



2014 Health Related Behaviors Survey of Active Duty Personnel

Defense Health Agency

All Services Report

Fall 2015
Defense Health Agency

Analysis of Health Behaviors among Active Duty Personnel

INTRODUCTION

The 2014 Department of Defense (DoD) Health Related Behaviors (HRB) Active Duty Personnel Survey is the twelfth population-based survey about substance use, stress and mental health, and health behaviors related to select Healthy People 2020 objectives among Active Duty personnel. The online survey was fielded from December 2014 to May 2015 using a disproportionate stratified sample of non-deployed personnel on active duty from the four Services (Army, Navy, Air Force, and the Marine Corps). The estimates in this report are based on 45,986 total responses from Active Duty personnel. National Guard and Reserve members in Active Duty programs, deployed personnel, and Coast Guard personnel are not included in the population.

This report presents prevalence estimates of health behaviors among all Active Duty personnel, presenting findings on substance use, physical health, stress and mental health, and deployment. The report also compares estimates of the health behaviors of Active Duty personnel to key Healthy People 2020 objective targets as well as to the 2011 HRB Survey of Active Duty Personnel and the 2014 HRB Survey of Reserve Component Personnel. More detailed analyses on these health topics can be found in topical reports. Appendix I provides more information on the methodology of this survey and analysis.

SUBSTANCE USE

Prevalence Overview

Table 1 presents prevalence of substance use among different sociodemographic categories of Active Duty personnel. Eleven percent (11.1%) of Active Duty personnel are unhealthy drinkers, 15.5% are current smokers, and 15.6% have used smokeless tobacco in the past year.

Differences in unhealthy drinking are detected by age, education level, and marital status, with younger, less-educated, and unmarried personnel being more likely to be unhealthy drinkers. Men are more likely than women to be unhealthy drinkers. Senior officers are less likely than several more junior pay grades to be unhealthy drinkers.

Men are more likely than women to use cigarettes and smokeless tobacco. Gradient patterns are observed in tobacco use by education, age, and pay grade, with personnel in less educated, younger, and enlisted pay grades being more likely to use tobacco than are those of higher categories. Personnel with a high school education or less are approximately five times more likely than personnel with a college degree to be current cigarette

smokers, and approximately three times more likely to be smokeless tobacco users.

Table 1 also presents prevalence of illicit drug use and prescription drug misuse. For this report, illicit substances of interest are marijuana, synthetic cannabis, stimulants (i.e. cocaine, crack, MDMA, and methamphetamine), hallucinogens (i.e., LSD, PCP, and other hallucinogens), opiates (i.e., heroin), sedatives (i.e., GHB/GBL), and inhalants. Respondents were asked about use behavior of four types of prescription medications: stimulants or attention enhancers, sedatives, pain relievers, and anabolic steroids. Respondents are considered misusers if, within the past 12 months, they used a drug not prescribed for them, used a larger dose than was prescribed, or used the drug with the intention of “getting high.”

Overall, past year illicit drug use and prescription drug misuse is low among Active Duty personnel (0.3% and 0.7%).

Table 1: Substance Use and Sociodemographic Characteristics

Sociodemographic Characteristics	Unhealthy Drinking	Current Cigarette Smoking	Past Year Smokeless Tobacco Use	Past Year Overall Illicit Drug Use	Past Year Prescription Misuse
Service					
All Services	11.1% (0.5)	15.5% (0.7) ¹	15.6% (0.6) ¹	0.3% (0.1)	0.7% (0.2) ¹
Gender					
Male	11.6% (0.6) ²	16.2% (0.8) ²	18.0% (0.7) ²	0.3% (0.2)	0.7% (0.2)
Female	8.0% (0.3) ¹	11.5% (0.4) ¹	2.8% (0.2) ¹	0.2% (0.1)	0.7% (0.1)
Race/Ethnicity					
Hispanic	12.1% (1.5)	12.2% (1.4)	9.8% (1.4) ²	0.1% (0.1)	0.5% (0.1)
White, non-Hispanic	12.1% (0.7) ³	16.5% (0.8)	19.5% (0.9) ^{1,3}	0.5% (0.2)	0.9% (0.3)
Black, non-Hispanic	6.2% (0.9) ²	13.3% (2.0)	4.7% (1.1) ^{2,5}	0.2% (0.1)	0.6% (0.2)
Asian, non-Hispanic	9.4% (3.4)	22.2% (4.9)	9.6% (4.3)	–	0.0% (0.0)
Two+ races, non-Hispanic	14.0% (2.7)	15.9% (2.4)	16.8% (2.6) ³	0.0% (0.0)	0.5% (0.4)
Other, non-Hispanic	5.8% (1.5)	15.1% (2.9)	25.6% (6.4)	–	0.4% (0.2)
Education					
High school or less	16.2% (1.5) ^{2,3}	24.8% (1.9) ^{2,3}	25.1% (1.9) ^{2,3}	0.8% (0.5)	1.1% (0.5)
Some college	10.5% (0.7) ¹	17.4% (1.0) ^{1,3}	15.7% (0.9) ^{1,3}	0.2% (0.1)	0.7% (0.2)
College graduate or higher	7.9% (0.5) ¹	5.5% (0.5) ^{1,2}	8.4% (0.4) ^{1,2}	0.1% (0.0)	0.4% (0.1)
Age					
24 or younger	15.3% (1.4) ^{2,3,4}	17.8% (1.6) ⁴	23.1% (1.8) ^{2,3,4}	0.6% (0.4)	1.2% (0.5)
25 – 34	10.3% (0.7) ^{1,4}	15.7% (1.0) ⁴	13.9% (0.8) ^{1,4}	0.3% (0.1)	0.5% (0.1)
35 – 44	8.1% (0.6) ¹	14.3% (1.0) ⁴	12.3% (0.9) ^{1,4}	0.1% (0.1)	0.5% (0.1)
45 or older	7.0% (0.5) ^{1,2}	9.4% (1.0) ^{1,2,3}	7.0% (0.5) ^{1,2,3}	0.1% (0.0)	0.7% (0.3)
Family Status					
Not married	15.4% (1.1) ²	16.0% (1.1)	17.3% (1.2)	0.6% (0.3)	1.3% (0.4) ²
Married	8.4% (0.4) ¹	15.1% (0.8)	14.5% (0.7)	0.2% (0.1)	0.4% (0.1) ¹
Pay Grade					
E1 – E4	12.4% (1.1) ⁶	18.5% (1.4) ^{4,5,6}	19.1% (1.4) ^{3,4,5,6}	0.5% (0.3)	0.9% (0.3)
E5 – E6	11.0% (0.6) ⁶	19.8% (0.8) ^{3,4,5,6}	15.4% (0.7) ^{5,6}	0.3% (0.1)	0.7% (0.2) ⁶
E7 – E9	9.3% (0.4)	14.0% (0.5) ^{2,4,5,6}	12.9% (0.5) ^{1,5,6}	0.0% (0.0)	0.5% (0.1) ⁶
W1 – W5	9.6% (0.7)	7.9% (0.7) ^{1,2,3,5,6}	12.5% (0.8) ^{1,6}	0.0% (0.0)	0.5% (0.1)
O1 – O3	9.7% (0.4) ⁶	3.4% (0.3) ^{1,2,3,4}	10.3% (0.5) ^{1,2,3,6}	0.1% (0.1)	0.5% (0.1)
O4 – O10	7.8% (0.3) ^{1,2,5}	2.2% (0.2) ^{1,2,3,4}	7.6% (0.3) ^{1,2,3,4,5}	0.1% (0.0)	0.2% (0.0) ^{2,3}

Table 1 displays the percentage of Active Duty personnel, by sociodemographic characteristic, classified into select substance use categories, as indicated in the columns. The standard error is presented in parentheses.

Statistical significance tests were conducted between all rows within the same sociodemographic group for each substance use type. A superscripted number beside an estimate indicates that the estimate is statistically significantly different than the estimate that appears in the row number within the same sociodemographic group. For example:

¹Indicates the estimate for unhealthy drinking is statistically significantly different than the estimate in row #1 (Male) at the 95% confidence level after Bonferroni adjustment.

²Indicates the estimate for the unhealthy drinking is statistically significantly different than the estimate in row #2 (Female) at the 95% confidence level after Bonferroni adjustment.

– Not applicable.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, sociodemographics: Q1AD, Q3AD2, Q4, Q12, Q13, Q14, Q15, and Q18; Unhealthy drinking level: Q4, Q45, Q47, Q48, Q55, Q56, Q57, Q58, and Q59; Current cigarette smoker: Q70, Q73, and Q75; Current smokeless tobacco user: Q81 and Q82; Past year overall illicit drug use: Q91, Q92; Past year prescription drug misuse: Q93, Q94.

Comparison to 2011 Active Duty and 2014 Reserve Component Results

This section presents findings from analyses conducted to compare these survey results to results from the 2011 HRB Survey of Active Duty Personnel and from the 2014 HRB Survey of Reserve Component Personnel.

Figure 1 displays the prevalence of unhealthy drinking, current cigarette smoking, and current smokeless tobacco use among Active Duty personnel from both the 2014 and 2011 surveys and Reserve Component personnel from the

2014 survey. Overall, results suggest a decrease in the prevalence of unhealthy drinking since 2011. Unhealthy drinking remains higher in Active Duty personnel than among Reservists.

In terms of tobacco use, results suggest a decrease in cigarette smoking and smokeless tobacco use among Active Duty personnel since 2011. Tobacco use remains higher among Active Duty than among Reserve personnel.

Figure 1: Unhealthy Drinking, Current Cigarette Smoking, Current Smokeless Tobacco among Active Duty Personnel (2014 Active Duty, 2011 Active Duty; 2014 Reserve Component)

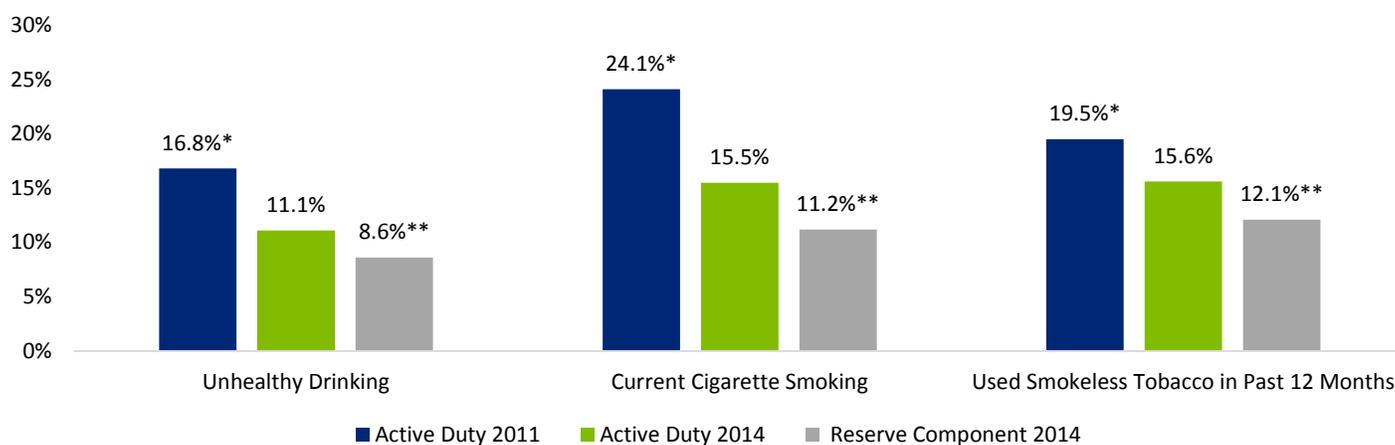


Figure 1 displays the percentage of personnel who are classified as unhealthy drinkers, current cigarette smokers, and current smokeless tobacco users among 2014 and 2011 Active Duty and 2014 Reserve Component populations. Unhealthy drinkers are defined as those who report heavy drinking, frequent binge drinking, or having an AUDIT score equal to or above 8. Current smokers are defined as having smoked at least 100 cigarettes in his/her lifetime and having smoked in the past 30 days. Current smokeless tobacco users are defined as using smokeless tobacco about once a month or more within the past year.

Statistical significance tests were conducted. (*) Indicates the estimate for 2011 Active Duty is statistically significantly different than the estimate for 2014 Active Duty. (**) Indicates the estimate for 2014 Reserve Component is statistically significantly different than the estimate for 2014 Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel: Unhealthy drinking level: Q4, Q45, Q47, Q48, Q55, Q56, Q57, Q58, and Q59; Current cigarette smoker: Q70, Q73, and Q75; Current smokeless tobacco user: Q81 and Q82; 2011 Health Related Behaviors Survey of Active Duty Personnel: Unhealthy drinking status classification: Q4, Q38, Q40, Q41, Q46, Q47, Q48, Q49, Q51; Current cigarette smoker: Q61, Q64, Q65; Current Smokeless Tobacco Use: Q72, Q73.

HEALTHY PEOPLE 2020 COMPARISON OVERVIEW

Figure 2 presents the prevalence of substance use among Active Duty personnel, as well as the related Healthy People 2020 targets identified by the Department of Health and Human Services as health promotion and disease prevention goals for the U.S. population. Prevalence of binge drinking, cigarette smoking, and smokeless tobacco

use within Active Duty exceeds the HP2020 targets. Especially noteworthy is smokeless tobacco use. The HP2020 target for smokeless tobacco use is 0.3%; use is 13.0% among All Services.

Figure 2: Past 30 Day Substance Use among Active Duty personnel and HP2020 Objectives Targets

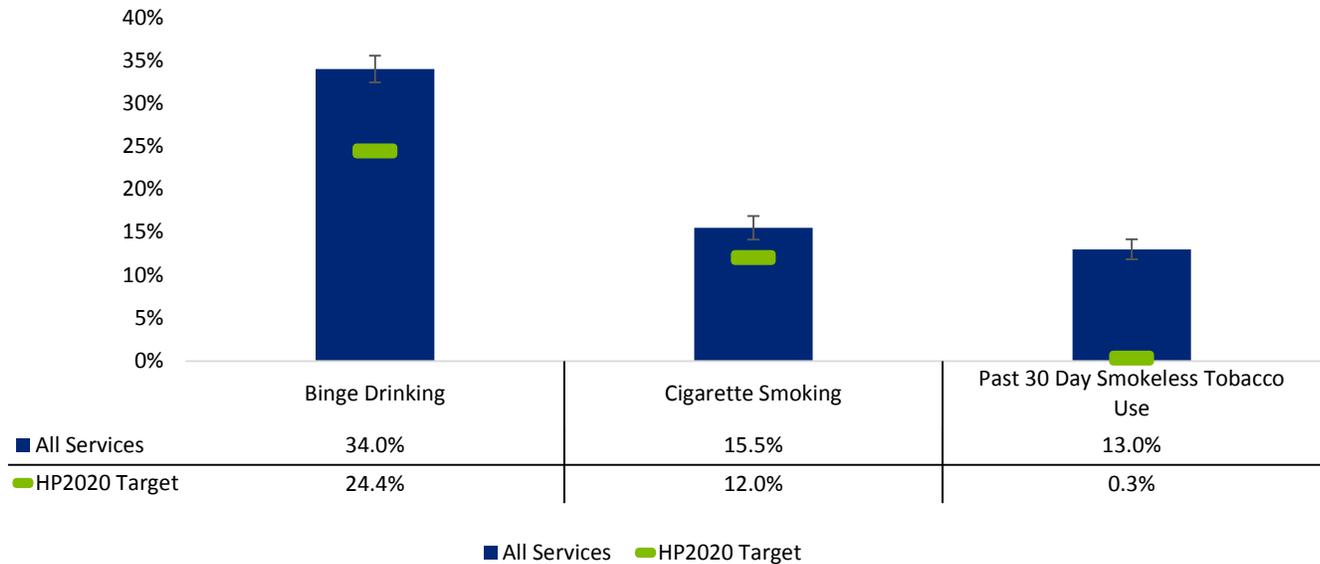


Figure 2 displays the percentage of Active Duty personnel in select HP2020 Objective variables.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Binge drinking: Q59; Cigarette use: Q70, Q73; Smokeless tobacco use: Q81 and Q82.

ALCOHOL CONSUMPTION

Prevalence of Alcohol Consumption

Excessive alcohol consumption is a well-known public health concern. The *Dietary Guidelines for Americans* recommends that adults who choose to consume alcohol do so in moderation. Excessive alcohol consumption is associated with negative health and social consequences.

Health researchers focus on two types of excessive drinking: heavy drinking and binge drinking. Approximately 5.6% of Active Duty personnel are classified as heavy drinkers (defined as having more than seven drinks per week on average for women and more than 14 drinks on average for men). Fifty-nine percent of personnel are classified as light/infrequent drinkers (drinking on average fewer than four drinkers per week) and 16.8% are classified as moderate drinkers (drinking an average of four to 14 drinkers per week).

Binge drinking refers to the intensity of alcohol consumption, specifically the amount of alcohol consumed on one occasion or sitting. Thirty-four percent of Active Duty personnel report binge drinking.

The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item questionnaire designed by the World Health Organization to identify hazardous and harmful alcohol use

by asking about drinking habits, dependence symptoms and harmful drinking use. Approximately 90.5% of Active Duty personnel are classified as low risk AUDIT. Approximately 8.8% are classified as hazardous or harmful drinkers (defined as an AUDIT score between 8 and 19), and 0.7% are classified as possibly dependent drinkers (defined as an AUDIT score of 20 or greater).

To summarize Active Duty personnel with the highest risk of unhealthy drinking using the classification systems in the HRB survey, we created a measure to identify individuals who were classified in at least one of the following excessive alcohol consumption categories: 1) being classified as a heavy drinker, 2) being classified as a high-frequency binge drinker (defined as someone who engages in binge drinking at least once per week, on average), or 3) being identified as a higher risk drinker according to AUDIT score (defined as an AUDIT score \geq 8). We have classified these individuals as unhealthy drinkers to represent their increased risk for negative health and social consequences.

Of unhealthy drinkers, 19.7% are heavy drinkers, 27.1% have an AUDIT score of 8 or higher, and 9.4% engage in high

frequency binge drinking. A greater proportion of Active Duty personnel are classified as having a higher risk AUDIT score (greater than or equal to 8) than are classified as high-frequency binge drinkers or heavy drinkers and therefore account for a greater proportion of unhealthy drinkers.¹

Approximately 44% of unhealthy drinkers were identified as meeting more than one unhealthy drinking criterion: 10.9% are both heavy drinkers and have a higher risk AUDIT score; 10.9% are high frequency binge drinkers with an AUDIT score of 8 or higher; and 4.2% are high frequency binge and heavy drinkers. Nearly 18% of all Active Duty personnel were categorized as having all three types of unhealthy drinking behavior. Figure 3 displays the types of excessive drinking behavior among unhealthy drinkers.

Health and Social Consequences of Alcohol Consumption

Excessive drinking is associated with decreased work productivity, as well as a number of social and health risk behaviors (DoD, 2007). This section provides an overview of three categories of negative drinking-related consequences experienced by Active Duty personnel in the past 12 months: 1) productivity loss, 2) social and health hazards, and 3) risky behaviors.

Overall, unhealthy drinkers are statistically significantly more likely than moderate drinkers to have experienced all three types of negative consequences from drinking at least once in the past 12 months. Figure 4 presents the prevalence of these consequences. Unhealthy drinkers are between five and seven times more likely than moderate drinkers to experience these consequences once in the past 12 months.

Figure 3: Types of Unhealthy Drinking Among Unhealthy Drinkers

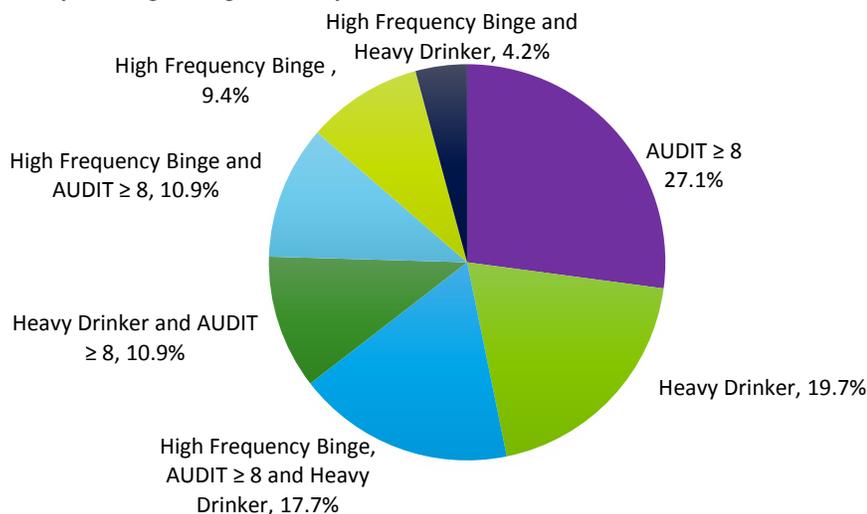


Figure 3 displays the distribution of unhealthy drinking patterns among unhealthy drinkers in Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, unhealthy drinking classification: Q4, Q45, Q47, Q48, Q55, Q56, Q57, Q58, and Q59.

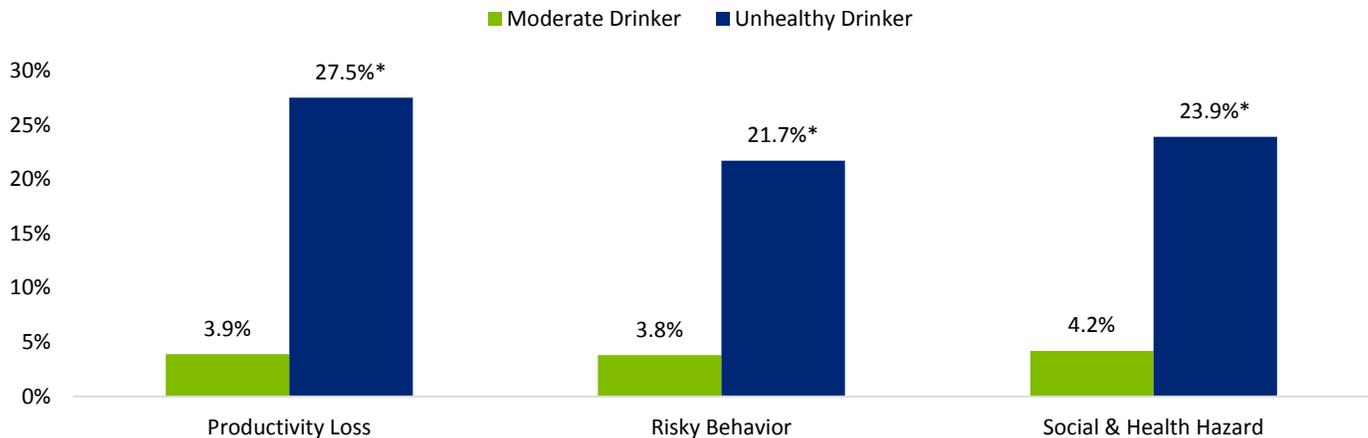
Figure 4: Negative Drinking Consequences, by Unhealthy Drinking Classification

Figure 4: displays the percentage of Active Duty military personnel, by unhealthy drinking classification, who reported experiencing a negative consequence one or more times in the past 12 months.

Statistical significance tests were conducted between unhealthy drinking status estimates. A superscripted symbol (*) beside the unhealthy drinker estimate indicates that it is statistically significantly different than the moderate drinker estimate.

Source: 2014 Health Related Behaviors Survey of Active Duty Service Personnel, unhealthy drinking classification; negative consequences: Q52, Q53, and Q54

Treatment for Alcohol Issues

The DoD has a priority to prevent and eliminate problematic substance use to maintain a ready force. To help support personnel, the DoD offers evaluation as well as inpatient and outpatient treatment programs to personnel who meet certain entry criteria (DoD 2014). A number of other community resources exist for military personnel who may need counseling or treatment for excessive alcohol use. This section presents findings on the likelihood of personnel seeking alcohol treatment as well as treatment options most likely to be utilized.

Among Active Duty personnel, 6.0% of unhealthy drinkers report that they are likely to seek treatment in the next six months. Figure 5 presents the likelihood of using various forms of treatment and assistance for alcohol problems among unhealthy drinkers. Among unhealthy drinkers, a military chaplain is the most likely form of treatment (46.0%), followed by outpatient counseling (45.7%), Alcoholics Anonymous (42.0%), and Military OneSource (41.7%).

Figure 5: Likelihood of Using Each Form of Treatment or Assistance, by Unhealthy Drinkers

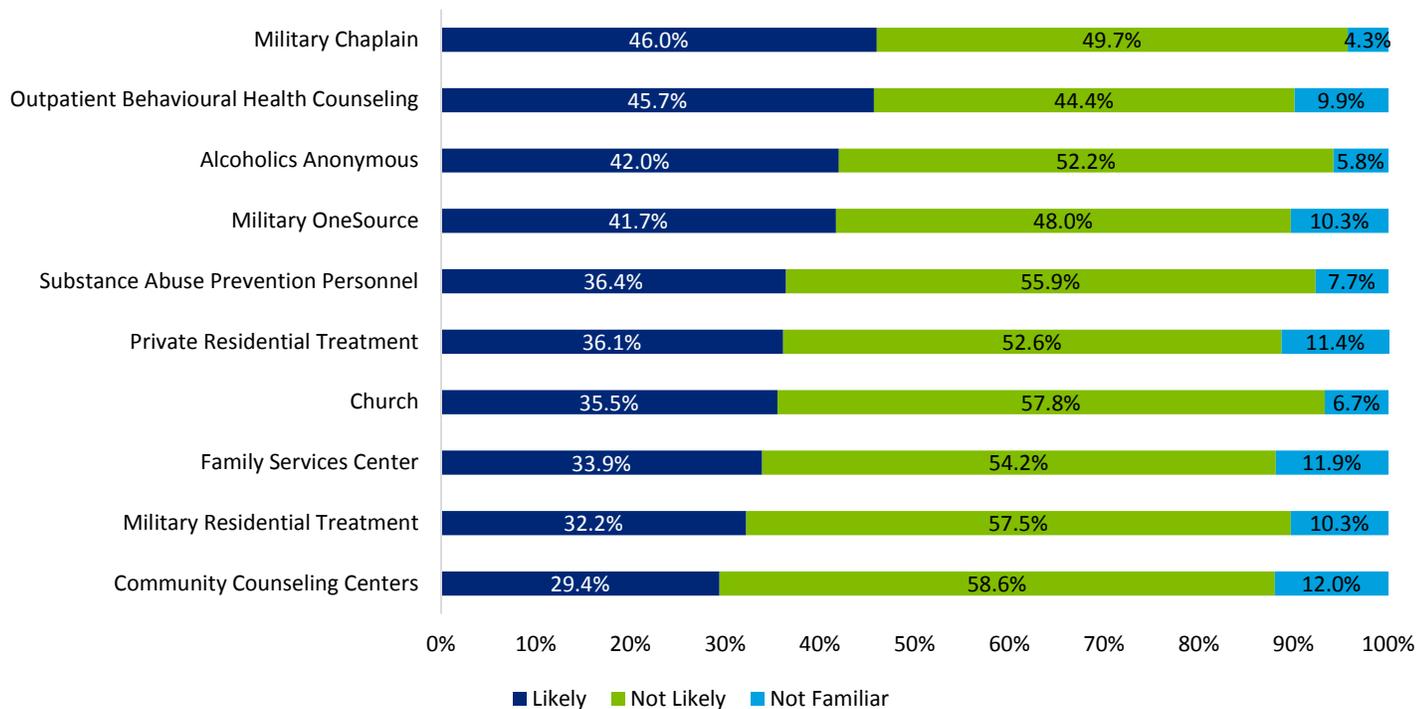


Figure 5 displays the percentage of Active Duty military personnel classified as unhealthy drinkers, who indicated likelihood of using each form of treatment or assistance. Likely to use form of treatment estimate comprises response choices "absolutely certain," "probably," and "possibly."

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, unhealthy drinker classification; likely to use treatment: Q66

TOBACCO USE

Table 2 displays cigarette smoking and smokeless tobacco use prevalence among Active Duty personnel. Approximately 15.5% of personnel are current cigarette smokers (either infrequent, light/moderate and heavy smokers). Approximately 9.1% of Active Duty personnel smoke daily (light/moderate and heavy both signify daily smoking).

Approximately 15.5% of Active Duty personnel are current smokeless tobacco users. Approximately 10.5% use smokeless tobacco daily.

Figure 6 displays the use of alternative forms of tobacco in the past 12 months by Active Duty personnel.

Table 2: Cigarette Smoking and Smokeless Tobacco Classification

	All Services
Smoking Classification	
Abstainer	66.0% (0.7)
Former	18.5% (0.5)
Infrequent	6.4% (0.5)
Light/Moderate	7.8% (0.4)
Heavy	1.3% (0.1)
Smokeless Tobacco Classification	
Abstainer	71.0% (0.7)

All Services	
Former	13.4% (0.5)
Infrequent	5.0% (0.4)
Some days	4.1% (0.4)
Every day	6.4% (0.4)

Table 2 displays the percentage of Active Duty personnel who were classified in the cigarette and smokeless tobacco use levels indicated in the rows. The standard error is presented in parentheses.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Services: Q1AD, Cigarette smoking classification: Q70, Q73, Q75; Smokeless tobacco level classification: Q81, Q82.

Figure 6: Prevalence of Alternative Forms of Tobacco Use in Past 12 Months

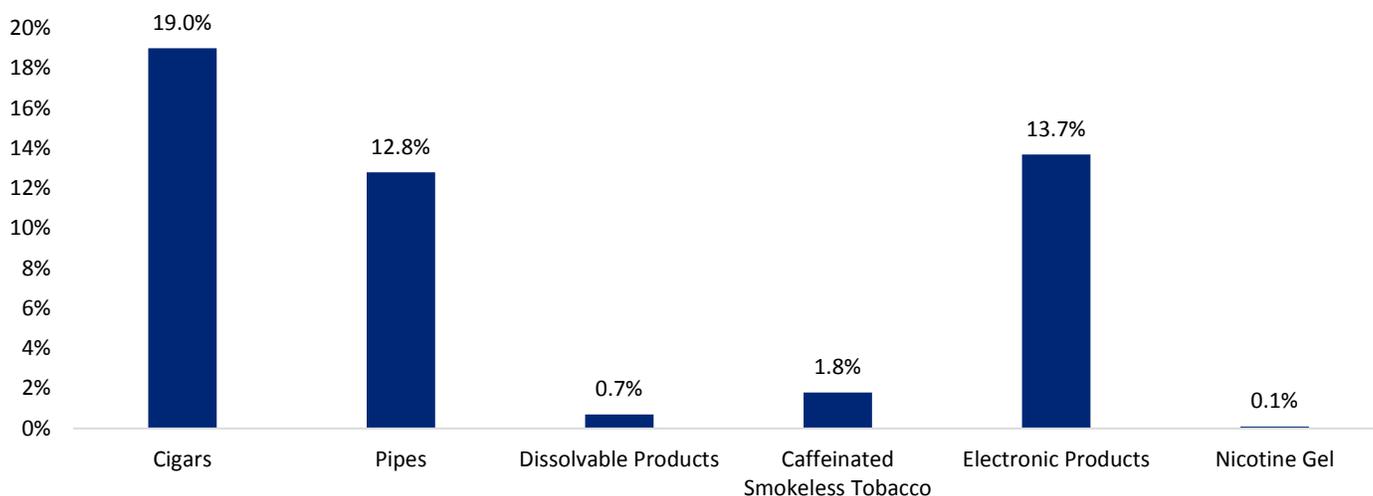


Figure 6 displays the percentage of Active Duty Service personnel who reported use of tobacco products in the past 12 months.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Services: Q1AD; Any nicotine use: Q72, Q82, Q87, Q88.

Reasons for Smoking

Figure 7 displays the reasons that current Active Duty smokers cite for smoking. More than 70% of personnel report smoking to relieve stress or to relax or calm down (72.6% and 71.5%, respectively). Other reasons commonly cited include when drinking alcohol (53.8%) and to relieve boredom (48.4%).

Deterrents and Reduction

More than half (53.5%) of Active Duty personnel indicate that their immediate supervisors somewhat or strongly discourage cigarette smoking, while 52.4% indicate that their immediate supervisors somewhat or strongly discourage chewing/smokeless tobacco use. A larger percentage of personnel report their installation discourages cigarette use (64.4%) and smokeless tobacco use (61.5%).

Figure 8 presents cessation methods that current cigarette smokers and smokeless tobacco users who intend to quit in the next six months might use. Among current cigarette smokers, a gradual decrease (59.0%), stopping all at once (58.3%), and prescription medication (30.5%) are the most frequently cited cessation methods. The least favored cessation methods are hypnosis (12.6%), UCANQUIT2 online support (9.7%), and TRICARE telephone quit counselors (3.1%). Among current smokeless tobacco users, stopping all at once (55.3%) is the most frequently cited cessation method, following by a gradual reduction approach (32.8%), and prescription medication (22.4%) are the most popular cessation methods. Hypnosis (9.4%), UCANQUIT2 online support (5.5%), and TRICARE (2.2%) are the least popular cessation methods for current smokeless tobacco users.

Figure 7: Reasons for Smoking among Current Smokers

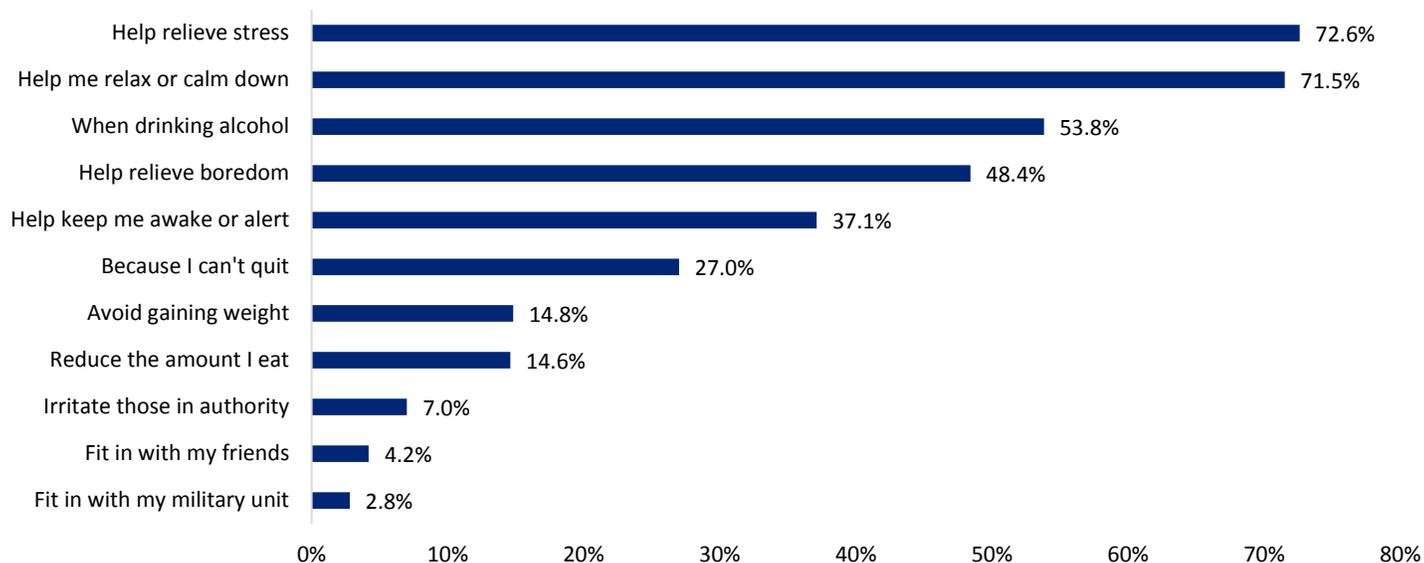


Figure 7 displays the percentage of Active Duty personnel categorized as current cigarette smokers who indicated the reasons for smoking cigarettes to be “very important” or somewhat important.”

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Current smokers: Q70, Q73, Q75; Reasons for smoking: Q80.

Figure 8: Likelihood of Using Reduction Methods for Cigarette Smokers and Smokeless Tobacco Users Likely to Quit in the Next 6 Months, by Method

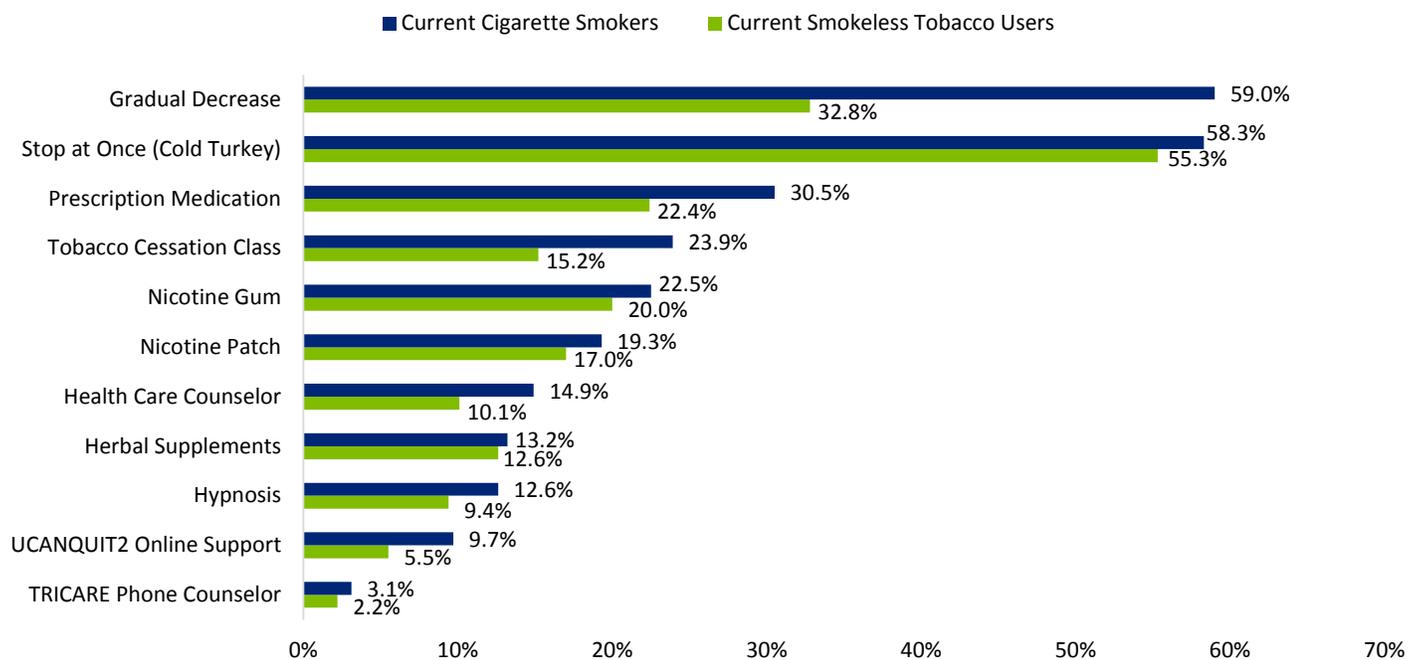


Figure 8 displays the percentage of Active Duty military personnel who are likely to quit cigarettes or smokeless tobacco in the next six months, by the type of treatment or reduction method they are likely to use. Personnel classified as “likely to quit” responded that they are “absolutely certain” or “probably” going to quit using cigarettes or smokeless tobacco within the next six months.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, likeliness to quit: Q79,Q86, treatment methods: Q90.

PREScription DRUG USE AND MISUSE

The Centers for Disease Control and Prevention (CDC) recognize the rise in prescription drug use as the fastest growing drug problem in the United States (CDC, 2012).

Prevalence of Prescription Drug Use

Respondents were asked about their use behavior of four types of prescription medications: stimulants or attention enhancers (amphetamines, Ritalin, etc.), sedatives (Ambien, Quaalude, Valium, etc.), pain relievers (Oxycodone, Percocet, Methadone, etc.) and anabolic steroids (Deca Durbolin, Testosterone, etc.). A respondent

was considered a misuser if, within the past 12 months, they used a drug that was not prescribed for them, used a larger dose than was prescribed, or used the drug with the intention of “getting high.”

Approximately 9.1% of Active Duty personnel report using a prescription drug in the past 12 months. Approximately 0.7% of Active Duty personnel report misusing a prescription drug in the past year.

Figure 9 shows the prevalence of prescription drug misuse by prescription type. Pain relievers and sedatives are the most commonly misused prescription drugs.

Figure 9: Past Year Prescription Drug Misuse

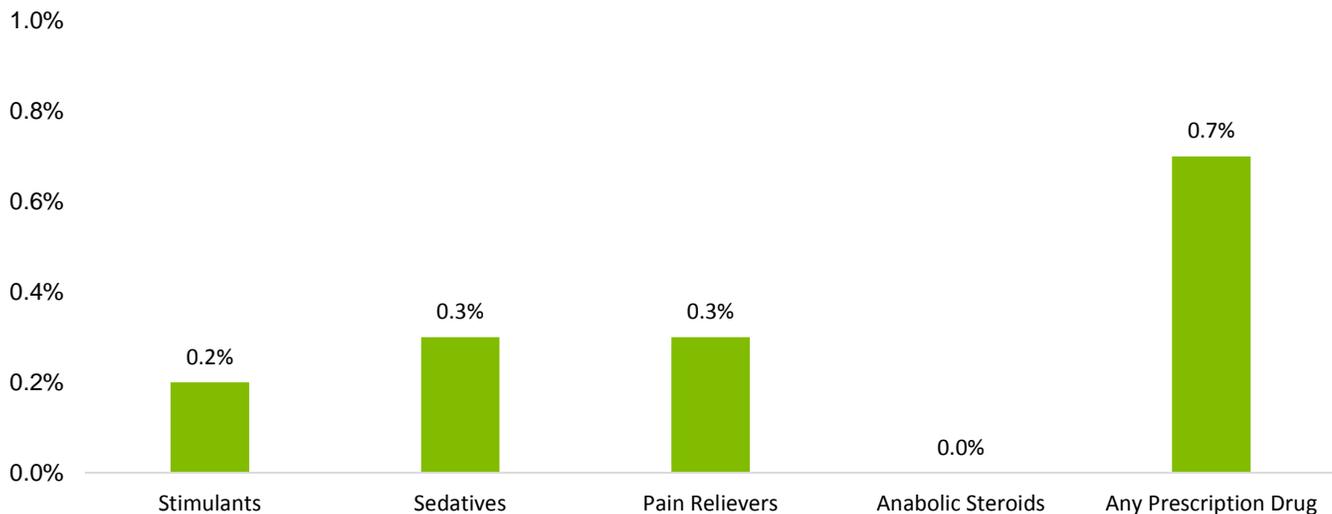


Figure 9 shows the prevalence of past year prescription drug misuse among Active Duty personnel.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, overall prescription drug misuse classification: Q93, Q96, Q97 and Q99; sociodemographic categories: Q1AD, Q3AD2, Q4, Q12, Q13, Q14, Q15, Q18.

PHYSICAL ACTIVITY AND HEALTHY LIFESTYLE BEHAVIORS

To be eligible to enlist and to maintain compliance after enlisting, Active Duty personnel must meet certain physical activity criteria. Criteria are based on age and gender and include meeting standards for completed push-ups, sit-ups, and running two miles (Active Duty Personnel Center, 2015) as indicators of overall physical health. This section explores physical health measures among Active Duty personnel, including weight, exercise, nutrition, and protective health behaviors. Table 3 illustrates key physical health

measures among the Active Duty by sociodemographic characteristics.

Overview of Physical Activity and Healthy Lifestyle Measures

Overall, 32.7% of Active Duty personnel are at a healthy weight, and 33.3% have optimum sleep levels. Additionally, 96.8% have passed their most recent fitness test. Approximately 13.9% consume vegetables three or more

times per day and 11.3% consume fruit three or more times per day. Seventy-seven percent of Active Duty personnel meet physical activity targets.

Differences in many healthy lifestyle behaviors are detected among gender, as women are less likely to meet the physical activity target and to have passed their most recent fitness test and are more likely to eat fruit and vegetables. Women are also more likely than men to have a healthy weight based on Body Mass Index classification. Body Mass Index (BMI) is a standard measure that considers age, gender, height, and weight to categorize individuals into underweight, healthy weight, overweight, and obese categories (CDC Division of Nutrition, Physical Activity, Obesity, 2015). BMI is acknowledged to misclassify

individuals with a high percentage of muscle, such as athletes and soldiers.² Men are considerably more likely than women to be classified as overweight (55.8% and 37.7%).

Differences by age and pay grade are also detected; younger personnel are more likely to be at a healthy weight and meet the physical activity target than are older personnel. Personnel in junior enlisted and junior officer pay grades are more likely to be at a healthy weight as compared with other pay grades. Enlisted personnel are more likely to meet physical activity targets than other personnel, though officers are more likely to pass their fitness test and more likely to meet optimum sleep levels.

Table 3: Sociodemographic Characteristics of Personnel in Healthy Lifestyle Categories

Sociodemographic Characteristic	Healthy Weight	Meet HP2020 Physical Activity Target	Passed Most Recent Physical Fitness Test	Have Optimum Sleep Levels	Consume Vegetables Three or More Times Per Day	Consume Fruit Three or More Times Per Day
Service						
All Services	32.7% (0.7)	76.8% (0.5)	96.8% (0.3)	33.3% (0.7)	13.9% (0.5)	11.3% (0.5)
Gender						
Male	29.0% (0.8) ²	77.7% (0.6) ²	97.0% (0.3) ²	32.7% (0.8) ²	13.0% (0.6) ²	10.5% (0.6) ²
Female	53.3% (0.5) ¹	71.6% (0.5) ¹	95.5% (0.3) ¹	37.0% (0.6) ¹	18.8% (0.4) ¹	15.4% (0.4) ¹
Race/Ethnicity						
Hispanic	28.1% (1.8) ⁵	80.6% (1.1)	96.2% (0.9)	29.8% (1.9) ²	13.4% (1.3)	11.0% (1.3)
White, non-Hispanic	33.1% (0.8)	75.5% (0.7)	96.6% (0.4)	36.2% (0.9) ^{1,3,5}	13.6% (0.6)	10.7% (0.6)
Black, non-Hispanic	30.3% (2.0)	77.4% (1.5)	97.6% (0.4)	28.9% (2.2) ²	16.9% (1.8)	14.9% (1.7) ⁴
Asian, non-Hispanic	44.0% (4.5)	79.4% (2.3)	98.5% (0.5)	31.2% (3.9)	9.2% (1.5)	6.3% (1.2) ³
Two+ races, non-Hispanic	41.6% (3.1) ¹	72.9% (2.6)	97.4% (0.7)	25.3% (2.6) ²	15.0% (2.5)	12.1% (2.4)
Other, non-Hispanic	22.9% (5.0)	83.7% (2.6)	96.2% (1.4)	26.8% (4.1)	11.2% (2.0)	12.5% (2.3)
Education						
High school or less	40.0% (1.8) ^{2,3}	78.1% (1.4)	95.8% (0.7)	25.0% (1.8) ^{2,3}	11.1% (1.2)	9.9% (1.3)
Some college	29.2% (0.9) ¹	77.2% (0.8)	96.3% (0.4)	29.9% (1.0) ^{1,3}	14.6% (0.8)	11.5% (0.7)
College graduate or higher	32.6% (1.0) ¹	74.9% (0.7)	98.5% (0.2)	45.1% (1.0) ^{1,2}	14.8% (0.6)	12.0% (0.6)
Age						
24 or younger	48.7% (1.7) ^{2,3,4}	80.2% (1.2) ^{3,4}	95.8% (0.7) ^{2,3,4}	28.0% (1.6) ^{2,3,4}	12.6% (1.1)	11.4% (1.2)
25 – 34	30.6% (1.0) ^{1,3,4}	76.4% (0.8)	96.6% (0.4) ¹	36.5% (1.2) ¹	15.2% (0.8)	11.4% (0.7)
35 – 44	20.7% (0.9) ^{1,2}	74.2% (0.8) ¹	97.9% (0.2) ^{1,4}	33.0% (1.1) ¹	13.2% (0.5)	11.1% (0.7)
45 or older	19.6% (0.8) ^{1,2}	73.9% (1.0) ¹	98.2% (0.4) ^{1,3}	36.9% (1.1) ¹	12.9% (0.8)	10.8% (0.7)
Family Status						
Not married	40.1% (1.3) ²	79.0% (0.9) ²	96.6% (0.4) ²	30.6% (1.3) ²	13.3% (0.9)	11.6% (1.0)

Sociodemographic Characteristic	Healthy Weight	Meet HP2020 Physical Activity Target	Passed Most Recent Physical Fitness Test	Have Optimum Sleep Levels	Consume Vegetables Three or More Times Per Day	Consume Fruit Three or More Times Per Day
Married	28.2% (0.8) ¹	75.4% (0.6) ¹	97.0% (0.3) ¹	34.9% (0.8) ¹	14.2% (0.6)	11.1% (0.5)
Pay Grade						
E1 – E4	41.7% (1.5) ^{2,3,4,6}	80.4% (1.1) ^{2,3,4,5,6}	95.8% (0.6) ^{4,5,6}	30.7% (1.6) ^{4,5,6}	13.7% (1.1)	11.6% (1.1)
E5 – E6	24.3% (0.7) ^{1,3,4,5,6}	74.9% (0.7) ^{1,6}	96.5% (0.3) ^{4,5,6}	29.1% (0.8) ^{4,5,6}	14.1% (0.6)	11.2% (0.5)
E7 – E9	16.9% (0.4) ^{1,2,5,6}	74.0% (0.5) ^{1,6}	98.5% (0.1) ^{4,5,6}	30.3% (0.6) ^{4,5,6}	12.8% (0.4) ⁶	10.0% (0.4) ⁶
W1 – W5	19.1% (0.9) ^{1,2,5,6}	74.5% (1.0) ¹	98.9% (0.2) ^{1,2,3,5,6}	36.9% (1.2) ^{1,2,3,5,6}	11.0% (0.7) ^{5,6}	9.2% (0.7) ⁶
O1 – O3	38.9% (0.7) ^{2,3,6,4}	73.5% (0.6) ¹	98.5% (0.2) ^{1,2,3,4}	49.1% (0.8) ^{1,2,3,4}	15.0% (0.5) ⁴	11.1% (0.4)
O4 – O10	28.2% (0.5) ^{1,2,3,4,5}	71.5% (0.5) ^{1,2,3}	98.6% (0.1) ^{1,2,3,4}	45.3% (0.6) ^{1,2,3,4}	14.8% (0.4) ^{3,4}	12.0% (0.3) ^{3,4}

Table 4 displays the percentage of Active Duty personnel, by sociodemographic characteristic, classified by healthy lifestyle measures, as indicated in the columns. The standard error is presented in parentheses.

Statistical significance tests were conducted between all rows within the same sociodemographic group for each healthy lifestyle measure. A superscripted number beside an estimate indicates that the estimate is statistically significantly different than the estimate that appears in the row number within the same sociodemographic group. For example:

¹Indicates the estimate for healthy weight is statistically significantly different than the estimate in row #1 (Male) at the 95% confidence level after Bonferroni adjustment.

²Indicates the estimate for healthy weight is statistically significantly different than the estimate in row #2 (Female) at the 95% confidence level after Bonferroni adjustment.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Healthy weight: Q4, Q16, Q17; Physical Activity Target: Q26, Q27; Optimum Sleep Levels: Q151; Passed Most Recent Physical Test: Q42; Consume vegetables or fruits three or more times per day: Q34; sociodemographic variables: Q1AD, Q3AD2, Q4, Q12, Q13, Q14, Q15, Q18, Q59.

Comparisons between Active Duty 2011 and Reserve Component 2014

We conducted analyses to draw comparisons between these survey results and those from the 2011 HRB Survey of Active Duty Personnel and the 2014 HRB Survey of Reserve Component Personnel. Figure 10 displays the percentage of personnel who were classified as being a healthy weight or obese and as meeting HP2020 physical activity and sleep targets. Results suggest that the proportion of Active Duty personnel at a healthy weight has diminished since 2011, while the proportion classified as obese has increased. A

similar proportion of Reserve personnel classify as healthy weight and obese as compared with Active Duty personnel.

The proportions of personnel meeting the HP2020 physical activity and sufficient sleep targets have remained similar to those in 2011. Reservists and National Guard personnel are less likely than Active Duty personnel to meet the HP2020 physical activity target. However, Reservists and National Guard personnel are more likely than Active Duty personnel to achieve optimum sleep levels.

Figure 10: Body Mass Index (BMI) Categories, Meets Physical Activity Target and Has Optimum Sleep Levels (Active Duty 2011; Active Duty 2014; Reserve Component 2014)

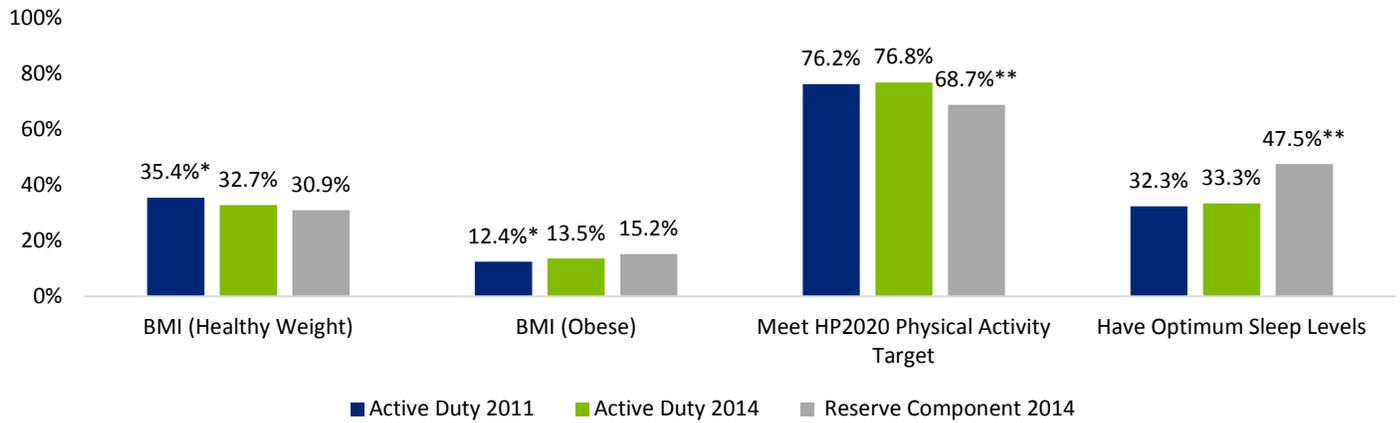


Figure 10 displays the percentage of Active Duty personnel who 1) are classified as being a healthy weight, 2) are classified as being obese, 3) met the HP2020 target for physical activity and 4) met the HP2020 target for sufficient sleep among 2014 and 2011 Active Duty and 2014 Reserve Component populations.

Statistical significance tests were conducted. (*) Indicates the estimate for 2011 Active Duty is statistically significantly different than the estimate for 2014 Active Duty. (**) Indicates the estimate for 2014 Reserve Component is statistically significantly different than the estimate for 2014 Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel, BMI Calculation: Q4, Q15, Q16, Q17; Physical activity target: Q26, Q27; Optimum sleep levels: Q151; 2011 Health Related Behaviors Survey of Active Duty Personnel, BMI Calculation: Q4, Q15, Q16, Q17; Physical activity target: Q23, Q24; Optimum sleep levels: Q141.

Overview of Healthy Lifestyle Behaviors and Healthy People 2020 Targets

Figure 11 displays the prevalence of key healthy lifestyle measures among Active Duty personnel and offers comparisons to Healthy People 2020 targets. Active Duty personnel exceed the Healthy People 2020 targets for physical activity, higher levels of physical activity, seat belt

use and motorcycle helmet use. Additionally, the proportion of Active Duty personnel who classify as obese is considerably below the HP2020 target. The proportion of Active Duty personnel obtaining optimum sleep levels is below the target.

Figure 11: Healthy Lifestyle Indicators and HP2020 Objectives

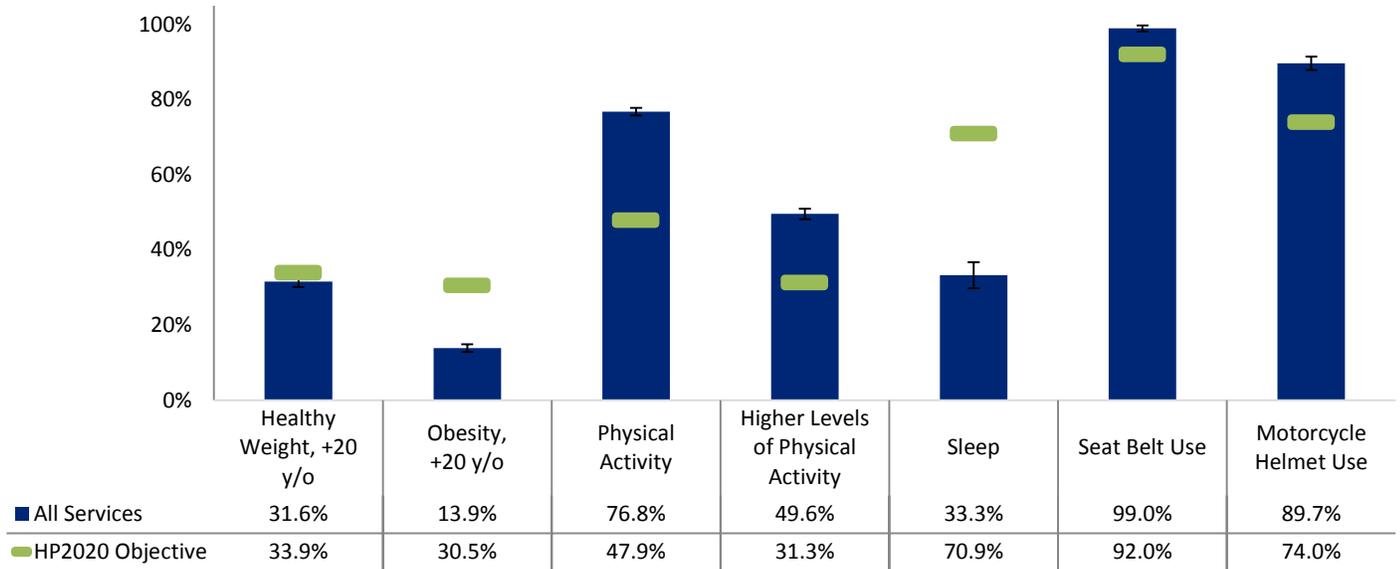


Figure 11 displays the percentage of All Active Duty personnel in select HP2020 Objective variables.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Healthy weight and obesity among those 20 years or older: Q4, Q15, Q16, Q17; Physical activity: Q26, Q27; Sleep: Q15 and Q151; Seat belt use: Q115; Motorcycle helmet use: Q118a.

Physical Activity

National physical activity guidelines recommend 150 minutes of moderate physical activity or 75 minutes of vigorous physical activity per week, or a mixture of both. This is considered to be enough physical activity to gain considerable health benefits. Additional and more extensive benefits can be achieved through higher levels of physical activity. To achieve these benefits, adults should engage in 300 minutes of moderate intensity or 150 minutes of vigorous intensity, or an equivalent combination of both (Health.gov Physical Activity Guidelines, 2008). Approximately 76.8% of Active Duty personnel meet the baseline physical activity guidelines, and 49.6% of Active Duty personnel meet the higher level physical activity guidelines.

Dietary Intake

National nutritional guidelines encourage the consumption of fruits and non-starchy vegetables to improve overall health (Dietary Guidelines, 2010). Overall,

13.9% of Active Duty personnel consume vegetables three or more times a day, and 11.3% consume fruit three or more times a day. Gender is associated with healthy eating habits, as more female Active Duty personnel report eating fruits and vegetables three times a day than males (15.4% and 18.8% vs. 10.5% and 13.0%).

OVERALL PHYSICAL HEALTH

Figure 12 displays the frequency with which poor physical health has kept personnel from usual activities in the past 30 days. Seventy percent of Active Duty personnel have not abstained from usual activities due to poor physical health. Thirteen percent of Active Duty personnel have been kept from their usual activities once a week or more.

Table 4 displays data on medical care and diagnoses. Seventy-seven percent of Active Duty personnel are current on annual health assessments. Prevalence of heart-related diagnosis in the past two years is under 10%.

Figure 12: Frequency with Which Poor Physical Health Kept Personnel from Usual Activities in the Past 30 Days

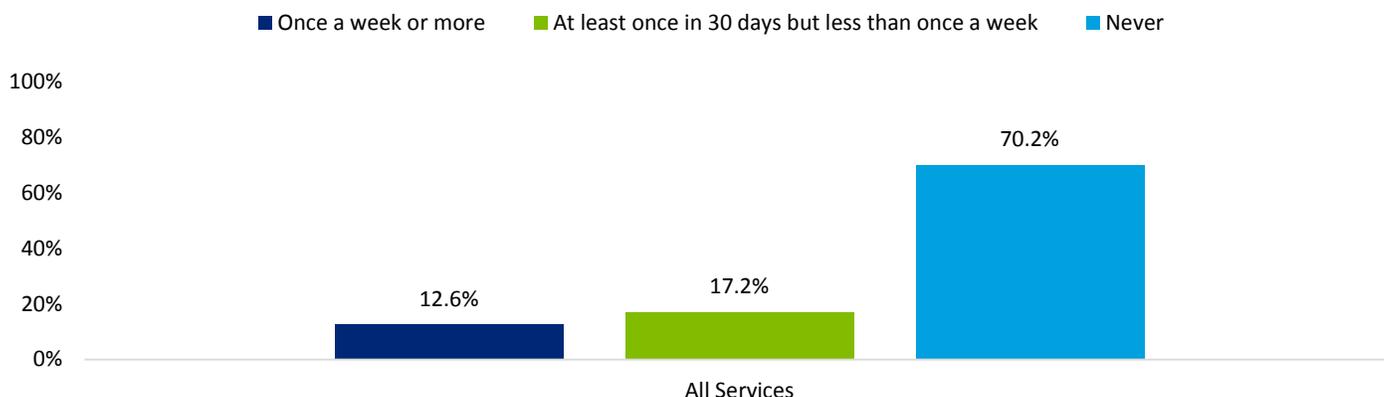


Figure 12 displays the percentage of Active Duty personnel who were unable to perform their usual activities due to poor physical health in the past 30 days, by the number of times they were kept from usual activities.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Impact of poor physical health: Q40.

Table 4: Receipt of Medical Care and Health Condition Diagnoses

Health Measure	Active Duty
Receipt of Preventative Health	
Yes, Current on Annual Health Assessments	77.1% (0.7)
Heart-Related Diagnoses in Past Two Years	
High Blood Pressure	9.4% (0.4)
High Blood Sugar	1.5% (0.2)
High Cholesterol	6.6% (0.3)
Low HDL Cholesterol (Good Cholesterol)	3.4% (0.2)
High Triglycerides (Blood Fat)	3.2% (0.2)

Table 4 displays the percentage of Active Duty personnel who received preventative health care, and who were diagnosed with select health conditions in the past two years. The standard error is presented in parentheses.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Annual health assessment: Q39; Heart-related diseases: Q33.

STRESS AND MENTAL HEALTH

Stress and Mental Health Overview

The demanding nature of military service can create stressors for military personnel that can lead to stress at work or in family and intimate relationships, anxiety, depression and other mental health disorders (Bray et al., 2009). Research suggests that work, family, and finances as well as mental health problems like anxiety, depression and PTSD (Bray et al., 2006) are common stressors for military personnel.

Table 5 presents the prevalence of key mental health measures by sociodemographic characteristics. According to self-reported symptoms, 38.4% of Active Duty personnel

are classified as having high stress levels, 8.4% are classified with high levels of depression, 17.2% are classified with high anxiety levels, and 0.6% report having attempted suicide in the past year. Differences by gender exist in mental health measures, with statistically significantly greater proportions of women reporting high levels of stress, depression and anxiety, and suicide attempts than men.³ Differences also exist by pay grade and education, with enlisted personnel and those with less education being more likely than officers and those with more education to report high levels stress, depression, and anxiety.

Table 5: Sociodemographic Characteristics of Personnel in Stress and Mental Health Categories

Sociodemographic Characteristic	High Overall Stress Level	High Depression Level	High Anxiety Level	Past Year Attempted Suicide
Services				
All Services	38.4% (0.8)	8.4% (0.4)	17.2% (0.6)	0.6% (0.1)
Gender				
Male	36.9% (0.9) ²	7.7% (0.5) ²	16.0% (0.7) ²	0.5% (0.2) ²
Female	46.6% (0.6) ¹	12.0% (0.4) ¹	23.6% (0.5) ¹	0.9% (0.1) ¹
Race/Ethnicity				
Hispanic	39.8% (2.1) ³	11.3% (1.3)	19.5% (1.7) ³	0.6% (0.3)
White, non-Hispanic	40.5% (1.0) ^{3,4}	7.8% (0.5)	18.1% (0.8) ³	0.6% (0.2)
Black, non-Hispanic	27.4% (1.9) ^{1,2,5}	8.5% (1.5)	11.3% (0.9) ^{1,2,5}	0.6% (0.2)
Asian, non-Hispanic	29.6% (4.2) ²	7.3% (1.7)	12.7% (3.2)	0.1% (0.1)
Two+ races, non-Hispanic	43.3% (3.0) ³	8.7% (1.3)	20.9% (2.1) ³	0.9% (0.5)
Other, non-Hispanic	36.7% (4.7)	10.0% (2.9)	15.6% (3.1)	0.0% (0.0)
Education				
High school or less	41.0% (2.0)	10.5% (1.2) ³	21.4% (1.7) ³	0.3% (0.1)
Some college	40.4% (1.2) ³	9.0% (0.6) ³	18.7% (0.9) ³	0.9% (0.3)
College graduate or higher	33.3% (0.8) ²	6.0% (0.5) ^{1,2}	11.8% (0.5) ^{1,2}	0.3% (0.1)
Age				
24 or younger	40.9% (1.9) ⁴	10.1% (1.0)	18.3% (1.4)	0.6% (0.2)
25 – 34	39.2% (1.2) ⁴	8.6% (0.7)	17.8% (1.0)	0.7% (0.3)
35 – 44	36.6% (1.1) ⁴	7.0% (0.6)	16.0% (0.8)	0.4% (0.1)
45 or older	29.6% (1.1) ^{1,2,3}	6.0% (0.6)	14.0% (0.9)	0.4% (0.3)
Family Status				
Not married	37.7% (1.4) ²	8.4% (0.6)	15.3% (1.0) ²	0.7% (0.2)
Married	38.8% (0.9) ¹	8.4% (0.6)	18.3% (0.7) ¹	0.5% (0.2)
Pay Grade				
E1 – E4	39.2% (1.7)	10.0% (0.9) ^{5,6}	18.6% (1.3) ^{5,6}	0.9% (0.3)
E5 – E6	41.7% (0.9) ^{3,4,6}	9.3% (0.5) ^{5,6}	19.7% (0.7) ^{5,6}	0.6% (0.2) ⁶
E7 – E9	34.0% (0.6) ²	7.2% (0.4) ^{5,6}	17.0% (0.5) ^{5,6}	0.3% (0.1)
W1 – W5	33.9% (1.2) ²	6.5% (0.6) ⁶	17.0% (0.9) ^{5,6}	0.1% (0.1)
O1 – O3	36.7% (0.7) ⁶	4.4% (0.3) ^{1,2,3}	10.3% (0.5) ^{1,2,3,4}	0.2% (0.1)
O4 – O10	31.1% (0.5) ^{2,5}	3.9% (0.2) ^{1,2,3,4}	9.9% (0.3) ^{1,2,3,4}	0.1% (0.0) ²

Table 5 displays the percentage of Active Duty personnel, by sociodemographic characteristic, who were classified as having high overall stress, high anxiety, high depression, and have attempted suicide in the past year, as indicated in the columns. The standard error is presented in parentheses.

Statistical significance tests were conducted between all rows within the same sociodemographic group for each mental health category. A superscripted number beside an estimate indicates that the estimate is statistically significantly different than the estimate that appears in the row number within the same sociodemographic group. For example:

¹Indicates the estimate for high overall depression level is statistically significantly different than the estimate in row #1 (Male) at the 95% confidence level after Bonferroni adjustment.

²Indicates the estimate for high overall depression level is statistically significantly different than the estimate in row #2 (Female) at the 95% confidence level after Bonferroni adjustment.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Sociodemographics: Q1AD, Q3AD2, Q4, Q12, Q13, Q14, Q15, Q18; Stress: Q127, Q128; Depression: Q133; Anxiety: Q134; Past Year Suicide Attempt: Q147, Q148.

Stress

Thirty-eight percent of Active Duty personnel report high levels of stress. Generally, it appears that a greater proportion of personnel find military-related events to be stressful compared with personal events, particularly among personnel with high overall stress. Between 19.7%

and 60.0% of personnel with high stress levels indicated that a military-related event caused a lot or some stress, with the most frequent stressors being about work load, balancing responsibilities, and being away from family and friends. Sixty percent of those with high stress levels report

feeling stress due to changes in workload, 52.8% report stress due to conflicts between military and family or personal responsibilities, and 48.9% feel stress from being away from family and friends.

In contrast, between 7.6% and 33.6% of personnel with high stress levels indicate that a personal event caused them stress in the past 12 months. The most common personal stressors are health problems (33.6% and 32.3%) and problems with money (33.3%).

Depression and Anxiety

Among Active Duty personnel, 8.4% report high levels of depression, and 17.1% report high levels of anxiety. Figure 13 presents the prevalence of high depression, high anxiety, high PTS, and lifetime suicide attempts among personnel with high and low combat exposure. Ten percent of Active Duty personnel with high combat exposure report high depression levels, a greater proportion than those with low combat exposure (6.5%). The prevalence of high anxiety among Active Duty personnel is 24.2% in those with high

combat exposure, a greater proportion than those with low combat exposure (11.1%). The prevalence of PTS is 9.5% among Active Duty personnel with high combat exposure, which is also statistically significantly higher than those with low combat exposure (2.6%).

Suicide

Approximately 12.5% of Active Duty personnel have considered suicide in their lifetime, and 3.5% have attempted suicide in their lifetime.

In the past year, 0.6% of Active Duty personnel have attempted suicide. Nearly two percent (1.8%) attempted suicide before joining the military, 1.2% attempted suicide since joining the military, and an additional 0.3% of Active Duty personnel have attempted suicide both before and since joining the military.

There is no statistically significant difference in lifetime suicide attempts and combat exposure.

Figure 13: Prevalence of High Depression, High Anxiety, PTS and History of Suicide Attempt by Level of Combat Exposure

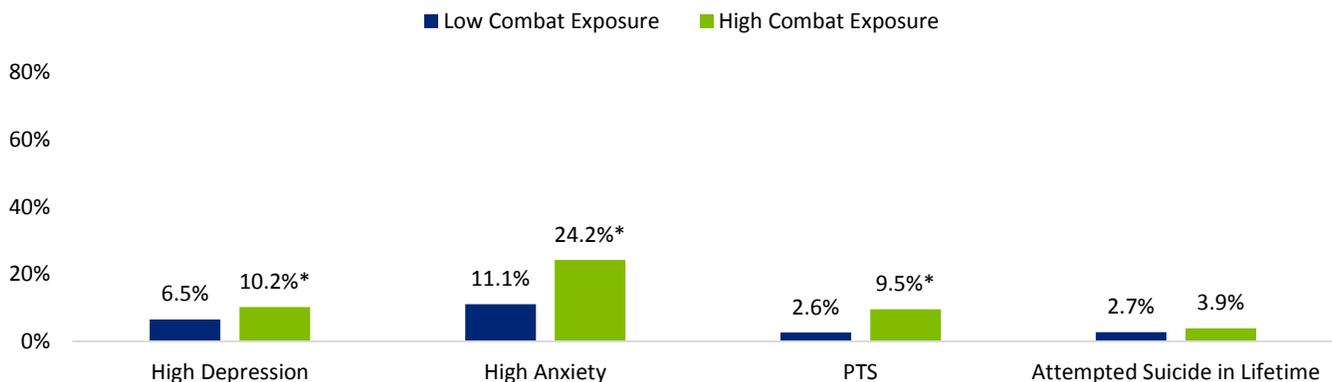


Figure 13 displays the percentage of Active Duty personnel with a high and low level of combat exposure who are classified with a high depression level, high anxiety level, high PTS level, and who report having attempted suicide in their lifetime.

Statistical significance testing was conducted between low and high estimates. A superscripted symbol (*) beside the high estimate indicates that the two estimates are statistically significantly different.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Combat exposure: Q173, Depression: Q133, Anxiety: Q134; PTS: Q136; Suicide attempts: Q147.

Comparisons between Active Duty 2011 and Reserve Component 2014

This section describes results of an analysis conducted to draw comparisons between this survey and the 2011 HRB Survey of Active Duty Personnel and the 2014 HRB Survey of Reserve Component Personnel. Figure 14 displays the percentage of Active Duty personnel who were classified having high overall stress, high levels of depression, or high

levels of anxiety. Results suggest that the proportion of Active Duty personnel with high overall stress and depression have decreased since 2011. The prevalence of high anxiety has remained approximately constant since 2011. Smaller proportions of Reserve Component

personnel report high overall stress, depression, or anxiety as compared with Active Duty personnel.

Figure 15 shows the percentage of personnel who have considered suicide in the past 12 months and who have attempted suicide in the past 12 months. Among Active Duty personnel, past-year suicide consideration estimates have increased since 2011, from 3.9% to 4.7%. Past-year

suicide consideration is similar between 2014 Active Duty personnel and 2014 Reserve Component Personnel.

The prevalence of suicide attempts in the past 12 months has increased since 2011 among Active Duty personnel, from 0.5% to 0.6%. There are no statistically significant differences in suicide attempts between 2014 Active Duty and Reserve Component Personnel.

Figure 14: Prevalence of High Overall Stress, Depression and Anxiety among Active Duty Personnel (Active Duty 2011; Active Duty 2014; Reserve Component 2014)

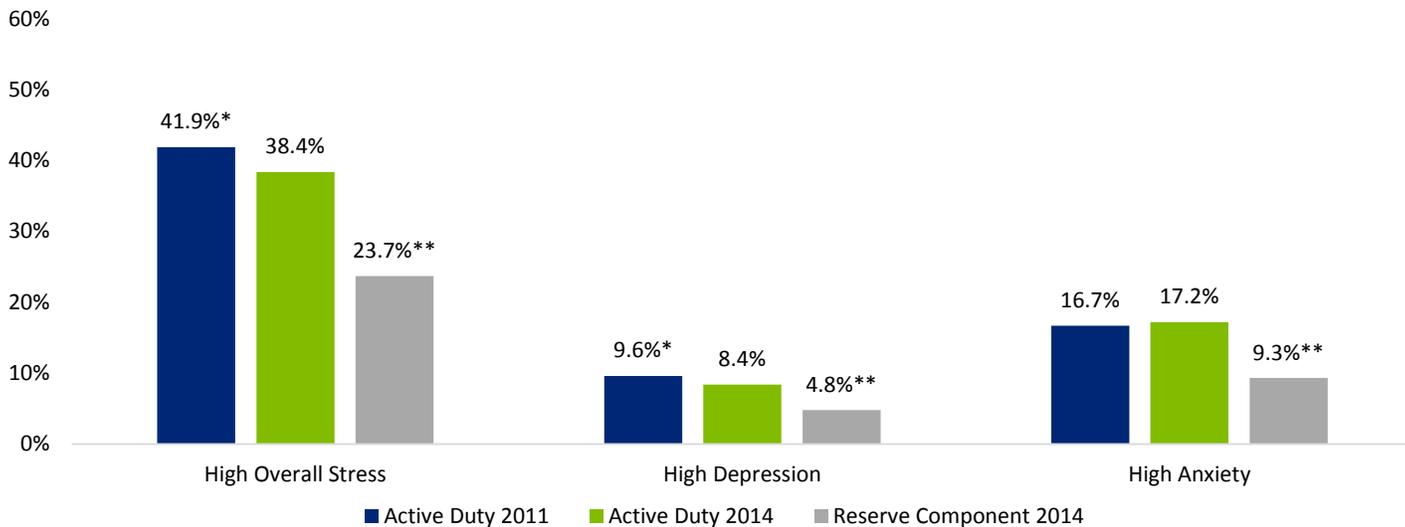


Figure 14 displays the percentage of Active Duty personnel who are classified as having 1) high overall stress, 2) high depression and 3)) high anxiety among 2014 and 2011 Active Duty and 2014 Reserve Component Active Duty populations.

Statistical significance tests were conducted. (*) Indicates the estimate for 2011 Active Duty is statistically significantly different than the estimate for 2014 Active Duty. (**) Indicates the estimate for 2014 Reserve Component is statistically significantly different than the estimate for 2014 Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel, Stress: Q127, Q128, Depression: Q133, Anxiety: Q134; 2011 Health Related Behaviors Survey of Active Duty Personnel, Stress: Q119, Q120, Depression: Q125, Anxiety: Q126.

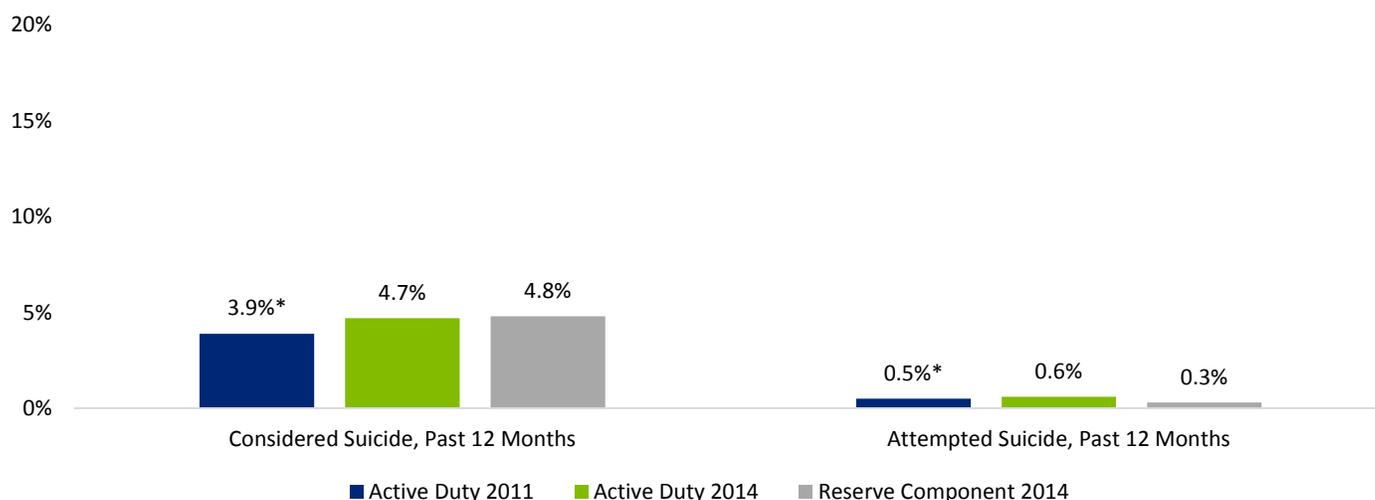
Figure 15: Prevalence of Past Year Suicide Ideation and Attempts among Active Duty Personnel (Active Duty 2011; Active Duty 2014; Reserve Component 2014)

Figure 15 displays the percentage of Active Duty personnel who are classified as having 1) considered suicide within the past year and 2) attempted suicide within the past year among 2014 and 2011 Active Duty and 2014 Reserve Component Active Duty populations.

Statistical significance tests were conducted. (*) Indicates the estimate for 2011 Active Duty is statistically significantly different than the estimate for 2014 Active Duty. (**) Indicates the estimate for 2014 Reserve Component is statistically significantly different than the estimate for 2014 Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel, Suicide Attempt: Q147, Q148; 2011 Health Related Behaviors Survey of Active Duty Personnel, Suicide Attempt: Q137, Q138.

Treatment

Figure 16 shows the percentage of personnel with high levels of depression, high stress, high anxiety, and high PTS who felt they needed treatment, and the proportion of those individuals who received treatment. Those with mental health problems are more likely than the overall population to report needing treatment. Personnel with high PTS and high depression are most likely to perceive a need for treatment. Among personnel with mental health problems, between 69.7 and 77.9% of those who perceived a need for mental health treatment received it.

Results indicate that negative perceptions of mental health treatment may be associated with mental health problems. More than half of individuals with high levels of depression, anxiety, and PTS believe that seeking mental health treatment would damage their career (55.0%, 54.4%, 65.6% respectively), and 46.6% of personnel with high stress believe that treatment would be career damaging. In comparison, less than one-third of personnel with low levels of these mental health issues believe that treatment would damage their careers.

Figure 16: Prevalence of Needing and Receiving Treatment among the Overall Population and Personnel with Depression, Stress, Anxiety and PTS

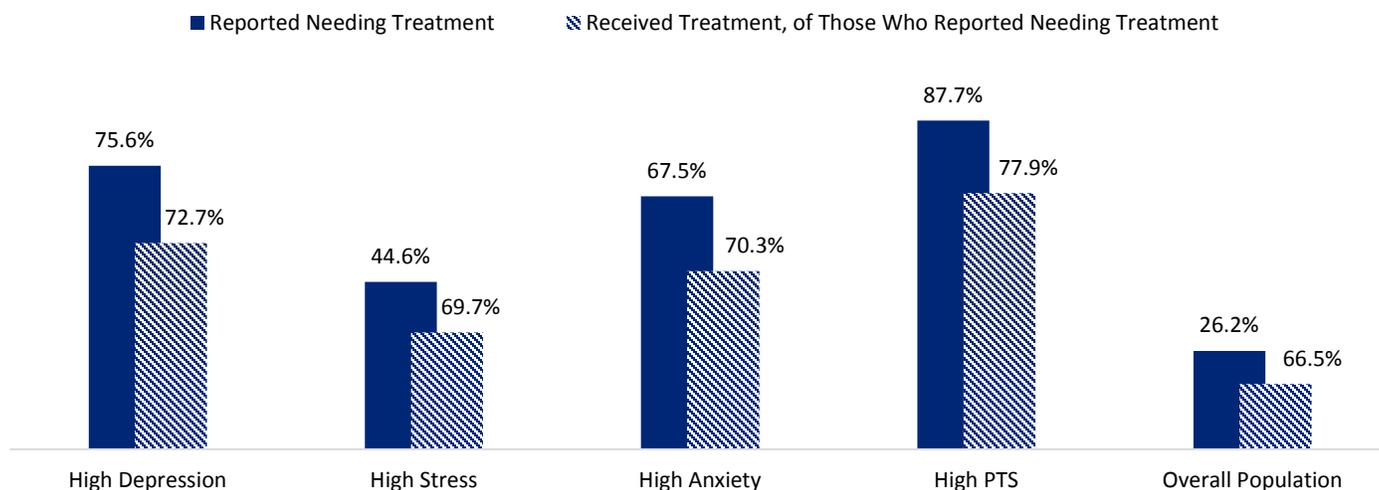


Figure 16 shows the percentage of Active Duty military personnel with each mental health problem who reported needing treatment and the proportion of those respondents reporting the need for treatment who received treatment.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Overall stress level: Q127, Q128; depression level: Q133; anxiety level: Q134; PTS level Q136; treatment Q137, Q138.

DEPLOYMENT

Since September 11, 2001, 2.4 million military personnel have deployed to Iraq and Afghanistan (Spelman et al., 2012). Deployment is a fundamental aspect of military service, and most service members return from deployment with a sense of satisfaction.

Table 6 presents estimates of deployment experiences and post-traumatic stress (PTS) and possible traumatic brain injury (TBI) among Active Duty personnel by key sociodemographic characteristics. Forty-two percent of Active Duty personnel have been non-combat deployed in the past 12 months, and 38.8% have been combat deployed in the past two years.

Ten percent of Active Duty personnel have possible TBI. Differences in deployment experiences are detected by gender, age, marital status, and pay grade. For instance, men are statistically significantly more likely than women to have been combat deployed in the past two years and to have high levels of combat exposure

Figure 17 displays the percentage of personnel who were classified having high PTS. Approximately five percent of Active Duty personnel have high PTS; this is a similar proportion as in 2011, but significantly higher than Reservists.

Table 6: Personnel in Select Deployment Categories by Sociodemographic Characteristics

Sociodemographic Characteristic	Non-Combat Deployment in Past 12 Months	Combat Deployment in Past 2 Years	High Combat Exposure	High PTS	Possible TBI
Service					
All Services	41.5% (1.0)	38.8% (0.8)	35.4% (0.7)	5.2% (0.4)	9.7% (0.6) ¹
Gender					
Male	41.9% (1.1) ²	39.3% (0.9) ²	37.4% (0.8) ²	5.1% (0.4)	10.2% (0.7) ²
Female	38.6% (1.1) ¹	34.9% (0.7) ¹	21.5% (0.6) ¹	5.7% (0.3)	6.4% (0.4) ¹
Race/Ethnicity					
Hispanic	42.5% (2.5)	39.7% (2.3)	36.2% (2.0) ⁴	8.5% (1.2) ³	12.1% (1.8)
White, non-Hispanic	40.0% (1.2)	39.3% (1.1) ⁴	36.8% (0.9) ⁴	4.6% (0.5)	8.7% (0.8)
Black, non-Hispanic	43.8% (3.1)	36.4% (2.4)	31.8% (2.3)	3.7% (0.5) ¹	9.8% (1.7)
Asian, non-Hispanic	51.0% (6.7)	38.8% (3.5) ²	25.2% (3.2) ^{1,2}	3.8% (1.0)	9.8% (2.2)

Sociodemographic Characteristic	Non-Combat Deployment in Past 12 Months	Combat Deployment in Past 2 Years	High Combat Exposure	High PTS	Possible TBI
Two+ races, non-Hispanic	49.6% (4.1)	41.6% (3.8)	32.8% (2.8)	8.2% (1.4)	12.8% (2.3)
Other, non-Hispanic	33.0% (5.8)	30.6% (4.2)	42.9% (4.7)	5.6% (2.2)	18.4% (4.1)
Education					
High school or less	52.6% (3.1)	47.8% (3.0) ^{2,3}	26.6% (2.3) ^{2,3}	7.3% (1.1) ³	12.1% (2.3)
Some college	39.8% (1.6)	39.0% (1.3) ¹	35.3% (1.1) ^{1,3}	5.6% (0.5) ³	10.7% (0.9)
College graduate or higher	38.9% (0.9)	34.8% (0.7) ¹	39.3% (0.7) ^{1,2}	3.0% (0.3) ^{1,2}	7.0% (0.4)
Age					
24 or younger	72.8% (4.0) ^{2,3,4}	73.4% (4.3) ^{2,3,4}	13.3% (3.0) ^{2,3,4}	6.0% (0.9)	9.0% (2.9) ^{3,4}
25 – 34	42.7% (1.7) ^{1,3,4}	41.2% (1.2) ¹	32.2% (1.1) ^{1,3,4}	5.1% (0.6)	8.2% (0.7) ^{3,4}
35 – 44	33.9% (1.0) ^{1,2}	31.2% (1.0) ¹	42.9% (1.0) ^{1,2,4}	4.9% (0.4)	11.0% (1.0) ^{1,2}
45 or older	34.2% (1.6) ^{1,2}	25.0% (1.0) ¹	49.9% (1.2) ^{1,2,3}	3.9% (0.5)	12.2% (1.0) ^{1,2}
Family Status					
Not married	50.3% (2.3) ²	52.0% (1.9) ²	25.1% (1.5) ²	4.5% (0.4) ²	7.4% (1.2) ²
Married	38.5% (1.0) ¹	34.5% (0.9) ¹	39.0% (0.8) ¹	5.6% (0.5) ¹	10.5% (0.7) ¹
Pay Grade					
E1 – E4	65.2% (4.6) ^{2,3,4,5,6}	67.8% (3.8) ^{2,3,4,5,6}	13.0% (2.6) ^{2,3,4,5,6}	5.9% (0.8) ^{5,6}	10.9% (2.6) ^{2,3,4}
E5 – E6	37.2% (1.4) ^{1,4}	34.3% (1.0) ^{1,4}	37.3% (1.0) ^{1,3,4,5,6}	6.3% (0.5) ^{5,6}	11.3% (0.7) ^{1,5,6}
E7 – E9	34.5% (0.9) ^{1,4,5}	30.4% (0.7) ^{1,4,6}	46.6% (0.7) ^{1,2,4,5}	5.1% (0.3) ^{5,6}	11.5% (0.5) ^{1,4,5,6}
W1 – W5	45.2% (1.8) ^{1,2,3,5,6}	36.7% (1.2) ^{1,2,3,5,6}	60.9% (1.2) ^{1,2,3,5,6}	4.7% (0.5) ^{5,6}	8.2% (0.7) ^{1,3,5,6}
O1-O3	43.6% (1.4) ^{1,3,4,6}	43.2% (1.1) ^{1,4}	35.9% (1.0) ^{1,2,3,4,6}	1.9% (0.2) ^{1,2,3,4}	4.5% (0.5) ^{2,3,4,6}
O4-O10	32.4% (0.8) ^{1,4,5}	25.5% (0.6) ^{1,3,4}	44.3% (0.6) ^{1,2,4,5}	1.7% (0.2) ^{1,2,3,4}	4.3% (0.3) ^{2,3,4,5}

Table 6 displays the percentage of Active Duty personnel, by sociodemographic characteristic, classified by select deployment-related categories as indicated in the columns. The standard error is presented in parentheses.

Statistical significance tests were conducted between all rows within the same sociodemographic group for each deployment-related category. A superscripted number beside an estimate indicates that the estimate is statistically significantly different than the estimate that appears in the row number within the same column. For example:

¹Indicates the estimate for possible TBI is statistically significantly different than the estimate in row #1 (Male) at the 95% confidence level after Bonferroni adjustment.

²Indicates the estimate for possible TBI is statistically significantly different than the estimate in row #2 (Female) at the 95% confidence level after Bonferroni adjustment.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Sociodemographics: Q1AD, Q3AD2, Q4, Q12, Q13, Q14, Q15, Q18; Combat Deployment: Q171; Non-Combat Deployment: Q177, High Combat Exposure: Q173; PTS: Q136; Possible TBI: Q161, Q165 and Q167.

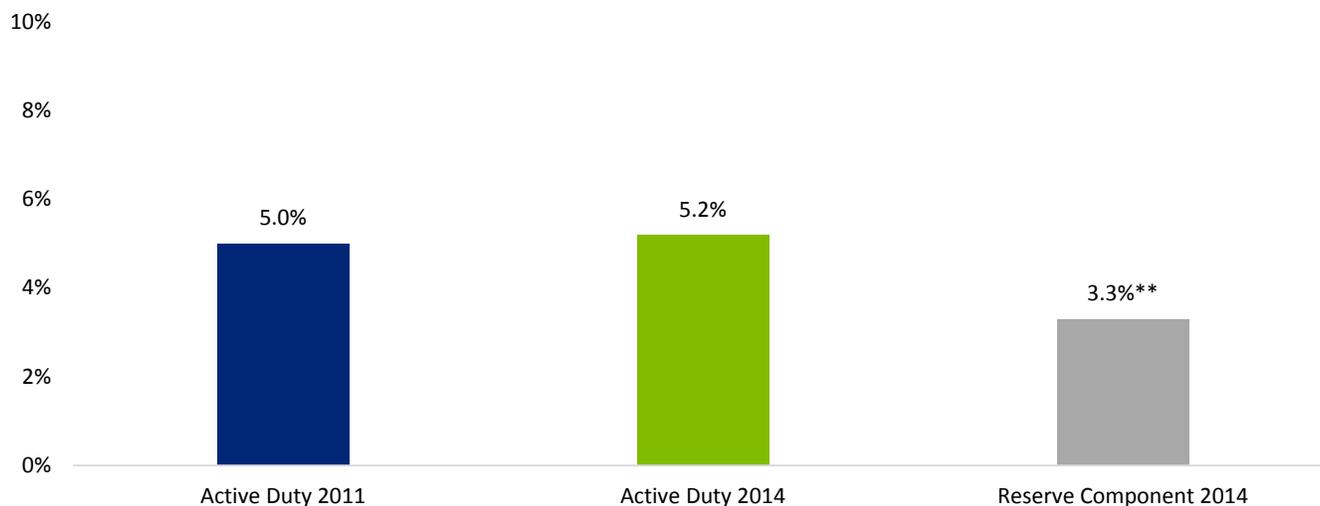
Figure 17: Prevalence of PTS of Active Duty Personnel (Active Duty 2011; Active Duty 2014; Reserve Component 2014)

Figure 17 displays the percentage of Active Duty personnel who are classified as having a high PTS level among 2014 and 2011 Active Duty and 2014 Reserve Component Active Duty populations.

Statistical significance tests were conducted. (*) Indicates the estimate for 2011 Active Duty is statistically significantly different than the estimate for 2014 Active Duty. (**) Indicates the estimate for 2014 Reserve Component is statistically significantly different than the estimate for 2014 Active Duty.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel; 2011 Health Related Behaviors Survey of Active Duty Personnel.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel and 2014 Health Related Behaviors Survey of Reserve Component Personnel, PTS: Q136; 2011 Health Related Behaviors Survey of Active Duty Personnel, PTS: Q128.

Post-Traumatic Stress and Traumatic Brain Injury

Ten percent of Active Duty personnel have a possible TBI (Table 6). Traumatic Brain Injury is associated with PTS. Research suggests a link between the two conditions, which often coexist as brain injuries occur during traumatic events that can be a source of PTS (Bryant, 2011).

Figure 18 presents the association between TBI and combat exposure. Approximately 73.9% of Active Duty personnel with a possible TBI have a high level of combat exposure.

Figure 18: Level of Combat Exposure among Active Duty Personnel with Possible Traumatic Brain Injury

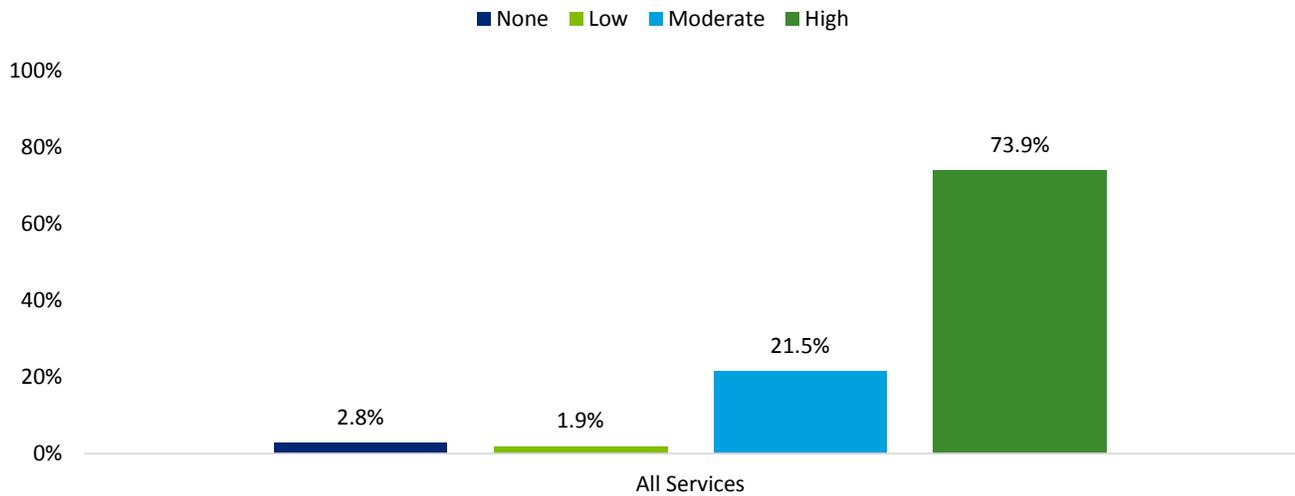


Figure 18 displays the percentage of Active Duty personnel with a possible TBI, by level of combat exposure.

Source: 2014 Health Related Behaviors Survey of Active Duty personnel: Q1AD, TBI: Q161, Q165, Q167; Combat exposure: Q173.

Impact of Deployment on Stress and Mental Health

Figure 19 presents estimates of Active Duty personnel’s inability to deploy in the past 12 months across three mental health indicators: stress, anxiety and depression. Results suggest that those with low levels of overall stress, low levels of anxiety, and low levels of depression are about equally likely to have been unable to deploy in the past 12 months (14.0%, 15.0%, and 15.9%, respectively). In

contrast, 30.8% with high depression, 28.2% of those with a high level of anxiety, and 22.5% of those with high overall stress were unable to deploy in the past year. Those with high levels of these mental health issues were statistically significantly more likely to have been unable to deploy in the past year compared to those with low levels of stress, anxiety, and depression.

Figure 19: Inability to Deploy in Past 12 Months by Mental Health Measures

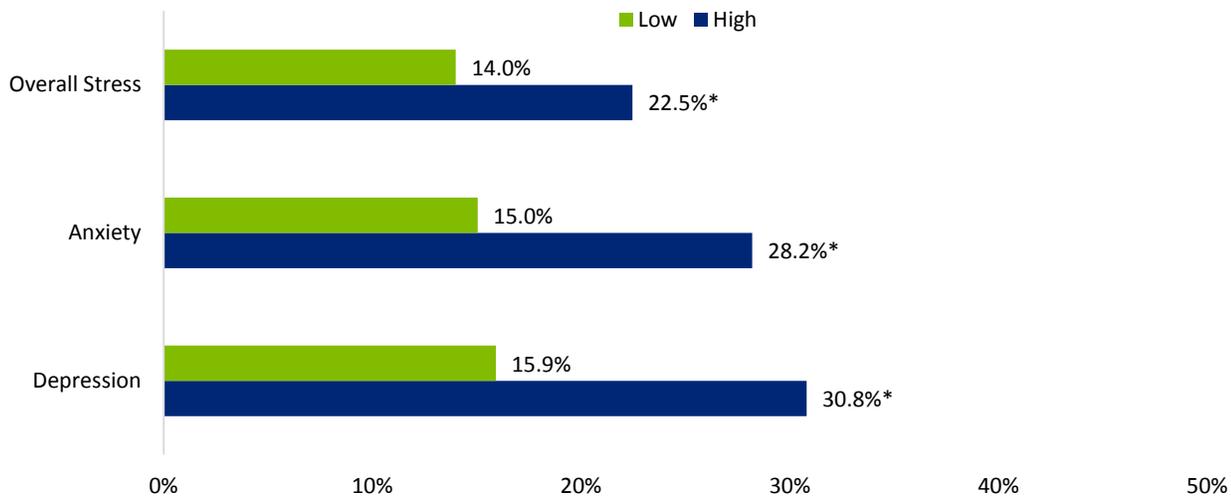


Figure 19 displays the percentage of Active Duty personnel, by stress, anxiety, and depression level, who were unable to deploy in the past 12 months.

Statistical significance testing was conducted between low and high estimates. A superscripted symbol (*) beside the High estimate indicates that the two estimates are statistically significantly different.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Q1AD, Stress: Q127, Q128, Anxiety: Q134, Depression: Q133, Inability to Deploy: 152.

Deployment and Substance Use

Table 7 presents results on the relationship between substance use and deployment type. Across all substances, tobacco products and alcohol are most frequently increased during deployment. Statistically significant differences in the increased substance use on non-combat deployment versus combat deployed are detected within alcohol, tobacco products, and prescription medication. Active Duty personnel whose most recent deployment was to a combat zone are more likely to have increased their use

of cigarettes, cigars, and chewing tobacco during their most recent deployment. Personnel deployed to a non-combat zone are more likely to have increased alcohol consumption.

The prevalence of increased drug use is less than one percent for Active Duty personnel deployed to combat and non-combat zones.

Table 7: Increase in Substance Use Behavior during Most Recent Deployment

Type of Most Recent Deployment	Substances						
	Alcohol	Cigarettes	Chewing/ smokeless tobacco	Cigars	Prescription medications	Marijuana	Opium, heroin, morphine etc.
Non-Combat	10.3% (0.8)	11.6% (0.8)	7.3% (0.7)	4.7% (0.5)	1.7% (0.3)	0.1% (0.1)	0.2% (0.1)
Combat	4.5% (0.4)*	17.0% (0.9)*	9.4% (0.6)*	11.1% (0.6)*	3.1% (0.2)*	0.3% (0.1)	0.2% (0.1)

Table 7 displays the percentage of Active Duty personnel, by type of deployment who indicated an increase in use of the substances listed in the columns. The standard error is presented in parentheses.

Statistical significance tests were conducted between estimates for deployment type for each substance type. A superscripted symbol (*) beside the Combat estimate indicates that the two estimates are statistically significantly different.

Source: 2014 Health Related Behaviors Survey of Active Duty Personnel, Type of deployment: Q160, Change in substance use behavior during most recent deployment: Q166.

CONCLUSIONS

The purpose of this report is to provide an overview of health behaviors among Active Duty Services personnel based on results from the Health Related Behaviors Survey of Active Duty Personnel to present leadership with data to support policy and program development and change decisions. Specifically, these results can be used to identify current areas of strength in health behavior and areas for continued improvement to better impact the health and readiness of Active Duty members. A summary by health behavior domain is provided below.

Substance Use

Approximately 34.0% of Active Duty personnel report binge drinking in the last month, which exceeds the Healthy People 2020 target of 24.4%. Moreover, 11.1% of Active Duty personnel are classified as unhealthy drinkers. This level of drinking generally indicates an increased risk of harmful consequences to self and others.

The Department of Health and Human Services has identified tobacco use as a major public health concern, and has established Healthy People 2020 objectives to decrease the prevalence of cigarette smoking to 12.0% and smokeless tobacco use to 0.3% by 2020 (HHS, 2015). Prevalence of cigarette smoking and smokeless tobacco use among Active Duty personnel is well above the Healthy People 2020 target, with 15.5% of Active Duty personnel smoking and 13.0% using smokeless tobacco.

When asked about their reasons for smoking cigarettes, more than 70% of personnel report smoking to relieve stress or to relax or calm down (72.6% and 71.5%, respectively). Other reasons commonly cited include when drinking alcohol (53.8%) and to relieve boredom (48.4%). Relatively few tobacco users indicate that they would use cessation classes or counseling, including the TRICARE telephone and online counseling and support.

Physical Activity and Healthy Lifestyle

Results from the analysis of physical health and healthy lifestyle measures indicate that Active Duty personnel have good physical fitness, with 96.8% having passed their physical fitness test, and 76.8% meeting physical activity recommendations. Active Duty personnel also meet Healthy People 2020 safety indicators, with nearly 99.0% reporting regular seat belt use and 89.7% reporting motorcycle helmet use. Most Active Duty members fall

below the HP2020 sleep recommendations, with only one-third (33.3%) reporting meeting the Healthy People 2020 target.

Stress and Mental Health

Approximately 38% of Active Duty members experience high levels of stress (38.4%); some of the most prevalent stressors are about work load, balancing responsibilities, and being away from family and friends. Approximately 17.2% of Active Duty report experiencing high anxiety, and 8.4% report high depression. These estimates are higher among women than men. Finally, 0.6% of Active Duty personnel report having attempted suicide in the past year. Past-year attempted suicide is associated with high levels of other mental health conditions (i.e., stress, anxiety, depression, and PTSD).

Deployment

Approximately 41.5% of Active Duty personnel have been non-combat deployed in the past 12 months, and 38.8% of personnel have been combat deployed in the past two years. Results suggest that those with higher stress, anxiety, and depression levels are less likely to be able to deploy than those with low levels.

Strengths and Special Areas for Attention

Strengths and areas for attention for Active Duty personnel are similar to that of the individual Services. Although there are some areas for attention, overall health behaviors among Active Duty personnel have several strengths.

First, Active Duty personnel display excellent physical health, with 96.8% passing their most recent physical test, and 76.8% meeting HP2020 standards for physical activity. Active Duty personnel also meet or exceed HP2020 targets for safety issues including seat belt and helmet use. Additionally, there has been a notable and statistically significant decrease in the prevalence of unhealthy drinking, smoking, and smokeless tobacco use in Active Duty personnel since 2011. While the prevalence of these behaviors is above HP2020 targets, the initial decreasing trend is promising. In terms of tobacco use, it will be important to focus research resources on better

understanding use of electronic tobacco products, as prevalence of those products has increased since 2011.

The one important area for attention is mental health. High stress and high anxiety levels appear to be the most prevalent mental health issues among Active Duty personnel, at 38.4% and 17.2%, respectively. Results suggest that those with higher stress, anxiety, and depression levels are less likely to be able to deploy than those with low levels.

In a possibly related health behavior, Active Duty personnel also fall far below the HP2020 target for optimum sleep, with only one-third (33.3%) meeting the standard, compared to the HP2020 target of 70.9%. According to a Centers for Disease Control and Prevention study on the insufficient sleep among adults, chronic sleep insufficiency can manifest in reduced productivity and impaired physical and mental health (Centers for Disease Control, 2009).

REFERENCES

- Army (2015). Height, Weight, and Body Fat Charts. Retrieved July 31, 2015.
<http://army.com/info/apft/heightweightandbodyfat>
- Bray, Robert M., Hourani, L.L., Olmsted, K.L.R, Witt, M., Brown, Janice M., Pemberton, M.R.,...,Hayden, D, (2006). 2005 Department of Defense Survey of Health Related Behaviors among Active Duty Military Personnel, Research Triangle Park, NC: RTI International. Retrieved February 9, 2015, from
http://www.tricare.mil/hpae/_docs/2005%20Health%20Behaviors%20Survey_1-071.pdf.
- Bray, Robert M., Pemberton, M.R., Hourani, L.L., Witt, M., Olmsted, K.L.R., Bradshaw ,M., (2009). 2008 Department of Defense Survey of Health Related Behaviors among Active Duty Military Personnel, Research Triangle Park, NC: RTI International. Retrieved May 19, 2015, from <http://www.tricare.mil/tma/2008HealthBehaviors.pdf>.
- Brown, J.M., Bray, R.M., Calvin, S.L., Vandermaas-Peeler, R., Olmsted, K.L.R., Ginder, S.,...,Weaver, B., (2007). 2006 Unit Level Influences on Alcohol and Tobacco Use, Research Triangle Park, NC: RTI International. Retrieved February 9, 2015, from http://www.tricare.mil/hpae/_docs/Unit%20Level%20Report%2024%20Mar2008.pdf.
- Bryant, R. (2011). Post-traumatic stress disorder vs traumatic brain injury. *Dialogues in Clinical Neuroscience*, 13(3), 251–262.
- Department of Defense (2014, Feb. 20). *Problematic substance use by DOD personnel* (DOD Instruction 1010.04). Washington, DC: Jessica L. Wright.
- Spelman, J. F., Hunt, S. C., Seal, K. H., & Burgo-Black, A. L. (2012). Post Deployment Care for Returning Combat Veterans. *Journal of General Internal Medicine*, 27(9), 1200–1209. <http://doi.org/10.1007/s11606-012-2061-1>.
- Centers for Disease Control Division of Nutrition, Physical Activity, and Obesity (2015). *About Adult BMI*. Retrieved July 20, 2015. http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html.
- Department of Agriculture and Department of Health and Human Services. *Dietary Guidelines for Americans*, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010. Retrieved July 20, 2015.
<http://www.health.gov/dietaryguidelines/dga2010/DietaryGuidelines2010.pdf>.
- Department of Defense (2005). *Overweight in the Military Issue Brief; Health Care Survey of DoD Beneficiaries*. Retrieved July 20, 2015. <http://www.tricare.mil/survey/hcsurvey/issue-briefs/issuebriefCY05Q1.pdf>.
- Department of Health and Human Services (2008). *2008 Physical Activity Guidelines for Americans*. (ODPHP Publication No. U0036). Washington, DC: U.S. Government Printing Office. Retrieved July 20, 2015.
<http://www.health.gov/paguidelines/pdf/paguide.pdf>.
- Harwood, H. J., Zhang, Y., Dall, T. M., Olaiya, S. T., & Fagan, N. K. (2009). Economic Implications of Reduced Binge Drinking Among the Military Health System’s TRICARE Prime Plan Beneficiaries. *Military Medicine*, 174(7), 728–736.
<http://doi.org/10.7205/MILMED-D-03-9008>.

National Heart, Lung, and Blood Institute (1998). *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*. (US). Bethesda (MD). Retrieved July 20, 2015. <http://www.ncbi.nlm.nih.gov/books/NBK1996/#A185>.

Nock, M.K., Borges, G., Bromet, E.J., Cha, C.B., Kessler, R.C., Lee, S. (2008). Suicide and Suicidal Behavior. *Epidemiologic Reviews*, 30 (1) 133-154.

¹ This is likely explained by how the AUDIT score is calculated; the questionnaire measures social and health consequences of drinking, as well as frequency and intensity of consumption, whereas the heavy drinking and high-frequency binge drinking categories capture only frequency and intensity of drinking. See Appendix I for the methodology of AUDIT score, High-Frequency Binge Drinker, Heavy Drinker, and Unhealthy Drinker calculation.

² It is noteworthy that BMI measures body mass and does not measure body fatness, so BMI can be inaccurate for individuals with high muscle mass, such as athletes and soldiers. High levels of muscle mass, more likely among males, may mean that a proportion of Active Duty may be classified as overweight or obese while still having a low percentage of body fat. Active Duty eligibility is not determined by BMI but instead by a combination of weight, height, and body fat. Therefore, it is possible to be within height and weight requirements but also be considered overweight (TRICARE Issue Brief, 2005).

³ Suicide is more prevalent among men, whereas nonfatal suicidal behaviors are more prevalent among women (Nock et al, 2008).

Appendix I. 2014 Health Related Behaviors Survey of Active Duty Personnel Survey Methodology



BACKGROUND

The 2014 HRB Active Duty Survey is modelled on the HRB Survey conducted among military personnel for more than 30 years. The Department of Defense (DoD) initiated the HRB Survey in 1980 to guide program and policy development based on an improved understanding of the nature, causes and consequences of substance use in the military. The analysis of the survey results was guided by research objectives that assess the prevalence, nature, and characteristics of health related behaviors. This appendix provides methodological information about survey administration, data preparation and analysis, and reporting.

METHODOLOGY

Survey Instrument

The 2014 HRB Active Duty Survey was based on the 2011 HRB Active Duty Survey. The 2011 HRB Active Duty Survey represented a new instrument with considerable changes made to streamline and tailor it for a web distribution. This new format substantially eased respondent burden as it enabled the use of skip logic which dynamically updates the instrument based on selections.

Study Population

The eligible population includes all non-deployed personnel on active duty from four Services: Army, Navy, Air Force, and Marine Corps. National Guard and Reserve members in Active Duty programs and deployed personnel are not included in the population. Coast Guard personnel and cadets are not included in the study population.

Survey Sampling

In 2011, DHA changed the mode of administration among the Active Duty population to a web-based format, which eliminated the need for geographically clustered sample and resulted in the introduction of a stratified sample. Consistent with the sampling approach for the 2011 Active Duty survey, the 2014 Active Duty Survey utilized a web-based approach with a non-proportional, stratified random sample. The following variables were used for stratification purposes: Service, gender, and pay grade, for a total of 48 possible strata. The four Services were considered primary strata for sampling. Disproportionate stratified sampling provides the greatest advantage in the ability to study the responses of subgroups.

Survey Administration

DHA fielded the HRB Survey online for the second time among the Active Duty population. The team created unique survey links for each respondent that only the intended respondent could use and was

distributed through an email invitation. Because of this functionality, respondents were able to save their progress and re-visit the survey if they were unable to complete it in one sitting.

The survey was fielded over five months from December 2014 to May 2015. The team distributed an email notification to alert respondents to the survey, followed by an invitation email, and then eight reminder emails throughout the fielding period.

DATA PREPARATION

Data Cleaning

The survey team used data cleaning and checking procedures to ensure a high level of quality control for the survey results. In accordance with the Privacy Act, all identifiers such as name and address were removed to ensure that respondents cannot be identified. Our data cleaning protocol is as follows:

1. **Examine for out-of-range values.** Simple frequencies were performed on all survey items to determine if any out-of-range values existed.
2. **Delete blank records.** If 100% of the non-demographic items were missing or blank, the record was deleted.
3. **Review straight-liners.** Items existed throughout the survey that require responses both at the high end of the scale and low end of the scale to be answered consistently. If a respondent answered using the same response category for a certain percentage of questions in a given survey section, it was likely that the respondent was not reading the question and was simply answering the same way for all questions. Such records were flagged for further consideration.
4. **Delete test cases.** Any data gleaned from test cases were removed prior to analysis of actual respondent data.
5. **Combine numeric variables where applicable.** Several numeric variables (e.g., height and weight) were coded over two variables. These were combined into a single variable.
6. **Code the skip patterns.** Observations that missed the questions because of skip patterns were identified so that they were not coded as missing data.

Response Rate Calculation

The survey team calculated the response rate utilizing protocols from the 2011 HRB Active Duty Survey. Response rate reports were calculated by taking the number of completed surveys (defined as a respondent having started the survey and submitting a valid response to two key demographic questions and one question in the alcohol section) and dividing it by the size of the sample that was reached (number of emails sent minus the number of bounce backs received). Response rates were prepared overall and by Service.

Usable responses were those that remained after:

1. the above data cleaning procedures were conducted
2. the response was determined to be complete, meaning the respondent had
 - a) started the survey,
 - b) completed two specific demographic questions, and
 - c) answered at least one question related to alcohol use (Q45 – Q69).

The final response rate for the survey was 17.8%. A total of 45,986 usable survey responses were used in analysis.

Non-Response Analysis and Weighting

A non-response analysis was conducted to detect any nonresponse bias. Both unit and item non-response were analyzed to confirm that the missingness in the data are missing at random. To determine the presence of unit non-response bias, comparisons of respondents to non-respondents across strata were conducted. To determine the presence of item non-response bias, key questions from each survey section were modeled as predictors against sociodemographic characteristics. The two analyses informed data weighting to account for item and unit nonresponse in the analyses.

A full weight was calculated using two weights: 1) a base weight was calculated to account for the disproportionate stratification approach and unequal selection probabilities from the Active Duty population, and 2) a differential non-response weight.

DATA ANALYSIS AND REPORTING

Data Analysis

Data were analyzed according to the research objectives outlined in the 2014 HRB Survey Analysis plan using SAS Version 9.4. Most analysis in this report are descriptive statistics presented as two- or three-way crosstabulations. Chi-square tests of association were used to identify differences in the distributions of categorical variables; to provide more information on specific differences in estimates, pairwise comparison of estimates were conducted and Bonferroni adjustments were applied to p-values to minimize Type I error as a result of performing multiple comparisons. For some research objectives, logistic analysis was conducted.

Analysis was also conducted to make comparisons of current survey estimates to estimates from the 2011 HRB Survey of Active Duty Personnel and from the 2014 HRB Survey of Reserve Personnel. To do so, we conducted hypothesis tests to examine 1) whether the difference between the estimates (proportions) for the 2011 HRB Active Duty survey and the 2014 HRB Active Duty survey was statistically significant, and 2) whether the difference between the estimates (proportions) for 2014 HRB Active Duty Survey and 2014 HRB Reserve Component Survey was statistically significant.

Samples were obtained by stratified sampling from each of the respective populations, and sampling weights were calculated to account for the representativeness. Because none of the samples was collected by simple random sampling with a 100% response rate, the two-sample proportion test was not appropriate. While mean estimates could be calculated with straightforward sampling weight adjustment, the variance computation needed to take into account the extent of the departure from the variance of simple random sampling by leveraging the concepts of design effect and effective sample size. We utilized the Kish formula to calculate the effective size based on the sampling weights for each sampling population. The final sampling error calculation can correct the departure from the sampling error expected under simple random sampling. Therefore, the statistical hypothesis tests have taken into account the representativeness of the samples and yielded sound statistical inferences.

Reporting

HRB survey results are reported using written and graphical formats. These reporting modes have been designed to make the HRB survey data as accessible as possible for stakeholders, both for understanding results and using in decision-making.

The written reports are content-focused, digestible reports designed to make survey findings accessible to leadership and other stakeholders. Four Service reports will provide an overview of results for each of the four Services. The six topical reports address the following topics:

- Physical Health and Healthy Lifestyle
- Alcohol Use
- Nicotine and Tobacco Use
- Substance Use
- Stress/Mental Health
- Deployment

Infographic reports accompany each written report to provide creative visual representations of the data.

KEY DEFINITIONS AND MEASURES

Below are definitions of measures used in the HRB survey questions used to calculate each measure.

Substance Use

Drinking Level Classifications

The coding for drinking level classifications is based on the definitions established in the 2010 NHIS. Drinking levels are based on self-reports of the average frequency of alcohol consumption during the past year and the number of drinks the respondent consumed on the days he or she used alcohol. To determine current drinking levels, the number of days the respondent drank is used to calculate the average number of drinks per week, as follows: $[(\# \text{ days per year})(\# \text{ drinks per year})/365 \text{ days}]$.

- An 'Abstainer' is defined as having less than 12 alcoholic drinks in their entire lifetime.
- A 'Former Drinker' is defined as having at least 12 drinks in their lifetime and reported 0 days of drinking in the past 12 months.
- A 'Current Drinker' is defined as having at least 12 drinks in their lifetime and reported 1 or more days of drinking in the past 12 months. Current drinkers are categorized into three levels of drinking intensity.
 - An 'Infrequent/Light Drinker' is defined as having less than 4 drinks per week in the past year.
 - A 'Moderate Drinker' is defined as having 4 to 14 drinks per week for males, and 4 to 7 drinks per week for females in the past year.
 - A 'Heavy Drinker' is defined as having more than 14 drinks per week for males, and more than 7 drinks per week for females in the past year.

The following questions were used to calculate the above classifications.

- **Q45:** Have you had at least 12 alcoholic drinks over your ENTIRE LIFE? Yes/no/decline to answer
- **Q47:** In the PAST 12 MONTHS (365 days), on how many different DAYS would you estimate that you drank any type of alcoholic beverage? Your best guess is fine. 0-365 days

- **Q48.** In the PAST 12 MONTHS, on those days that you drank alcoholic beverages, on the average, how many drinks did you have? Average number of DRINKS you drank per day when you did drink: _____[2 DIGITS; 0 - 50]
- **Q4:** Are you...? Male/female

For those who were missing data on Q45 and Q47, Q55 and Q56 were used to calculate frequency and quantity of alcohol consumption in the past year.

- **Q55:** How often do you typically have a drink containing alcohol? Never/less than once a month/once a month/two to three times a month/once a week/two to three times a week/four or more times a week
- **Q56:** How many drinks containing alcohol do you have on a TYPICAL DAY when you are drinking? I don't drink/1 or 2/3 or 4/5 or 6/7 to 9/10 or more

Binge Drinking

The coding for binge drinking is based on the definitions established by NSDUH. Binge drinking is defined as having five or more drinks for males and four or more drinks for females on the same occasion at least once in the past 30 days.

The following question were used to define a binge drinker:

- **Q59:** During the PAST 30 DAYS, what was the largest number of drinks of any form of alcohol you had on one occasion?

AUDIT (Alcohol Use Disorders Identification Test)

The AUDIT (Alcohol Use Disorders Identification Test) scale sum score will be calculated to determine the potential for alcohol dependence across military components. The scale uses 10 items, which are recoded based on the AUDIT scale scoring guide developed by the World Health Organization (WHO). Each of the questions has a set of responses to choose from, and each response has a score ranging from 0 to 4. The higher the score, the more risk is indicated. Total scores of 8 or more are recommended as indicators of hazardous and harmful alcohol use, as well as possible alcohol dependence. The response categories reported for this composite score are:

- Range 0-40
- Low Risk (AUDIT score < 8) – Indicates a low risk of alcohol dependence.
- Hazardous Drinking (AUDIT score 8-15) – Indicates a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others.
- Harmful Drinking (AUDIT score 16-19) – Refers to alcohol consumption that results in consequences to physical and mental health, and possibly social life.
- Possible Alcohol Dependence (AUDIT score of 20+) – Is a cluster of behavioral, cognitive, and physiological phenomena that may develop after repeated alcohol use. This phenomena can include a strong desire to consume alcohol, impaired control over its use, persistent drinking despite harmful consequences, and increased alcohol tolerance.

In order to calculate this, the AUDIT categorical indicator was computed to classify the risk levels of drinking across the military. The categories and cut-scores corresponding to each category are based on scoring guidelines developed by the WHO.

In the HRB survey, the following questions were used to calculate the above classifications.

- **Q55:** How often do you typically have a drink containing alcohol? Never/less than once a month/once a month/two or three times a month/once a week/two to three times a week/four or more times a week
- **Q56:** How many drinks containing alcohol do you have on a TYPICAL DAY when you are drinking? I don't drink/1 or 2/3 or 4/5 or 6/7 to 9/10 or more
- **Q57:** Please indicate how often you do the following. Never/Less than monthly/monthly/weekly/daily or almost daily
 - **A:** How often do you have six or more drinks on one occasion?
 - **B:** How often during the past year have you found that you were not able to stop drinking once you had started?
 - **C:** How often during the past year have you failed to do what was normally expected of you because of drinking?
 - **D:** How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
 - **E:** How often during the past year have you had a feeling of guilt or remorse after drinking?
 - **F:** How often during the past year have you been unable to remember what happened the night before because you have been drinking?
- **Q58:** For each question below, have you EVER experienced the following because of drinking? No/Yes, but not in the past year/yes, during the past year
 - **A:** Have you or someone else been injured as a result of your drinking?
 - **B:** Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?

Unhealthy Drinking

To summarize and describe personnel with the highest risk of drinking behavior based on the classification systems used in the HRB survey, a measure was to identify individuals who were classified in at least one of the following excessive categories (based on their respective classifications described above):

- 1) being classified as a heavy drinker
- 2) being classified as a high-frequency binge drinker (defined as someone who engages in binge drinking at least once per week, on average)
- 3) being identified as a higher risk drinker according to AUDIT score (defined as an AUDIT score greater than or equal to 8). We have characterized these individuals as unhealthy drinkers to represent their increased risk for negative health and social consequences.

Work Related Productivity Loss in the Past 12 Months

The survey contains 11 items related to the frequency of alcohol-related work productivity loss in the past 12 months. Response options for Q52 and Q53 are on a 4-point scale, ranging from “0 times” to “3 or more times.” Response options for Q54 are on a slightly different 4-point scale, ranging from “0 work days” to “3 or more work days.” The response categories reported for this composite score are:

- Yes, 1 or more items at least once in the past 12 months/No
- Yes, 2 or more items at least once in the past 12 months/No

In order to calculate this, response options were first recoded into a dichotomous variable to represent whether alcohol-related work productivity loss had occurred or had not occurred at least once in the past 12 months. We then summed and recoded the 11 items into a dichotomous variable for at least 1 event that occurred 1 or more times, and created another dichotomous variable for at least 2 different events that occurred 1 or more times in the past 12 months.

In the HRB survey, the following questions were used to calculate the above classifications.

- **Q52:** How many times in the PAST 12 MONTHS did each of the following happen to you? 3 or more times/2 times/1 time/0 times
 - **C:** I was arrested for a drinking incident not related to driving.
 - **F:** I got a lower score on my efficiency report or performance rating because of my drinking.
 - **G:** I hit my spouse/significant other after having too much to drink.
 - **H:** I got into a fight where I hit someone other than a member of my family when I was drinking.
- **Q53:** How many times in the PAST 12 MONTHS did each of the following happen to you? 3 or more times/2 times/1 time/0 times
 - **I:** I had an illness connected with my drinking that kept me from duty for a week or longer.
- **Q54:** On how many work days (including both civilian and military) in the PAST 12 MONTHS did the following things happen to you? 3 or more work days/2 work days/1 work day/0 work days
 - **A:** I was hurt in an on-the-job accident because of my drinking.
 - **B:** I was late for work or left work early because of drinking, a hangover, or an illness caused by drinking.
 - **C:** I did not come to work at all because of a hangover, an illness, or a personal accident caused by drinking.
 - **D:** I worked below my normal level of performance because of drinking, a hangover, or an illness caused by drinking.
 - **E:** I was drunk while working.
 - **F:** I was called in during off-duty hours and reported to work feeling drunk.

Serious Consequences Related to Alcohol Use in the Past 12 Months

There are 15 items in the survey related to the frequency of serious consequences associated with alcohol use in the past 12 months. Response options are on a 4-point scale, ranging from “0 times” to “3 or more times.” The response categories reported for this composite score are:

- Yes, 1 or more items at least once in the past 12 months/No
- Yes, 2 or more items at least once in the past 12 months/No

In order to calculate this, we first recoded response options into a dichotomous variable to represent whether a serious consequence had occurred or had not occurred in the past 12 months. We then summed and recoded the 15 items into a dichotomous variable for at least 1 event that occurred 1 or more times, and created another dichotomous variable for at least 2 different events that occurred 1 or more times in the past 12 months.

The questions used in this calculation were:

- **Q52:** How many times in the PAST 12 MONTHS did each of the following happen to you? 3 or more times/2 times/1 time/0 times
 - **A:** I found it harder to handle my problems because of my drinking.
 - **B:** I received UCMJ punishment (e.g., Court Martial, Article 15, Captain’s Mast, Office Hours, Letter of Reprimand, etc.) because of my drinking.
 - **D:** I had trouble on the job because of my drinking. 3 or more times/2 times/1 time/0 times
 - **E:** I didn’t get promoted because of my drinking.
 - **I:** My spouse or live-in fiancé/boyfriend/girlfriend threatened to leave me or left me because of my drinking.
 - **J:** My spouse or live-in fiancé/boyfriend/girlfriend asked me to leave because of my drinking.
 - **K:** I did something sexually that I regretted.
 - **L:** I had trouble with the police (civilian or military) because of my drinking.
 - **M:** I spent time in jail, stockade, or brig because of my drinking.
- **Q53:** How many times in the PAST 12 MONTHS did each of the following happen to you? 3 or more times/2 times/1 time/0 times
 - **C:** I was arrested for driving under the influence of alcohol.
 - **F:** I was hurt in an accident because of my drinking (e.g., vehicle, work, other).
 - **G:** My drinking caused an accident where someone else was hurt or property was damaged.
 - **H:** I received detoxification treatment in a hospital or residential center because of my drinking.
 - **J:** I had to have emergency medical help because of my drinking.
 - **K:** I was hospitalized because of my drinking.

Risk Behaviors Related to Alcohol Use in the Past 12 Months

The survey contains 4 items related to the frequency of alcohol-related risk behaviors in the past 12 months. Response options are on a 4-point scale, ranging from “0 times” to “3 or more times.” The response categories reported for this composite score are:

- Yes, 1 or more items at least once in the past 12 months/No
- Yes, 2 or more items at least once in the past 12 months/No

In order to calculate this, we first recoded response options into a dichotomous variable to represent whether a risk behavior had occurred or had not occurred in the past 12 months. We then summed and recoded the 4 items into a dichotomous variable for at least 1 event that occurred 1 or more times, and created another dichotomous variable for at least 2 different events that occurred 1 or more times in the past 12 months.

In the HRB survey, the following questions were used to calculate the above classifications.

- **Q53:** How many times in the PAST 12 MONTHS did each of the following happen to you? 3 or more times/2 times/1 time/0 times
 - **A:** I operated power tools or machinery when I had too much to drink.
 - **B:** I drove a car or other vehicle when I had too much to drink.
 - **D:** I rode in a car or other vehicle driven by someone who had too much to drink.
 - **E:** I drove or rode in a boat, canoe, or other watercraft when I had too much to drink.

Cigarette Smoking Classification Levels

The coding for cigarette smoking classification levels is based on the definitions established in the 2010 NHIS. The response categories reported for this composite score are:

- An ‘Abstainer’ is defined as smoking less than 100 cigarettes in their lifetime.
- A ‘Former’ smoker is defined as smoking at least 100 cigarettes in their lifetime, but does not currently smoke cigarettes now.
- A current smoker is defined by the criteria described above for “current cigarette smoker,” and then split into three categories of smoking intensity.
 - An ‘Infrequent’ smoker reports smoking cigarettes “Some days.”
 - A ‘Light/Moderate’ smoker reports smoking cigarettes “Every day” and on average, currently smokes less than 20 cigarettes (less than one pack) per day.
 - A ‘Heavy’ smoker reports smoking “Every day” and currently smokes 20 or more cigarettes per day (1 pack or more) on average.

In the HRB survey, the following questions are used to calculate the above classifications.

- **Q70:** Have you smoked at least 100 cigarettes in your entire life? No/Yes
- **Q73:** Do you NOW smoke cigarettes every day, some days or not at all? Every day/Some days/Not at all
- **Q75:** On the average, how many cigarettes do you now smoke a day? 0-99

Smokeless Tobacco Classification Levels

The coding for smokeless tobacco classification levels will use two items. The response categories reported for this composite score are:

- An 'Abstainer' is defined as no lifetime use of chewing tobacco, snuff, or any other form of smokeless tobacco.
- A 'Former' smokeless tobacco user reports use of smokeless tobacco products in their lifetime, but has not use in the past 12 months.
- An 'Infrequent' user reports use of smokeless tobacco products "about once a month" or less in the past year. Respondents classified as using smokeless tobacco
- 'Some days' report using more than once a month, but not on a daily basis in the past year.
- 'Every day' reports smokeless tobacco use on a daily basis in the past 12 months.

In the HRB survey, the following questions are used to calculate the above classifications.

- **Q81:** Have you EVER used chewing tobacco, snuff, or any other form of smokeless tobacco?
No/Yes
- **Q82:** During the PAST 12 MONTHS, how often on the average have you used chewing tobacco, snuff, or other smokeless tobacco? About every day/5 - 6 days a week/3 - 4 days a week/1 - 2 days a week/2 - 3 days a month/About once a month/Less than once a month/I have not used chewing tobacco, snuff, or other smokeless tobacco in the past 12 months

Current Smokeless Tobacco Classification

The coding for current smokeless tobacco classification levels will use two items. A "Current" smokeless tobacco user reports use of smokeless tobacco products in their lifetime and using about once a month or more within the past year. The response categories reported for this composite score are:

- Yes, current smokeless tobacco user
- No

The following questions were used to calculate the above classifications.

- Q81: Have you EVER used chewing tobacco, snuff, or any other form of smokeless tobacco?
No/Yes
- Q82: During the PAST 12 MONTHS, how often on the average have you used chewing tobacco, snuff, or other smokeless tobacco? About every day/5 - 6 days a week/3 - 4 days a week/1 - 2 days a week/2 - 3 days a month/About once a month/Less than once a month/I have not used chewing tobacco, snuff, or other smokeless tobacco in the past 12 months

Smokeless Tobacco Use in the Past 30 Days

The coding for smokeless tobacco use in the past 30 days will use two items. This measure is used to compare Active Duty prevalence to the Healthy People 2020 objectives. The response categories reported for this composite score are:

- Yes, used within the past 30 days
- No

The following questions were used to calculate the above classifications.

- Q81: Have you EVER used chewing tobacco, snuff, or any other form of smokeless tobacco?
No/Yes
- Q84: When was the last time you used chewing tobacco, snuff, or other smokeless tobacco?
Today/During the past 30 days/More than 1 month ago but within the past 6 months/More than 6 months ago but within the past year/More than 1 year ago but within the past 2 years/More than 2 years ago

Cigar and Pipe Use in the Past 12 Months

There are two items in the survey to determine frequency of cigar and pipe use in the past 12 months. There is a 6-point scale to determine the frequency of use, ranging from “Less than once a month” to “About every day.” There are also response options to indicate “Not in the past 12 months” and “I never smoked.” We will combine the top four response choices (“About every day,” “5-6 days a week,” “3-4 days a week,” “1-2 days a week”) to indicate use “1 or more days per week.” We combined the remaining two response choices (“About once a month” and “Less than once a month”) to reflect use “Less than once per week” in the past year. The combination of the two use categories represents “Any cigar/pipe use” in the past 12 months. We combined those who did not smoke in the past year or who never smoked in their lifetime to represent “Did not smoke.” The response categories reported for this composite score are:

- Did not smoke
- Less than once/week
- 1 or more days/week
- Any cigar/pipe use

In the HRB survey, the following questions are used to calculate the above classifications.

- **Q87:** During the PAST 12 MONTHS, how often have you smoked the following? About every day/5-6 days a week/3-4 days a week/1-2 days a week/About once a month/Less than once a month/Not in the past 12 months/I never smoked
 - **A:** Cigars
 - **B:** Pipes (including a hookah pipe)

Any Nicotine Use in the Past 12 Months

We created a nicotine use indicator by combining participants’ responses to their cigarette, smokeless tobacco, cigar, and pipe smoking use in the past 12 months. Those who indicate they have smoked cigarettes, used chewing tobacco, snuff, or other smokeless tobacco, including new forms of smokeless tobacco, smoked cigars, smoked pipes in the past 12 months, or any other type of nicotine delivery system will be classified as using “any nicotine” in the past year. The response categories reported for this composite score are:

- Yes, nicotine use in past 12 months
- No

In the HRB survey, the following questions are used to calculate the above classifications.

- **Q70:** Have you smoked at least 100 cigarettes in your entire life? Note: Smoking at least 100 cigarettes would be equal to 5 or more packs in your entire life. No/Yes
- **Q72:** When was the last time you smoked a cigarette? Today/During the past 30 days/1 - 3 months ago/4 - 6 months ago/7 - 12 months ago/1 - 3 years ago/More than 3 years ago
- **Q81:** Have you EVER used chewing tobacco, snuff, or any other form of smokeless tobacco? No/Yes
- **Q84:** When was the last time you used chewing tobacco, snuff, or other smokeless tobacco? Today/During the past 30 days/More than 1 month ago but within the past 6 months/More than 6 months ago but within the past year/More than 1 year ago but within the past 2 years/More than 2 years ago
- **Q87:** During the PAST 12 MONTHS, how often have you smoked the following? About every day/5-6 days a week/3-4 days a week/1-2 days a week/About once a month/Less than once a month/Not in the past 12 months/I never smoked
 - **A:** Cigars
 - **B:** Pipes (including a hookah pipe)
- **Q88:** When was the last time you used any of the following smokeless tobacco products? In the past 12 months/more than 12 months ago/never
 - **A:** Electronic or smoking nicotine delivery products (e.g., E-pipe, E-cigar, E-cigarette, smokeless cigarettes, etc.)
 - **B:** Nicotine dissolvables (e.g., orbs, dissolvable sticks, dissolvable strips, etc.)
 - **C:** Caffeinated smokeless tobacco (e.g., caffeinated snuff or dip)
 - **D:** Nicotine gel

Physical Health and Healthy Lifestyle

Body Mass Index (BMI)

BMI is a measure of body mass to detect possible weight problems in male and female adults. Respondents are asked two open-ended questions about their weight and height to calculate BMI. The calculation is: (weight in pounds/height in inches²) * 703. The response categories reported for this composite score are:

- Underweight
- Healthy weight
- Overweight
- Obese

The criteria to fit into the above categories depend on gender and age. Particularly for individuals under 20 years old, there are different criteria due to the changes in the amount of body fat.

Table A-1. Body Mass Index (BMI) Categories

	Underweight	Healthy Weight	Overweight	Obese
Males/females age 20 or older	BMI<18.5	18.5≤BMI<25.0	25.0≤BMI<30.0	BMI≥30.0
18 year old males	BMI<18.24	≤BMI<25.66	≤BMI<28.96	BMI≥28.96
18 year old females	BMI<17.55	≤BMI<25.68	≤BMI<30.33	BMI≥30.33
19 year old males	BMI<18.73	≤BMI<26.36	≤BMI<29.73	BMI≥29.73
19 year old females	BMI<17.77	≤BMI<26.10	≤BMI<31.03	BMI≥31.03

The following questions are used to calculate the above classifications.

- **Q4:** Are you...? Male/female
- **Q15:** How old are you? Years [open-end numeric]
- **Q16:** About how tall are you without shoes on? Feet [open-end numeric]; Inches [open-end numeric]
- **Q17:** How much do you weigh without shoes on? (If you are currently pregnant, what was your typical weight before pregnancy?) Pounds [open-end numeric]

Physical Activity

National physical activity guidelines recommend 150 minutes of moderate physical activity or 75 minutes of vigorous physical activity per week, or a mixture of both. This is considered enough physical activity to gain considerable health benefits. Additional and more extensive benefits can be achieved through higher levels of physical activity. To achieve these benefits, adults should engage in 300 minutes of moderate intensity or 150 minutes of vigorous intensity, or an equivalent combination of both (Health.gov Physical Activity Guidelines, 2008).

- **Physical Activity:** Respondents are asked how often and for how long they engage in three types of physical activity.
 - Moderate activity raises heart rate and breathing but individuals should be able to comfortably have a conversation;
 - Vigorous physical activity is exertion high enough that individuals would find it difficult to have a conversation;
 - Strength training involves using weights or resistance training to increase muscle strength.

Various measures of physical activity are included in Healthy People 2020 objectives. For example, there are objectives about increasing the proportion of adults who engage in aerobic physical activity of either

moderate intensity or vigorous intensity for a certain amount of time per week. Another objective is to increase the proportion of adults who engage in both anaerobic physical activity and muscle-strengthening activities.

The following question is used to calculate the proportion of HRB respondents who meet these criteria:

- Q26: During the PAST 30 DAYS, how often did you do the following kinds of physical activity?
 - **Moderate Physical Activity** – exertion that raises heart rate and breathing, but you should be able to carry on a conversation comfortably during the activity
 - **Vigorous Physical Activity** – exertion that is high enough that you would find it difficult to carry on a conversation during the activity
 - **Strength Training** – including using weights or resistance training to increase muscle strength
- Q27: During the PAST 30 DAYS, on the days you did the following, how long PER DAY did you typically do each? Please select ONE response per row.
 - **Moderate Physical Activity** – exertion that raises heart rate and breathing, but you should be able to carry on a conversation comfortably during the activity
 - **Vigorous Physical Activity** – exertion that is high enough that you would find it difficult to carry on a conversation during the activity
 - **Strength Training** – including using weights or resistance training to increase muscle strength

Optimum Sleep Levels

Healthy People 2020 has a target to increase the proportion of Americans who get sufficient sleep (defined as 8 or more hours for those aged 18 to 21 years and 7 or more hours for those aged 22 years and older, on average, during a 24-hour period).

The following question is used to calculate the proportion of HRB respondents who meet these criteria:

- Q151: In the PAST WEEK (past 7 days), about how many hours on average did you sleep each 24 hour period?

Fruit and Vegetable Consumption

National nutritional guidelines encourage the consumption of fruits, vegetables, whole grains, dairy, and lean protein to improve overall health (Dietary Guidelines, 2010). The Department of Agriculture advises specifically on the recommended amounts of each food group based on age, gender, weight, and physical activity (USDA, 2015). According to choosemyplate.gov, for a 2000-calorie diet for those aged 18 or more, the following amounts are recommended: 2.5 cups of vegetables (2:1 non-starchy and starchy vegetables), 2 cups of fruit, 3 cups of dairy, 5.5 ounces of protein, and 3 ounces of whole grains. As shown in Figure 7, this translates approximately to the following serving amounts: 2 servings of non-starchy vegetables, 1 serving of starchy vegetables, 2 servings of fruit, 3 servings of dairy, 2 servings of protein, and 2 servings of whole grains. The HRB survey asks personnel the number of times a day in a

typical week that they consume food groups. We assume that a ‘time’ translates into a ‘serving’ but in future iterations of the survey, recommend that the question be changed to align more closely to guidelines.

- Q34: In a TYPICAL WEEK, how often do you eat or drink the following foods?
 - **A:** FRUIT: fresh, frozen, canned, or dried
 - **B:** STARCHY VEGETABLES: white potatoes, corn, peas
 - **C:** VEGETABLES: fresh, frozen, canned, cooked or raw (not fried)

Stress and Mental Health

High Overall Stress Level in the Past 12 Months

The survey contains two items to measure level of overall stress in the past 12 months. In the first question participants indicate how often they experienced a lot of stress in the past 12 months. Responses are provided on a 5-point scale, ranging from “Never” to “Always.” In the second question participants indicate how much military-related stress they experienced overall in the past 12 months. Average scores are calculated for each item separately; these scores are then averaged together. Those participants with an average score of 0.70 or greater were classified and presented in the tables as “High overall stress,” whereas those with an average score of less than 0.70 were classified as “Low overall stress.” Overall stress level was then dichotomized based on a cutoff value. The response categories reported for this composite score are:

- High overall stress level
- Low overall stress level

The following questions are used to calculate the above classifications.

- **Q127:** In the PAST 12 MONTHS, how often did you feel a lot of stress?
Always/often/sometimes/seldom/never
- **Q128:** In the PAST 12 MONTHS, how much military-related stress have you experienced overall?
A lot/some/a little/none at all

High Depression Level in the Past Week

There are two items in the survey to assess level of depressive symptoms in the past week. Response options are provided on a 5-point scale, ranging from “Never” to “5-7 days.” To create a depression level scale, the responses were recoded (i.e., “5-7 days” was assigned a value of 1, “3-4 days” was assigned a value of .75, “1-2 days” was assigned a value of .5, “Less than 1 day” was assigned a value of .25, and “never” was assigned a value 0) and averaged. Depression level was then dichotomized based on a cutoff value. We classified and presented those with an average score of 0.75 or greater presented in the tables as “High depression,” whereas those with an average score of less than 0.75 but greater than 0 were classified as “Low depression.” The response categories reported for this composite score are:

- High depression level

- Low depression level

The following questions are used to calculate the above classifications.

- **Q133:** On how many days in the PAST WEEK did you feel the following for most of the day? Please select ONE response per row. 5 - 7 days/3 - 4 days/1 - 2 days/less than 1 day/never
 - **C:** I felt depressed
 - **E:** I felt sad

High Anxiety Level in the Past 30 Days

The survey contains 4 items to assess how often they experienced symptoms of anxiety associated with stress in the past 30 days. Responses are provided on a 4-point scale, ranging from “Not at all” to “More than half the days.” To create an anxiety level scale, we recoded and then averaged the responses on the 4 items (i.e. “More than half the days” is assigned a value of 1, “Several days” is assigned a value of .667, “One or two days” is assigned a value of .333, and “Not at all” is assigned a value of 0). We then dichotomized anxiety level based on a cutoff value. Those participants with an average score of 0.75 or greater are classified and presented in the tables as “High anxiety,” whereas those with an average score of less than 0.75 but greater than 0 are classified as “Low anxiety.” The response categories reported for this composite score are:

- High anxiety level
- Low anxiety level

The following questions are used to calculate the above classifications.

- **Q134:** During the PAST 30 DAYS, how often have you been bothered by the following? More than half the days/several days/one or two days/not at all
 - **A:** Feeling nervous, anxious, on edge, or worrying a lot about different things
 - **B:** Getting tired very easily
 - **C:** Trouble falling asleep or staying asleep
 - **D:** Becoming easily annoyed or irritable

Suicide Attempts

The survey contains two items related to suicide attempts to determine whether and when it had occurred. If respondents answered that they had attempted suicide, there is a follow-up item about when the attempt had occurred. The response categories reported for this composite score are:

- Past year
- Not within past year but since joining service
- Not within past year but before joining service

The following questions are used to calculate the above classifications.

- **Q147:** Have you ever attempted suicide? No/Yes/Decline to answer

- **Q148:** If you have ever attempted suicide, did you attempt it during any of the following periods? Please select ONE response per row. No/Yes
 - **A:** Within the past year
 - **B:** Since joining the military
 - **C:** Before joining the military
 - **D:** Within 6 months before leaving for deployment/mission
 - **E:** During a deployment/mission
 - **F:** Within 6 months after returning from a deployment/mission

Deployment

High Posttraumatic Stress (PTS) Level, Past 30 Days

There are 4 items in the survey to determine the extent to which they experienced symptoms in the past 30 days that indicated need for further PTS evaluation. Participants indicate how much they have been bothered by each of the 4 symptoms in the past month. Responses are provided on a 5-point scale, ranging from “Not at all” to “Extremely.” To create this scale, we will calculate an average from participants’ responses on each of the 4 items. We will then use a dichotomous cut off to determine ‘High PTS level’. Respondents with scores below 4 are categorized as “Low PTS,” and those with scores of 4 and above are categorized and presented in the tables as “High PTS.” The response categories reported for this composite score are:

- High PTS level
- Low PTS level

The following questions are used to calculate the above classifications.

- **Q136:** How much have you been bothered by each of the following in the PAST 30 DAYS? Please select ONE response per row. Extremely/quite a bit/moderately/a little bit/not at all
 - **B:** Feeling very upset when something reminded you of a stressful experience
 - **D:** Feeling emotionally numb or being unable to have loving feelings for those close to you
 - **E:** Having difficulty concentrating
 - **F:** Feeling jumpy or easily startled

Possible Traumatic Brain Injury (TBI)

To assess whether there is a need for further evaluation of mild TBI, respondents will be asked three series of items based on the Brief Traumatic Brain Injury Screen (BTBIS; Schwab et al., 2006).

The first series of items (Q161A – Q161F) asks about six events experienced during most recent deployment (combat or non-combat) including:

- Blast or explosion (IED, RPG, land mine, grenade, etc.);

- Vehicular accident/crash (any vehicle, including aircraft);
- Fragment wound above the shoulders;
- Bullet wound above the shoulders;
- A fall serious enough to need medical attention; and
- Another type of injury.

A response of “Yes” to at least one item verifies occurrence of an injury.

The second series of items (Q165A – Q165H) asks about eight symptoms experienced during or after most recent deployment, including:

- Memory problems or lapses;
- Balance problems;
- Dizziness;
- Ringing in the ears;
- Sensitivity to bright light;
- Irritability;
- Headaches; and
- Nightmares.

A response of “Yes” to at least one item verifies the presence of TBI-related symptoms.

The final series of items (question Q167A – question Q167G) will ask whether an injury received during most recent deployment resulted in any of the following seven outcomes:

- Lost consciousness or got “knocked out” for less than a minute;
- Lost consciousness or got “knocked out” for 1 to 20 minutes;
- Lost consciousness or got “knocked out” for more than 20 minutes;
- Felt dazed, confused, or “saw stars”;
- Didn’t remember the event;
- Concussion or symptoms of a concussion (such as headache, dizziness, irritability, etc.); and
- Head injury.

If the respondent answered “Yes” to at least one of the injury outcome items, in addition to verification of at least one injury related event and one symptom based on the first two sets of items, further evaluation is recommended for possible TBI.

Responses:

- Possible TBI
- Unlikely TBI

Combat Exposure

There 17 items to assess level of combat exposure across all combat zone deployments since September 11, 2011. The items ask participants to indicate the number of times they had experienced combat-

related events, such as “I personally fired my weapon at the enemy,” “My unit suffered casualties,” and “I was wounded in combat.” Response options were provided on a 5-point scale, ranging from “Never” to “More than 50 times.”

From these items, we will create a composite score using each individual item (A through Q), where a response of “More than 50 times” will be assigned a value of 4, “13 to 50 times” will be assigned a value of 3, “4 to 12 times” will be assigned a value of 2, “1 to 3 times” will be assigned a value of 1, and “Never” will be assigned a value of 0. This sum score will be trichotomized, with “10 and above=High Exposure,” “1 to 9=Moderate Exposure,” and “0=Low Exposure.” Those who had not been deployed since September 11, 2001 according to Q148 or Q159 will be categorized as “No combat deployments.” The response categories for this outcome are:

- High (10 times or more)
- Moderate
- Low
- No Combat Deployments

The following questions are used to define the above classifications:

- **Q158:** Have you been deployed on either a combat or non-combat mission/deployment since September 11, 2001?
- **Q159:** The term “combat zone deployment,” as used in this questionnaire, refers to a deployment where you received imminent danger pay (IDP), hazardous duty pay, and/or combat zone tax exclusion benefits. How many COMBAT deployments (including OIF, OEF, OND - missions where you received IDP, hazardous duty pay, and/or combat zone tax exclusion benefits) have you been on since September 11, 2001?
- **Q173A:** I was sent outside the wire on combat patrols, convoys, or sorties
- **Q173B:** I, or members of my unit, received incoming fire from small arms, artillery, rockets, or mortars.
- **Q173C:** I, or members of my unit, encountered mines, booby traps, or IEDs (improvised explosive devices).
- **Q173D:** I worked with landmines or other unexploded ordnances.
- **Q173E:** My unit fired on the enemy.
- **Q173F:** I personally fired my weapon at the enemy.
- **Q173G:** I engaged in hand-to-hand combat.
- **Q173H:** I was responsible for the death or serious injury of an enemy.
- **Q173I:** I witnessed members of my unit or an ally unit being seriously wounded or killed.
- **Q173J:** My unit suffered casualties.
- **Q173K:** I saw dead bodies or human remains
- **Q173L:** I handled, uncovered, or removed dead bodies or human remains.
- **Q173M:** Someone I knew well was killed in combat
- **Q173O:** I interacted with enemy prisoners of war.

- **Q173P:** I witnessed or engaged in acts of cruelty, excessive force, or acts violating rules of engagement.
- **Q173Q:** I was wounded in combat.