

# Fleet and Marine Corps Health Risk Assessment, 1 January – 31 December, 2014

## Executive Summary

The Fleet and Marine Corps Health Risk Appraisal is a 22-question anonymous self-assessment of many of the most common health risk behaviors. It supports preventive health screening and counseling by healthcare providers during the annual Periodic Health Assessment (PHA), provides individual members with individualized, credible sources of health information on the Web, provides data to health educators to plan and implement community interventions, and provides commanding officers at all levels with snapshots of their unit profiles.

The tool is web-based, but there is also a stand-alone Excel version that can be used on ships and other settings that have poor Internet connectivity. Completion of the assessment takes about three minutes and provides personalized reports to each individual. A total of 221,052 completed assessments were analyzed during 1 January to 31 December, 2014 period and included both active and reserve component (Rc) members from the Navy (USN), Marine Corps (USMC), and Coast Guard (USCG).

This report utilizes both descriptive and analytic methods to report the results on the total responses as well as by service component and specific demographic characteristics. Demographic variables that were examined included age, gender, race, rank, and service component. Analyses utilized one of two measures: 1) ‘healthy’ or ‘unhealthy’ risk ratings or 2) a risk score based on the total number of risk behaviors reported by an individual. Data was also analyzed for differences during various “days away from home station” periods.

The prevalence of specific risk factors remained fairly constant from the previous year, with the leading health risks being low fruit and vegetable consumption, consumption of high fat foods, not flossing, and not getting enough restful sleep. The mean number of risk factors showed that more USMC members qualified as “high risk” (28.8%), followed by the USMCR (27.1%), USN (23.1%), USNR (13.3%), USCG (10.6%), and USCGR (7.9%). Higher risk scores indicate a greater likelihood that members will utilize more healthcare services in the future than lower risk members. The percentage of members in the ‘high’ risk category increased from 19% at 0 days away from home station to 26% at 180-365 days away. Self-reported unhealthy behaviors, such as dipping, heavy drinking, drinks per day, and work stress all increased as time away from station increased, for all service components grouped together. However, restful sleep decreased



as time away from home station increased. The data also indicated that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as overweight.



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## Background

Health Risk Assessments (HRAs) became widely used both in military and civilian settings beginning in the mid-1980s. HRAs are tools that can be used to educate patients, to assist healthcare professionals in counseling patients, and to inform decision makers of the overall health status of their populations. Different versions of HRAs are available to assess a range of conditions and risk behaviors. They are also often used to assess health concerns of specific age groups. The 2014 Fleet and Marine Corps HRA is a 22-question, anonymous, self-reported, web-based assessment tool specifically designed to assess risk behaviors common to military members. More information on the HRA can be found at:  
<http://www.med.navy.mil/sites/nmcphc/health-promotion/Pages/hra.aspx>.

The questions were based on other validated tools, such as the Alcohol Use Disorders Identification Test (AUDIT) and the National Health and Nutrition Examination Survey (NHANES), or input from subject matter experts. The questions address 10 risk categories that provide a snapshot of leading health indicators. The categories include:

1. tobacco use
2. alcohol use
3. safety
4. stress management
5. sexual health
6. physical activity
7. nutrition
8. supplement use
9. dental health
10. sleep problems



## Methods

### *Data Collection and Analyses*

Data from 224,654 surveys were collected from 1 January through 31 December 2014. The data were analyzed by the EpiData Center (EDC) at the Navy and Marine Corps Public Health Center (NMCPHC). Some records were excluded from the analysis for the following reasons:

- a. Records with blank fields were considered incomplete. There were a total of 1,548 incomplete records across all services.
- b. Records completed by service members who had a rank of civilian and identified themselves as Navy, Marine Corps, or Coast Guard members were excluded (2,089).

The total number of surveys included in the analysis was 221,052.

All analyses utilized one of two measures: 1) ‘healthy’ or ‘unhealthy’ risk ratings or 2) a risk score. The 22 risk assessment questions were categorized healthy or unhealthy according to the standards listed in Appendix B.

A risk score was tabulated based on the total number of risk behaviors in which one or more of the answers were reported as unhealthy. Risk behavior scores ranged from 0-10 and were categorized into risk levels low, medium, and high.

- 0-2 risk behaviors = low risk
- 3-4 risk behaviors = medium risk
- 5 or more risk behaviors = high risk

Risk scores do not predict early morbidity or mortality; rather, higher risk scores indicate a greater likelihood that members will utilize more healthcare services in the future than lower risk members.

Descriptive analyses, frequencies, and percentages were used to describe survey respondents. Logistic regression examining the relationship between days away from home station and risk number was conducted using SAS® software (Version 9.4 SAS Institute, Inc., Cary, North Carolina).

The following demographic variables were collected: age, gender, race, rank and service. Service member age was categorized into the following categories: 17-19, 20-29, 30-39, 40-49, and 50 years and older. Race was categorized as Caucasian, African Americans, Asian and Pacific



Islanders, Hispanics or Other. Rank was categorized into five categories: enlisted service members (E1-E5 or E6-E9), officers, (O1-O3 or O4-O9), and warrant officers (W1-W5).

Body mass index (BMI) was calculated from self-reported height and weight data, according to current Centers for Disease Control and Prevention (CDC) guidelines ( $[\text{weight} \div (\text{height in inches})^2] \times 703$ )<sup>1</sup>. According to the CDC, BMI values that exceed healthy levels have been shown in published studies to be an independent risk factor for certain diseases and all-cause mortality.

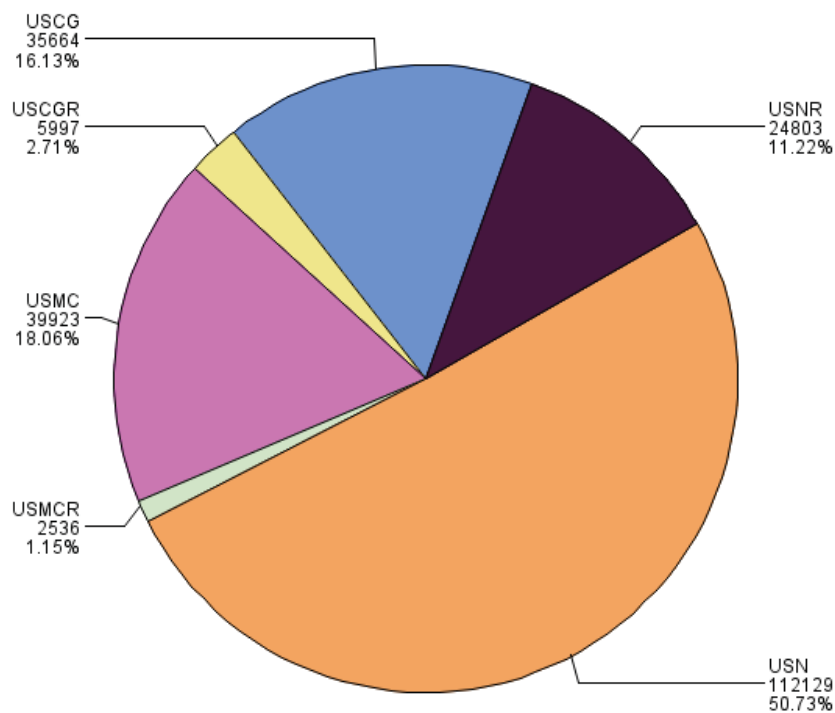


## Results

### Demographic Analysis

There were 224,654 surveys completed for the 2014 HRA, of which 221,052 surveys completed by the study cohort were included in the analysis. Descriptive analyses of service demographics showed that the majority (51%) of survey respondents were active duty Navy service members, while 11% were Navy Reserves, 19% were active duty and reserve Marines, and 19% were active duty and reserve Coast Guard members (Figure 1).

**Figure 1:**  
**Distribution of Completed HRAs by Service Component**  
221,052 records

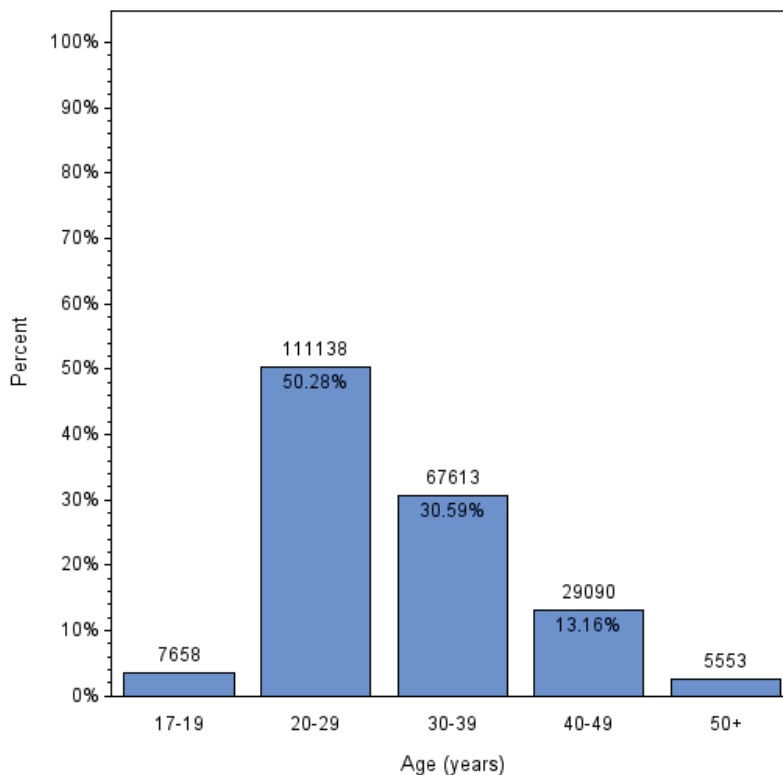


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Age distribution of survey respondents indicated 50% of the respondents were in the 20-29 year old age group (Figure 2).

**Figure 2:**  
**Age Distribution of Completed HRA Survey**  
221,052 records



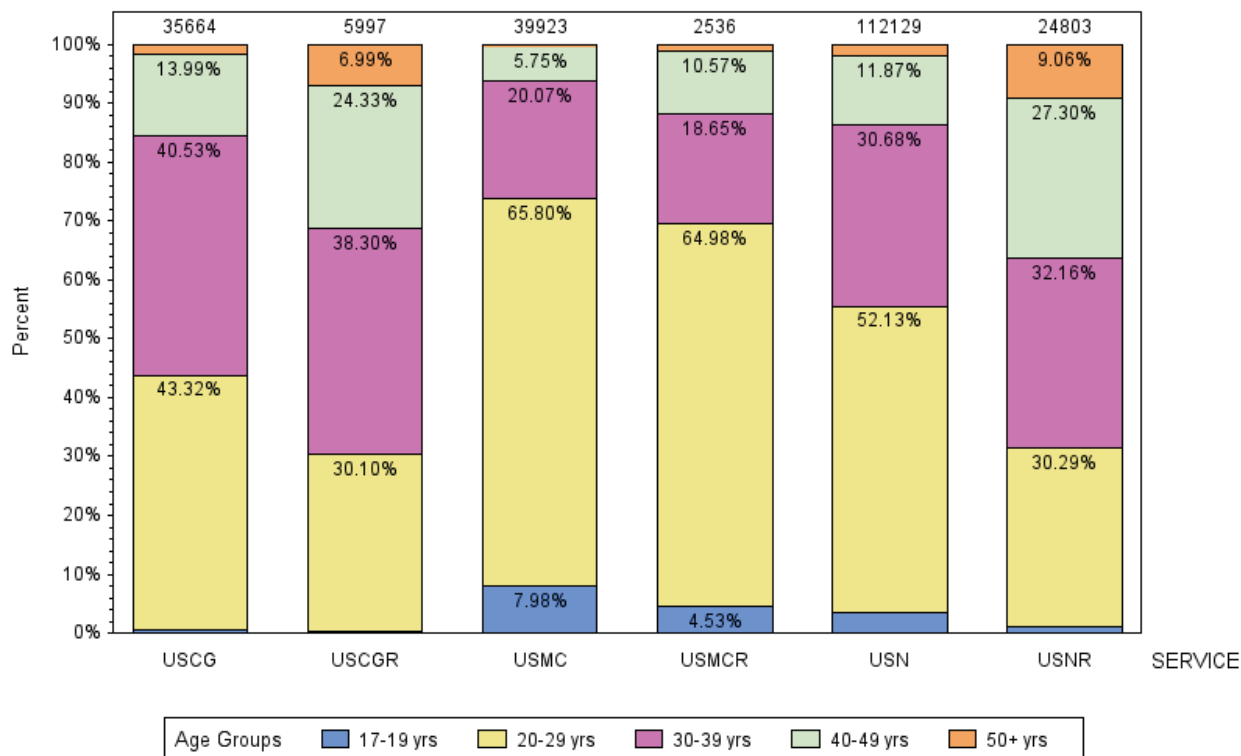
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Overall, Navy and Coast Guard service member respondents were older than the Marine survey respondents (Figure 3). The mean age of service member respondents was USN=30.0 years of age, USNR=35.7 years of age, USMC=26.3 years of age, USMCR=27.9 years of age, USCG=31.7 years of age, and USCGR=35.2 years of age.

**Figure 3:**  
**Age Distribution of Completed HRAs by Service Component**  
221,052 records

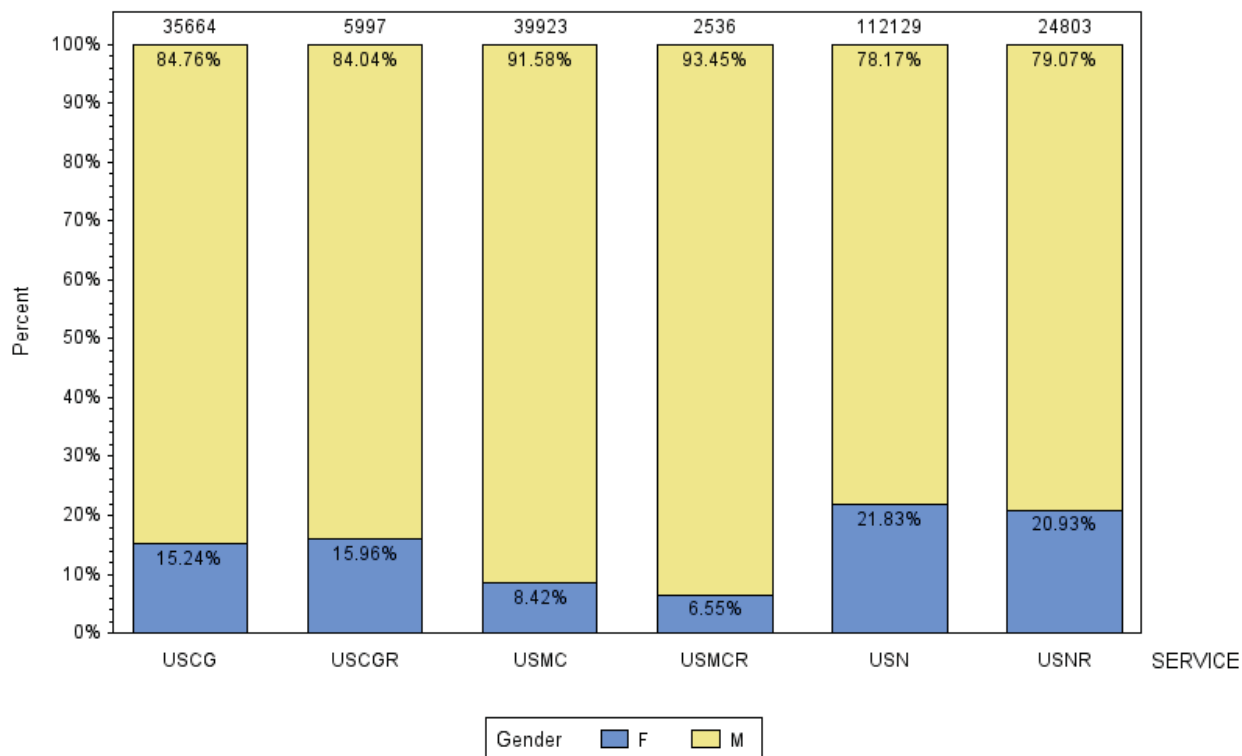


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With respect to gender, more males completed the HRA (82%), which reflects the general male-to-female ratio of military service members. The gender difference differed between branches; with fewer than 8% of the HRAs completed by females in the Marine Corps compared to 22% in the Navy and 16% in the Coast Guard.

**Figure 4:**  
**Gender Distribution of Completed HRAs by Service Component**  
221,052 records



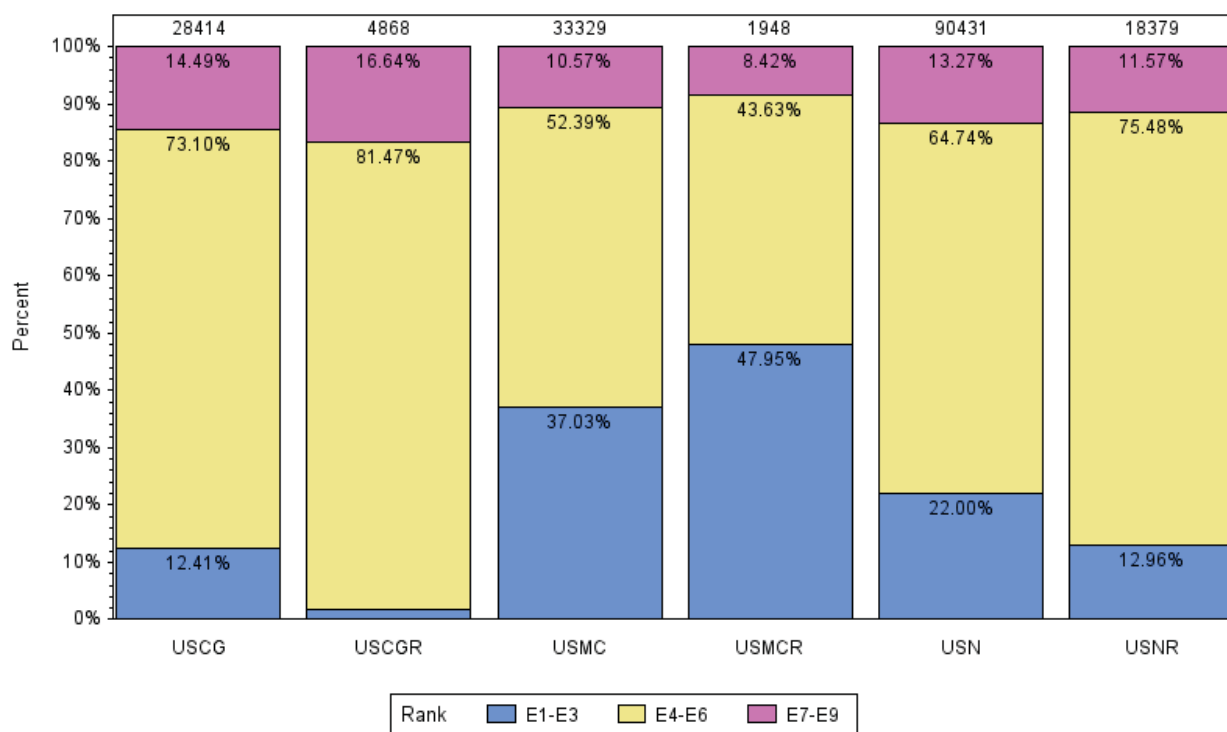
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Distribution by rank of survey respondents indicated that 80% were completed by enlisted members, 18% by officers, and 1% by warrant officers. Figures 5-7 display the distribution of respondents' rank by service.

The USMC and USMCR had the largest percentage of lower-ranking enlisted members (37.0% and 48.0%, respectively). The USCG (73.1% E4-E6 and 14.5% E7-E9) and USCGR (81.5% E4-E6 and 14.5% E7-E9) and USCGR (81.5% E4-E6 and 16.6% E7-E9) had the largest percentage of senior-ranking enlisted members.

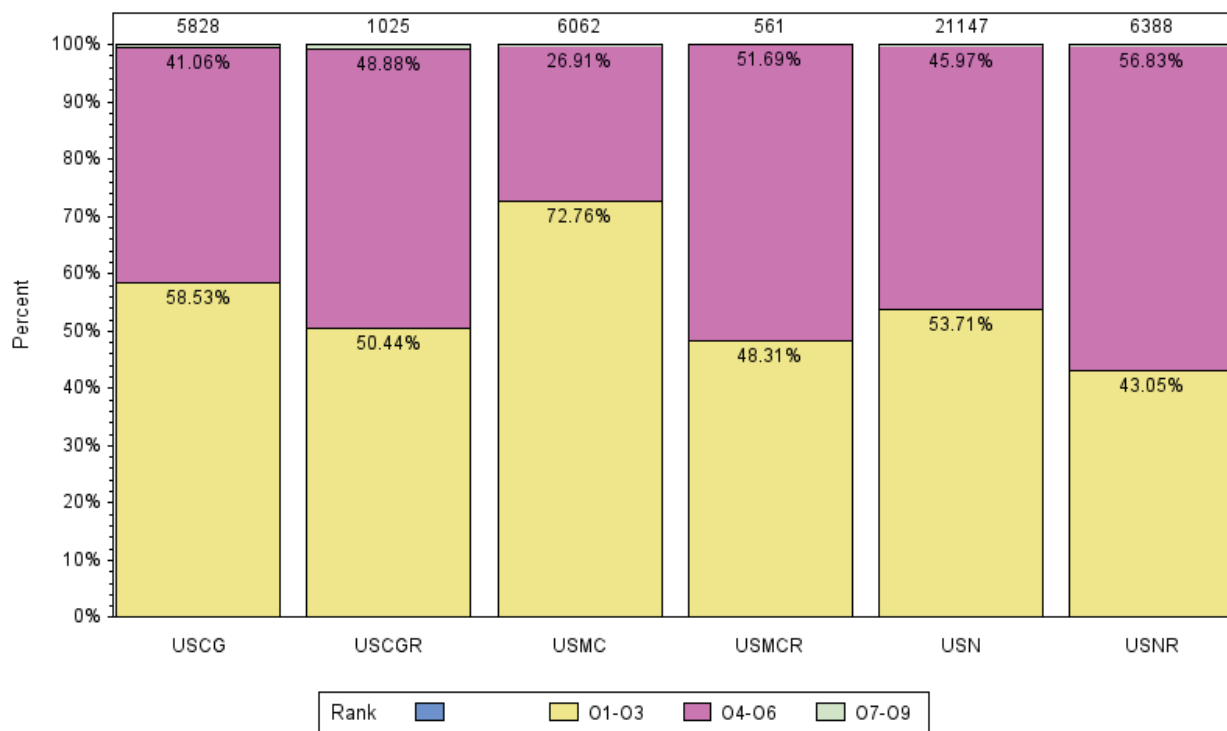
**Figure 5:**  
**Rank (Enlisted Personnel) Distribution of Completed HRAs by Service Component\***  
177,369 records



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\*Does not include people who indicated a rank of E10



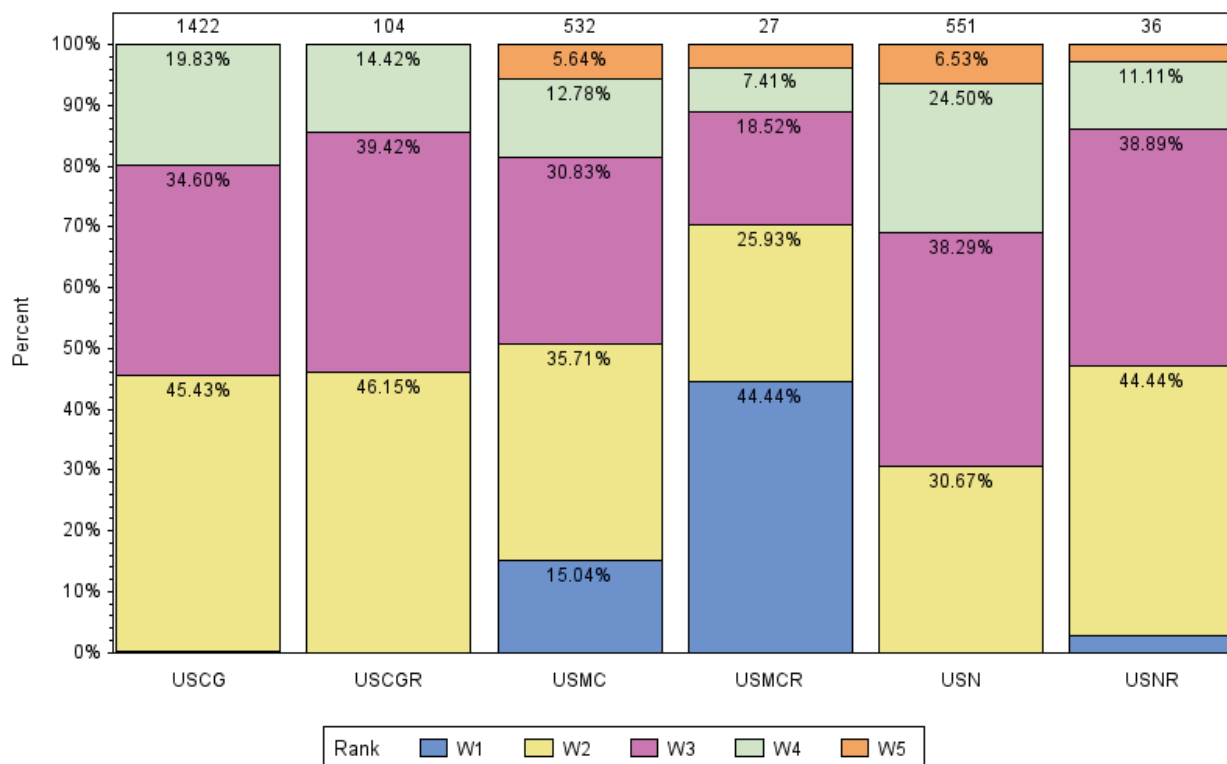
**Figure 6:**  
**Rank (Officer Personnel) Distribution of Completed HRAs by Service Component\***  
41,011 records



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\*Does not include people who indicated a rank of O10



**Figure 7:**  
**Rank (Warrant Officer) Distribution of Completed HRAs by Service Component**  
2,672 records

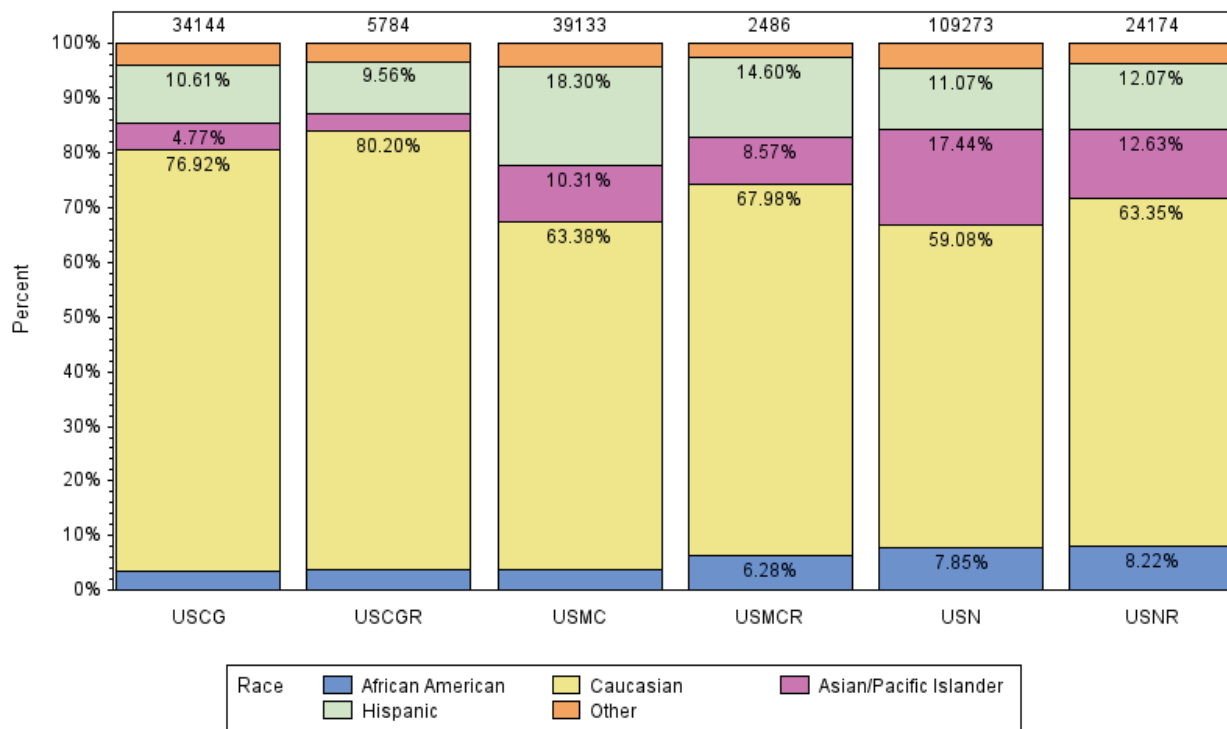


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Race varied somewhat between service components, but across services, survey respondents were predominantly Caucasian (64%), followed by Asian/Pacific Islander (13%), Hispanic (12%), African American (6%), and Other (4%) (Figure 8).

**Figure 8:**  
**Race Distribution of Completed HRAs by Service Component\***  
214,994 records



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\*6,000 did not answer race question

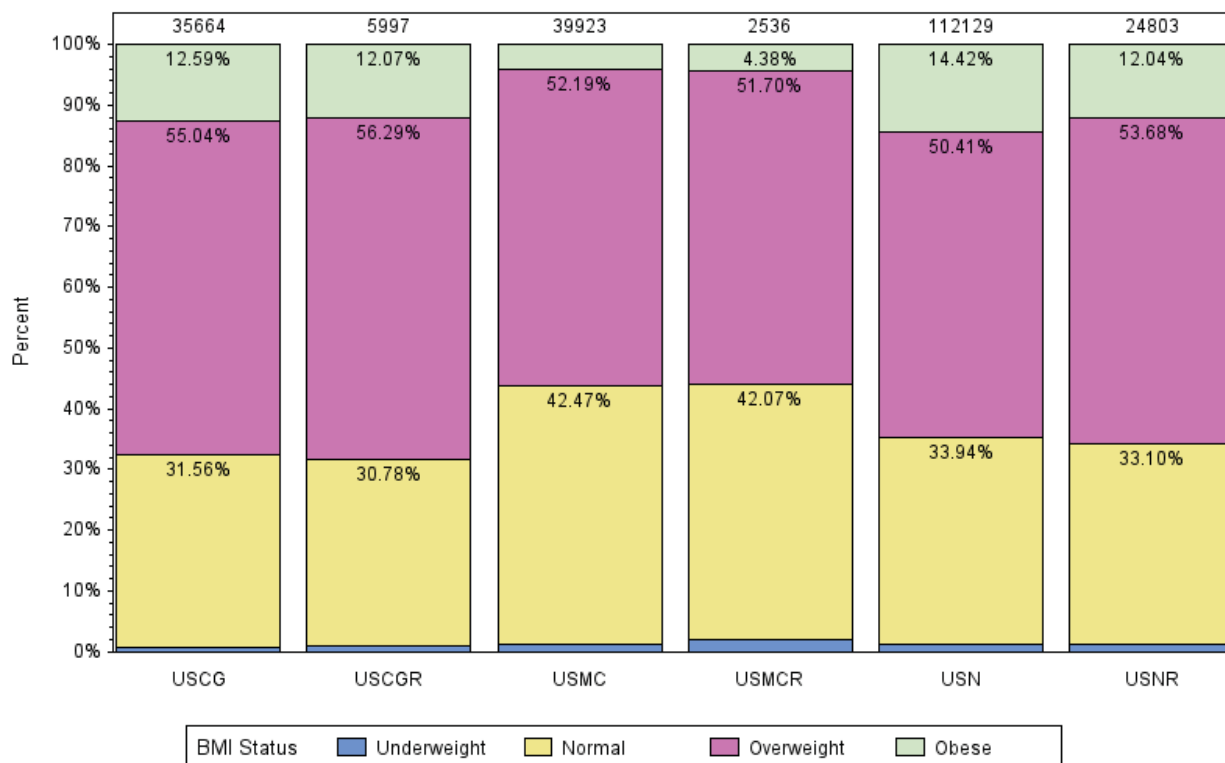


## HRA Risk Factor Analysis

### BMI Status

As a screening test, BMI usually correlates well in the US population with amount of body fat, although some individuals, such as muscular athletes, may have BMIs that identify them as overweight even though they do not have excess body fat. Therefore, this analysis should not necessarily lead to the conclusion that all individuals exceeding these levels are overweight or obese. Rather, the analysis may support some general observations about weight across the services. Overall, 64% of service members were classified as overweight or obese according to the Centers for Disease Control and Prevention BMI standards for healthy adults. The analysis indicated that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as overweight or obese. Active duty Navy, Coast Guard, and Marines are nearly equally as likely to be of normal BMI as reservists (Figure 9).

**Figure 9:**  
**Distribution of BMI Category for Completed HRAs by Service Component**  
221,052 records



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*Distribution of “Healthy” Responses*

As shown in Appendix B, each HRA question was classified as ‘healthy’ or ‘unhealthy’ based on responses to the question.

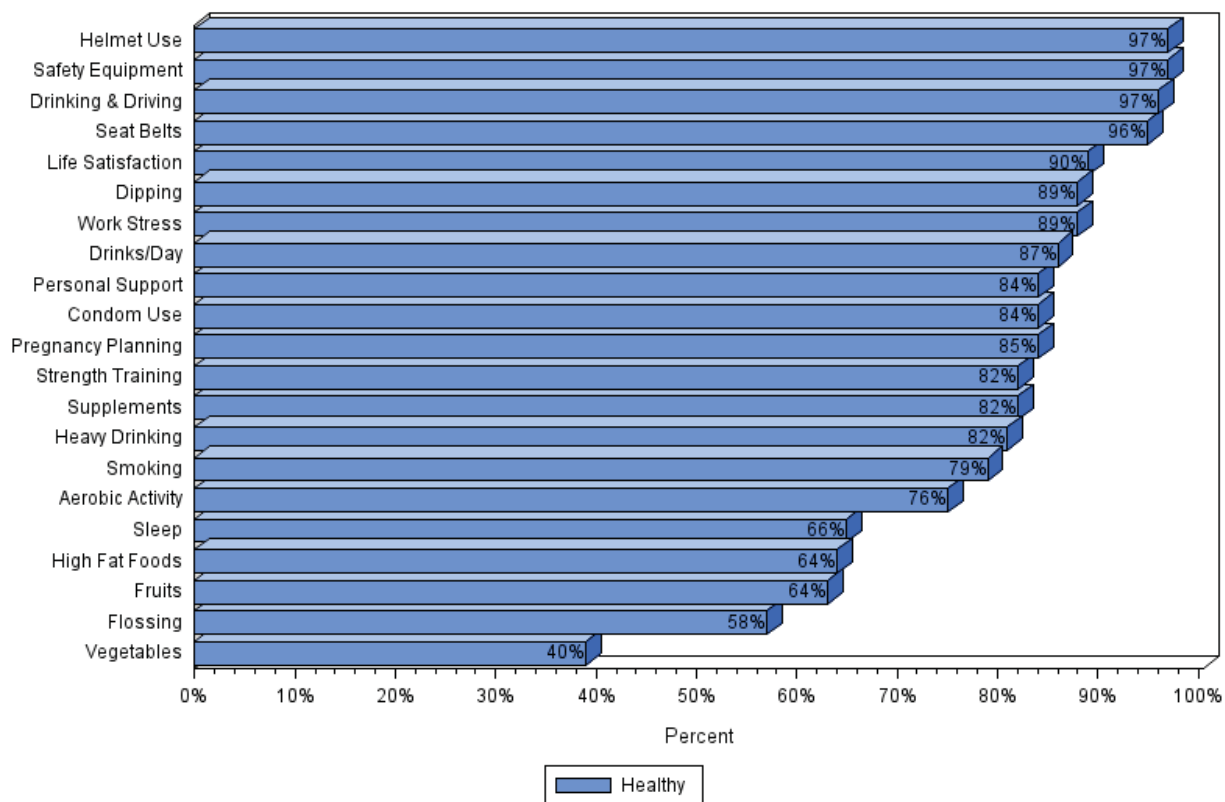
The next seven graphs (Figures 10-16) display the results of these questions by service component. Healthy response frequencies are displayed in light blue along the horizontal axis. A longer light blue bar indicates more people provided healthy responses.

Overall, for all components, the leading health risks (unhealthy ratings) were low daily intake of vegetables (40%), lack of flossing (58%), low daily intake of fruits (64%), and high daily intake of high fat foods (64%). Among all respondents, other significant areas of concern included lack of sleep (66%), lack of aerobic activity (76%), smoking (79%), and heavy drinking (82%). Overall, the most common healthy behaviors reported by members included use of helmets (97%), use of safety equipment (97%), avoiding drinking and driving (97%) and use of seat belts (96%) (Figure 10).





Figure 10:  
**Distribution of Healthy Responses on HRA Questions for All Service Components**

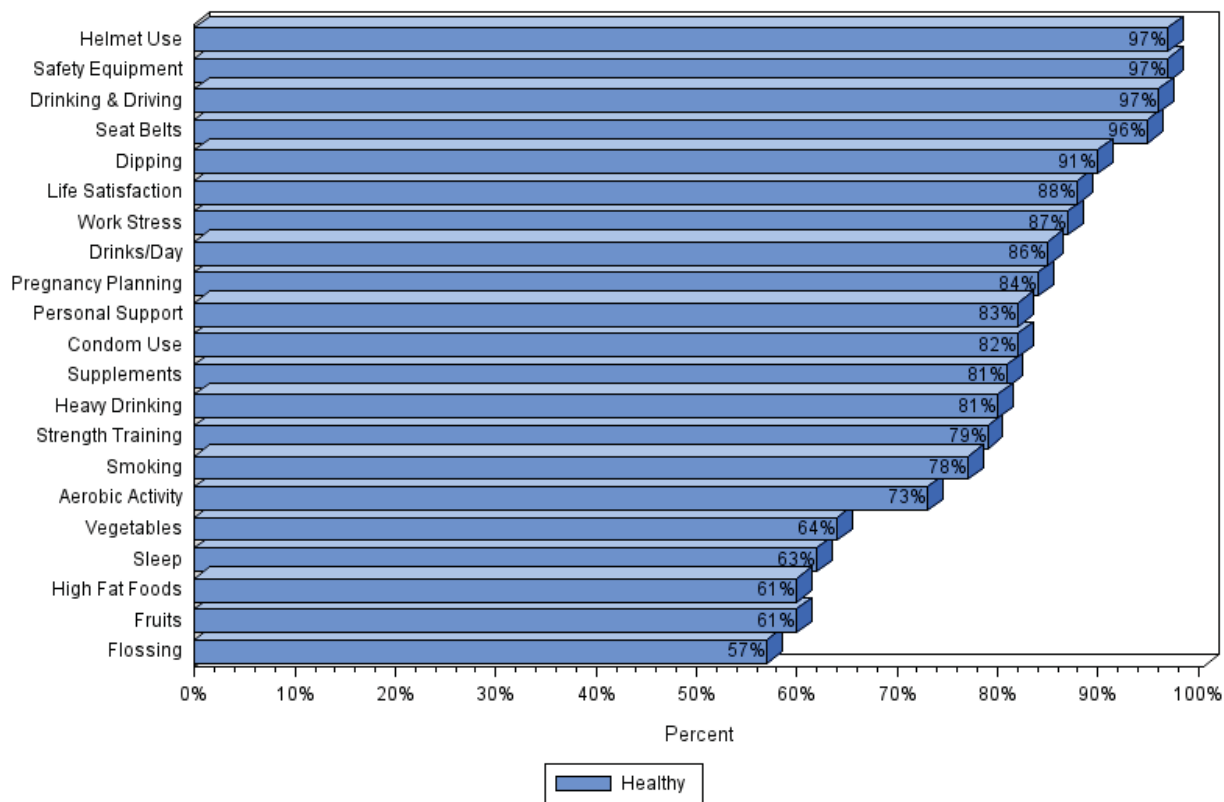


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USN and USNR response distributions closely resembled one another (Figures 11 & 12). In addition, 57% of USN and 65% of USNR members reported healthy flossing behaviors; 64% of USN and 46% of USNR members reported daily consumption of vegetables. The majority of USNR service members (88%) reported never drinking heavily or on one or two occasions per year compared to 81% USN service members. A larger proportion of USNR service members were more likely to report staying in the daily and weekly alcoholic drink limits than USN service members (93% and 86%, respectively). USNR members reported a higher percentage of healthier smoking behaviors (88%) than did USN members (78%). More USNR members reported getting enough restful sleep (75%) compared with USN members (63%).

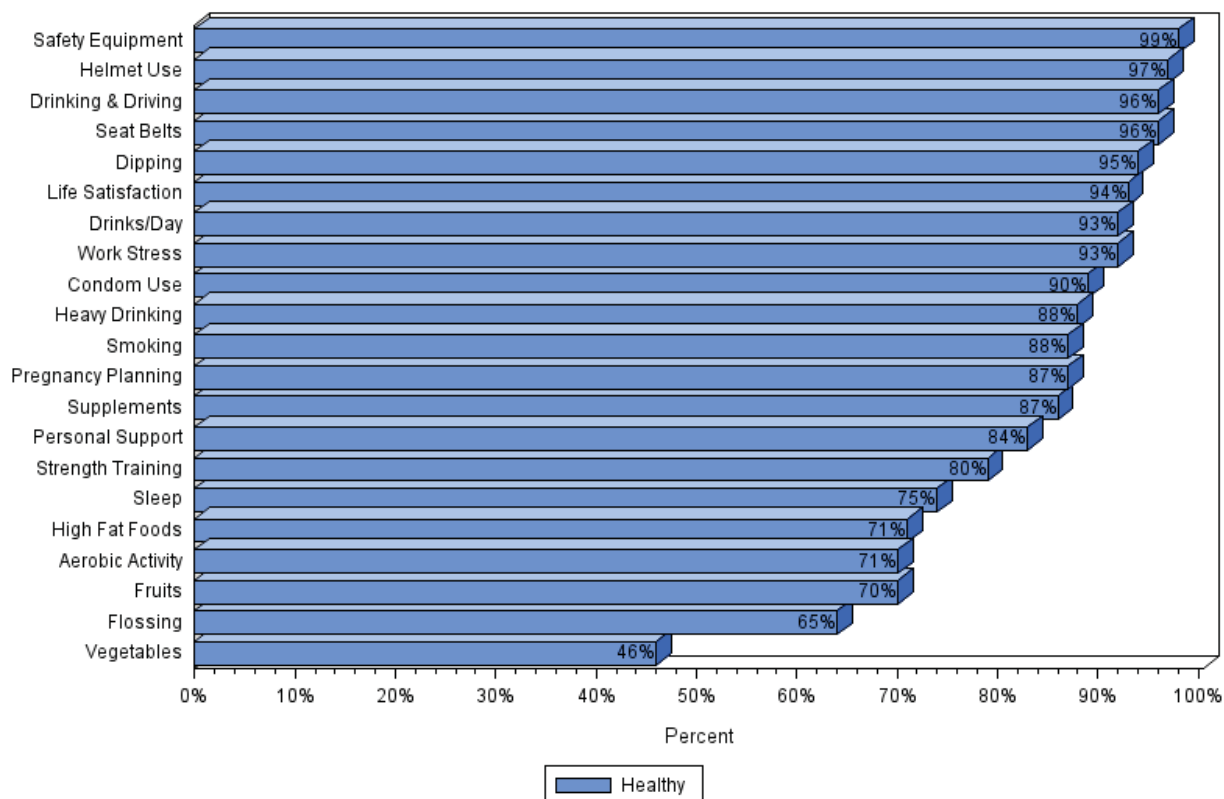
**Figure 11:**  
**USN Distribution of Healthy Responses on HRA Questions**



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Figure 12:  
**USNR Distribution of Healthy Responses on HRA Questions**

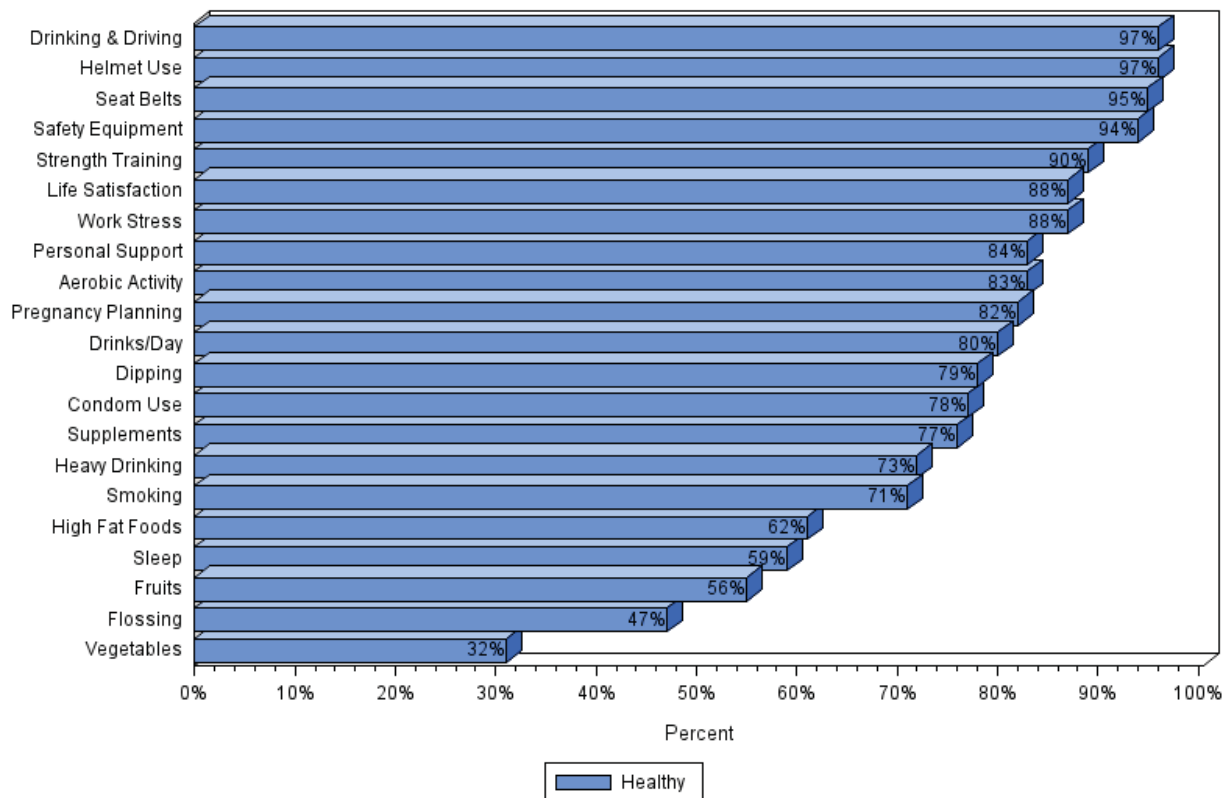


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The USMC and USMCR followed similar trends based on reported risks (Figures 13 & 14). USMC and USMCR healthy responses were lowest for intake of vegetables (32% and 36%, respectively), flossing (47% and 49%, respectively), and intake of fruits (56% and 59%, respectively). USMC members reported lower levels of healthy behaviors related to work stress (88%) than USMCR members (92%). USMC and USMCR members both reported similar percentages of heavy drinking (73% and 72%, respectively), and drinks per day (80% and 82%, respectively). Both groups of Marines reported high healthy drinking and driving behaviors (97% and 94%, respectively). USMCR members reported higher proportions of healthier smoking habits (79%) compared to USMC service members (71%). USMC and USMCR service members reported similar percentages of dipping behaviors (79% and 81%, respectively). USMCR members reported higher percentages of getting enough restful sleep (66%) compared to USMC members (59%). USMC and USMCR service members reported similar proportions of healthy condom usage (78% and 82%, respectively).

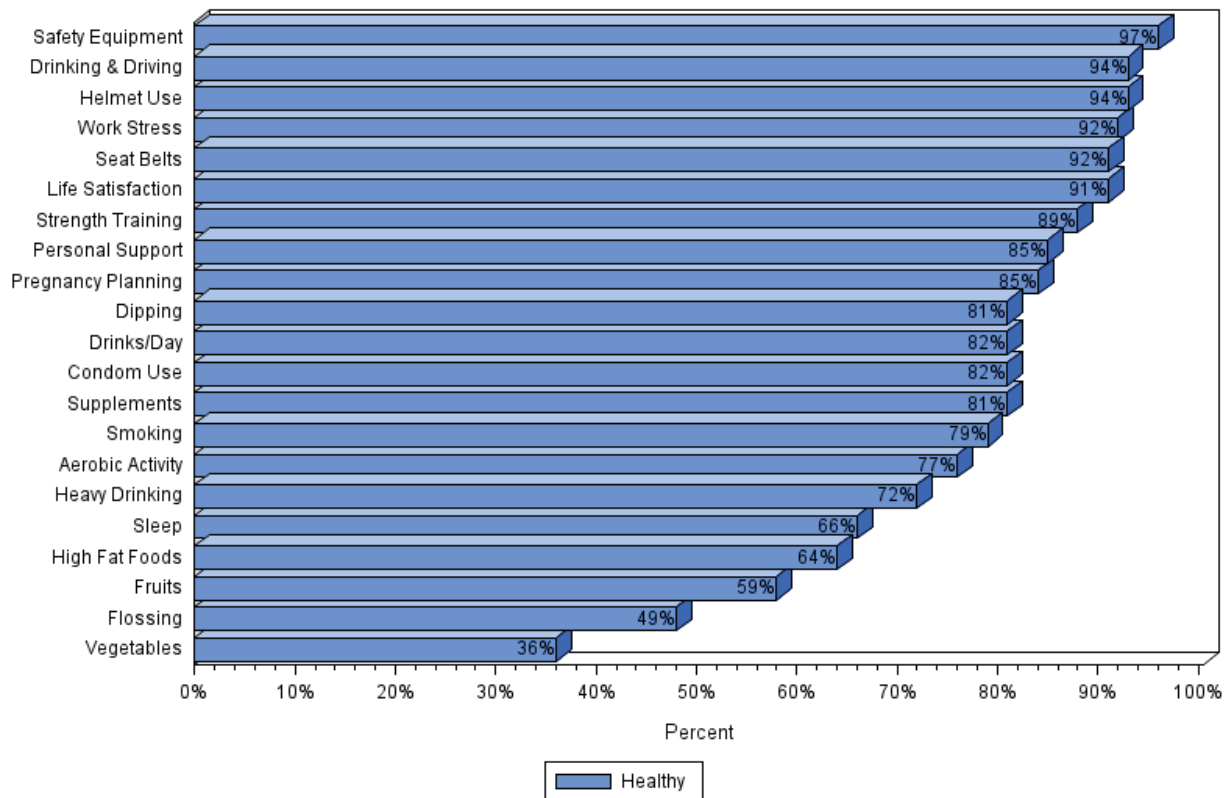
**Figure 13:**  
**USMC Distribution of Healthy Responses on HRA Questions**



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Figure 14:  
**USMCR Distribution of Healthy Responses on HRA Questions**

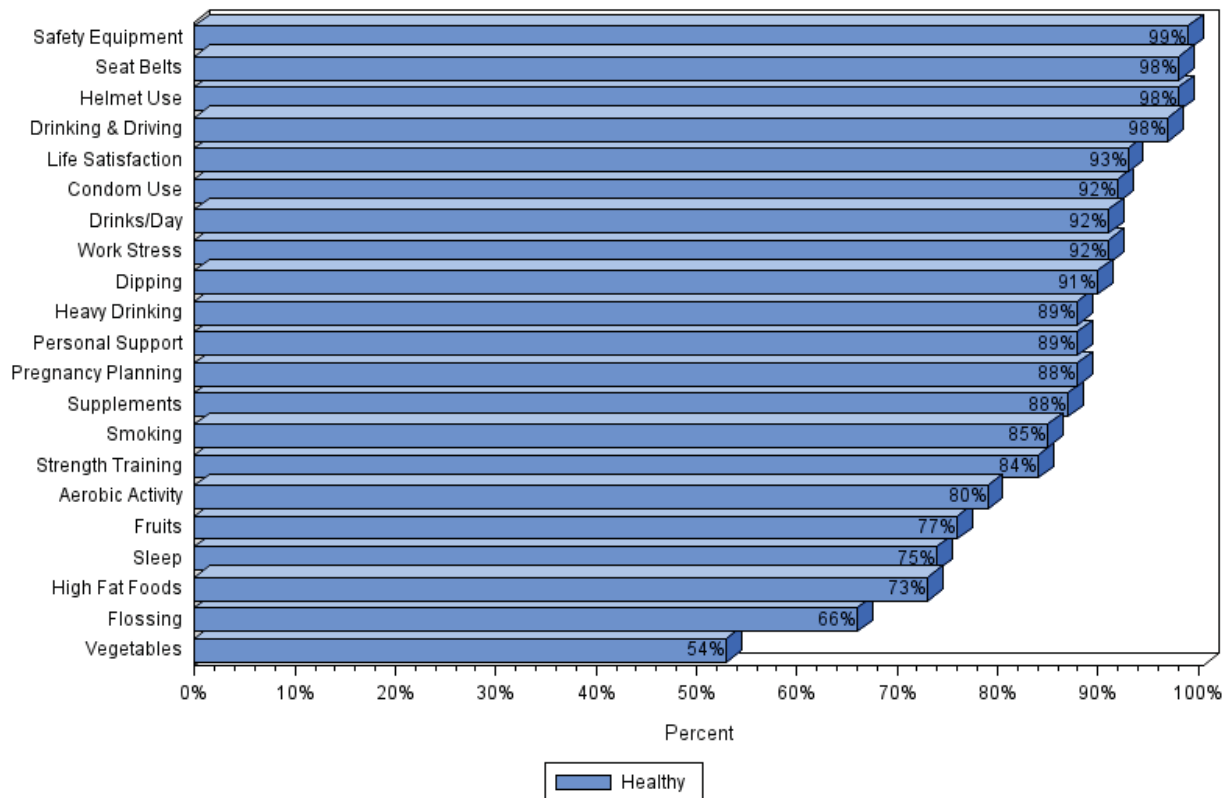


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The USCG and USCGR showed similar results of healthy behaviors (Figures 15 & 16). The lowest healthy responses for both groups were reported intake of vegetables (54% for USCG and 55% for USCGR), levels of flossing (66% for USCG and 71% for USCGR), and intake of high fat foods (73% among USCG and 74% among USCGR). USCG and USCGR members reported slightly higher percentages of healthy smoking behaviors (85% and 91%, respectively) than USMC and USMCR. The USCG and USCGR reported higher healthier heavy drinking responses (89% and 90%, respectively) and drinks per day (92% and 93%) than the other branches. The USCG and USCGR reported higher percentages of getting enough restful sleep (75% and 82%) compared to the other branches.

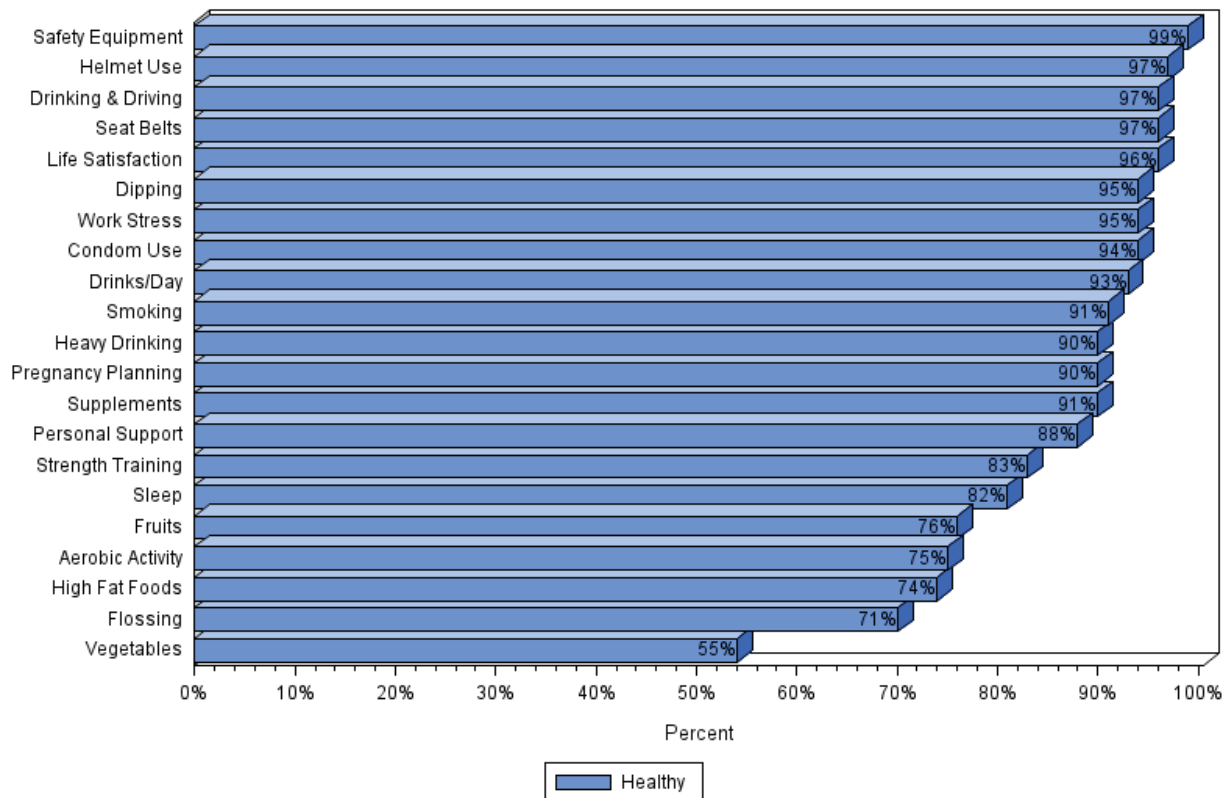
**Figure 15:**  
**USCG Distribution of Healthy Responses on HRA Questions**



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Figure 16:  
**USCGR Distribution of Healthy Responses on HRA Questions**



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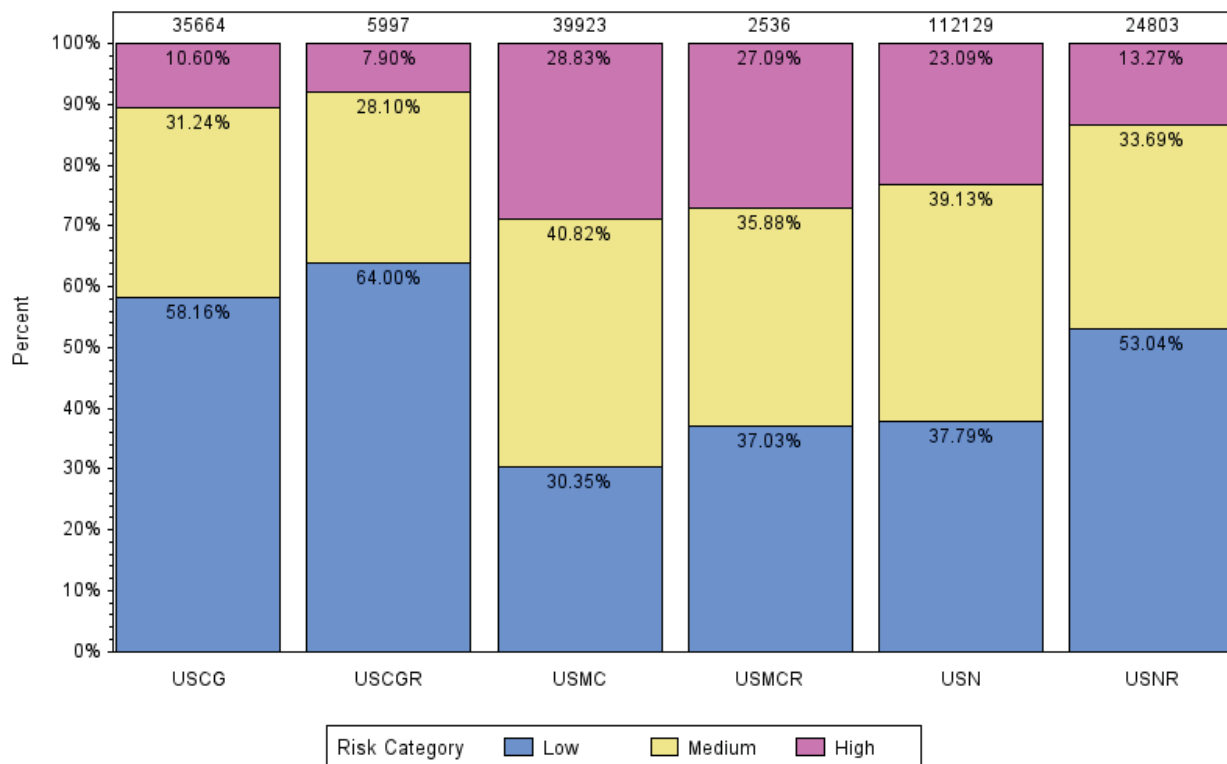


*Distribution of Risk Categories*

Figure 17 displays risk categories for each service component, based on the number of members falling within each risk category. Each service member was categorized as low (0-2 unhealthy responses), medium (3-4 unhealthy responses), or high risk (5 or more unhealthy responses) based on the number of reported unhealthy responses. Members in higher risk categories are considered more likely to utilize healthcare services in the future.

Based on the mean number of risk factors, USMC members were most often scored as “high risk” (28.8%), followed by the USMCR (27.1%), USN (23.1%), USNR (13.3%), USCG (10.6%), and USCGR (7.9%). Members of the USCGR most often scored in the low risk category (64.0%).

**Figure 17:**  
**Distribution of Risk Categories for Completed HRAs by Service Component**  
221,052 records



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*Changes in Healthy Responses*

Table 1 displays the percent of respondents that were classified healthy for both this year and the previous study period. Percent change in the ‘healthy’ response was calculated and appears in the last column; increases in values indicate healthier behaviors. Overall, most ‘healthy’ responses remained similar or slightly improved, with the exception of use of seat belts, which had a 2.8% decrease and dipping, which had a 0.3% decrease in healthy responses. Consumption of vegetables and healthy smoking behaviors improved in 2014, with an increase of 4.6% and 2.3% in healthy responses, respectively.



**Table 1.** Percent Change in Healthy HRA Responses

|                               | 2013<br>(N=233,281) | 2014<br>(N=221,052) | Percent<br>Change <sup>a</sup> |
|-------------------------------|---------------------|---------------------|--------------------------------|
| Aerobic Activity              | 74.9                | 75.9                | 1.3                            |
| Condom Use                    | 83.9                | 84.3                | 0.4                            |
| Dipping                       | 89.2                | 89.0                | -0.3                           |
| Drinking & Driving            | 96.3                | 96.7                | 0.4                            |
| Drinks/Day                    | 85.8                | 86.7                | 1.0                            |
| Flossing                      | 57.5                | 58.0                | 0.9                            |
| Fruits                        | 63.0                | 63.9                | 1.5                            |
| Heavy Drinking                | 80.4                | 81.6                | 1.4                            |
| Helmet Use <sup>b</sup>       | 97.1                | 97.3                | 0.2                            |
| High Fat Foods                | 63.9                | 64.5                | 0.9                            |
| Life Satisfaction             | 89.8                | 89.9                | 0.1                            |
| Personal Support              | 83.4                | 84.0                | 0.8                            |
| Pregnancy Planning            | 84.5                | 85.0                | 0.5                            |
| Safety Equipment <sup>b</sup> | 97.2                | 97.3                | 0.1                            |
| Seat Belts                    | 98.8                | 96.0                | -2.8                           |
| Sleep                         | 66.1                | 65.8                | -0.4                           |
| Smoking                       | 77.6                | 79.4                | 2.3                            |
| Strength Training             | 81.2                | 82.3                | 1.4                            |
| Supplements                   | 81.9                | 82.4                | 0.6                            |
| Vegetables                    | 37.9                | 39.6                | 4.6                            |
| Work Stress                   | 88.9                | 89.0                | 0.1                            |

<sup>a</sup>Percent Change calculation = [(2014 Value - 2013 Value)/2013 Value]\*100

<sup>b</sup>Excludes not applicable answers

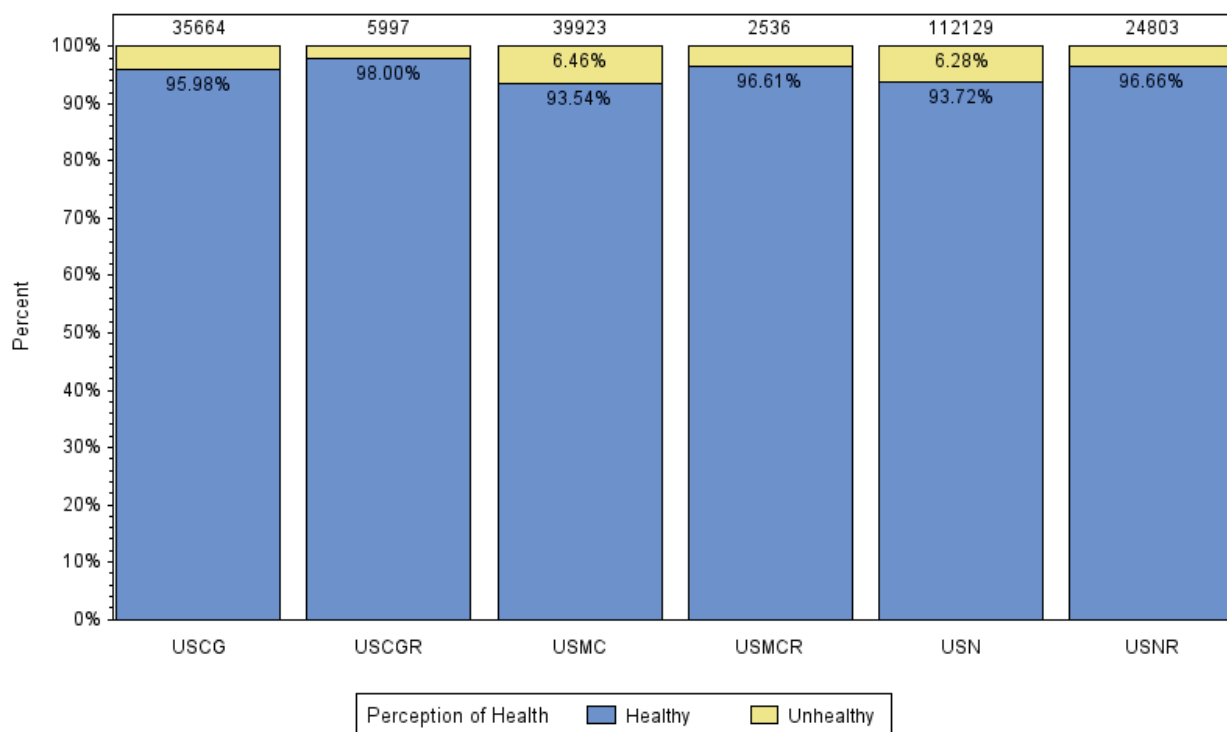
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*Perception of Health*

Perception of one’s current state of health has been shown to be fairly accurate. However, perception of current good health may not accurately reflect future health for members who report significant risk factors that are major determinants of health outcomes. Of all service members, 94.5% rated their “health in general” as either good or excellent (Figure 18), even though the self-reported scoring of HRA data shows many members reported risk factors that placed them in medium and high risk categories (Figure 17).

**Figure 18:**  
**Distribution of Perception of Health Category**  
**for Completed HRAs by Service Component**  
221,052 records

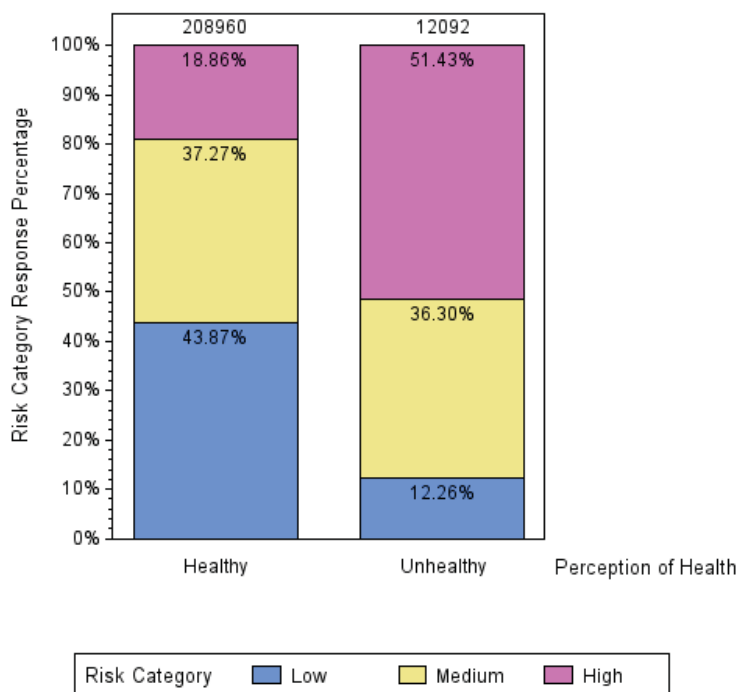


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The differences in perception of health and risk category demonstrated that those who perceived their health to be unhealthy (by rating that their health was either fair or poor), were more likely to be in the high risk category compared to those who perceived themselves to be “healthy”. Of the small percentage of respondents who indicated their health was generally unhealthy (5.5% of respondents), the majority had risk scores that fell into the medium to high risk categories (88%) (Figure 19).

**Figure 19:**  
**Distribution of Perception of Health Category**  
**Compared to Risk Category for Completed HRAs**  
221,052 records

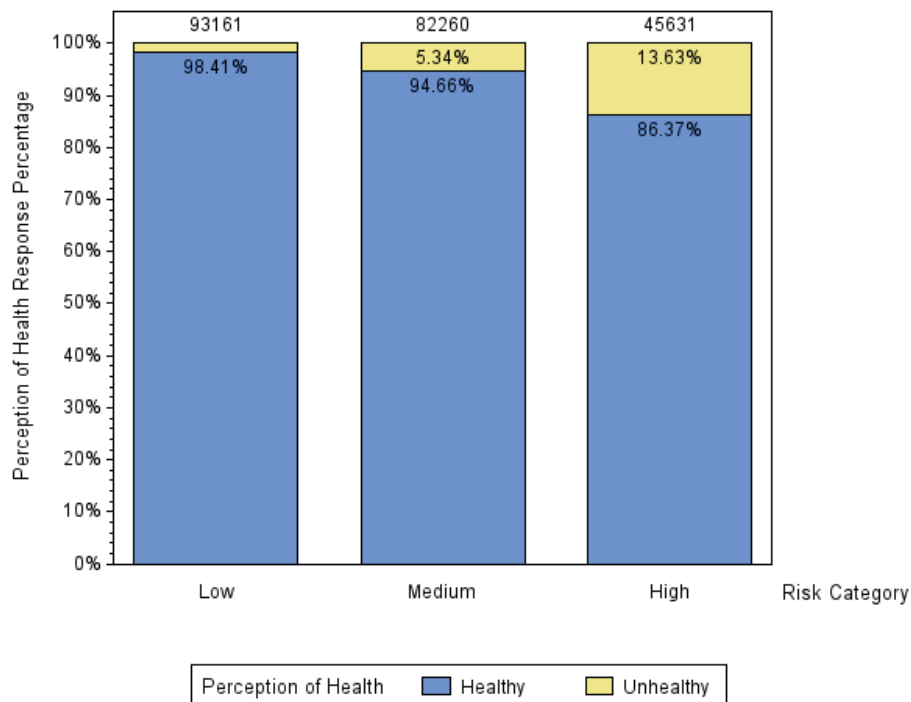


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The differences in perception of health and risk category were small but consistent, with lower risk groups having a higher perception of good health (98%) than the other two categories (Figure 20). However, high-risk individuals (86%) also perceived their health as good.

**Figure 20:**  
**Distribution of Perception of Health Category**  
**Compared to Risk Category for Completed HRAs**  
221,052 records



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*Mean Risk by Demographic Variables*

A risk score for each individual was tabulated based on the total number of unhealthy answers. There were a total of 10 risk categories. Risk scores were grouped into risk levels of low (0-2 risk categories), medium (3-4 risk categories), and high (5 or more risk categories).

More males were classified as high risk (22%) than females (15%) (Table 2).

---

**Table 2. Risk Category by Gender<sup>a</sup>**

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| <b>Gender</b>     | <b>% in Low Risk</b> | <b>% in Medium Risk</b> | <b>% in High Risk</b> |
|-------------------|----------------------|-------------------------|-----------------------|
| Female (n=39,588) | 50.02                | 34.69                   | 15.29                 |
| Male (n=181,464)  | 40.43                | 37.76                   | 21.81                 |

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<sup>a</sup> May not exactly total 100 due to rounding error.

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Age was also examined (Table 3). There was a trend of a decreasing number of individuals in the high risk category age from the age range 20-29. Approximately 48% of younger members (age 17-29) were in the high risk category. The decreasing percentage of members in the high risk category after the age of 29 may be due to survivor effect or healthy worker effect, indicating that those who remain in the military tend to be healthier than those who leave the service. It may also be that some individuals reduce their risky lifestyle behaviors as they mature.

**Table 3. Risk Category by Age<sup>a</sup>**

| <b>Age Group (Years)</b> | <b>% in Low Risk</b> | <b>% in Medium Risk</b> | <b>% in High Risk</b> |
|--------------------------|----------------------|-------------------------|-----------------------|
| 17-19 (n=7,658)          | 33.7                 | 43.6                    | 22.7                  |
| 20-29 (n=111,138)        | 37.1                 | 37.8                    | 25.1                  |
| 30-39 (n=67,613)         | 45.8                 | 36.8                    | 17.4                  |
| 40-49 (n=29,090)         | 51.4                 | 35.5                    | 13.2                  |
| 50+ (n=5,553)            | 62.6                 | 30.1                    | 7.3                   |

<sup>a</sup> May not exactly total 100 due to rounding error.

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The same association between age and percentage of high risk members was demonstrated by comparing rank with risk categories (Table 4). The E1-E5 group, which is generally comprised of younger service members, had a greater percentage of members in the high risk category compared to E6-E9 and the officer ranks. Senior officers (O6-O9) had a lower percentage of members in the high risk category compared to other officers. Warrant officers were generally most likely to be in the high risk category within the officer ranks.

**Table 4. Risk Category by Rank<sup>a</sup>**

| Rank Group <sup>b</sup> | % in Low Risk | % in Medium Risk | % in High Risk |
|-------------------------|---------------|------------------|----------------|
| E1-E5 (n=120,954)       | 37.0          | 37.9             | 25.0           |
| E6-E9 (n=56,415)        | 42.8          | 38.2             | 19.0           |
| O1-O5 (n=38,045)        | 55.1          | 34.1             | 10.8           |
| O6-O9 (n=2,963)         | 63.3          | 30.4             | 6.4            |
| W1-W5 (n=2,672)         | 52.2          | 36.4             | 11.5           |

<sup>a</sup> May not exactly total 100 due to rounding error.

<sup>b</sup> excludes individuals who indicated a rank of E10 or O10.

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Race was also examined by risk category (Table 5). No significant difference between race and risk category were noted. This has been the case in previous years' reports.

**Table 5. Risk Category by Race<sup>a</sup>**

| <b>Race Group<sup>b</sup></b>     | <b>% in Low Risk</b> | <b>% in Medium Risk</b> | <b>% in High Risk</b> |
|-----------------------------------|----------------------|-------------------------|-----------------------|
| African American (n=13,708)       | 39.4                 | 37.5                    | 23.1                  |
| Caucasian (n=137,267)             | 44.0                 | 36.8                    | 19.2                  |
| Asian/Pacific Islander (n=28,164) | 37.1                 | 39.2                    | 23.8                  |
| Hispanic (n=26,709)               | 40.4                 | 37.5                    | 22.1                  |
| Other (n=9,146)                   | 39.3                 | 36.8                    | 23.9                  |

<sup>a</sup> May not exactly total 100 due to rounding error.

<sup>b</sup> 6,058 individuals did not indicate race.

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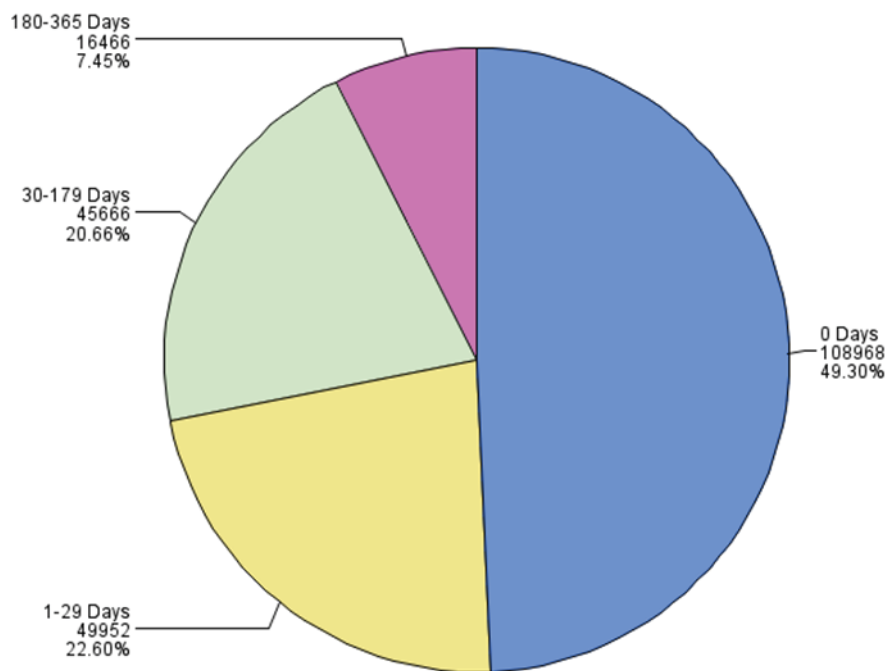


*Days Away From Home Station*

The relationship between days away from home station and unhealthy behavior response was examined. Using the “days away” variable, four time points were created: 0 days, 1-29 days, 30-179 days, and 180-365 days.

In the entire population, 49% of individuals did not spend any time away from the home station, 23% spent 1-29 days away, 21% spent 30-179 days away, and 7% spent 108-365 days away from the home station (Figure 21)

**Figure 21:**  
**Percentage of Days Spent Away from Home Station**  
221,052 records

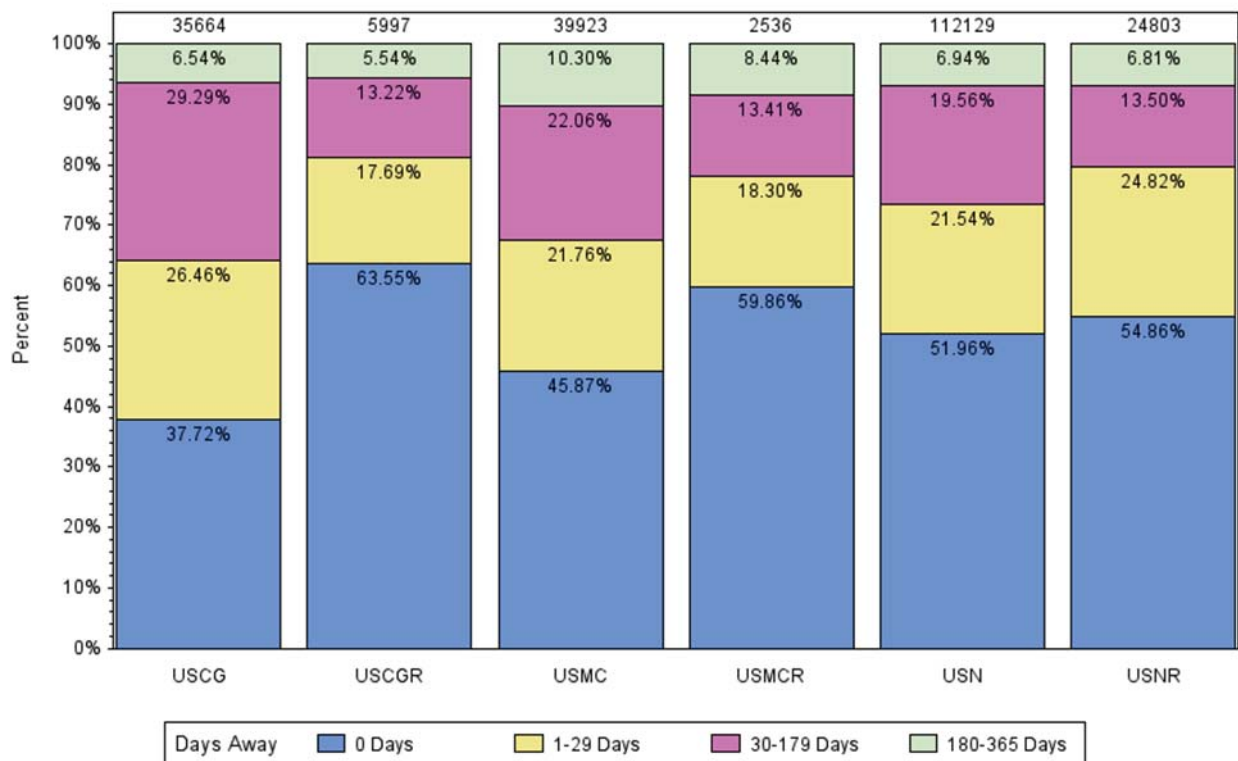


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Time away from home station was examined by service component (Figure 22). At least 52% of all USN and USNR members reported zero days away from home station while 60-63% of all reserve branches reported spending zero days away from home station. The USCG and USMC had the highest percentages of total days away with at least 55% of members reporting at least one day away from home station. USMC members reported having the greatest percentage of members away from home station for 180-365 days (10%), while the USCGR members only had 6% of individuals away from home station for 180-365 days. USCGR members reported having the lowest percentage of members away from home station less than 30 days (81%).

**Figure 22:**  
**Days Away From Home Station by Service**  
221,052 records

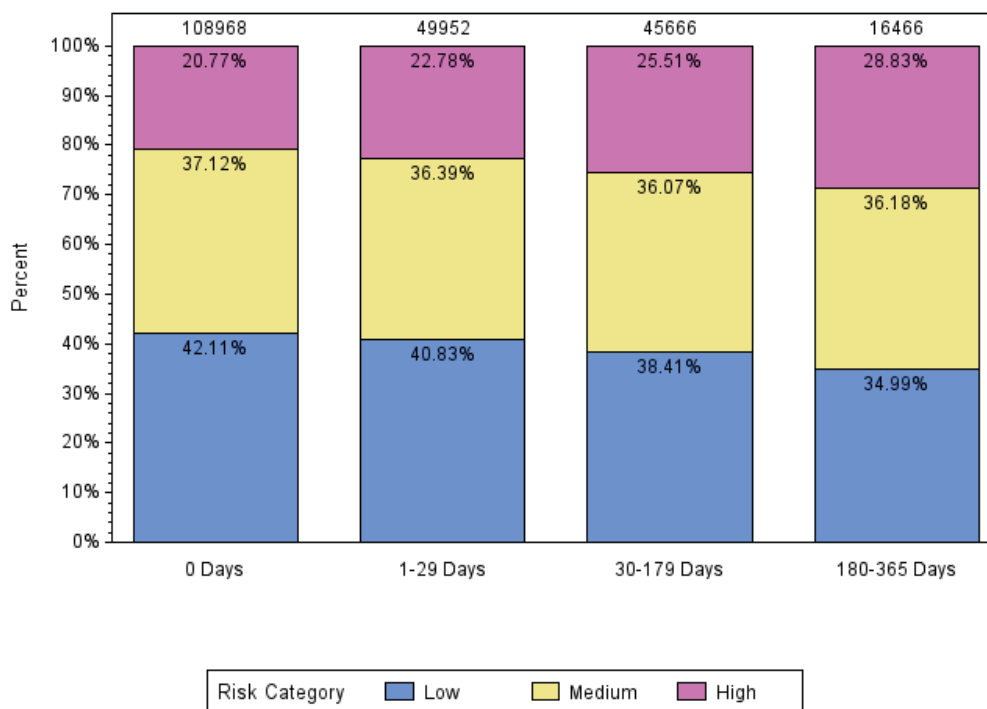


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Total HRA risk score was examined in relation to the four “Days Away from Home Station” categories using frequency distribution and logistic regression. The distribution of risk categories, determined by total HRA response risk score, was similar for people classified as a ‘medium’ risk across all categories. Both the ‘low’ risk and ‘high’ risk categories showed a percentage response change over time. The percent of members in the ‘low’ risk category decreased from 44% at 0 days away to 37% at 180-365 days away. The percentage of members in the ‘high’ risk category increased from 19% at 0 days away to 26% at 180-365 days away (Figure 23).

**Figure 23:**  
**Distribution of Risk Categories for Completed HRAs for Days Away from Home Station**  
**221,052 records**



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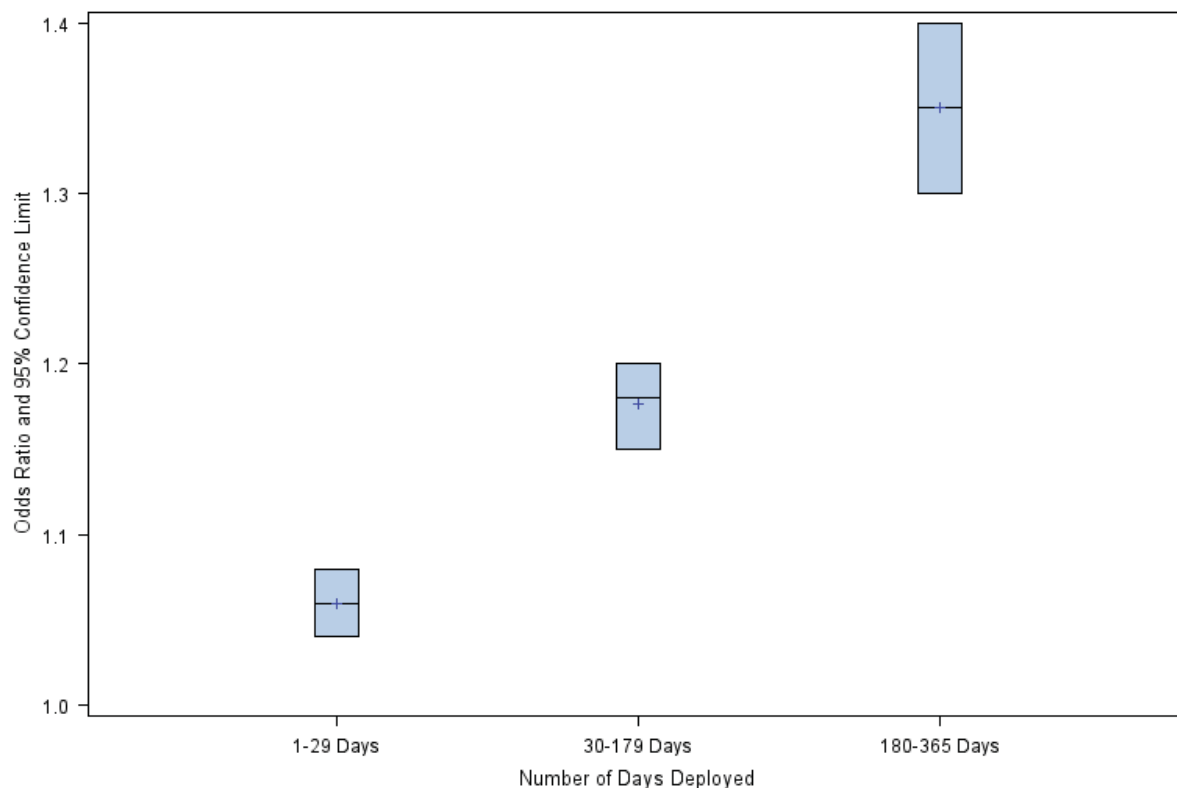
*Days Away From Home Station and Mean Risk*

Risk category was compared with the amount of time away from home station. As time away from home station increased, the percentage of members in the high risk category increased.

*Days Away From Home Station and Risk Score*

To evaluate the relationship between length of days away from home station and risk score, a logistic regression model was used. A risk score of greater than 2 (medium and high categories) was set as the dependent variable, while days away from home station was used as a predictive variable divided into four groups: 0 days away from home station, 1-29 days away from home station, 30-179 days away from home station, and 180-365 days away from home station. The model was found to be significant with the odds ratio increasing in each of the days away categories when compared to not leaving home station (Figure 24): OR [1-29 days] 1.06 (95% CI 1.04-1.08), OR [30-179 days] 1.18 (95% CI 1.15-1.20), and OR [180-365 days] 1.35 (95% CI 1.30-1.40).

**Figure 24:**  
**Relationship Between Risk Number and Different Days Away Categories**  
221,052 records



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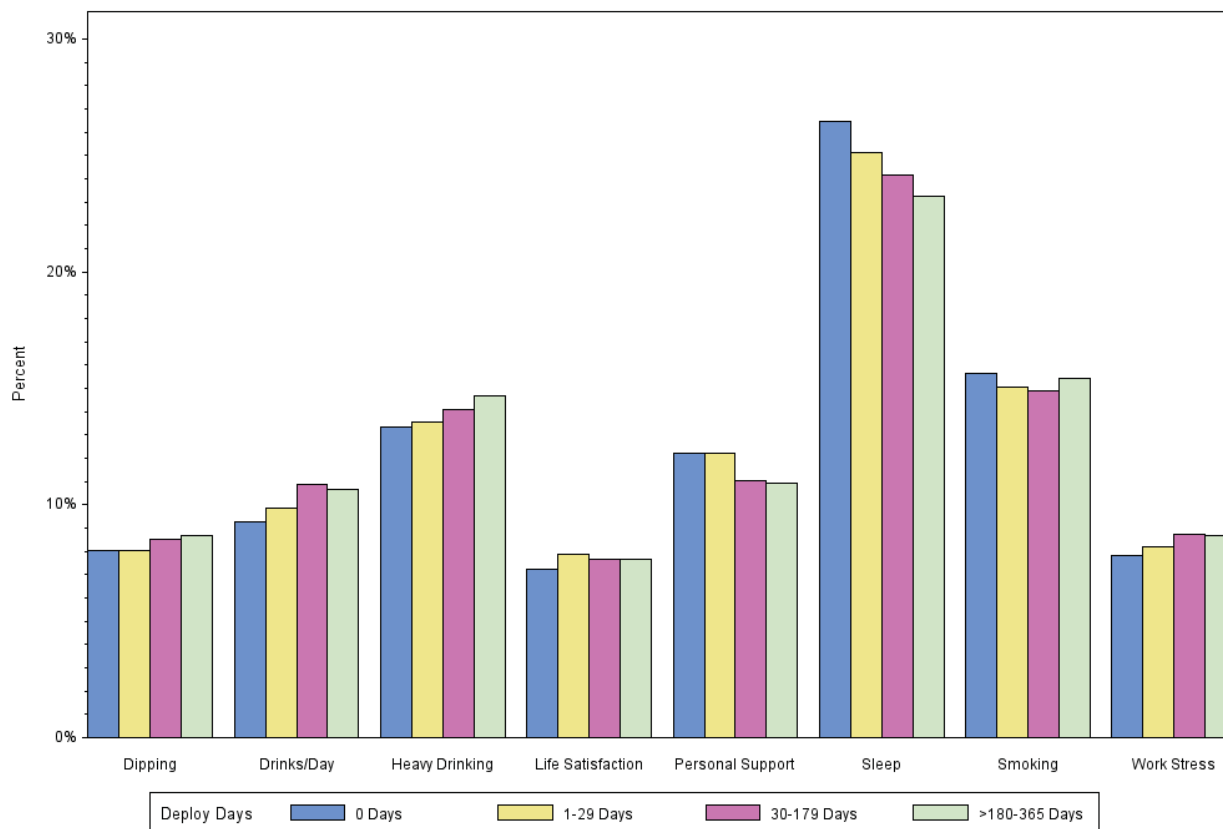
*Days Away from Home Station and Unhealthy Behaviors*

Responses to questions about smoking, dipping, drinks per day, heavy drinking, life satisfaction, work stress, personal support, and sleep were examined over the four time points. These eight different questions were examined to determine any time-related differences in reporting of unhealthy behaviors.

The next seven graphs (Figures 25-31) display the results of ‘unhealthy’ responses by self-reported time away from home station. Self-reported unhealthy behaviors, such as dipping, heavy drinking, drinks per day, and work stress all increased as time away from station increased, for all service components grouped together. However, restful sleep decreased as time away from home station increased.



Figure 25:  
**Distribution of 'Unhealthy' Behaviors by Time Away from Home Station, All Service Components**  
221,052 records

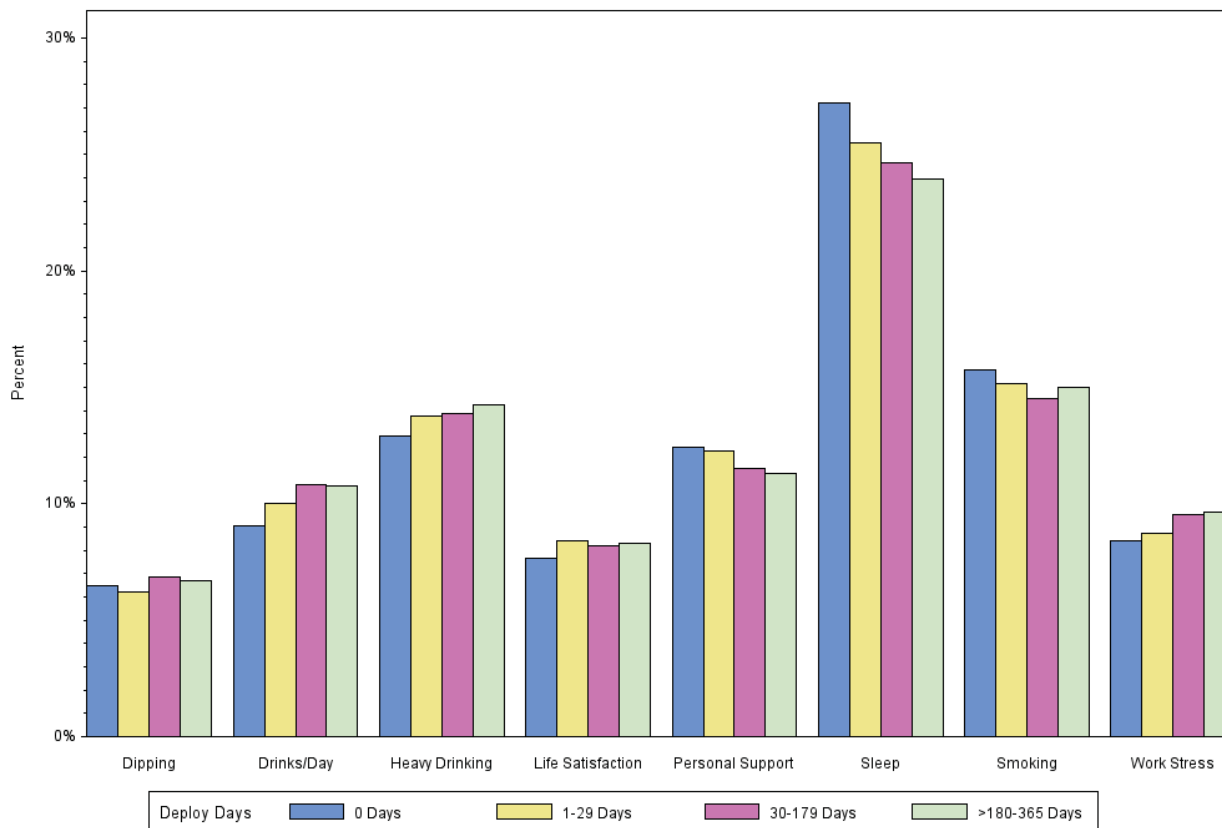


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Frequency of ‘unhealthy’ responses increased or stayed relatively stable for all risk factors for USN members as days away from home station increased (Figures 26 and 27), with the exception of personal support and sleep. Compared to USNR members, USN members reported higher levels of drinks per day, starting at 9% of all behaviors for those who spent 0 days away and increasing to 11% of all behaviors for those who spent 180-365 days away. On the other hand, USNR members reported a higher lack of personal support, with approximately 17-19% reporting unhealthy personal behaviors. Other behavior changes were relatively similar between the two groups.

Figure 26:  
**USN Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records

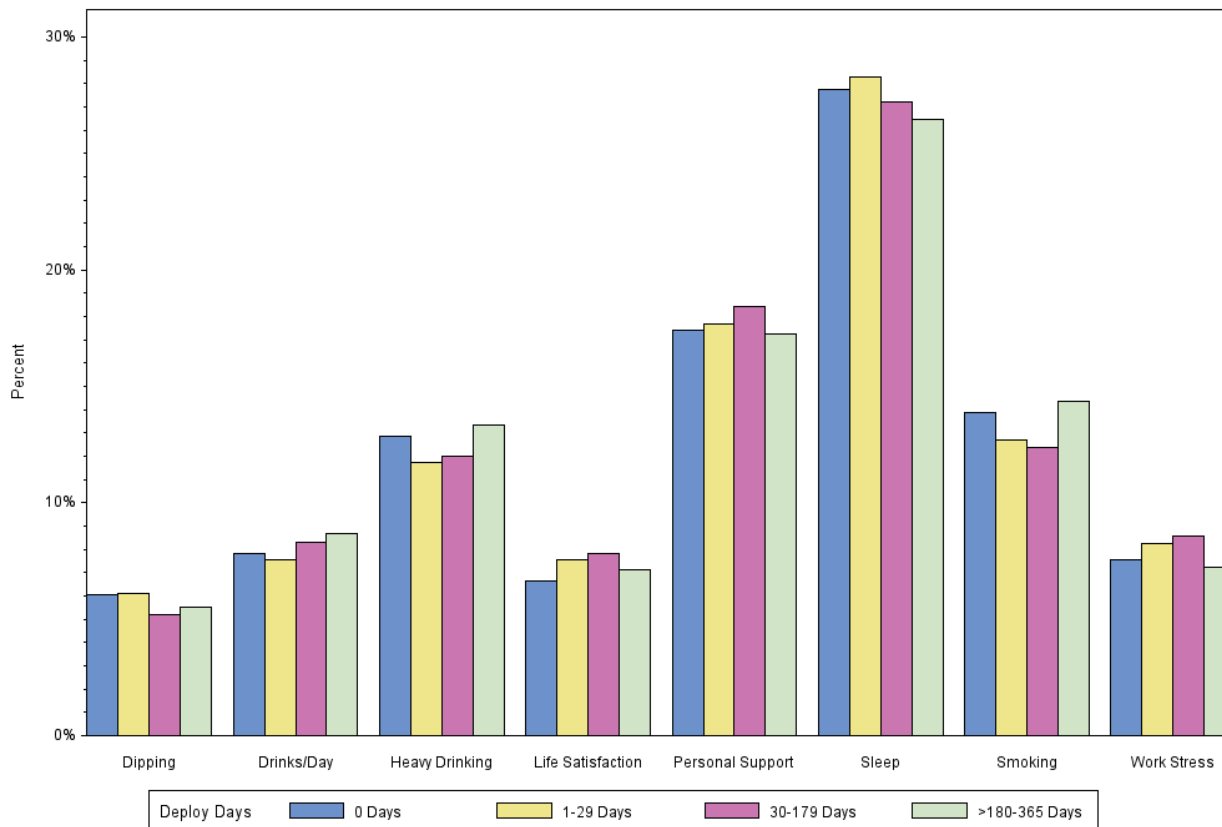


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Figure 27:  
**USNR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records

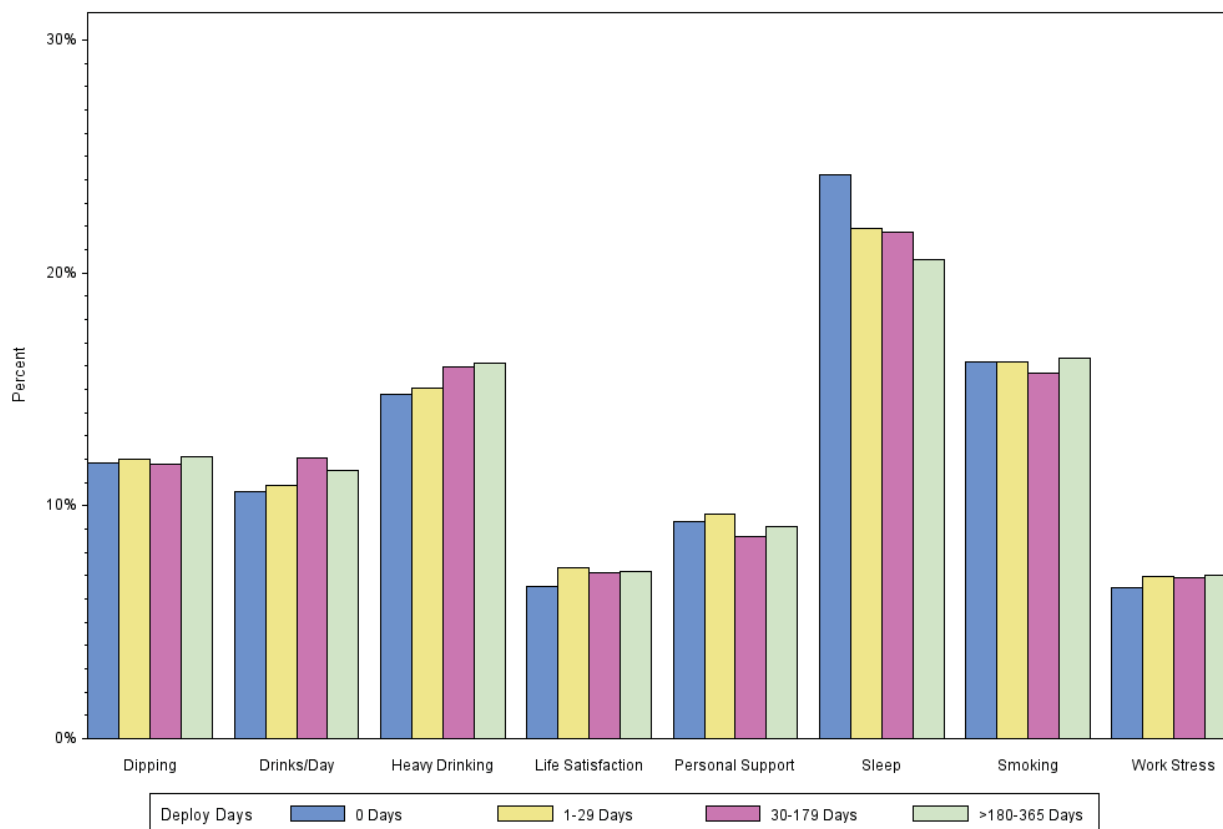


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Compared to Navy and Coast Guard members, Marines tended to report higher percentages of drinks per day and heavy drinking, which generally increased as days away from home station increased (Figures 28 and 29). Frequency of ‘unhealthy’ responses increased or stayed relatively stable for all risk factors for USMC members as days away from home station increased, with the exception of sleep. Percentages between USMC and USMCR differed at most by 3%.

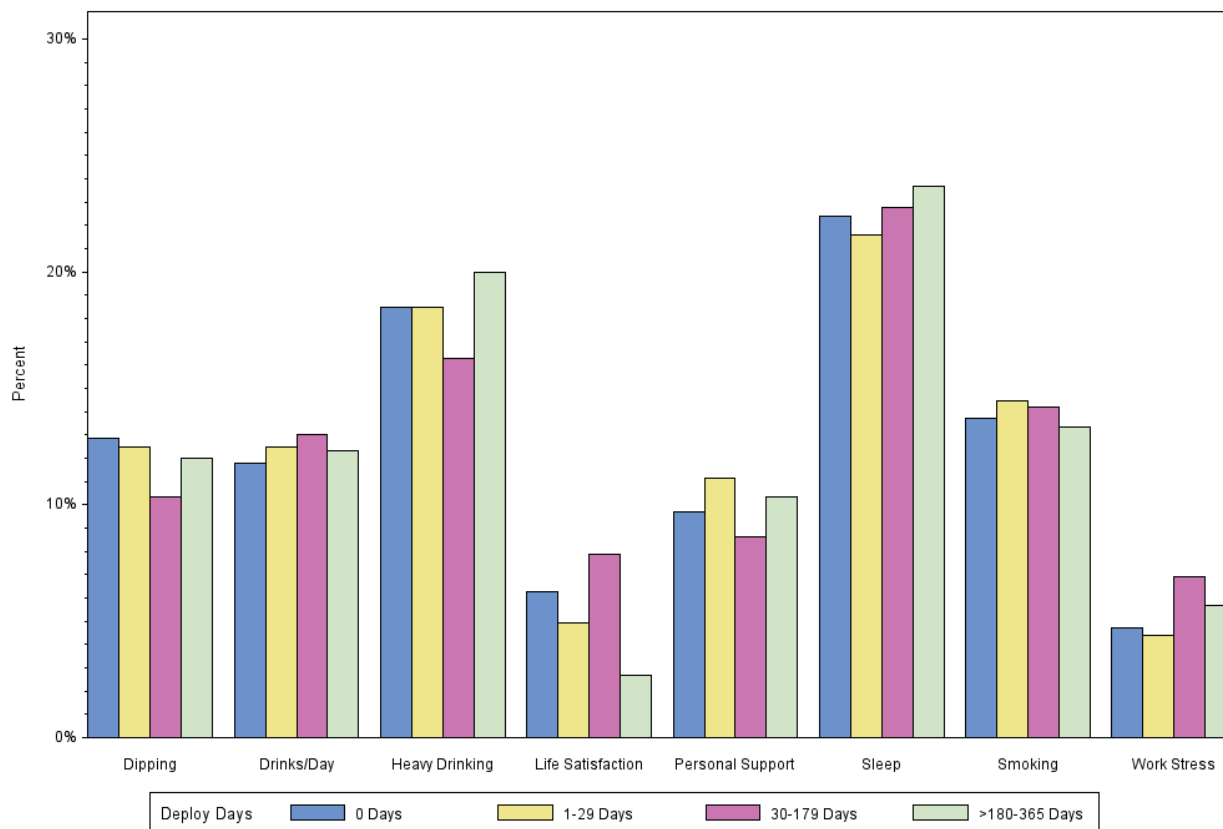
Figure 28:  
**USMC Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records



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Figure 29:  
**USMCR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records

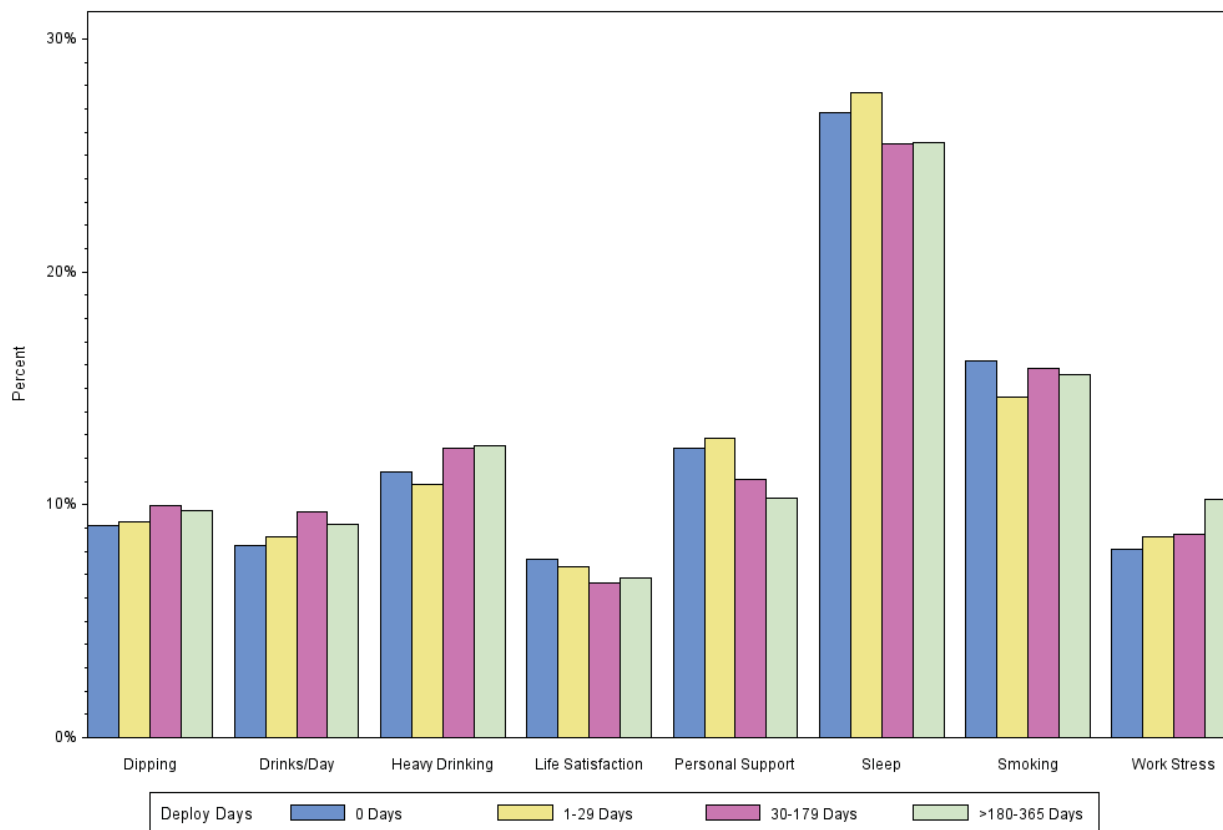


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Compared to USCGR members, USCG members reported higher levels of work stress, starting at 8% of all behaviors for those who spent 0 days away and increasing to 10% of all behaviors for those who spent 180-365 days away; USCG members also reported slightly higher levels of smoking than USCGR members. However, USCGR members reported higher percentages of lack of personal support, peaking at 20% for those deployed 1-29 days, as compared to USCG's peak at 13%. Other behavior changes were relatively similar between the two groups (Figures 30 and 31).

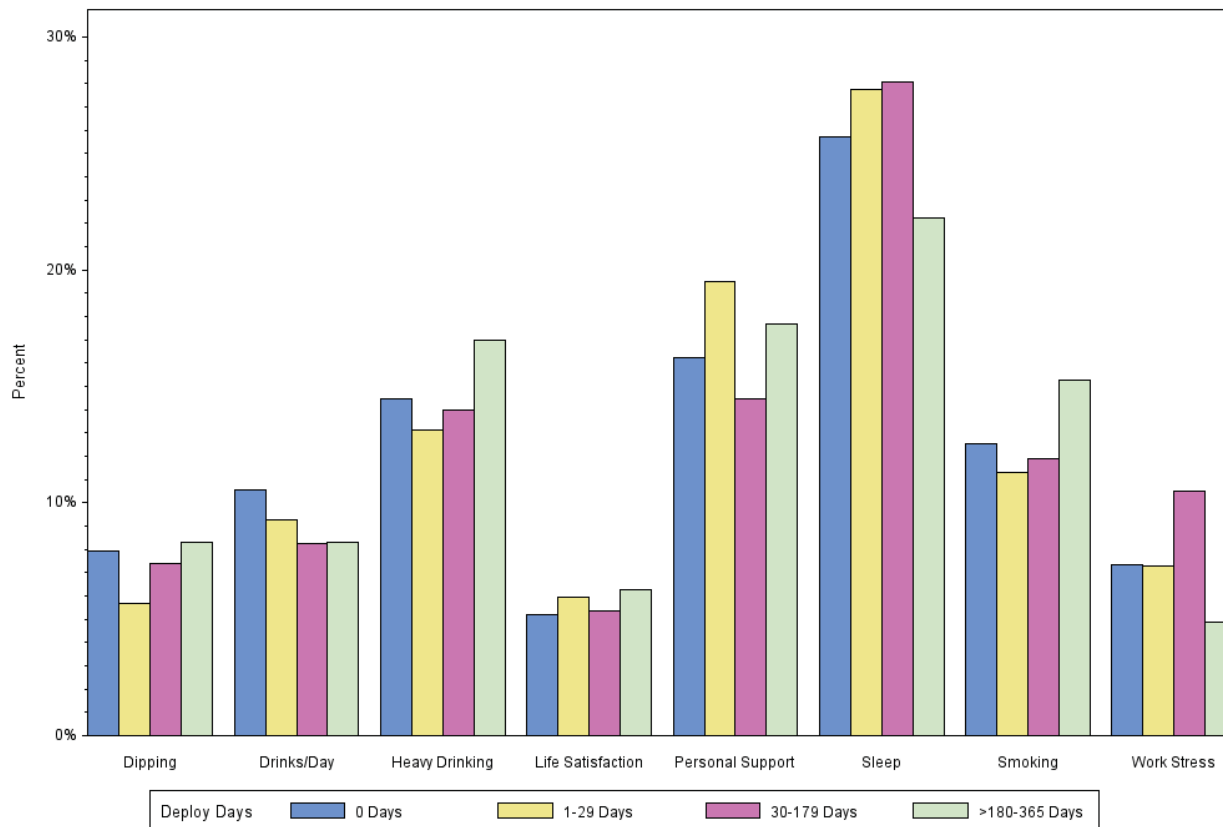
Figure 30:  
**USCG Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records



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Figure 31:  
**USCGR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station**  
221,052 records



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## Discussion

### *Strengths and Limitations*

Anonymity is a key strength of the survey, making it more likely that participants will answer honestly about risky behaviors in which they engage. In regards to sampling bias, taking the assessment is merely a matter of a commands' implementation of the PHA process; thus, these responses would not represent a convenience sample.

Limitations of this report can be attributed to the limitations of the data collection tool. As a self-reported survey, the results can be biased due to participant recall or by the tendency to report socially desirable responses. As such, some overestimation of positive behaviors and underestimation of negative behaviors may occur. Although there is no reason to suspect that individuals complete the questionnaire multiple times, there is no way to block or detect duplicate entries. It is also difficult to directly compare service components because the demographic characteristics that influence health behavior, as described earlier, vary significantly. Records collected by commands using the stand-alone version may not have all been sent to NMCPHC for inclusion in the master data set.

### *Demographics*

The use of the tool declined for most components in 2014 as compared to 2013: USN (-10,009), USNR (-3,793), USMCR (-599), USCG (-2,815), and USCGR (-230). However, the number of USMC (+5,217) members who participated in the survey increased compared to last year.

When interpreting the results, it is important to use caution if comparing groups that are dissimilar. For example, the Marine Corps is comprised of significantly younger members whose mission and environment may affect the results. It would be expected that younger members would report different types and levels of risk behaviors compared to older members. Similar differences in results could be attributed to gender differences. Although specific risk behaviors were not analyzed in this report by age or gender, the total number of risk behaviors, the risk number category, was examined for both of these variables. Not surprisingly, increasing age was inversely associated with the percentage of individuals who fell into the medium and high risk number category. In addition, female members had a lower mean risk number than male members.

### *Risk Factors*

Collection and analysis of body composition was previously added to the HRA tool at the request of Navy customers. The tool uses Body Mass Index (BMI), which is a fairly reliable indicator of body fatness for most people, is based on self-reported height and weight and is an



inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems.<sup>1</sup> Military height-weight tables use this approach but are more lenient for establishing official standards. BMI can also overestimate body fat in lean, muscular individuals. Therefore, these data should not necessarily lead to the conclusion that all individuals exceeding healthy levels are either overweight or obese. Rather, the data may support some general observations about weight across the services. For example, these data indicate that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as overweight, and active duty Navy and Coast Guard are nearly equally as likely to be of normal BMI as reservists.

When compared to previous surveys, the prevalence of specific risk factors has remained fairly constant, with the leading health risks being low fruit and vegetable consumption, high fat foods consumption, not flossing teeth, and lack of restful sleep. These results should be used to plan health promotion interventions that target priority areas. Although comparing individual service results to the total of all services may be tempting, it may be more appropriate to seek realistic and incremental percentages improvements when setting goals for the future.

#### *Days Away From Home*

The largest number of individuals that completed the HRA did not deploy at all last year (49%). When added to the number of members that were away from home for fewer than 30 days, the total percentage was approximately 72%. USCG members were away from home for more days than members of other service components. As stated earlier, as time away from home station increased, both mean risk and percentage of members in the high risk category increased. Therefore, implementing health promotion activities may be even more important in populations that experience more separations.

## **Conclusion**

The Fleet and Marine Corps HRA can be a valuable tool for tailoring health messages to individuals. The tailored feedback to participants on their individual reports and referral to credible health websites on each of the topics for more detailed information provides participants with the knowledge and skills to better manage their personal health.

From a more global, population health approach, the aggregate data in this HRA report provides each of the service components with valuable information that can be incorporated into comprehensive community health assessments, which is a first step in planning effective health promotion programs. Local HRA Administrators have the ability to generate additional reports in even greater detail at the individual unit level.



Decision-makers can use the data in this report for strategic planning. The results of this report can have a bearing on recruitment, retention, readiness, and quality of military life.





## Appendix A

| Fleet and Marine Corps HEALTH RISK SURVEY  |         |  |          |   |        |
|--|---------|--|----------|---|--------|
| Age:   | Sex:    | Rank/Rate:   | Service: |   |        |
| Race/Ethnicity:  | Height: | FEET   | INCHES   | Weight: women select non-pregnant weight  | POUNDS |
| Number of days spent away from home station in the past 12 months:   |         |  |          |   |        |
| 1. Would you say that your health in general is ...  |         | 2. Do you <u>currently</u> smoke cigarettes, cigars, pipes or hookah?  |          | 3. Do you <u>currently</u> use smokeless tobacco (e.g., dip, snuff)?  |        |
| <input type="radio"/> a. Excellent<br><input type="radio"/> b. Good<br><input type="radio"/> c. Fair<br><input type="radio"/> d. Poor  |         | <input type="radio"/> a. Every day<br><input type="radio"/> b. Most days<br><input type="radio"/> c. Some days<br><input type="radio"/> d. Never smoked<br><input type="radio"/> e. I quit   |          | <input type="radio"/> a. Every day<br><input type="radio"/> b. Most days<br><input type="radio"/> c. Some days<br><input type="radio"/> d. Never used smokeless tobacco<br><input type="radio"/> e. I quit  |        |
| 4. How many alcoholic beverages do you have during a typical day when you drink alcohol? (One drink = 12 ounces of regular beer, 5 ounces of wine, 1.5 ounces of 80-proof distilled spirits)   |         | 5. How often do you typically drink 5 or more alcoholic drinks on one occasion? ("One Occasion" refers to an event or period when drinking exceeds one drink per hour)   |          | 6. How often do you drive when perhaps you have had too much to drink?  |        |
| <input type="radio"/> a. 5 or more<br><input type="radio"/> b. 3-4<br><input type="radio"/> c. 1-2<br><input type="radio"/> d. Not applicable, I do not drink alcohol or I seldom drink alcohol  |         | <input type="radio"/> a. Daily<br><input type="radio"/> b. Weekly<br><input type="radio"/> c. Monthly<br><input type="radio"/> d. Once or twice per year<br><input type="radio"/> e. Never   |          | <input type="radio"/> a. Often (i.e., more than once during the past 6 months)<br><input type="radio"/> b. Sometimes (i.e., once during the past 6 months)<br><input type="radio"/> c. Rarely (i.e., not in the past 6 months, but at least once during the past year)<br><input type="radio"/> d. Never (i.e., not during the past year) |        |
| 7. Do you use a seat belt when you drive or ride as a passenger?   |         | 8. How often do you wear a helmet when you ride a motorcycle, all-terrain vehicle, or bicycle?   |          | 9. How often do you use the safety equipment recommended for your job? (e.g., hearing and vision protection, respirators, barriers, and other safety devices)   |        |
| <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never  |         | <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never<br><input type="checkbox"/> f. Does not apply to me / I do not ride these vehicles   |          | <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never<br><input type="checkbox"/> f. Does not apply to me / None recommended  |        |
| 10. In general, how satisfied are you with your life? (e.g., work situation, social activity, accomplishing what you set out to do)  |         | 11. How often do you feel that your work situation is putting you under too much stress?   |          | 12. How often do you have someone to talk to when you are feeling lonely, depressed, angry, or in need of help?   |        |
| <input type="radio"/> a. Very satisfied<br><input type="radio"/> b. Mostly satisfied<br><input type="radio"/> c. Somewhat satisfied<br><input type="radio"/> d. Not satisfied  |         | <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never  |          | <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never   |        |
| 13. In the past 12 months, how often did you or your partner(s) use a condom when you had sex? (read all choices below carefully before responding)  |         | 14. On average, how many weeks per month do you engage in a total of at least 150 minutes of moderate-intensity aerobic activity (moderate-intensity physical activity means working hard enough to raise your heart rate and break a sweat, yet still being able to carry on a conversation, i.e., brisk walking, swimming leisurely, or leisurely biking) OR at least 75 minutes of vigorous-intensity aerobic activity (vigorous-intensity means you will not be able to say more than a few words without pausing for a breath, i.e., jogging/trotting, swimming laps, or jumping rope)? |          | 15. On average, how many days per week do you engage in muscle-strengthening activities that work all muscle groups (legs, hips, back, abdomen, chest, shoulders and arms)?   |        |
| <input type="radio"/> a. Not Applicable, I am in a long-term relationship where we only have sex with each other / I am not sexually active<br><input type="radio"/> b. Always<br><input type="radio"/> c. Most of the Time<br><input type="radio"/> d. Sometimes<br><input type="radio"/> e. Rarely<br><input type="radio"/> f. Never   |         | <input type="radio"/> a. 4 weeks per month<br><input type="radio"/> b. 3 weeks per month<br><input type="radio"/> c. 2 weeks per month<br><input type="radio"/> d. 1 week per month<br><input type="radio"/> e. I do not participate in aerobic training   |          | <input type="radio"/> a. 4 or more days a week<br><input type="radio"/> b. 3 days a week<br><input type="radio"/> c. 2 days a week<br><input type="radio"/> d. 1 day a week<br><input type="radio"/> e. I do not participate in strength training   |        |
| 16. How often do you usually eat high-fat foods? (e.g., fried foods; high-fat dairy products such as butter, cheese, or whole milk; regular salad dressing or mayonnaise; or packaged foods high in fats)  |         | 17. About how many cups of fruit do you eat each day? (One cup of fruit = one small piece of fruit, one cup of cut-up fruit, one cup of 100% fruit juice, or 1/2 cup of dried fruit)   |          | 18. How often do you use over the counter (OTC) drugs, dietary supplements, or herbal products to help you manage your weight, enhance athletic performance, or treat depression?   |        |
| <input type="radio"/> a. At most or every meal<br><input type="radio"/> b. At least once a day<br><input type="radio"/> c. 3-5 times per week<br><input type="radio"/> d. 1-2 times per week<br><input type="radio"/> e. Rarely or never   |         | <input type="radio"/> a. Four or more<br><input type="radio"/> b. Three<br><input type="radio"/> c. Two<br><input type="radio"/> d. One<br><input type="radio"/> e. Less than one  |          | <input type="radio"/> a. Daily<br><input type="radio"/> b. Weekly<br><input type="radio"/> c. Monthly<br><input type="radio"/> d. Seldom<br><input type="radio"/> e. Never  |        |
| 19. How frequently do you floss your teeth?  |         | 20. About how many cups of vegetables do you eat each day? (One cup of vegetables = one cup of raw or cooked vegetables, 1 cup of 100% vegetable juice, or 2 cups of raw leafy greens)   |          | 21. How often do you get enough restful sleep to function well in your job and personal life?   |        |
| <input type="radio"/> a. Daily<br><input type="radio"/> b. Most days<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never  |         | <input type="radio"/> a. Four or more<br><input type="radio"/> b. Three<br><input type="radio"/> c. Two<br><input type="radio"/> d. One<br><input type="radio"/> e. Less than one  |          | <input type="radio"/> a. Always<br><input type="radio"/> b. Most of the time<br><input type="radio"/> c. Sometimes<br><input type="radio"/> d. Rarely<br><input type="radio"/> e. Never   |        |
| 22. For both men and women, regarding your actions related to possible pregnancy:  |         |  |          |   |        |
| <input type="radio"/> a. I am not having sexual intercourse at this time in my life -OR- my partner or I are not fertile<br><input type="radio"/> b. My partner and I are pregnant - OR - are trying to have a baby now<br><input type="radio"/> c. My partner or I are correctly and consistently using birth control ALL the time<br><input type="radio"/> d. My partner or I are correctly using birth control MOST of the time<br><input type="radio"/> e. My partner or I are correctly using birth control SOME of the time<br><input type="radio"/> f. My partner and I are not using birth control |         |  |          |   |        |
| FINISHED   |         |  |          |   |        |



## Appendix B

### *CO Report Scoring Grid*

| Health Indicator         | Health Behavior          | Unhealthy Rating | Healthy Rating |
|--------------------------|--------------------------|------------------|----------------|
| <b>Perception</b>        | 1. Perception of health  | c-d              | a-b            |
| <b>Tobacco Use</b>       | 2. Smoking               | a-c              | d-e            |
|                          | 3. Smokeless Tobacco     | a-c              | d-e            |
| <b>Alcohol Use</b>       | 4. Drinks Per Day        | a-b              | c-d            |
|                          | 5. Heavy Drinking        | a-c              | d-e            |
|                          | 6. Drinking and Driving  | a-c              | d              |
| <b>Injury Prevention</b> | 7. Seat Belt             | b-e              | a              |
|                          | 8. Vehicle Helmets       | c-e              | a-b, f         |
|                          | 9. Safety Equipment      | c-e              | a-b, f         |
| <b>Stress Mngt</b>       | 10. Life Satisfaction    | c-d              | a-b            |
|                          | 11. Work Stress          | a-b              | c-e            |
|                          | 12. Personal Support     | d-f              | a-c            |
| <b>Sexual Health</b>     | 13. Condom Use           | d-f              | a-c            |
|                          | 22. Pregnancy Prevention | e-g              | a-d            |
| <b>Physical Activity</b> | 14. Aerobic Activity     | c-e              | a-b            |
|                          | 15. Strength Training    | d-e              | a-c            |
| <b>Nutrition</b>         | 16. High Fat Foods       | a-c              | d-e            |
|                          | 17. Fruits               | d-e              | a-c            |
| <b>Supplements</b>       | 18. Supplements          | a-c              | d-e            |
| <b>Dental</b>            | 19. Flossing             | c-e              | a-b            |
| <b>Nutrition</b>         | 20. Vegetables           | c-e              | a-b            |
| <b>Sleep</b>             | 21. Sleep                | c-e              | a-b            |
| <b>BMI</b>               |                          | BMI $\geq$ 25    | BMI <25        |



**Reference:**

1. Centers for Disease Control and Prevention BMI Web Site. Available at:  
[http://www.cdc.gov/healthyweight/assessing/bmi/adult\\_bmi/#Interpreted](http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/#Interpreted).  
Accessed April 28, 2015.

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