RESEARCH BRIEF

2018 Health Related Behaviors Survey

Deployment Experiences and Health 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 deployment experiences and health. 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, 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.

Frequency and Duration of Deployments

The 2018 HRBS included several questions asking respondents about their deployment experiences. These included the number of times respondents had been deployed and length of and experiences on deployments.

Across all services, 52.9 percent (confidence interval [CI]: 51.7–54.1) of respondents reported having had at least one previous deployment, including both combat and noncombat deployments. Most personnel who had deployed had done so multiple times, with 18.6 percent (CI: 17.9–19.3) having deployed at least three times (Figure 1).

Among those who had deployed, total lifetime duration of deployments varied widely. At one end, 13.5 percent (CI: 12.6–14.5) had deployed for no more than six months; at the other, 6.7 percent (CI: 6.1–7.2) had deployed for more than 48 months. Overall, 60.0 percent (CI: 58.7–61.2) of those who had ever deployed had done so for a total of seven to 24 months (Figure 2). Among those who had deployed, 66.7 percent (CI: 65.4–68.0) had not done so in the past year.

Combat Deployments

Those who had deployed also differed in their experience with combat deployments. Among all who had deployed, 80.3 percent (CI: 79.2–81.5) had at least one combat deployment (Figure 3).

Among all who had deployed, 41.2 percent (CI: 39.9–42.5) reported traumatic combat experience,

such as working with landmines, witnessing members of their unit or an ally unit being seriously wounded or killed, or being wounded in combat at some point in their deployments. The four most commonly reported traumatic combat experiences were knowing well someone who was killed in combat (25.2 percent, CI: 24.1–26.3), witnessing members of one's own unit or an ally unit being seriously wounded or killed (23.1 percent, CI: 22.0–24.2), witnessing civilians being seriously wounded or killed (23.1 percent, CI: 22.0–24.2), and working with landmines or other unexploded ordnance (11.2 percent, CI: 10.3–12.0).

Deployment and Mental and Emotional Health

The HRBS asked respondents about a variety of mental health indicators. It assessed overall mental health status using the Kessler 6 Mental Health Scale (K6), a commonly used measure of nonspecific serious psychological distress. The K6 is designed to distinguish between distress that indicates the presence of a psychiatric disorder that a clinician would recognize and treat and distress that is commonly experienced but not suggestive of a clinical condition. The HRBS also

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.

FIGURE 1

Lifetime Number of Deployments, by Service Branch

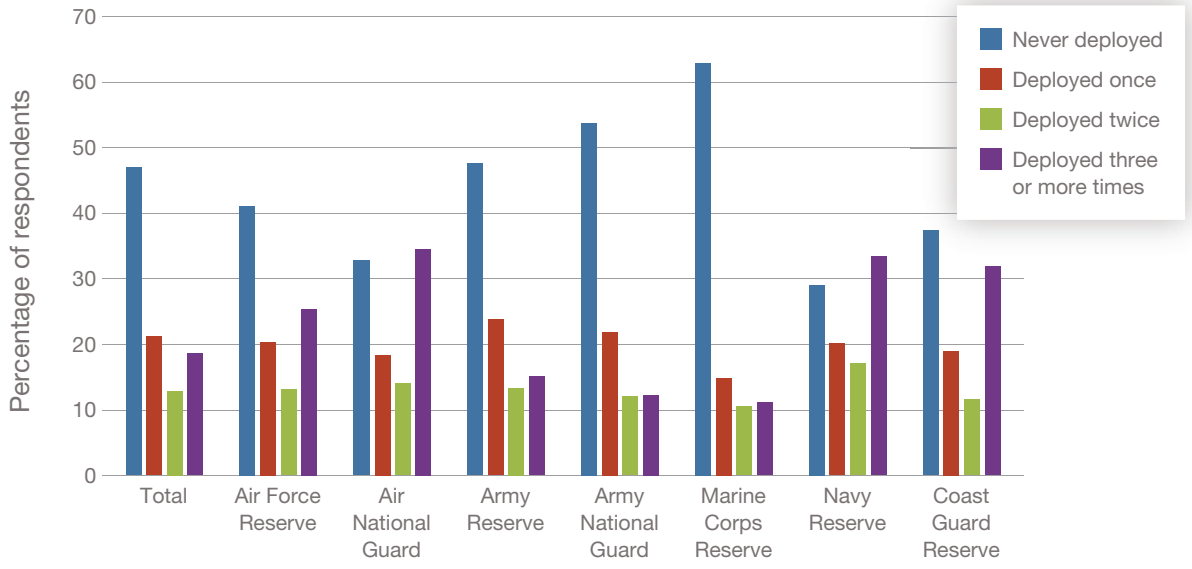


FIGURE 2

Lifetime Duration of Deployments Among Those Who Have Deployed, by Service Branch

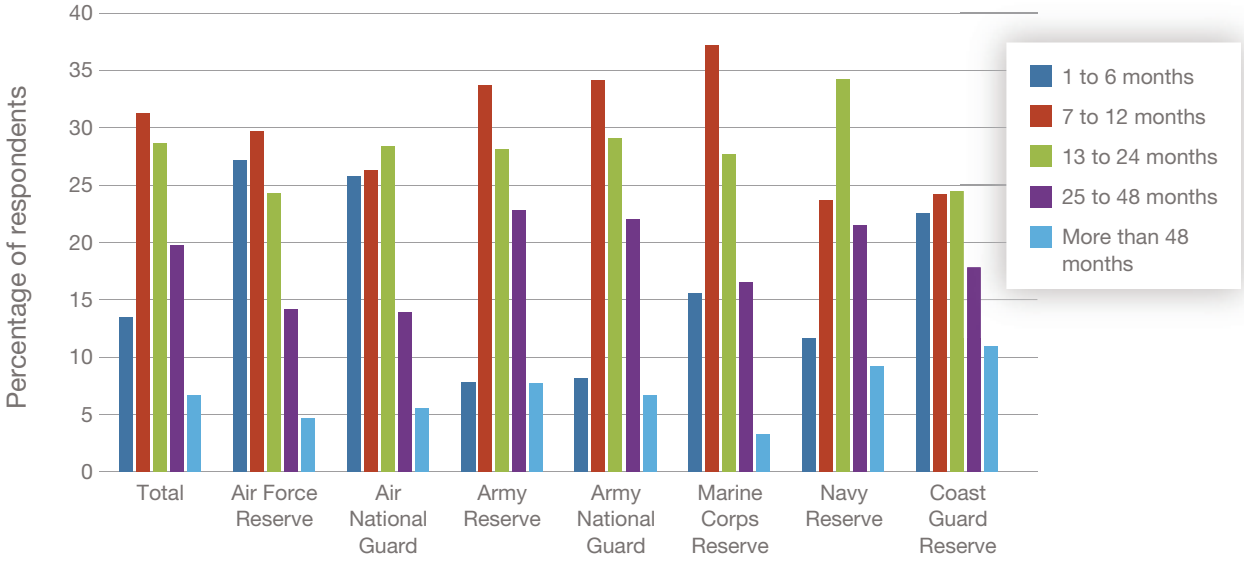
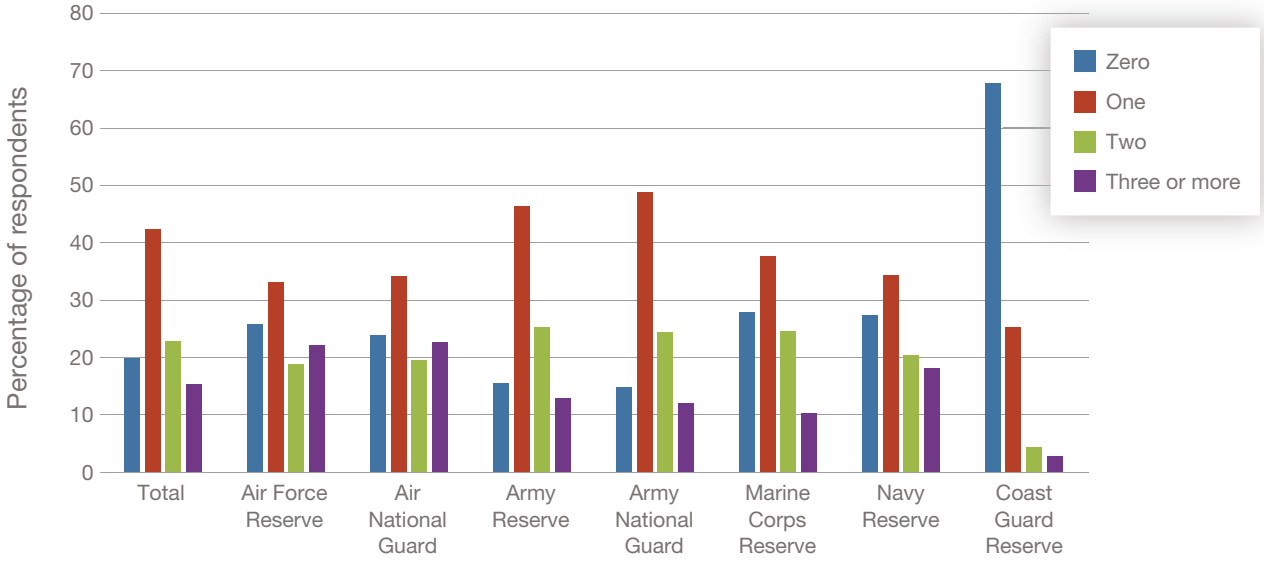


FIGURE 3

Number of Combat Deployments Among Those Who Had Deployed, by Service Branch



included items to indicate probable posttraumatic stress disorder (PTSD) and items on sleep quality.

Significantly fewer recent deployers (8.0 percent, CI: 6.6–9.3)—that is, those who had deployed in the past 12 months—indicated serious distress in the past 12 months on the K6 than did non–recent deployers (11.3 percent, CI: 10.4–12.3). In addition, significantly fewer recent deployers (4.7 percent, CI: 3.7–5.8) indicated serious distress in the past 30 days on the K6 than did non–recent deployers (6.8 percent, CI: 6.1–7.6). There were no statistically significant differences between recent deployers and non–recent deployers in the proportions reporting no to low distress or moderate distress levels in the past 12 months or the past 30 days.

Significantly fewer recent deployers (10.1 percent, CI: 9.3–10.9) indicated probable PTSD than did non–recent deployers (12.0 percent, CI: 10.4–13.6). Significantly fewer recent deployers (13.5 percent, CI: 11.7–15.2) indicated "very good" sleep in the past 30 days than did non–recent deployers (16.3 percent, CI: 15.3–17.4), though there were no statistically significant differences between recent deployers and non–recent deployers in the proportions indicating "fairly good," "fairly bad," or "very bad" sleep.

TABLE 1

Physical Health, by Any Deployment in Past 12 Months

	Deployed in Past 12 Months	Not Deployed in Past 12 Months
Any bodily pain (back, arms, legs, or joints), past 30 days	22.6% (CI: 20.5–24.6)	17.7% (CI: 16.8–18.7)
Any bodily pain including headache, past 30 days	24.7% (CI: 22.6–26.8)	20.3% (CI: 19.3–21.3)
High physical symptom severity, past 30 days	13.1% (CI: 11.4–14.7)	10.5% (CI: 9.8–11.3)
Positive screen for mild TBI, past 12 months	5.7% (CI: 4.6–6.7)	4.0% (CI: 3.5–4.6)
Postconcussive symptoms, past 30 days	3.6% (CI: 2.8–4.4)	2.5% (CI: 2.1–2.9)

Deployment and Physical Health

The HRBS asked whether respondents had any bodily pain symptoms in the past 30 days, asked whether they had any indicators of traumatic brain injury (TBI) in the past 12 months or postconcussive symptoms in the past 30 days, and asked them to provide self-ratings of health. Significantly more recent deployers indicated that they had bodily pain, mild TBI, and postconcussive symptoms (Table 1). There were no statistically significant differences between deployers and non–recent deployers in self-reported health.

Conclusions

The HRBS provides insight on how deployment is associated with reserve component service members' physical and mental health outcomes. Understanding this association is important given that service members often deploy more than once in their career and that the negative consequences for health and health behaviors that result from one deployment could impact readiness for future deployments.

Most 2018 HRBS respondents had experienced at least one deployment since joining the military. Exposure to combat trauma was also common. Smaller proportions of recent deployers than non–recent deployers reported serious distress, but greater proportions of recent deployers than non–recent deployers had a positive screen for pain, mild TBI, and postconcussive symptoms.

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/RB10117z8. 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.
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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.

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