RESEARCH BRIEF

2018 Health Related Behaviors Survey

Summary Findings and Policy Implications for the Active 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 active component.

This brief presents high-level summary results for broad topics of the HRBS, as well as policy implications of key findings. Where available, estimates of changes since the 2015 HRBS are reported; they rely on regression estimates because the findings for the two surveys are not directly comparable given significant changes in methodology. 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, service members are more likely to be young and male than is the general population), these comparisons are offered only as a benchmark of interest. Ways of improving future iterations of the HRBS are also suggested.

Key Findings

Health Promotion and Disease Prevention

The HRBS examined weight status, physical activity, annual physical assessments, and sleep.

- 33.3 percent (confidence interval [CI]: 32.1–34.5) of service members 20 years of age or older reported heights and weights consistent with federal guidelines for normal weight (the general population HP2020 goal was 33.9 percent or higher); 15.1 percent (CI: 14.2–15.9) were classified as obese (the HP2020 goal was 30.5 percent or less).
- Active component members met or exceeded HP2020 targets for moderate physical activity (MPA), vigorous physical activity (VPA), and strength training.
- 70.3 percent (CI: 69.1–71.4) reported receiving a routine medical checkup in the past 12 months, falling short of the current military standard that all personnel should receive annual checkups.
- 33.3 percent (CI: 32.2–34.3) met HP2020 guidelines for adequate sleep; 13.1 percent (CI: 12.3–13.9) reported using over-the-counter or prescription medications at least once weekly to sleep over the past 30 days.

- To stay awake in the past 30 days, 16.5 percent (CI: 15.5–17.5) reported consuming energy drinks at least three times weekly, 1.2 percent (CI: 0.9–1.4) reported using over-the-counter medications at least three times weekly, and 1.7 percent (CI: 1.4–2.0) reported using prescription medications at least three times weekly.

Substance Use

The HRBS examined use of alcohol, tobacco and nicotine products, marijuana and synthetic cannabis, other drugs, and prescription drugs.

- 34.0 percent (CI: 32.9–35.2) of active component service members were binge drinkers, defined as five or more drinks on the same occasion for men or four or more for women in the past 30 days, and 9.8 percent (CI: 9.0–10.6) were heavy drinkers, defined as binge drinking at least once each week in the past 30 days. In the 2018 National Survey of Drug Use and Health (NSDUH), 26.5 percent of U.S. adults 18 or older were binge drinkers, and 8.9 percent were heavy drinkers.
- 6.2 percent (CI: 5.6–6.9) had experienced serious consequences (for example, getting into a fight) from drinking in the past 12 months, 4.9 percent (CI: 4.3–5.5) reported risky drinking and driving (either as a driver or as a passenger of an inebriated driver), and 5.7 percent (CI: 5.1–6.3) reported work-related productivity loss from drinking.
- 28.2 percent (CI: 27.1–29.4) agreed that military culture was supportive of drinking (for example, that it is hard to "fit in" with one's command if not drinking).
- 37.8 percent (CI: 36.6–39.0) reported currently using tobacco or nicotine products. The National Health Interview Survey suggests that 19.3 percent of the total population currently uses tobacco, though this estimate is not directly comparable with the HRBS estimate.
- 16.2 percent (CI: 15.2–17.3) reported e-cigarette use. Data from the 2017 Behavioral Risk Factor Surveillance System suggest that 4.6 percent of U.S. adults are current e-cigarette smokers.

Methods

RAND fielded the 2018 HRBS among active component and reserve component U.S. military service members in the Air Force, Army, Marine Corps, Navy, and Coast Guard between October 2018 and March 2019. 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 9.6 percent, yielding a final analytic sample of 17,166 responses. Imputation was used to address missing data, a statistical procedure that uses the available data to predict missing values. To represent the active component population, RAND researchers weighted responses to account for the oversampling of service members in certain strata. In this research brief, point estimates and 95-percent CIs are reported.*

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 active component final report at www.rand.org/t/rr4222.

This brief is one of eight on the active component; each of the other seven corresponds to a different chapter in the full report. A similar series of eight briefs discusses findings for the reserve 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.

- 1.3 percent (CI: 0.9–1.7) reported drug use in the past 12 months (for example, using nonprescription cough or cold medicine to get high, nonprescription anabolic steroid use, marijuana or synthetic cannabis use, or such drugs as cocaine or methamphetamines); 0.5 percent (CI: 0.3–0.7) reported drug use in the past 30 days.
- HRBS active component respondents reported lower rates of use in the past 12 months for stimulants, sedatives, and pain relievers than civilians have reported, as well as lower rates of misuse.

Mental and Emotional Health

The HRBS examined mental health, social and emotional factors associated with mental health, perceived unmet treatment needs, barriers to mental health service use, and concerns that mental health treatment would damage one's military career.

- 9.6 percent (CI: 8.7–10.4) reported serious psychological distress in the past 30 days, and 11.5 percent (CI: 10.8–12.3) reported symptoms in the past 30 days indicating probable posttraumatic stress disorder (PTSD). Among the general population, 2.9 to 5.2 percent reported serious psychological distress in the past 30 days, and 3.5 percent met PTSD criteria in the past 12 months.
- 49.1 percent (CI: 47.9–50.3) reported angry or aggressive behavior in the past 30 days.
- 9.6 percent (CI: 9.0–10.2) indicated experiencing unwanted sexual contact since joining the military, with 2.5 percent (CI: 2.1–2.9) indicating that they had experienced such contact in the past 12 months.[1]
- 5.3 percent (CI: 4.8–5.8) indicated experiencing a physical assault since joining the military; 1.1 percent (CI: 0.8–1.4) indicated that they had experienced an assault in the past 12 months. Among the general population at least 12 years of age, 1.7 percent reported experiencing a physical assault in the past 12 months.
- 8.3 percent (CI: 7.5–9.0) of service members reported having thoughts of suicide in the past 12 months, 2.7 percent (CI: 2.3–3.2) reported suicide plans, and 1.2 percent (CI: 0.9–1.6) reported suicide attempts. Among adults 18 or older in the general population, 4.3 percent had thoughts of suicide in the past 12 months, 1.3 percent had suicide plans, and 0.6 percent reported a suicide attempt.
- 25.5 percent (CI: 24.4–26.5) reported using mental health services in the past 12 months; this rate is about 10 percentage points higher than the population prevalence at similar ages in the NSDUH.
- Active component personnel are more likely to see a specialty mental health provider (18.2 percent, CI: 17.2–19.1) than a general medical provider (13.4 percent, CI: 12.6–14.3) for mental health services. By contrast, the general population is more likely to see a general medical provider for mental health services. Active component members seeking mental health services had 11.9 visits (CI: 11.0–12.9) on average in the past 12 months.
- 8.5 percent (CI: 7.8–9.1) of service members reported using a medication for a mental health condition in the past 12 months; among U.S. adults at least 18 years of age, 12.2 percent did so.
- 6.8 percent (CI: 6.2–7.5) of service members reported needing but not receiving mental health services in the past 12 months. The most common reason cited for not receiving services was not realizing they were needed at the time, a finding consistent with research on the civilian population.
- 34.2 percent (CI: 33.1–35.4) of all active component respondents suggested that seeking mental health services damages one's military career.

Physical Health and Functional Limitations

The HRBS examined chronic health conditions, physical symptoms, pain, mild traumatic brain injury (mTBI) and postconcussive symptoms, and self-reported health.

[1] It is important to keep in mind that the Workplace and Gender Relations Survey of Active Duty Members (WGRA) and the HRBS measure different constructs. The WGRA measures *sexual assault*. The HRBS measures *unwanted sexual contact*, which is a broader construct. The HRBS defined *unwanted sexual contact* as "times when someone has touched you in a sexual way, had sex with you, or attempted to have sex with you when you did not consent or could not consent. By sexual contact we mean any sexual touching as well as oral, anal or vaginal penetration." Thus, results are not comparable across the two surveys.

- 40.3 percent (CI: 39.1–41.5) of active component members reported being diagnosed by a physician as having at least one chronic condition. The most commonly reported conditions were bone, joint, or muscle injuries (including arthritis) and back pain.
- The most common physical symptoms that active component members reported experiencing in the past 30 days were bodily pain including headache (29.4 percent, CI: 28.3–30.5), trouble sleeping (20.2 percent, CI: 19.2–21.3), and feeling tired or having low energy (18.4 percent, CI: 17.5–19.4).
- 6.1 percent (CI: 5.4–6.7) of active component members screened positive for mTBI.
- 52.3 percent (CI: 51.1–53.6) reported that their health was very good or excellent.
- On average over the prior 30 days, service members reported missing 0.62 days (CI: 0.54–0.70) of work because of mental or physical symptoms and experiencing 2.19 days (CI: 2.03–2.35) of reduced productivity because of mental or physical symptoms.

Sexual Behavior and Health

The HRBS examined sexual risk behaviors, sexually transmitted infections (STIs) and unintended pregnancies, use of and access to contraception, and human immunodeficiency virus (HIV) testing in the past 12 months.

- 19.3 percent (CI: 18.3–20.4) reported having more than one sex partner in the past 12 months, 34.9 percent (CI: 33.7–36.0) did not use condoms with new sex partners, and 21.8 percent (CI: 20.7–22.9) were at high risk for HIV infection.
- 3.4 percent (CI: 2.9–3.8) reported an STI in the past 12 months.
- 5.5 percent of military women (CI: 4.4–6.5) reported experiencing an unintended pregnancy in the past year; 2.4 percent (CI: 1.0–2.9) of military men reported causing such a pregnancy. Unintended pregnancy during deployment was less than 0.1 percent.
- 16.8 percent (CI: 15.9–17.7) of service members reported that they did not use any contraception at the time of their most-recent vaginal sex. Among servicewomen at risk for unintended pregnancy, only 77.0 percent (CI: 75.0–79.1) used contraception the most-recent time they had sex, below the HP2020 goal of 91.6 percent.
- 25.4 percent (CI: 24.4–26.4) reported using highly effective contraception at the time of most-recent vaginal sex.
- Most service members did not receive contraceptive counseling prior to deployment. Men (14.5 percent, CI: 12.7–16.3) were less likely to receive such counseling than women (39.0 percent, CI: 34.7–43.4).
- 75.8 percent (CI: 74.7–76.9) of service members reported HIV testing in the past 12 months, including 78.6 percent (CI: 71.0–86.2) of male service members who had sex with other men. Among those most at risk for HIV (male service members who had sex with one or more men in the past 12 months, service members who had vaginal or anal sex with more than one partner in the past 12 months, and service members who had an STI in the past 12 months), 81.2 percent (CI: 78.9–83.5) reported having HIV testing in the past 12 months.

Sexual Orientation and Health

The HRBS estimated the percentage of servicemen and servicewomen who are lesbian, gay, or bisexual (LGB) and identified key information about the health-related behavior and health status of LGB service members.

- 3.4 percent (CI: 2.8–4.0) of servicemen and 9.9 percent (CI: 8.7–11.0) of servicewomen reported one or more same-sex partners in the past 12 months.
- 6.3 percent (CI: 5.8–6.9) of service members identified as LGB, including 4.1 percent (CI: 3.5–4.6) of men and 17.6 percent (CI: 16.0–19.2) of women.
- LGB service members were more likely than their non-LGB counterparts to engage in binge drinking or heavy drinking, to use illicit drugs, and to use smokeless tobacco.
- LGB members were more likely than others in the past 12 months to have had sex with a new partner without a condom, to have had more than one sex partner, and to have had an STI. They were also more likely to have had an HIV test in the past six months.
- LGB members were more likely than their non-LGB peers to have had serious psychological distress, probable PTSD, suicidal ideation,

suicide attempts, and angry and aggressive behavior. LGB service members were also more likely to use mental health services, to use medications for mental health issues, and to report more unmet need for treatment.
- LGB members were more likely than their non-LGB peers to indicate having experienced unwanted sexual contact and having been physically assaulted.
- LGB and non-LGB members did not differ significantly in having had a routine physical health assessment, amount of exercise or sleep, use of prescription painkillers, and common chronic conditions.

Deployment Experiences and Health

The HRBS examined the frequency and duration of deployments (both combat and noncombat), combat trauma experience, and deployment experiences and health.

- 60.4 percent (CI: 59.2–61.7) of service members reported that they had deployed at least once.
- 27.3 percent (CI: 26.0–28.7) of all service members who reported having deployed did not report a combat deployment.
- 54.3 percent (CI: 52.9–55.7) of all service members who reported that they had deployed had not done so in the past 12 months.
- 36.2 percent (CI: 34.9–37.5) of all service members who reported that they had deployed also reported one or more traumatic combat experiences. The most common traumatic experience reported was knowing someone killed in combat (22.3 percent, CI: 21.2–23.3); the least common was being wounded in combat (3.0 percent, CI: 2.6–3.5).
- Members who had deployed in the past 12 months were more likely to report binge or heavy drinking and cigarette use. They were more likely to report moderate psychological distress but not PTSD.

Comparisons with the 2015 HRBS

Given methodological changes in the 2018 HRBS, it was not possible to make direct comparisons with earlier versions of the survey. The research team did, however, employ a regression model that allowed them to compare the 2015 and 2018 versions of the HRBS. This approach cannot account for all differences across the two surveys, but when 2015 and 2018 survey questions are the same, it can identify changes that may be of interest to policymakers.

Table 1 shows significant differences between the 2015 HRBS and the 2018 HRBS. Outcomes shown in red are those for which prevalence rates have worsened in recent years. For example, the prevalence of obesity has increased among active component members across surveys, while the proportion reporting strength training at least three times weekly has decreased. Outcomes in green are those for which prevalence rates have improved. For example, the prevalence of no contraceptive use at most-recent sex has decreased in recent years, while the prevalence of using an intrauterine device (IUD) at most-recent sex has increased. Outcomes in orange are those for which there has been no significant change in prevalence between the two surveys.

Policy Implications for Force Readiness, Health, and Well-Being[2]

Health Promotion and Disease Prevention

Sleep health remains a significant military health issue: Most active component members did not report sufficient amounts of sleep, and many described their sleep as bad. DoD and the Coast Guard should educate service members on normal sleep requirements and the consequences of insufficient sleep on performance and health.

An annual checkup is required for all service members, but many did not report having one in the past year. Increasing the proportion who meet this requirement could increase opportunities to address individual health issues and the overall health of the force.

Substance Use

Alcohol misuse remains a persistent and serious threat to military readiness. It has been linked to accidental injury, sexual and physical assault and victimization, intimate partner violence, and physical and mental

[2] Additional implications and recommendations can be found in the full report at www.rand.org/t/RR4222.

TABLE 1

Significant Differences Between the 2015 HRBS and the 2018 HRBS for Select Outcomes

Health Promotion and Disease Prevention	Substance Use	Mental and Emotional Health	Physical Health and Functioning	Sexual Behavior and Health
Underweight	Binge drinking	Any angry behavior in the past 30 days	Bodily pain within the past 30 days (excluding headache)	Two or more sex partners in past year
Normal weight	Heavy drinking	Angry behavior 5 or more times in the past 30 days	Bodily pain within the past 30 days (including headache)	New-partner sex without condom use in the past year
Overweight	Any productivity loss due to drinking	Past-year suicidal thoughts	High physical symptom severity	Condom use during most-recent vaginal sex
Obese	Current cigarette smoker	Past-year suicide attempt	Stomach or bowel problems	STI in past year
MPA for less than 150 minutes per week	Current e-cigarette use	Past-year mental health care service utilization	Back pain	No contraceptive use at most-recent sex
MPA for 150–299 minutes per week	Current pipe or hookah user	Past-year use of medication for mental health problem	Pain in arms, legs, or joints	Used IUD at most-recent sex
MPA for 300 or more minutes per week	Current smokeless tobacco user	Perceived career-related stigma	Headaches	Used implant at most-recent sex
VPA for less than 75 minutes per week	Past-year prescription stimulant use		Chest pain or shortness of breath	Used moderately or most-effective birth control method (women 20–44 years old)
VPA for 75–159 minutes per week	Past-year prescription sedative use		Dizziness	HIV test in past year
VPA for 150 or more minutes per week	Past-year prescription pain reliever use		Feeling tired or having low energy	High risk for HIV
Strength training 3 or more days per week	Past-year drug use (including marijuana)		Trouble sleeping	High risk for HIV tested in past year
Strength training 1–2 days per week	Past-year drug use (excluding marijuana)			Unintended pregnancy in past year
Strength training less than 1 day per week	Past-year marijuana use (including synthetics)			
Routine annual physical exam	Past-30-day drug use (including marijuana)			
Moderate to severe lack of energy due to poor sleep	Past-30-day drug use (excluding marijuana)			
	Past-30-day marijuana use (including synthetics)			

NOTES: Only identical survey items are compared across surveys. Green cells indicate improvement between the 2015 and the 2018 HRBSs. Orange indicates no change between surveys. Red indicates a decline between the 2015 and the 2018 HRBSs.

health problems, including suicide. DoD and the Coast Guard must better understand the culture and climate surrounding alcohol use and seek to implement evidence-based approaches to preventing excessive use.

Reducing use of tobacco and nicotine products is a high priority given the likely long-term health consequences of their use. Intervention and prevention approaches will likely need to be informed by current evidence-based approaches used with civilians and to pay particular attention to beliefs related to e-cigarettes as a replacement for combustible cigarettes.

Mental and Emotional Health

Serious psychological distress was common among service members and remains a significant threat to military readiness. Studies have associated serious psychological distress with a variety of problems, including reduced work function. The widespread perception that mental health treatment is unhelpful and likely to damage one's military career is perhaps the most important obstacle to addressing this problem.

DoD and the Coast Guard should assess the impact of increased mental health confidentiality standards and alternative pathways to care involving informal care, as well as more-formal treatment options. Additional research should also identify the reasons that service members seek mental health care outside of the Military Health System and the impact on service members of civilian versus military mental health services.

Despite substantial investments to understand and prevent suicide among service members, further efforts are needed to address this problem. Increases in suicide ideation underscore the urgent need to identify early precursors to suicide and improve prevention efforts.

Physical Health and Functioning

DoD and the Coast Guard should explore the underlying causes of related absenteeism and presenteeism, as addressing these may be an effective way to reduce lost productivity. Pain is a very common complaint in the military, and DoD and the Coast Guard should continue to seek to reduce pain (e.g., through efforts to reduce musculoskeletal and overuse injuries) and to address pain in the ranks by increasing access to high-quality pain care, particularly to common nonpharmacological approaches.

Sexual Behavior and Health

DoD and the Coast Guard should consider ways to increase the proportion of personnel who receive predeployment contraceptive counseling. Provider educational efforts (e.g., information campaigns, digital apps) should make clear that directives to provide contraceptive counseling are relevant for both men and women. Similar efforts for service members should expand contraceptive counseling for men. Both providers and service members may need added education and training about the benefits of the most-effective contraceptive methods and new DoD contraceptive guidelines.

To address escalating STI rates, DoD and the Coast Guard should consider regular testing for STIs and ensure that condoms are easily available through TRICARE and to service members regardless of location and at no or reduced cost. Such programs can result in increased use of condoms and decreased STI rates without promoting sexual activity or increasing numbers of sex partners. Improvements to the Periodic Health Assessment and process targeting high-risk personnel could enable annual HIV testing and improved prevention for this group.

Sexual Orientation and Health

Broadly targeted health promotion efforts by DoD and the Coast Guard should include LGB-specific considerations, as appropriate, recognizing that LGB individuals are part of the service. Addressing LGB health disparities is unlikely to require the development of programs or policies targeted specifically to this group.

DoD and the Coast Guard should also address the unique mental health needs of LGB personnel. Campaigns to reduce stigma surrounding mental health service use should include messaging and images relevant to LGB personnel and should be tested for acceptability and perceived effectiveness.

Sexual health disparities between LGB and non-LGB populations could be reduced through education of military health providers. Incorrect assumptions about bisexual personnel based on the gender of their current sexual partners might lead to incomplete or incorrect counseling regarding STI prevention.

Implications for Future Iterations of the HRBS

Consider the Use of Survey Incentives

Although the HRBS is now administered completely by internet, its response rates remain a continuing concern. Existing research has shown that incentives can increase response rates. DoD policy permits federal contractors to compensate service members, who are considered federal employees, for survey participation. The next iteration of the HRBS should explore the use of targeted incentives to increase participation among groups with low response rates.

Shorten the Survey and Focus Survey Content

Though the 2018 HRGS took less time to complete than the 2015 version, it was still a lengthy survey that can become tedious for respondents, especially if they have recently answered similar items in other surveys. DoD might consider what overlap there is between the HRBS and other data it already collects. For example, some of the content in the Periodic Health Assessment overlaps with HRBS topics. DoD should consider whether this duplication is necessary, perhaps by first exploring whether the Periodic Health Assessment and the confidential HRBS differ.

An alternative approach would involve the use of modules. Modules might, for example, focus on tobacco use or musculoskeletal injuries. In this approach, not every service member would receive every set of items on the survey but would instead be selected to receive certain modules.

Explore the Use of a Service Member Panel for Tracking Risky Behaviors over Time

As a supplement to the HRBS, DoD could consider a service member panel to gather information about certain health outcomes and health-related behaviors on a real-time basis. Panels are groups of individuals who agree to participate in a series of surveys for a period of time and are replaced at regular intervals. Panels do require constant maintenance to ensure that they remain representative of the population of interest and are not efficient for assessing the prevalence of rare outcomes. They could, however, reduce the overall scope of the HRBS and, thereby, improve its response rates.

Conclusion

HRBS data provide an overview of health outcomes and health-related behaviors across multiple domains affecting force well-being and readiness. The HRBS faces some challenges in the future—decreasing response rates, overlapping content, and competition for resources—but it remains an important source of data for tracking trends, informing policy, and making programmatic decisions.

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 Active 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-4222-OSD, 2021 (available at www.rand.org/t/RR4222). To view this brief online, visit www.rand.org/t/RB10116z1. 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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This brief was updated in July 2026 to correct a coding error that impacted calculations of the prevalence of probable PTSD.