



## ***NAVY AND MARINE CORPS PUBLIC HEALTH CENTER***

**Fleet and Marine Corps Health Risk Assessment**

**1 July 2010 - 30 June 2011**

*Navy Population Health Report*

*Fall 2011*

### **Executive Summary**

Health Risk Assessments (HRA) are survey 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. The Fleet and Marine Corps HRA is a 21-question, self-reported, anonymous, web-based assessment tool specifically designed to assess risk behaviors common to military members. A total of 180,481 completed HRAs were analyzed during this 12-month period that included both active duty (AD) and reserve (R) members from the Navy (USN), Marine Corps (USMC), and Coast Guard (USCG). Analyses utilized one of two measures: 1) 'healthy' or 'unhealthy' risk ratings or 2) a risk score based on the total number of risks reported by an individual.

The prevalence of specific risk factors, when compared to the previous year, has remained fairly constant, with the leading health risks being low fruit and vegetable consumption, work stress, lack of flossing, and not getting enough restful sleep. Calculating mean number of risk factors showed that more USMC members qualified as "high risk" (44%), followed by the USMCR (39%), USN (34%), USCG (33%), USCGR (23%) and USNR (19%). Members of the USNR, who generally have older members, most often scored in the low risk category (45%) when compared to other service components.

The data also indicated that, in general, Navy and Coast Guard personnel were more likely than Marines to be classified as either overweight or obese; Marines were unlikely to fall into the obese category. Active duty Navy and Coast Guard were slightly more likely than reservists to be within the normal BMI range.

In this population, 39% of all individuals did not spend any time away from their home station. Of those individuals who did spend time away from their home station, a logistic regression model evaluating days away from home station, with a dependent variable of a risk score of 2 or greater (medium and high risk categories), had a statistically significant increase in risk score dependent on time away from home station. The odds ratio ranged from 1.1 (0 days away from home station) to 1.37 (180-365 days away from home station).

Several risk behaviors were similar across all services when evaluating the days away from home station variable: work stress, drinks per day, and heavy drinking showed the greatest increases in unhealthy behavior as time away from home station increased.

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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 survey 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. The Fleet and Marine Corps HRA is a 21-question, self-reported, anonymous, Web-based assessment tool specifically designed to assess risk behaviors common to military members. However, the topics and scoring criteria are also valid for the general civilian adult population.

The questions were based on other validated tools, such as the Alcohol Use Disorders Identification Test (AUDIT), the Department of Defense (DOD) Survey of Health Related Behaviors Among Military Personnel, and the National Health and Nutrition Examination Survey (NHANES), or were based on 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 186,911 assessments were collected between, 01 July 2010 through 30 June 2011. The data were analyzed by the EpiData Center, Navy and Marine Corps Public Health Center (NMCPHC). Surveys were excluded from the analysis for the following reasons:

- a. Records with blank fields were considered incomplete. There were a total of 103 incomplete records.
- b. Surveys completed by service members other than the Navy, Marine Corps, and Coast Guard active duty and reserves were also excluded from the analyses. These included assessments completed by Army Active Duty/Reserves (620), Air Force Active Duty/Reserves (576), Civilian Mariners (2,410), and Civilians (1,817). In addition, members who identified themselves as Navy, Marine Corps, or Coast Guard members and had a rank of civilian were excluded (1,007).

The total number of surveys included in the analysis was 180,481.

All analyses utilized one of two measures: 1) 'healthy' or 'unhealthy' risk ratings or 2) a risk score. For the 20 risk assessment questions, answers 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 categories in which one or more of the questions were reported as unhealthy. Risk scores ranged from 0-10 and were categorized into risk levels low, medium, and high.

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

Risk scores do not predict early morbidity or mortality; rather, higher risk scores indicate that a service member is more likely to engage in unhealthy behaviors.

Descriptive analyses, frequencies, and percentages were used to describe survey respondents. Logistic regression examining the relationship between days away from home station and risk category was conducted using SAS® software (Version 9.2 SAS Institute, Inc., Cary, North Carolina).

The following demographic variables were collected: Age, gender, race, rank, and service. Member age was categorized using ranges of 17-19, 20-29, 30-39, 40-49, and 50+ years. Race was categorized as Caucasian, African Americans, Asian and Pacific Islanders, Hispanics, or Other. Rank was categorized as enlisted service members (E1-E5 or E6-E9), officers, (O1-O3 or O4-O9), and warrant officers (W1-W5).

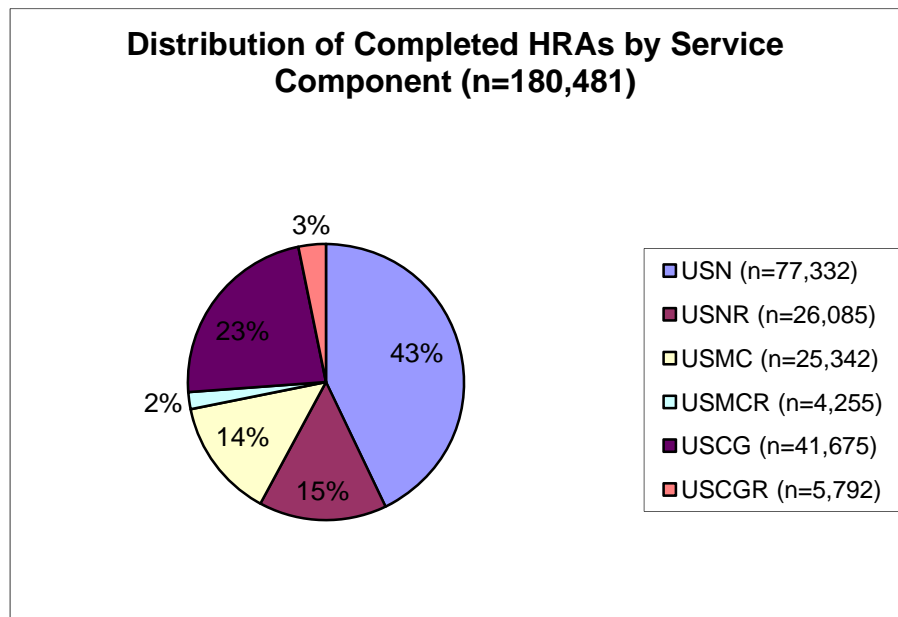
Body Mass Index (BMI) was calculated from self-reported height and weight data, using current Centers for Disease Control and Prevention (CDC) guidelines ( $[\text{weight} \div (\text{height in inches})^2] \times 703$ )<sup>1</sup>. According to the CDC and published studies, BMI values that exceed healthy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

## Results

### *Demographic Analysis*

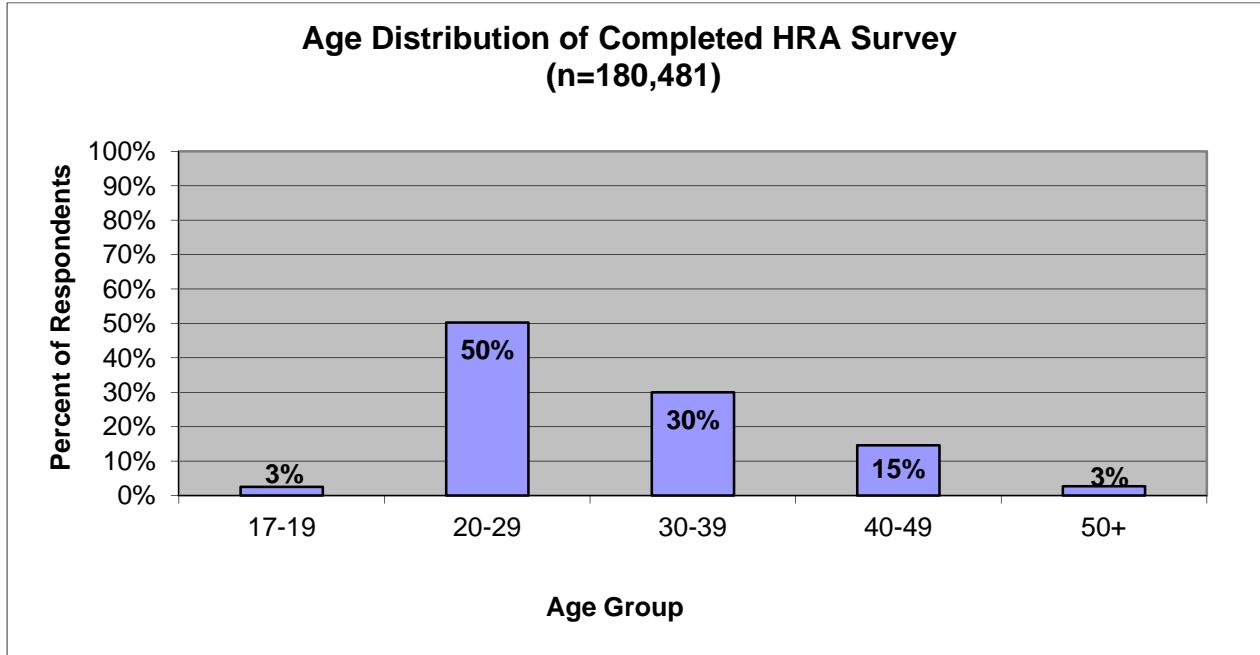
There were 186,911 assessments completed for the 2011 HRA, of which 180,481 were included in the analysis. Descriptive analyses of service demographics showed that the majority (43%) of survey respondents were active duty Navy service members, while 14% were Navy Reserves, 16% were active duty and reserve Marines, and 26% were active duty and reserve Coast Guard members (Figure 1).

**Figure 1 : Percentage of HRAs Completed by Service**



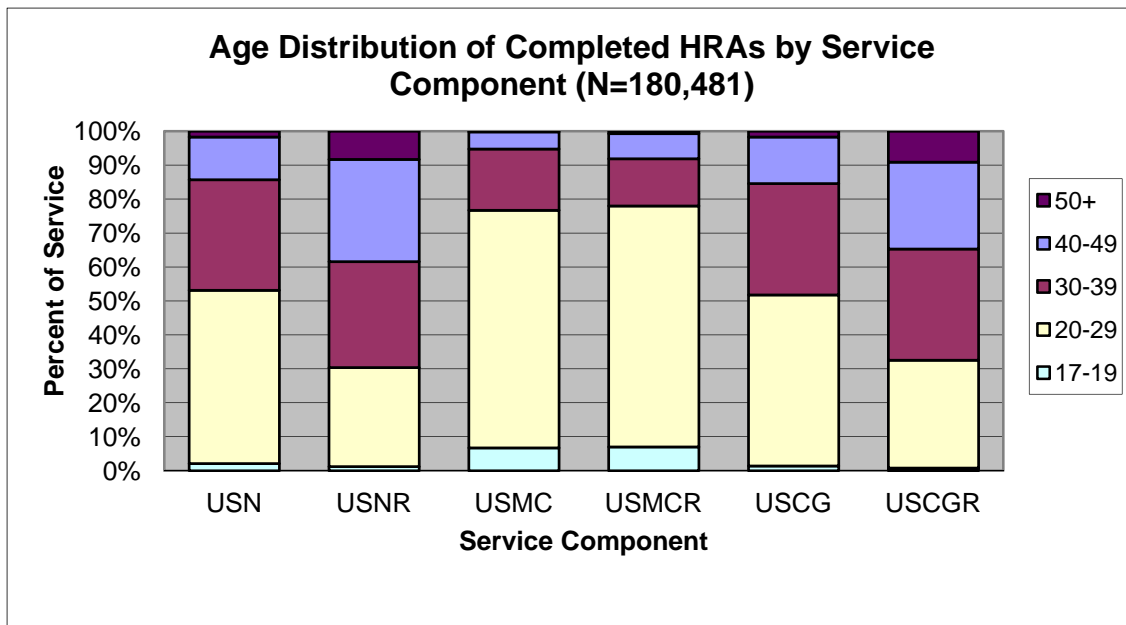
Age distribution of survey respondents indicated that 50% of the respondents were in the 20-29 year old age group (Figure 2).

**Figure 2: Age Distribution of HRA Survey Participants**



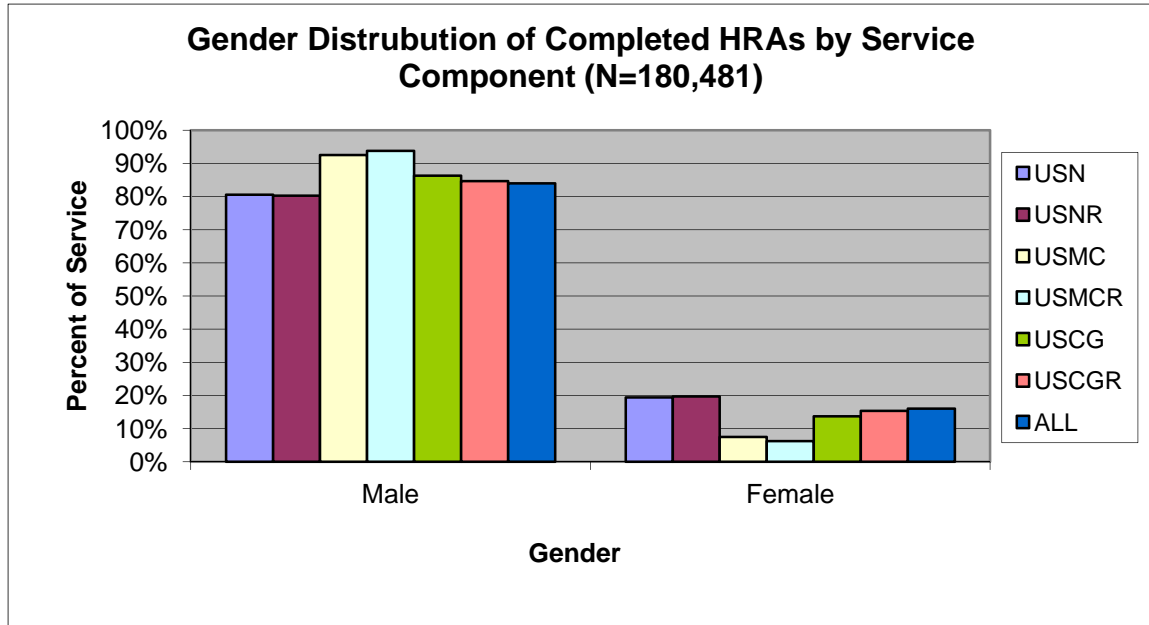
Overall, Navy and Coast Guard service members that responded to the survey were older than Marine respondents (Figure 3). The mean age of respondents was 30.4 years for USN, 35.9 years for USNR, 26.0 years for USMC, 26.2 years for USMCR, 30.7 years for USCG, and 35.5 years for USCGR.

**Figure 3: Age by Service for HRA Survey Respondents**



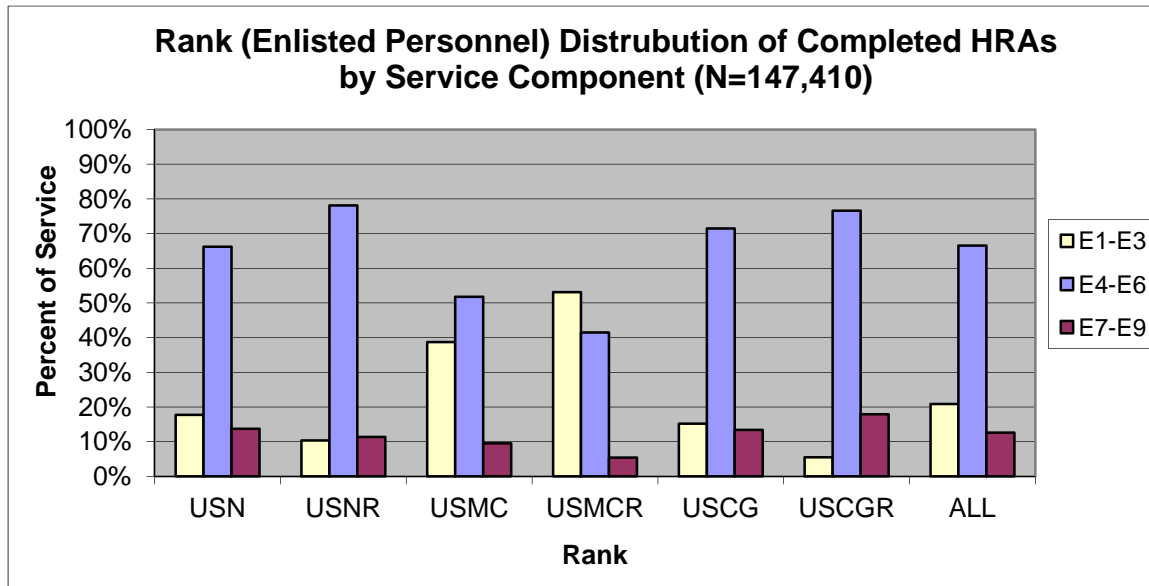
With respect to gender, more males completed the HRA (84%), reflecting the general male/female ratio of military service members. The gender difference was especially evident in the Marine Corps, with less than 10% of the HRAs completed by females compared to 19% in the Navy.

**Figure 4: Gender Distribution of Survey Participants**



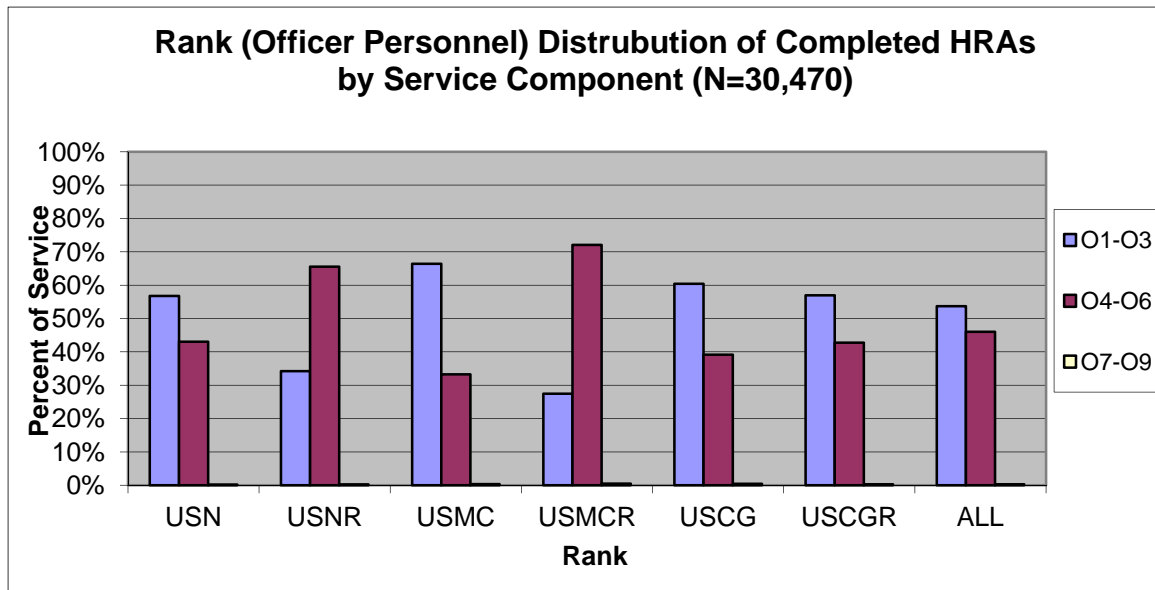
Distribution by rank of survey respondents indicated that 82% were completed by enlisted members, 17% by officers, and less than 1% by warrant officers. Figures 5-7 displays the distribution of respondents' rank by service.

**Figure 5: Distribution by Rank of Survey Participants-Enlisted\***



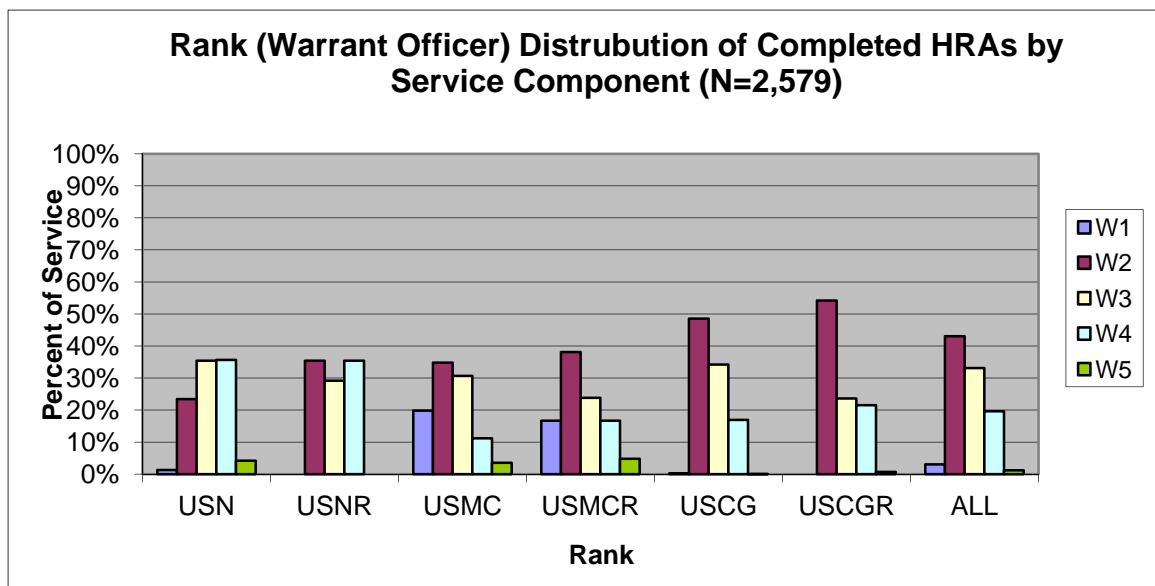


**Figure 6: Distribution by Rank of Survey Participants-Officer\***



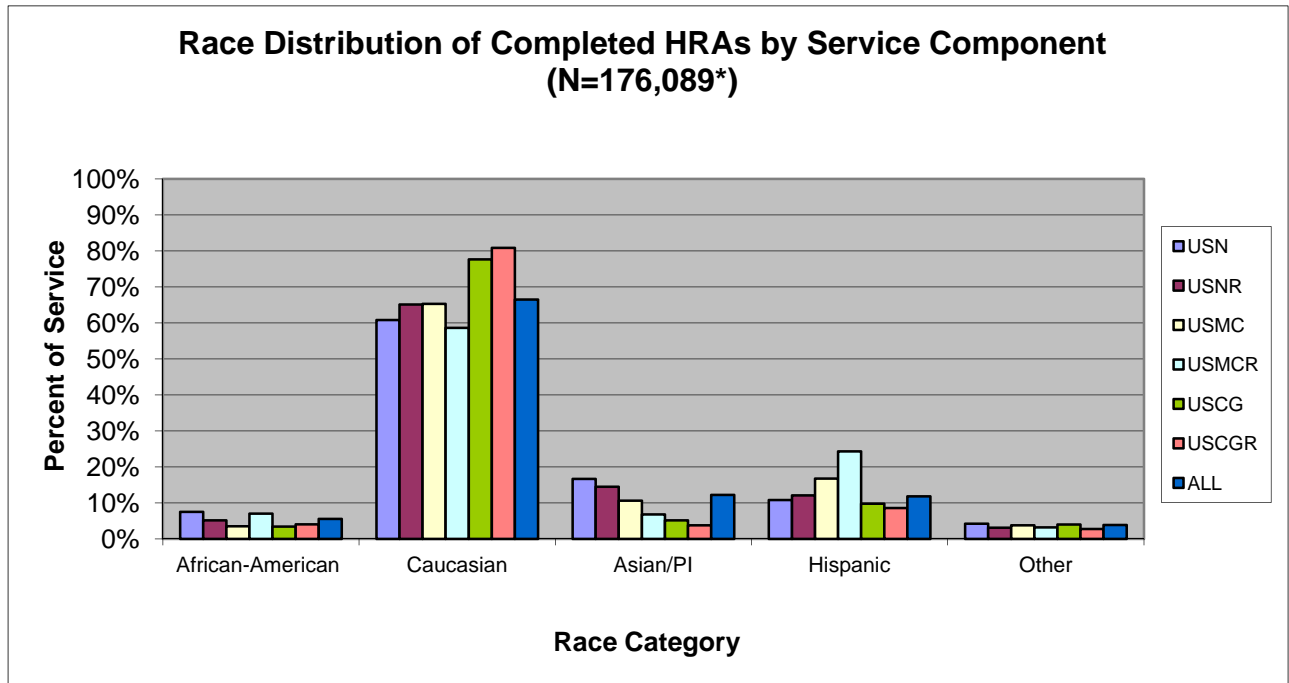
\*Does not include people who indicated a rank of O10

**Figure 7: Distribution by Rank of Survey Participants-Warrant Officer**



**Figure 8: Distribution of Completed HRAs by Race**

Race varied somewhat between service components, but across services, survey respondents were predominantly Caucasian (66%). (Figure 8).



\*4,392 did not answer race question

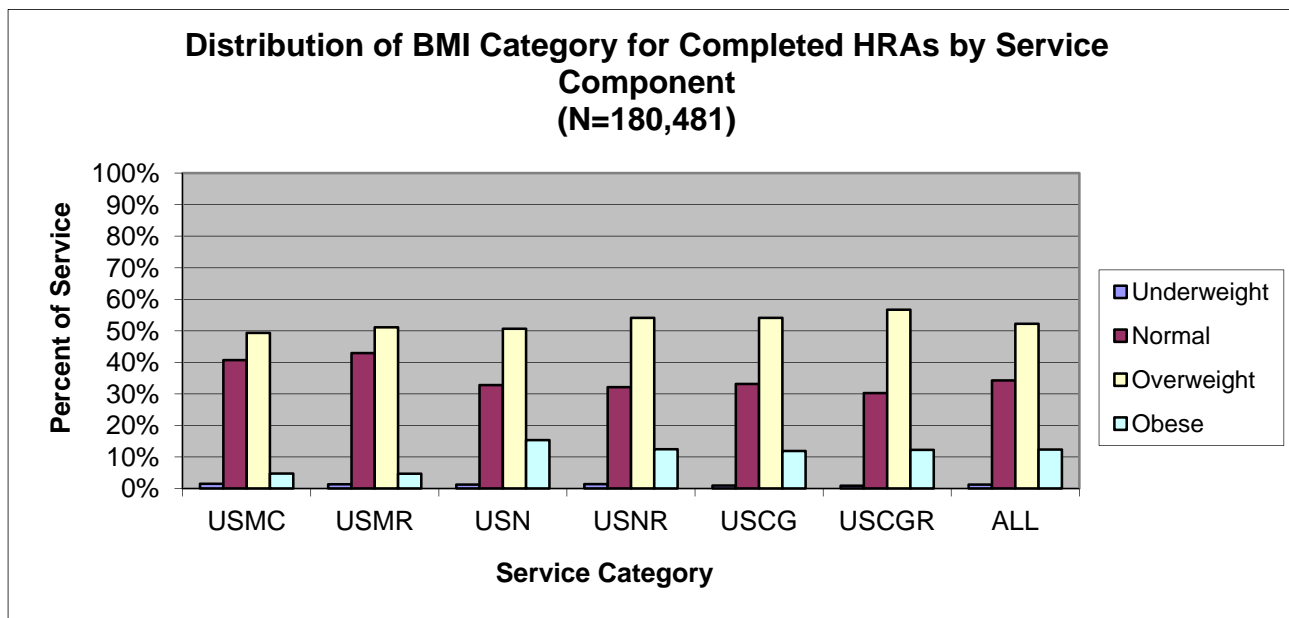
## HRA Risk Factor Analysis

### BMI Status

As a screening test, BMI usually correlates well in the United States (U.S.) population with the 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, 65% of service members were classified as overweight or obese according to the CDC BMI standards for healthy adults. The analysis indicated that, in general, Navy and Coast Guard personnel were more likely to be classified as either overweight or obese when compared to Marines, who are less likely to fall into the obese category, while active duty Navy and Coast Guard were slightly more likely to be of normal BMI than reservists (Figure 9).

**Figure 9: BMI Distribution by Service for Completed HRAs**



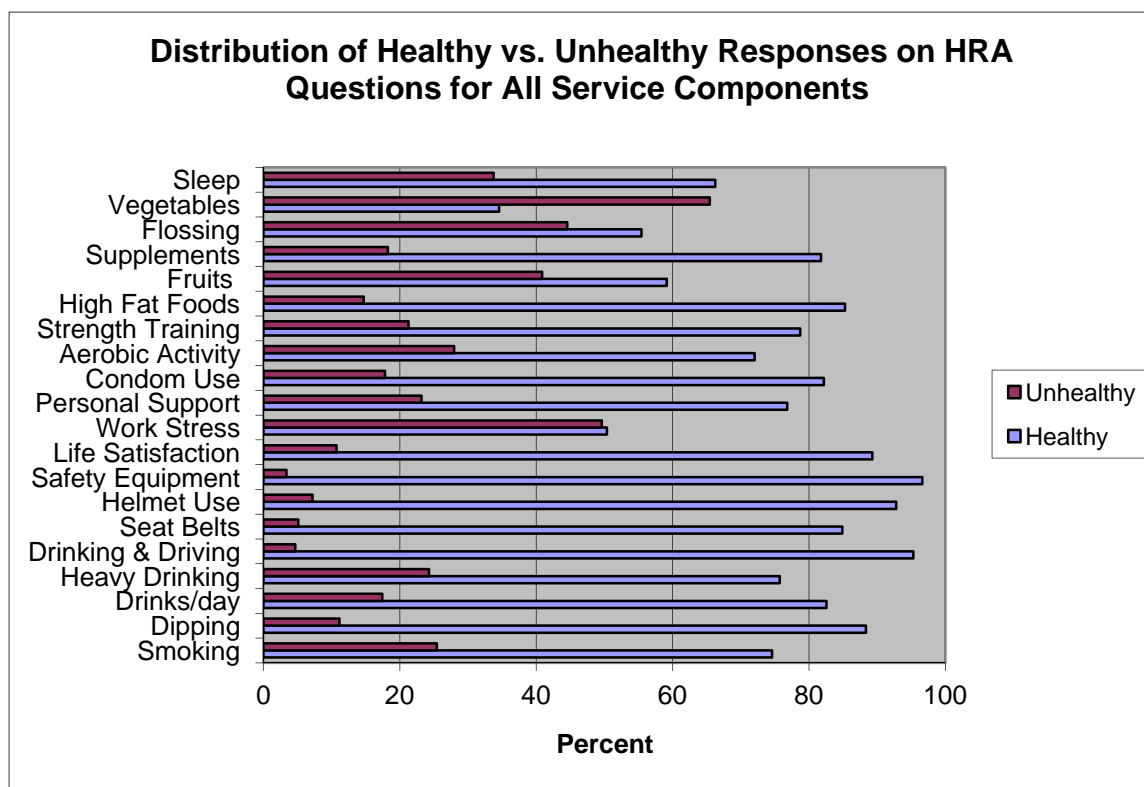
## Distribution of “Healthy” Versus “Unhealthy” Responses

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

The next seven graphs (Figures 10-16) display the results of these questions by service component. Healthy (light blue) and unhealthy (purple) response frequencies are displayed along the horizontal axis which depicts total response percentage. A longer light blue bar indicates more people were classified as healthy.

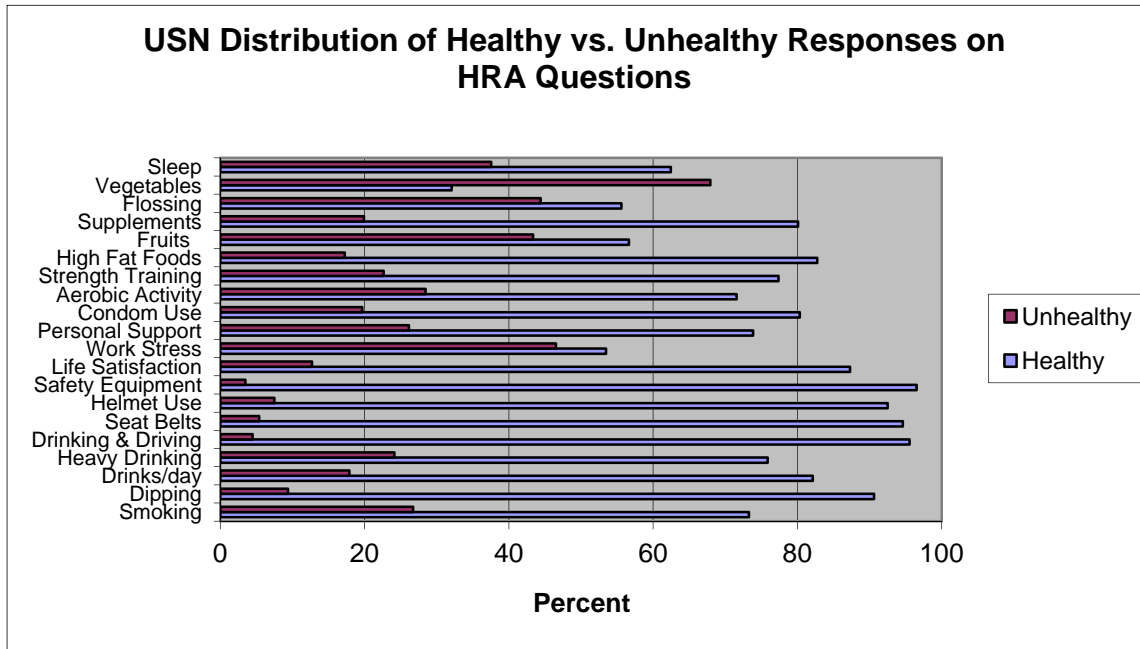
Overall, for all components the leading health risks (unhealthy ratings) were low daily intake of vegetables (65%), work stress (50%), lack of flossing (45%) and low daily intake of fruits (41%) (Figure 10). Among all respondents, other areas of concern included lack of sleep (34%), smoking (26%), heavy drinking (24%), lack of personal support (23%), and lack of aerobic activity (28%). Overall, the most common healthy behaviors reported by members included use of safety equipment (96%); including helmets (95%) and seat belts, (85%). However, 5% of all members reported driving after drinking too much alcohol.

**Figure 10: HRA Response Distribution, All Service Components**

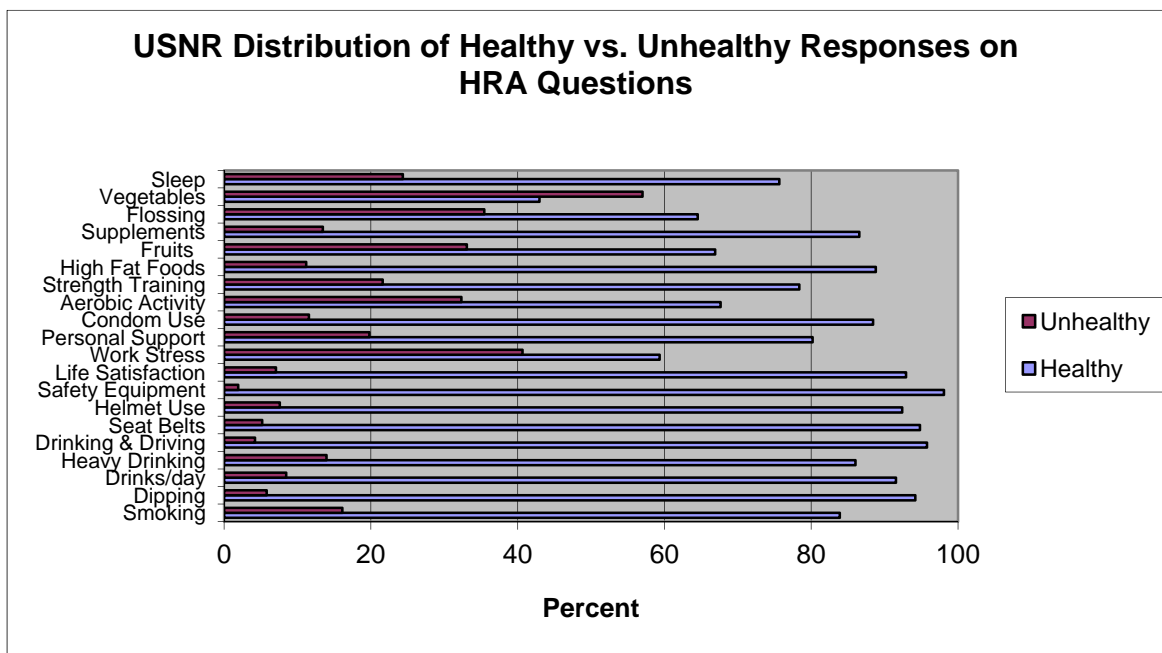


As stated earlier, both the USN and USNR shared their top two risk factors of low intake of fruits (43% and 35% respectively) and vegetables (68% and 57% respectively) (Figures 11 & 12). In addition, 47% of USN and 41% of USNR members reported work stress while 26% of USN and 20% of USNR members reported having little or no personal support to deal with stress. USN service members reported more frequent heavy drinking (24%), and a higher average number of drinks per day (18%) than did USNR members (14% and 8%, respectively). USN members reported higher percentage of smoking (27%) than did USNR members (16%). More USN members also reported they did not get enough restful sleep (38%) compared with USNR members (24%).

**Figure 11: HRA Response Distribution, USN**

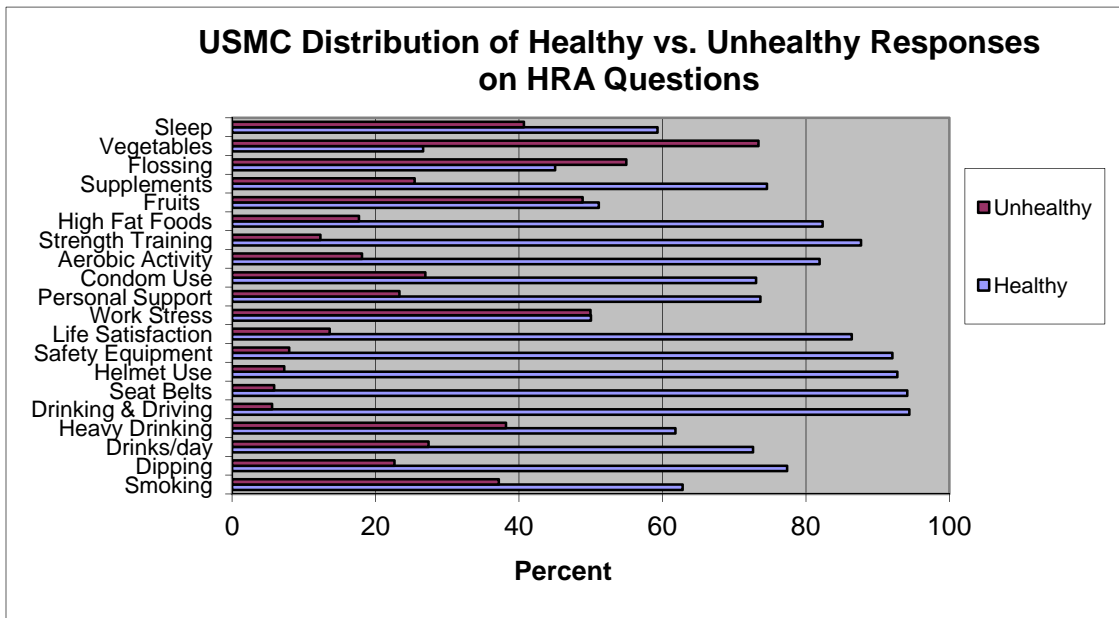


**Figure 12: HRA Response Distribution, USNR**

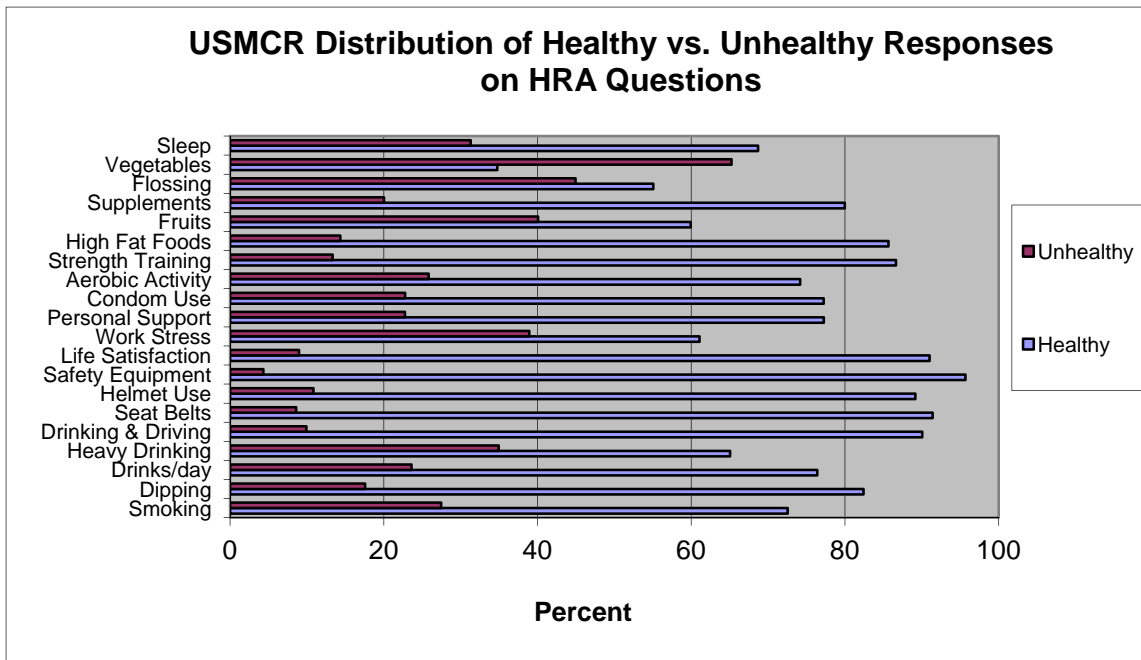


The USMC and USMCR followed the same trends based on reported risks (Figures 13 & 14). Unhealthy responses for both groups included low intake of fruits (49% and 39%, respectively), low intake of vegetables (73% and 65% respectively), and low levels of flossing (55% and 45% respectively). USMC members more often reported higher levels of work stress (50%). USMC and USMCR members both reported a similar high percentage of heavy drinking (35-38%) and high average number of drinks per day (24-27%). Members of both groups also reported high levels of tobacco use, both smoking (37% and 27%) and dipping (22% and 18%). Both groups of Marines reported high levels of unsafe sex, both smoking (37% and 27%) and dipping (22% and 18%). Both groups of Marines also reported higher levels of unsafe sex (27% and 23%, respectively) compared with Navy members.

**Figure 13: HRA Response Distribution, USMC**

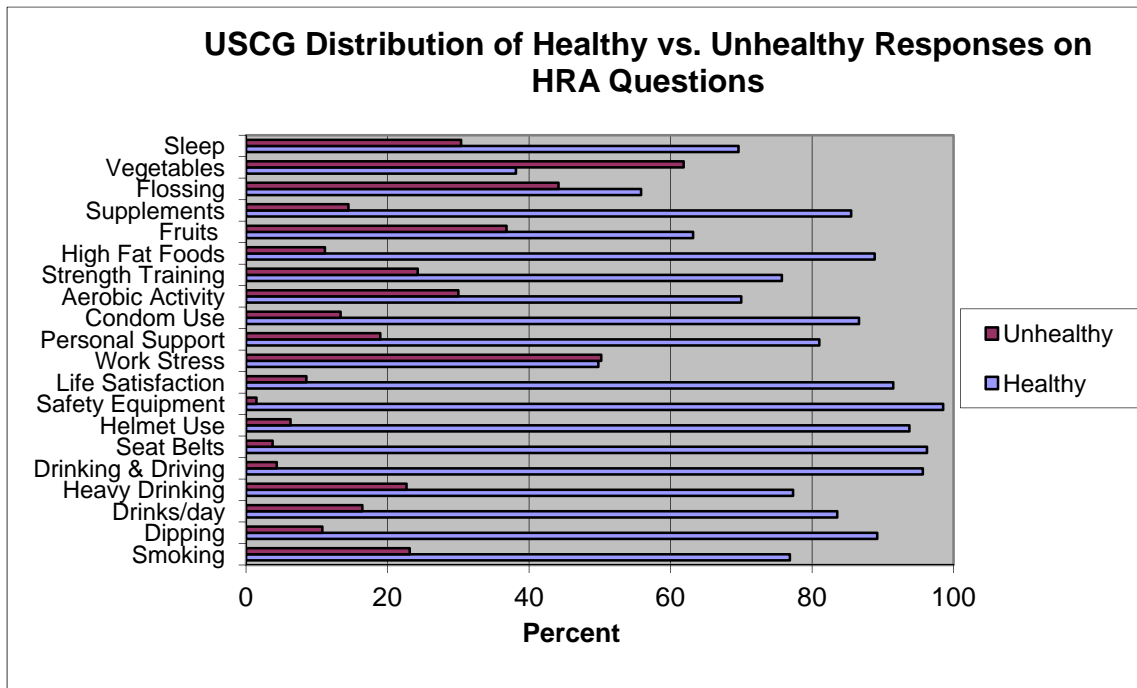


**Figure 14: HRA Response Distribution, USMCR**

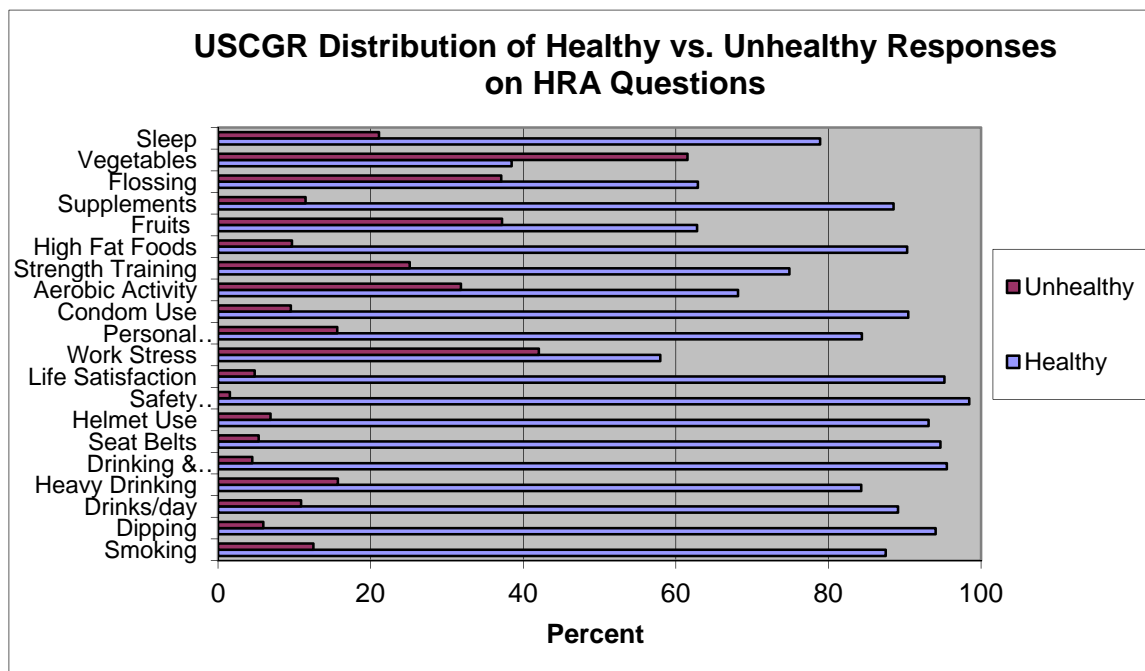


The USCG and USCGR showed similar results (Figures 15 & 16). Unhealthy responses reported by members of both groups included low intake of vegetables (both 62%), low intake of fruits (both 37%), high levels of work stress (50% and 42%), and low levels of flossing (44% and 37%). USCG and USCGR members reported slightly lower percentage of smoking (23% and 13%, respectively). Compared to the USN and USMC, the USCG reported lower percentages of drinks per day (16%) and heavy drinking (23%). However, the USCGR had a higher percentage reporting unhealthy drinks per day (11%) and heavy drinking (16%) than the USNR. Like other service members, they frequently reported not getting enough restful sleep (30% and 21%).

**Figure 15: HRA Response Distribution, USCG**



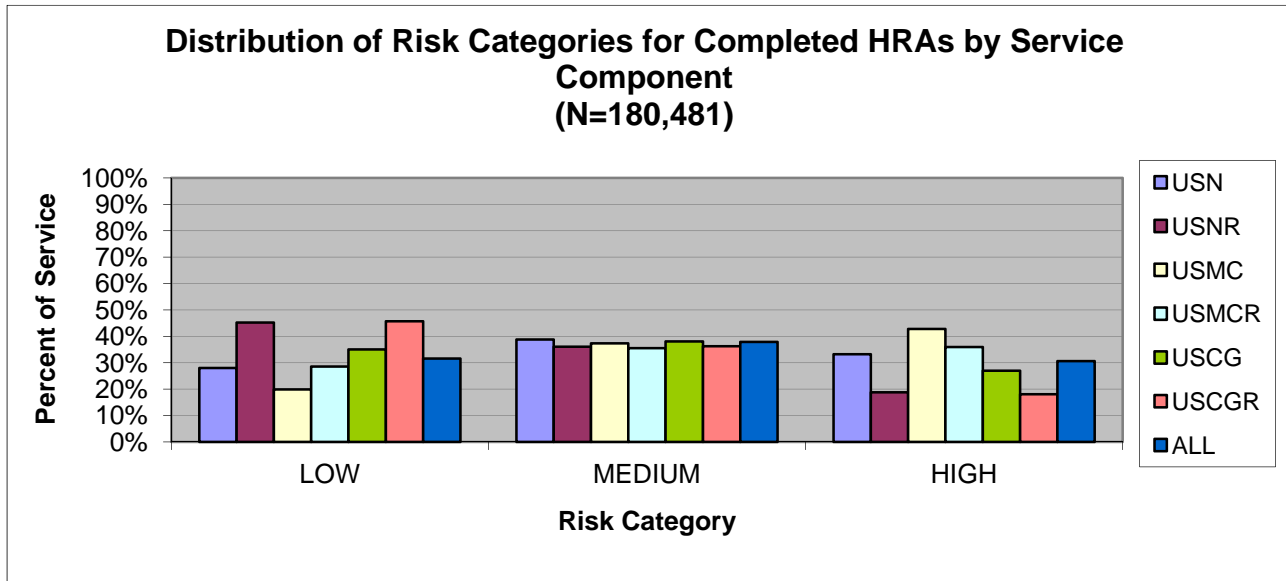
**Figure 16: HRA Response Distribution, USCGR**



## 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, medium, or high risk based on the number of risk categories in which they reported unhealthy responses.

**Figure 17: Risk Category Distribution**



Based on mean number of risk factors, USMC members were qualified as “high risk” most often (43%), followed by the USMCR (36%), USN (33%), USCG (27%), USNR (19%), and USCGR (18%). Members of the USNR most often scored in the low risk category (46%).



## Change in Healthy Responses

Table 1 displays the percent of respondents that were classified *healthy* for both this year and the previous study period of July 1, 2010 to June 30, 2011. Percent change in the ‘healthy’ response was calculated and appears in the last column. Overall, most ‘healthy’ responses remained similar or slightly improved. Notable this year is a 6% increase in ‘healthy’ responses to vegetable consumption, but dipping and supplement responses decreased.

**Table 1: Percent Change in Healthy HRA Responses, Total**

|                    | <b>2009-2010<br/>(n=180,254)</b> | <b>2010-2011<br/>(n=180,481)</b> | <b>%<br/>Change**</b> |
|--------------------|----------------------------------|----------------------------------|-----------------------|
| Vegetables         | 32.5                             | 34.6                             | 6.3                   |
| Fruits             | 56.7                             | 59.1                             | 4.3                   |
| Aerobic Activity   | 70.1                             | 72                               | 2.8                   |
| Flossing           | 54.2                             | 55.5                             | 2.3                   |
| Strength Training  | 77.2                             | 78.7                             | 2.0                   |
| Drinks/day         | 81.3                             | 82.6                             | 1.6                   |
| High Fat Foods     | 84                               | 85.3                             | 1.5                   |
| Work Stress        | 49.7                             | 50.4                             | 1.4                   |
| Heavy Drinking     | 74.8                             | 75.7                             | 1.2                   |
| Helmet Use*        | 91.8                             | 92.8                             | 1.1                   |
| Personal Support   | 76.1                             | 76.8                             | 0.9                   |
| Seat Belts         | 94.2                             | 94.9                             | 0.7                   |
| Condom Use         | 81.7                             | 82.2                             | 0.6                   |
| Life Satisfaction  | 88.8                             | 89.3                             | 0.6                   |
| Drinking & Driving | 94.7                             | 95.3                             | 0.6                   |
| Sleep              | 65.9                             | 66.3                             | 0.5                   |
| Safety Equipment*  | 96.3                             | 96.6                             | 0.3                   |
| Smoking            | 74.5                             | 74.6                             | 0.1                   |
| Dipping            | 89.5                             | 88.4                             | -1.3                  |
| Supplements        | 83                               | 81.8                             | -1.5                  |

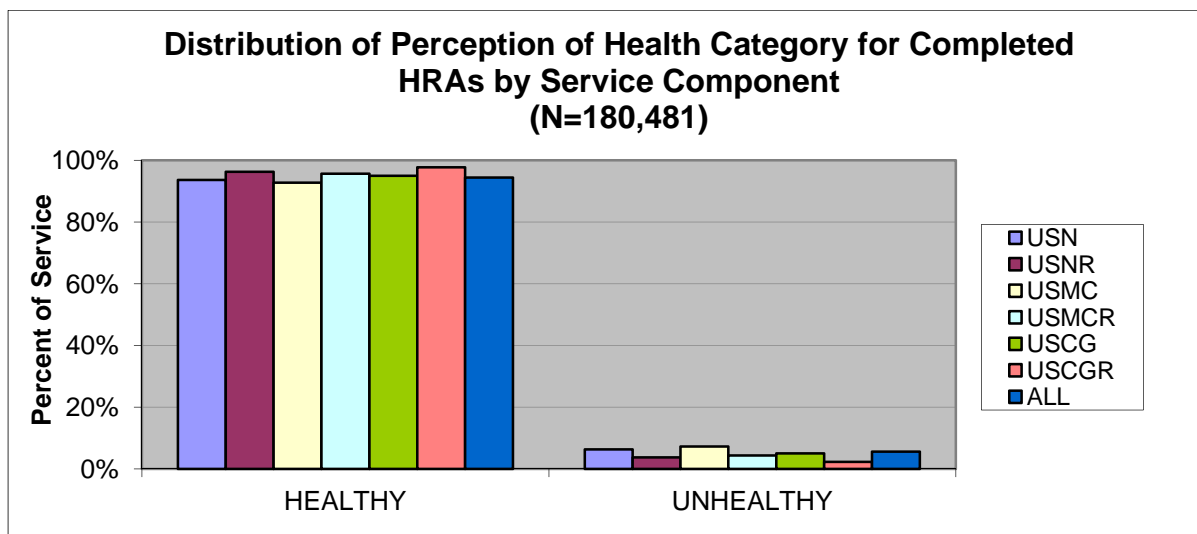
\*excludes not applicable answers

\*\* n differs between 2010 and 2011 surveys

## Perception of Health

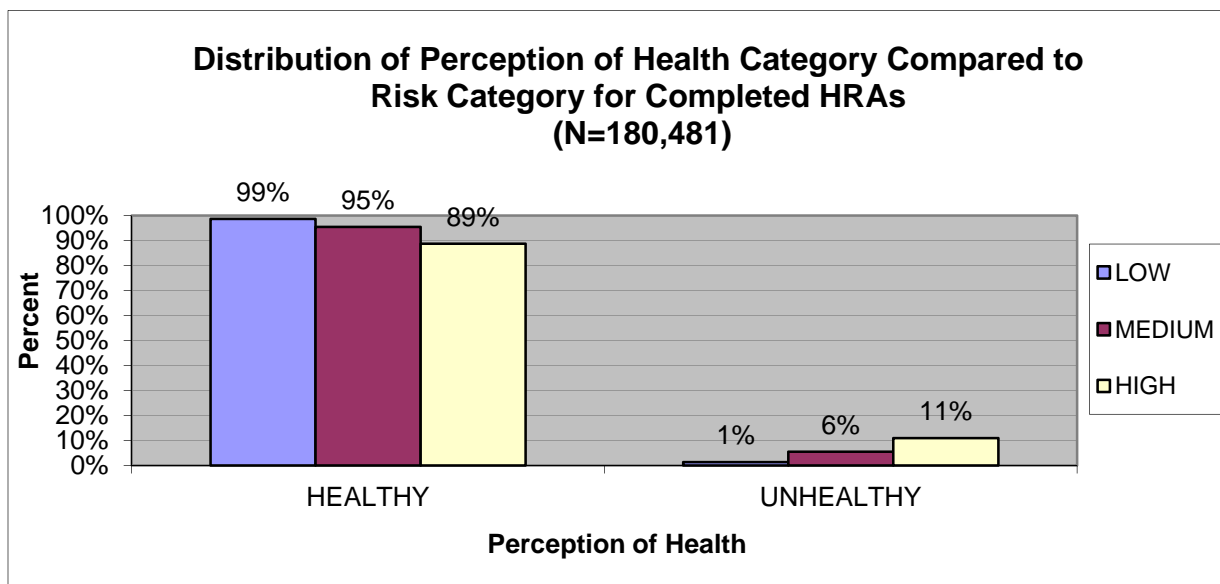
Ninety-four percent of all members rated their “health in general” as either good or excellent (Figure 18), even though Figure 17 had shown many members reported risk factors that placed them in medium and high risk categories.

**Figure 18: Perception of Health by Service**



The differences in perception of health and risk category were small but consistent, with lower risk groups having a higher perception of good health (99%). Nevertheless, many (89%) high-risk individuals also perceived their health as good. Of the small percentage of respondents who indicated their health was generally unhealthy (6% of respondents), the majority had risk scores that fell into the medium to high risk categories.

**Figure 19: Perception of Health Category v. Risk Category**



## Risk Category by Demographic Variables

Risk scores were tabulated based on the total number of risk categories in which one or more of the questions were reported as unhealthy. Risk scores ranged from 0-10 and were categorized into risk levels: low (0-2 risk categories), medium (3-4 risk categories), and high (5 or more risk categories).

More males were classified as high risk (32%) than females (22%) (Table 2).

**Table 2: Risk Category by gender**

| Gender                | % In Low Risk Category | % In Medium Risk Category | % In High Risk Category |
|-----------------------|------------------------|---------------------------|-------------------------|
| Female<br>(n= 28,959) | 38.2                   | 39.3                      | 22.5                    |
| Male<br>(n= 151,522)  | 30.3                   | 37.6                      | 32.2                    |

Age was also examined (Table 3). After age 29 the number of individuals who fell into the high risk category decreased in each age group. This 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. A greater proportion of younger service members (age 20-29) were in the high-risk category.

**Table 3: Risk Category by age\***

| Age Group             | % In Low Risk Category | % In Medium Risk Category | % In High Risk Category |
|-----------------------|------------------------|---------------------------|-------------------------|
| 17-19<br>(n = 4,522)  | 24.7                   | 39.1                      | 36.3                    |
| 20-29<br>(n = 90,719) | 26.5                   | 36.6                      | 36.9                    |
| 30-39<br>(n = 54,086) | 34.1                   | 39.4                      | 26.5                    |
| 40-49<br>(n=26,353)   | 40.8                   | 39.2                      | 20.0                    |
| 50+<br>(n = 4,801)    | 52.4                   | 36.3                      | 11.4                    |

\*may total more than 100 due to round up error

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. Similarly, company grade officers had a greater percentage of members in the high risk category compared to field grade officers.

**Table 4: Risk Category by rank\***

| <b>Rank Group</b>     | <b>% In Low Risk Category</b> | <b>% In Medium Risk Category</b> | <b>% In High Risk Category</b> |
|-----------------------|-------------------------------|----------------------------------|--------------------------------|
| E1-E5<br>(n= 99,672)  | 27.0                          | 36.4                             | 36.7                           |
| E6-E9<br>(n= 47,738)  | 32.7                          | 39.9                             | 27.5                           |
| O1-O3<br>(n = 16,361) | 41.2                          | 39.8                             | 19.0                           |
| O4-O9<br>(n=14,109)   | 48.3                          | 38.6                             | 13.2                           |
| W1-W5<br>(n=2,579)    | 36.4                          | 42.0                             | 21.6                           |

\*Excludes individuals who indicated a rank of E10 or O10

Race was also examined by risk category (Table 5). No strongly apparent trends between race and risk category were noted.

**Table 5: Risk Category by race**

| <b>Race*</b>                           | <b>% In Low Risk Category</b> | <b>% In Medium Risk Category</b> | <b>% In High Risk Category</b> |
|--|-------------------------------|----------------------------------|--------------------------------|
| African American<br>(n = 9,787)        | 30.2                          | 38.7                             | 31.0                           |
| Caucasian<br>(n= 117,073)              | 32.3                          | 37.6                             | 30.0                           |
| Asian/Pacific Islanders<br>(n= 21,532) | 29.8                          | 38.9                             | 31.3                           |
| Hispanic<br>(n= 20,870)                | 30.5                          | 37.6                             | 32.0                           |
| Other<br>(n=6,827)                     | 29.3                          | 37.7                             | 33.0                           |

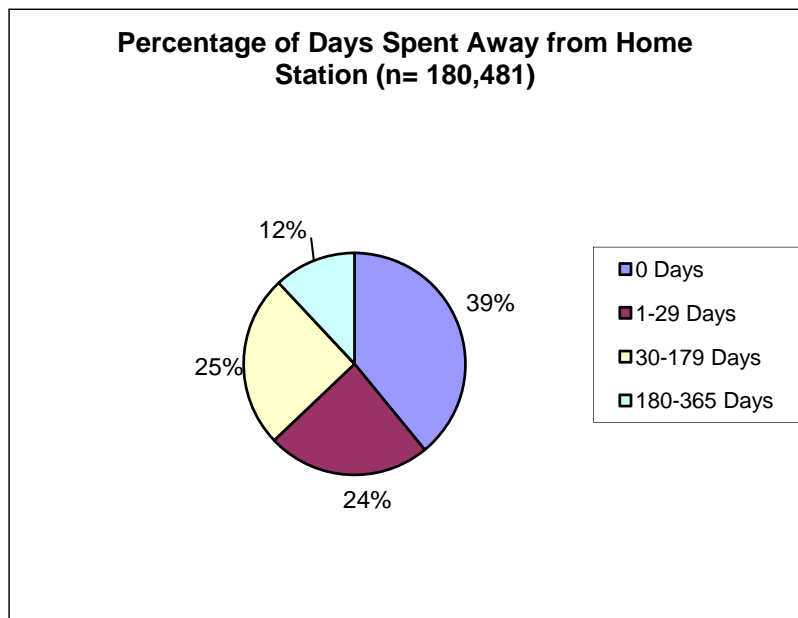
\* 4,392 individuals did not indicate race

## 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. First, total HRA risk score was examined in relation to the four days away time points using frequency distribution and logistic regression. Second, 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.

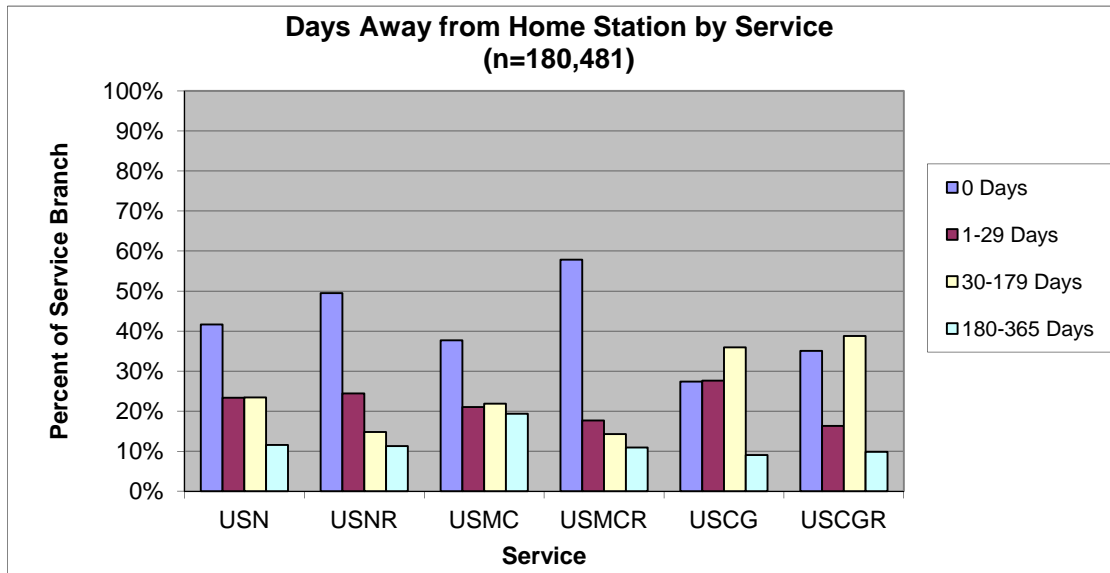
In the entire population, 39% of individuals did not spend any time away from the home station, 24% spent 1-29 days away, 25% spent 30-179 days away, and 12% spent 108-365 days away from the home station (Figure 20)

**Figure 20: Percentage of Days Away**



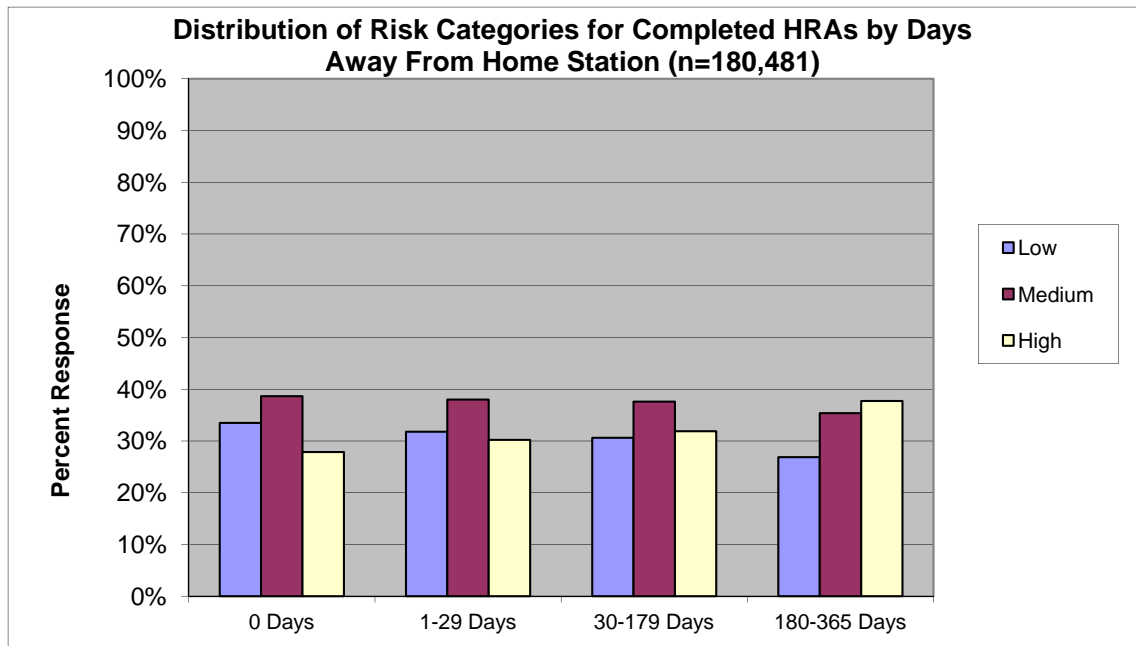
Time away from home station was examined by service component (Figure 21). The percentage of members who never spent time away from home station varied by service: USN (42%), USNR (49%), USMC (38%), USMCR (58%), USCG (27%), USCGR (35%). The USMC, USCG, and USCGR had the highest percentages for total days away with at least 57% of members reporting at least 1 day away. USMC members reported having the greatest percentage of members away from home station for 180-365 days (19%) while the USCG members only had 9% of individuals away from home station for 180-365 days.

**Figure 21: Days Away by Service**



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 32% at 0 days away to 25% at 180-365 days away. The percentage of members in the ‘high’ risk category increased from 30% at 0 days away to 38% at 180-365 days away (Figure 22).

**Figure 22: Distribution of Risk Categories by Days Away From Home Station**



## Days Away from Home Station and Risk Category

Risk category was compared with the amount of time away from home station (Table 6). As time away from home station increased the percentage of members in the high risk category increased.

**Table 6: Risk Category by Days Away From Home Station**

| <b>Days Away</b>                   | <b>% In Low Risk Category</b> | <b>% In Medium Risk Category</b> | <b>% In High Risk Category</b> |
|------------------------------------|-------------------------------|----------------------------------|--------------------------------|
| 0 Days Away<br>(n=70,548)          | 33.5                          | 38.7                             | 27.9                           |
| 1-29 Days<br>Away<br>(n=42,973)    | 31.8                          | 38.0                             | 30.2                           |
| 30-179 Days<br>Away<br>(n=45,360)  | 30.5                          | 37.6                             | 31.9                           |
| 180-365 Days<br>Away<br>(n=21,600) | 26.9                          | 35.4                             | 37.7                           |

## Days Away from Home Station and Risk Score

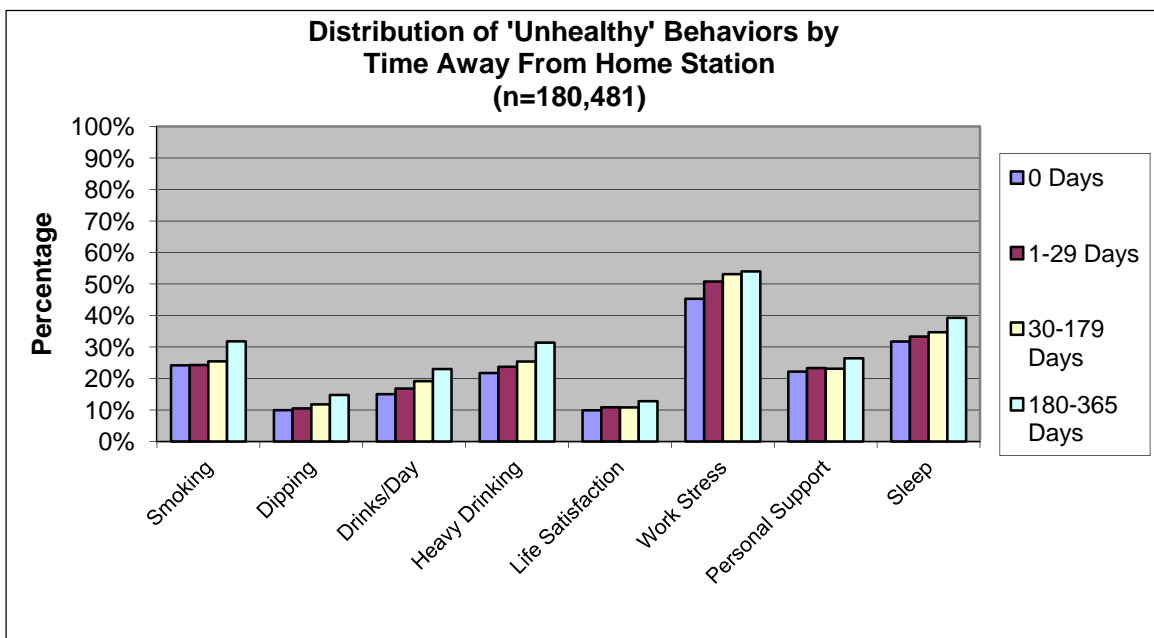
To evaluate the relationship between length of days away from home station and risk score, a logistic regression model was used. A risk score of greater than 2 (medium and high categories) was set as a dependent variable, while days away from home station was used as a predictive variable divided into 4 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: OR [1-29 days] 1.1 (95% CI 1.05-1.11), OR [30-179 days] 1.15 (95% CI 1.12-1.18), and OR [180-365days] 1.37 (95% CI 1.32-1.42).

## Days Away from Home Station and Unhealthy Behaviors

Eight different questions covering smoking, dipping, drinks per day, heavy drinking, life satisfaction, work stress, personal support, and sleep were examined to determine any time related differences in reporting of unhealthy behaviors. The next seven graphs (Figures 23-29) display the results of 'unhealthy' responses by self-reported time away from home station. While the different services varied somewhat in respect to leading health risks (unhealthy ratings), several risk behaviors were similar across groups, with work stress, drinks per day, and heavy drinking showing the greatest increases in unhealthy behavior as time away from station increased.

Although members generally reported higher levels of work stress as the number of days away from home station increased, an exception of this trend was visible among members of the USMCR and USNR. Work stress increased in the 1-29 day and 30-179 days away from home station categories and then declined in the 180-365 days away from home station category.

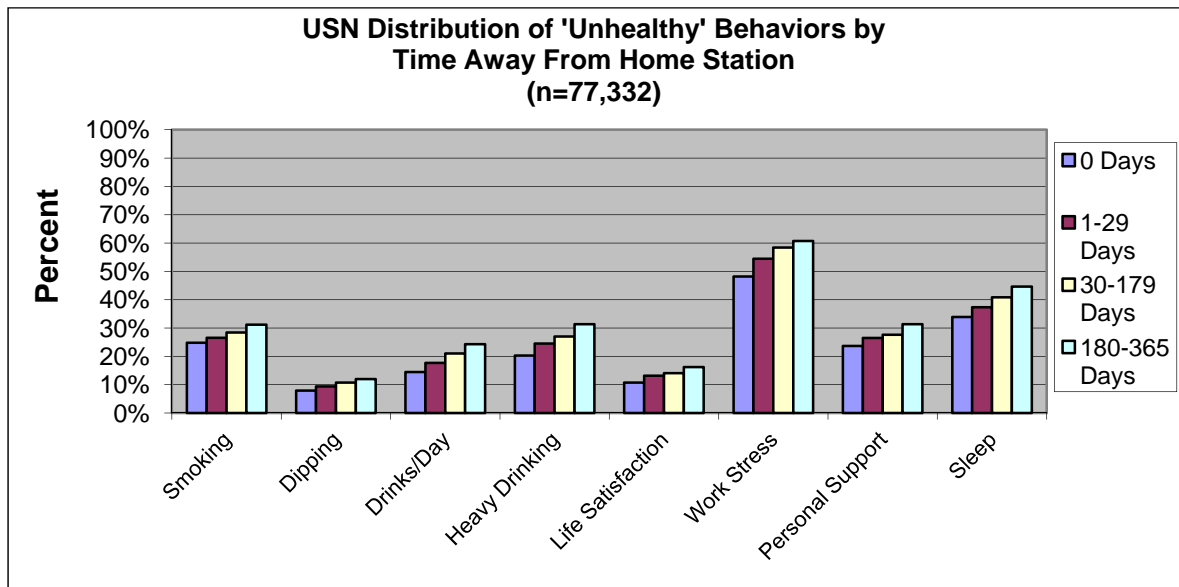
**Figure 23: Unhealthy Responses by all for Time Away from Home Station**



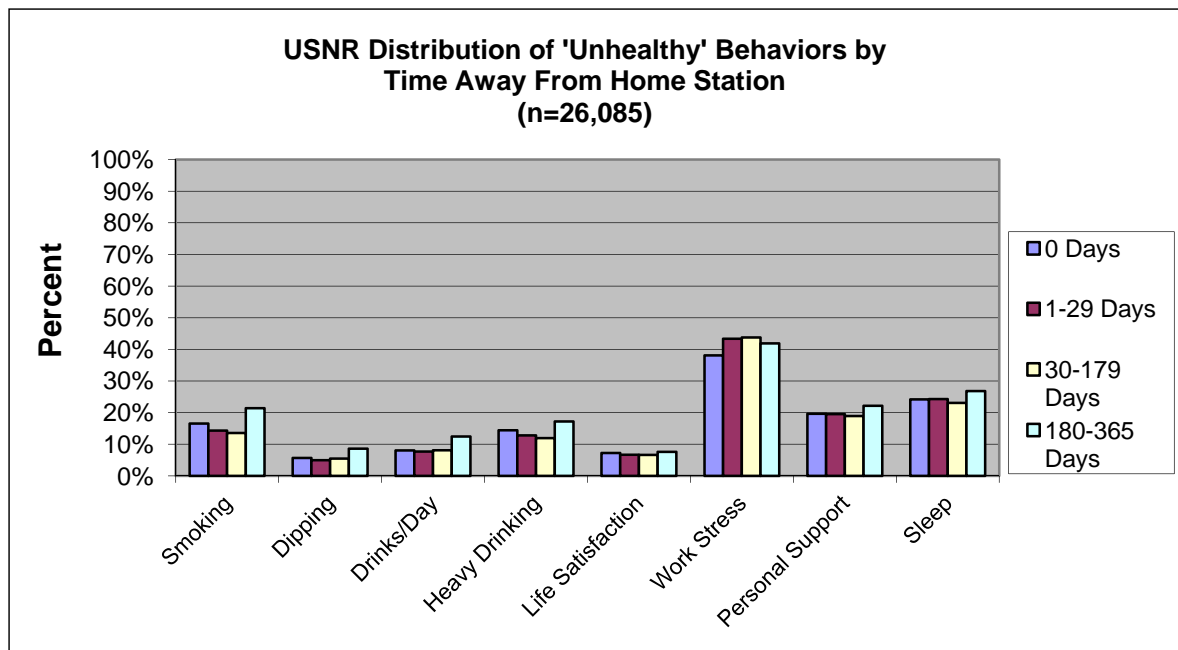


Frequency of 'unhealthy' responses increased for all risk factors for USN members as days away from home station increased (Figures 24 and 25). Unlike the USNR, the USN demonstrated a clear increasing trend for reported unhealthy behaviors as time away from home station increased. USN members reported higher levels of work stress, starting at 48% (0 days away) and increasing to 61% (180-365 days away), higher levels of smoking, 25% (0 days away) to 31% (180-365 days away), and higher unhealthy sleep levels, 34% (0 days away) to 45% (180-365 days away).

**Figure 24: USN Distribution of 'Unhealthy' Response by Days Away from Home Station**

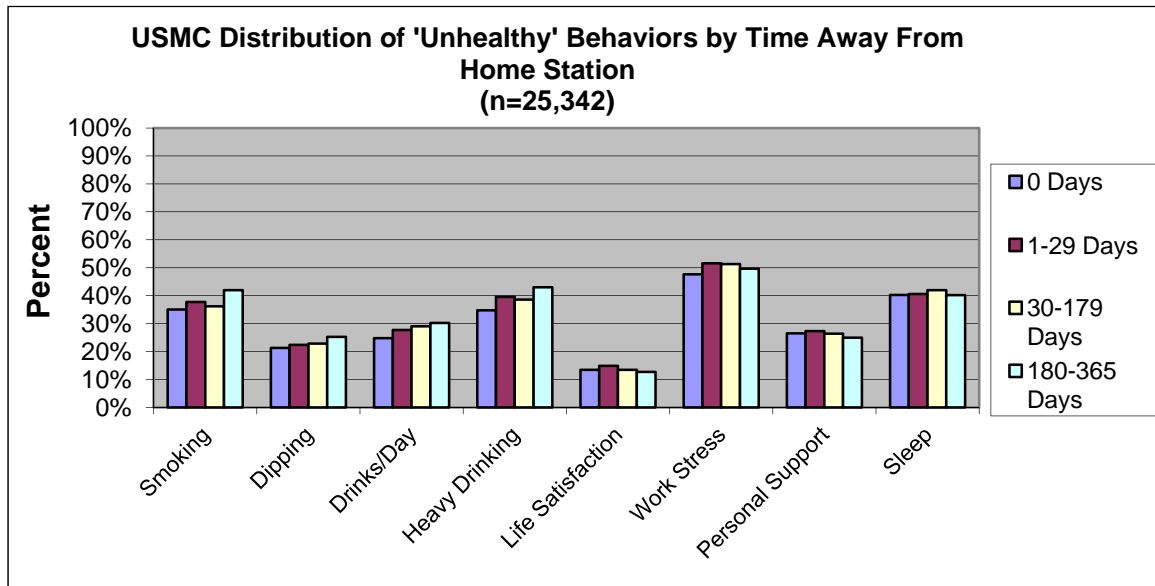


**Figure 25: USNR Distribution of 'Unhealthy' Response by Days Away from Home Station**

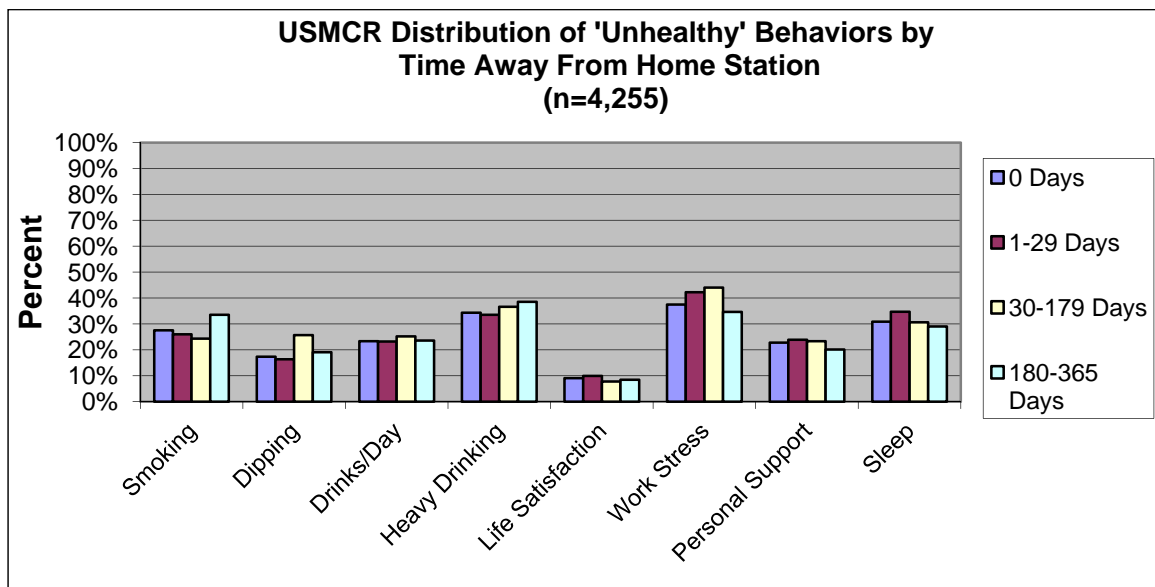


Compared to Navy and Coast Guard members, Marines tended to report higher percentages of tobacco and alcohol use. The four tobacco and alcohol measures displayed a slight increase in unhealthy responses as time away from home station increased among USMC members, while in the USMCR only heavy drinking demonstrated this trend. (Figures 26 & 27). The USMC and USMCR reported heavy drinking percentages closely resembling each other in each of the days away categories. The USMC showed a peak in work stress at the 1-29 day mark while USMCR demonstrated a peak in work stress at the 30-179 days away from home station mark.

**Figure 26: USMC Distribution of 'Unhealthy' Response by Days Away from Home Station**



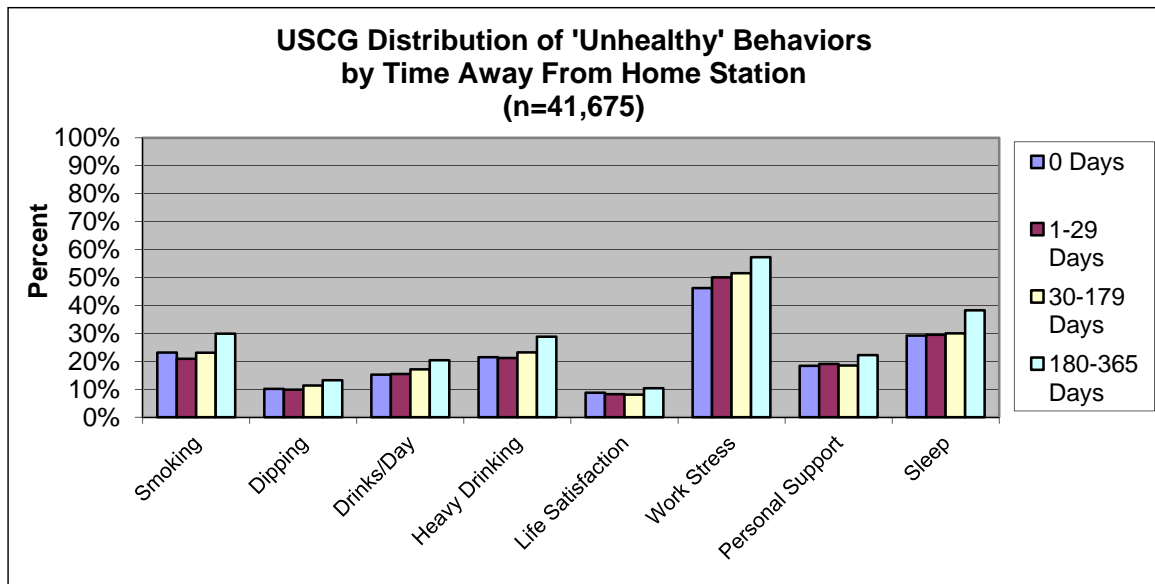
**Figure 27: USMCR Distribution of 'Unhealthy' Response by Days Away from Home Station**



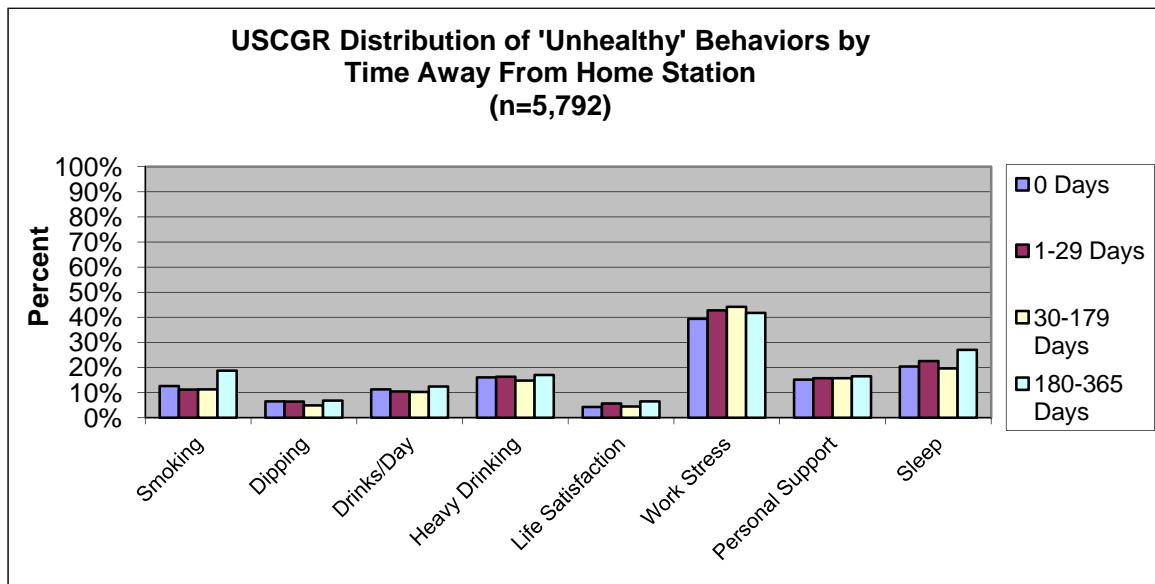
Both groups reported a 39% or greater 'unhealthy' response to work stress across the days away categories (Figures 28 & 29). Among USCG members, 'unhealthy' response frequency increased among all of the days away categories, with the smoking, heavy drinking, and work stress exhibiting the largest differences between 0 and 180-365 days away from homestation. For work stress, USCGR response frequencies rose during the 1-29 day and 30-179 day categories but decreased in the 180-365 days away category.

Of note are percent increases among USCG members from 0 days away to 180-364 days away in reported 'unhealthy' responses to work stress (+11%), personal support (+4%), drinks per day (+5%), heavy drinking (+8%), and problems with sleep (+9%).

**Figure 28: USCG Distribution of 'Unhealthy' Response by Days Away from Home Station**



**Figure 29: USCGR Distribution of 'Unhealthy' Response by Days Away from Home Station**



## Discussion

### ***Strengths and Limitations***

A strength of the survey results is that the questionnaire does not ask for any personal identifiers, making it more likely that participants will answer honestly about risky behaviors in which they engage. Participation in the HRA evaluation process depends on an individual's command requirements, such as incorporating the HRA into the Periodic Health Assessment (PHA) process; thus, these results would not represent merely a convenience sample, helping to reduce concerns about sampling bias.

Limitations of this report can be attributed to the limitations of the data collection tool. As a self-reported assessment, 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. While 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.

### ***Demographics***

This year the HRA saw significant growth in the number of USMC members (+4,845) and USCG members (+6,493) who participated in the survey compared to last year, however, the number of USN members who participated declined (-7,942).

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 (calculated as 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 categories. In addition, female members had a lower percentage of individuals who fell into the high risk number category.

### ***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 fat composition 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 either overweight or obese, Marines were significantly less likely to fall into the obese category, and active duty Navy and Coast Guard were slightly more likely to be within the normal range for BMI than 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, work stress, 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. When added to the number of members that were away from home for less than 30 days, the total percentage was 63%. Marines 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 a population that experiences 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 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 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: | POUNDS   |
|  |  |   |      | 0   |         |          |
| Number of days spent away from home station in the past 12 months:   |  |   |      |   |         |          |
| 1. Would you say that your health in general is ....<br><br>a. Excellent<br>b. Good<br>c. Fair<br>d. Poor  |  | 2. Do you <u>currently</u> smoke cigarettes, cigars, pipes or hookah?<br><br>a. Every day<br>b. Most days<br>c. Some days<br>d. Never smoked<br>e. I quit   |      | 3. Do you <u>currently</u> use smokeless tobacco (e.g., dip snuff)?<br><br>a. Every day<br>b. Most days<br>c. Some days<br>d. Never used smokeless tobacco<br>e. I quit   |         |          |
| 4. How many alcoholic beverages do you have during a typical day when you drink alcohol? ( <i>One drink = 12 ounces of regular beer, 5 ounces of wine, 1.5 ounces of 80-proof distilled spirits</i> )<br><br>a. 5 or more<br>b. 3-4<br>c. 1-2<br>d. Not applicable, I do not drink alcohol or I seldom drink alcohol |  | 5. How often do you typically drink 5 or more alcoholic drinks on one occasion? ( <i>"One Occasion" refers to an event or period when drinking exceeds one drink per hour</i> )<br><br>a. Daily<br>b. Weekly<br>c. Monthly<br>d. Once or twice per year<br>e. Never |      | 6. How often do you drive when perhaps you have had too much to drink?<br><br>a. Often (i.e., more than once during the past 6 months)<br>b. Sometimes (i.e., once during the past 6 months)<br>c. Rarely (i.e., not in the past 6 months, but at least once during the past year)<br>d. Never (i.e., not during the past year) |         |          |
| 7. Do you use a seat belt when you drive or ride as a passenger?<br><br>a. Always<br>b. Most of the time<br>c. Sometimes<br>d. Rarely<br>e. Never  |  | 8. How often do you wear a helmet when you ride a motorcycle, all-terrain vehicle, or bicycle?<br><br>a. Always<br>b. Most of the time<br>c. Sometimes<br>d. Rarely<br>e. Never<br>f. Does not apply to me / I do not ride these vehicles                           |      | 9. How often do you use the safety equipment recommended for your job? ( <i>e.g., hearing and vision protection, respirators, barriers, and other safety devices</i> )<br><br>a. Always<br>b. Most of the time<br>c. Sometimes<br>d. Rarely<br>e. Never<br>f. Does not apply to me / None recommended                           |         |          |

|   |  |   |
|---|--|---|
| <p>10. In general, how satisfied are you with your life? (e.g., work situation, social activity, accomplishing what you set out to do)</p> <p>a. Very satisfied<br/>b. Mostly satisfied<br/>c. Somewhat satisfied<br/>d. Not satisfied</p>  | <p>11. How often do you feel that your work situation is putting you under too much stress?</p> <p>a. Always<br/>b. Most of the time<br/>c. Sometimes<br/>d. Rarely<br/>e. Never</p>   | <p>12. How often do you have someone to talk to when you are feeling lonely, depressed, angry, or in need of help?</p> <p>a. Always<br/>b. Most of the time<br/>c. Sometimes<br/>d. Rarely<br/>e. Never</p>   |
| <p>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)</p> <p>a. Not Applicable, I am in a long-term relationship where we only have sex with each other / I am not sexually active<br/>b. Always<br/>c. Most of the Time<br/>d. Sometimes<br/>e. Rarely<br/>f. Never</p> | <p>14. How often do you usually do at least 20 minutes of non-stop vigorous aerobic activity that results in a significant increase in heart and breathing rate (e.g., jogging, high-impact aerobics, continuous swimming, or bicycling fast or uphill)?</p> <p>a. 5 or more days a week<br/>b. 4 days a week<br/>c. 3 days a week<br/>d. 2 days a week<br/>e. Once or less per week, or only twice per year for the PRT</p> | <p>15. How often do you usually do at least 20 minutes of strength training exercise involving most of the major muscle groups? (e.g., sit-ups, pushups &amp; chinups, stair-climbing, weightlifting, manual labor)</p> <p>a. 5 or more days a week<br/>b. 4 days a week<br/>c. 3 days a week<br/>d. 2 days a week<br/>e. Once or less per week, or only twice per year for the PRT</p> |
| <p>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; or packaged foods high in fats)</p> <p>a. At most or every meal<br/>b. At least once a day<br/>c. 3-5 days a week<br/>d. Less than 3 days a week<br/>e. Rarely or never</p>  | <p>17. About how many servings of fruits and/or vegetables do you usually eat each day? (One serving = 1 medium fresh fruit; 1/2 cup chopped, cooked, or canned fruit or vegetable; 3/4 cup fruit or vegetable juice; or 1 cup raw leafy vegetable)</p> <p>a. 9 or more<br/>b. 7-8<br/>c. 5-6<br/>d. 3-4<br/>e. Less than 3 servings per day</p>   | <p>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?</p> <p>a. Daily<br/>b. Weekly<br/>c. Monthly<br/>d. Seldom<br/>e. Never</p>  |
| <p>19. How frequently do you floss your teeth?</p> <p>a. Daily<br/>b. Most days<br/>c. Sometimes<br/>d. Rarely<br/>e. Never</p>   | <p>20. How often do you brush your teeth with a fluoride toothpaste?</p> <p>a. At least twice a day<br/>b. Once a day<br/>c. Most days<br/>d. Some days<br/>e. Rarely or never</p>   | <p>21. How often do you get enough restful sleep to function well in your job and personal life?</p> <p>a. Always<br/>b. Most of the time<br/>c. Sometimes<br/>d. Rarely<br/>e. Never</p>   |



**Appendix B:**

**CO Report Scoring Grid**

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

**\*Questions 8 & 9 allow respondents to select ‘f’ (Does not apply) as an answer. This answer is not included in the ratings.**

Reference:

- 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 September 2, 2009