which 1.0 percent of U.S. adults currently use to smoke tobacco.
- 11.0 percent (CI: 10.1–11.8) of reservists currently use smokeless tobacco. HP2020 set a target of 0.2 percent of 0.1 percent for use

² Substance Abuse and Mental Health Services Administration, 2019.

³ National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, *The Health Consequences of Smoking—50 Years of Progress: A Report of the Surgeon General*, Atlanta, Ga.: Centers for Disease Control and Prevention, 2014 (https://www.ncbi.nlm.nih.gov/books/NBK179276/pdf/Bookshelf_NBK179276.pdf); T. W. Wang, K. Asman, A. S. Gentzke, K. A. Cullen, E. Holder-Hayes, C. Reyes-Guzman, A. Jamal, L. Neff, and B. A. King, “Tobacco Product Use Among Adults—United States, 2017,” *Morbidity and Mortality Weekly Report*, Vol. 67, No. 44, November 9, 2018, pp. 1225–1232.

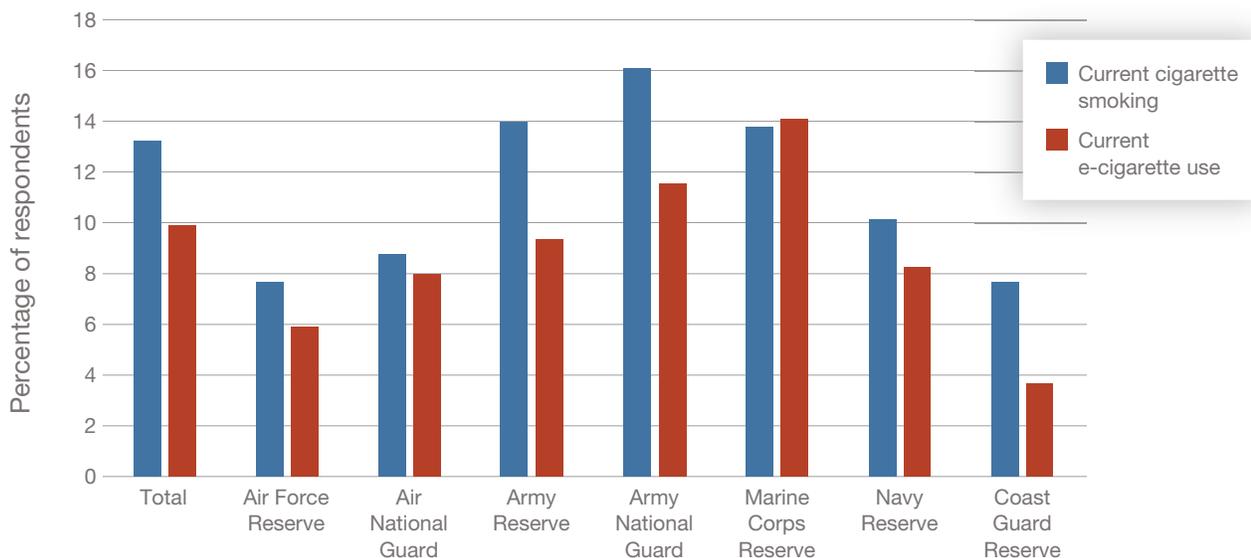
⁴ National Center for Chronic Disease Prevention and Health Promotion Office on Smoking and Health, 2014; Wang et al., 2018.

⁵ Wang et al., 2018.

⁶ Centers for Disease Control and Prevention, “BRFSS Prevalence & Trends Data,” 2017 (<https://www.cdc.gov/brfss/brfssprevalence/>).

⁷ Wang et al., 2018.

FIGURE 2
Cigarette and E-Cigarette Use, by Service Branch



of smokeless tobacco among adults; in 2017, 2.1 percent of U.S. adults reported currently using smokeless tobacco.⁸

- Altogether, 24.6 percent (CI: 23.5–25.7) of reservists reported any current tobacco or nicotine use.

Among current smokers in the 2018 HRBS, 45.5 percent (CI: 41.9–49.1) reported attempting to quit smoking in the past 12 months.

Marijuana and Drug Use

The 2018 HRBS measured use among reservists in the past 12 months and past 30 days for several types of drugs: marijuana or hashish, synthetic cannabis, inhalants to get high, synthetic stimulants, nonprescription cough or cold medicine, nonprescription anabolic steroids, and drugs other than marijuana and synthetic cannabis (these included cocaine [including crack], lysergic acid diethylamide [LSD], phencyclidine [PCP], 3,4-methylenedioxy-methamphetamine [MDMA], commonly called ecstasy, methamphetamine, heroin, and gamma hydroxybutyrate [GHB]). Findings include the following:

- 2.7 percent (CI: 2.2–3.2) of reservists reported any drug use (primarily marijuana) in the past

12 months; 1.4 percent (CI: 1.1–1.8) reported any drug use in the past 30 days.

- 2.5 percent (CI: 2.0–3.0) reported marijuana or synthetic cannabis use in the past 12 months; 1.3 percent (CI: 1.0–1.7) reported such use in the past 30 days.
- 0.7 percent (CI: 0.4–1.0) reported any drug use excluding marijuana and synthetic cannabis in the past 12 months; 0.2 percent (CI: 0.1–0.3) reported such use in the past 30 days.
- 0.4 percent (CI: 0.3–0.6) reported use of any nonprescription cough or cold medicine to get high in the past 12 months.

Prescription Drug Use

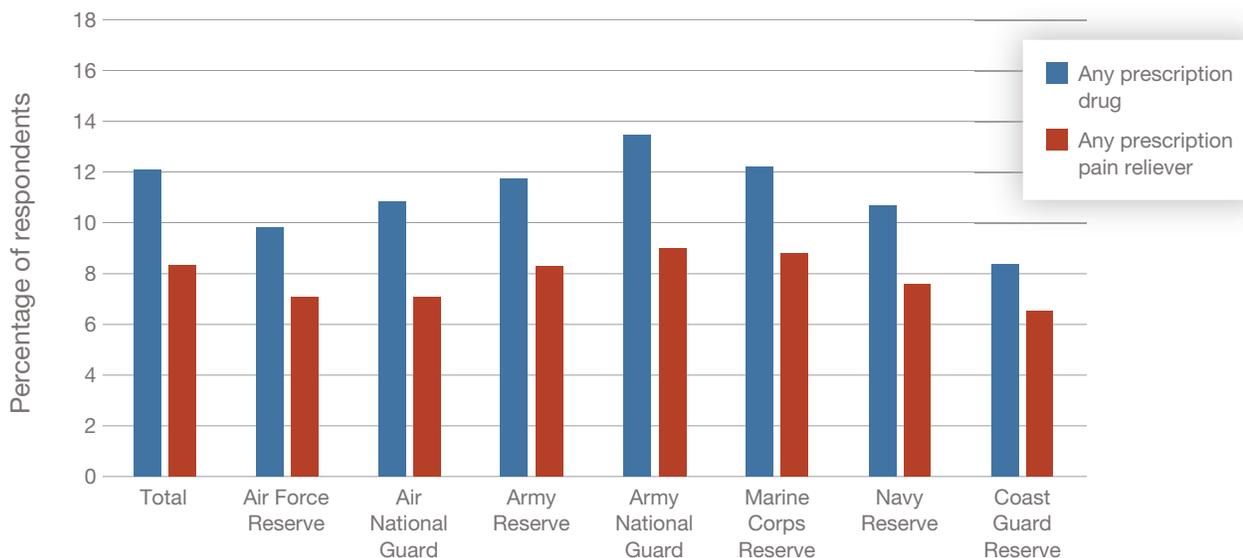
The 2018 HRBS asked respondents about three types of prescription medication. These were stimulants or attention enhancers (e.g., Adderall, amphetamines, Ritalin, prescription diet pills), sedatives (e.g., Ambien, Valium, Xanax, Rohyphol, phenobarbital, ketamine), and pain relievers (e.g., OxyContin/Oxycodone, Percocet, codeine, methadone, hydrocodone, Vicodin). Findings include the following:

- 12.1 percent (CI: 11.4–12.8) of reservists reported any prescription drug use in the past 12 months (Figure 3).

⁸ Wang et al., 2018.

FIGURE 3

Prescription Drug Use in Past 12 Months, by Service Branch



- 2.6 percent (CI: 2.2–3.0) reported using prescription stimulants in the past 12 months. In the 2018 NSDUH, 6.5 percent of U.S. adults reported using stimulants in the past 12 months.⁹
- 4.5 percent (CI: 4.1–4.9) reported using prescription sedatives in the past 12 months. In the 2018 NSDUH, 18.1 percent of U.S. adults reported using sedatives in the past 12 months.
- 8.3 percent (CI: 7.7–8.9) reported using prescription pain relievers in the past 12 months. In the 2018 NSDUH, 33.1 percent of U.S. adults reported using prescription pain relievers in the past 12 months.

The 2018 HRBS asked respondents about any misuse of prescription stimulants, sedatives, or pain relievers. Misuse is use of a prescription drug in any way not directed by a doctor. This could include use without a prescription of one’s own or use in greater amounts, more often, or for longer than prescribed. Across all services, 1.7 percent (CI: 1.3–2.1) of reserve component members reported any prescription drug misuse. Among the three types of prescriptions asked about in the survey, misuse was highest for prescription pain relievers, at 1.0 percent (CI: 0.7–1.3).

⁹ Substance Abuse and Mental Health Services Administration, 2019.

Comparisons with the Active Component

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

- lower likelihood of binge drinking, heavy drinking, and suffering any alcohol consequences and lower perception of military culture being supportive of drinking
- lower likelihood of current use for cigarettes, e-cigarettes, smokeless tobacco, pipe or hookah, and overall tobacco or nicotine products
- greater likelihood of use in the past 30 days and past 12 months of any illicit drug, including marijuana or synthetic cannabis
- lower likelihood of use of any prescription drug, including stimulants, sedatives, and pain relievers.

Conclusions and Policy Implications

Reserve component members were more likely than the general population to be binge drinkers. Small but substantial numbers of the reserve component were also

heavy drinkers, reported consequences from drinking, or viewed military culture as supporting drinking. DoD, the services, and the Coast Guard might wish to promote reserve component alcohol reduction and prevention programs that change cultural beliefs about alcohol use and promote self-care.

Many reserve component service members reported using tobacco in some form. Given the long-term health consequences of use, reducing tobacco use in all forms should be a high priority. DoD, the services, and the Coast Guard should consider ways to facilitate access to intervention and prevention approaches.

Illegal drug use in the past 12 months was more likely in the reserve component than in the active component. Preventing any drug use, including marijuana and synthetic cannabis use, should be a priority given the potential for immediate and long-term effects of drug use, as well as legal complications associated with use of drugs that are illicit at the federal level.

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/RB10117z3. 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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