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The current study sought to investigate health issues and behaviors among all military women and men, including both active duty and reserve personnel. The effort resulted in administration of a major survey, with a total of 24,881 respondents. This dataset represents the single largest and most comprehensive information base regarding military health and health behavior to date. Furthermore, it serves as valuable baseline data for future monitoring and tracking of health events in the military.

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FINAL REPORT

INTRODUCTION

The military has undergone considerable change over the past two decades. One notable change is an increasing number of women in the military and corresponding expanded roles for them. A recent major change has been the lifting of the combat exclusion rule beginning in 1993 and amplified in 1994 that has resulted in the opening of large numbers of military positions that were previously closed to women. Further, the Services are being held accountable to Congress on their progress of integrating women into newly opened positions. These actions have considerably increased the opportunities for women to serve in the military and to advance in their careers. Despite efforts to reduce the size of the active duty force, the percentage of women serving on active duty is increasing, as is the age and ethnic diversity of this population.

The overriding aim of the Total Force Study was to provide comprehensive broad-based epidemiological data on the health status of women and men in all components of the Total Force, both Active and Reserve Components. To achieve this aim, the design, analyses, and reporting of the research were guided by four broad objectives:

- Examine the health status of military women and men in six general areas: reproductive health, medical history and nutritional status, mental health, lifestyle factors, occupational/environmental risks and stressors, and use of health services.

- Examine the effects of military women's and men's physical health conditions or emotional problems on military work.

- Examine the impact of military service on the health status of military women and men.

- Examine factors associated with health care utilization, satisfaction, and access to health services.

These findings have high significance to the Military in general and military women in particular because they will for the first time provide broad-based data for the Total Force that have important implications for readiness. More specifically, they (a) provide baseline epidemiological data on a wide range of health problems, risk factors, and health care needs and practices; (b) classify subgroups of women and men within and across Active and Reserve components who are most at risk of experiencing health problems; (c) suggest areas where health promotion and other interventions can be targeted to improve military women's and men's health; (d) compare health data for military and civilian populations, and (e) specify gaps in understanding that are in need of further study.

BODY

Each of the papers, manuscripts, and presentations contained within this report addresses an aspect of the health and performance of military women and men consistent with the objectives of the grant. **Both descriptive cross-tabulations and multivariate analyses have been conducted.** Copies of each of the papers and slides from the conference presentations are appended to this report. Key findings from the papers and presentations are noted below.

Summary of Technical Report

1. "Health Status of Military Females and Males in All Segments of the U.S. Military" (October 1999). Amy A. Vincus, Miriam L. Ornstein, Danielle A. Lentine, Tracy U. Baird, Joyce C. Chen, June A. Walker, Jill D. Kavee, and Robert M. Bray. Report submitted to the Department of the Army under Cooperative Agreement No. DAMD17-96-2-6021 by the Research Triangle Institute, Research Triangle Park, North Carolina 27709. (Appendix A.)

Much prior research on military health and health-related issues has focused generally on males and on the Active-Duty Services. Consequently, broad-based epidemiological and health services data about military females are lacking, and no comprehensive data are available across all segments of the Military (i.e., Reserve/Guard components and Active-Duty Services). With the expanding role of females in the United States (U.S.) Military, the development of baseline data to monitor changes in health status within the Department of Defense (DoD) is of critical importance.

This report presented findings on selected aspects of the health of the U.S. Military drawing on a combined dataset from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment, and (b) the 1995 POWR Assessment: Perceptions of Wellness and Readiness, also called the POWR Assessment. The Total Force Health Assessment surveyed all segments of the Military (Active-Duty, Reserve, and Guard) except Active-Duty Navy and Marine Corps personnel, who were studied using the POWR Assessment. In combination, these two surveys provided one of the first sets of health status results for personnel from all segments of the Military.

This report presented baseline data on a broad array of health topics, including health status, health care utilization, health behaviors, psychosocial functioning, and female health issues. The specific objectives of this report were to

- provide baseline epidemiological data on health issues and a broad range of potential risk factors,
- compare females and males within Active-Duty Services and Guard/Reserve components to assess who are most at risk of experiencing health problems,
- suggest areas in which health promotion and other interventions can be targeted to improve the health of females and males in the Military, and
- specify gaps in understanding that are in need of further study.

These specific objectives highlighted two major purposes. One purpose was to present data for females on a variety of health issues and compare females' health status to that of males. In addition, another purpose was to provide and compare estimates for both Reserve/Guard and Active-Duty personnel. In the following paragraphs, we summarize (a) differences between females and males and (b) differences between Reserve/Guard and Active-Duty personnel.

The eligible population for this combination of Total Force and POWR datasets consisted of all military personnel except recruits, Service academy students and persons absent without leave. The final samples consisted of 15,025 (for Total Force) and 9,856 (for POWR) military personnel who completed self-administered questionnaires for a total of 24,881 cases. Participants were selected to represent females and males in all pay grades of all segments of the U.S. Military throughout the world. Data were primarily collected from participants by mail. The overall response rate was 38.0% for Total Force and 39.6% for POWR. Data for this report came from a combined dataset of variables common to the Total Force and POWR datasets, forming one of the largest sets of data on military females. The data for the combined dataset were weighted so that they would represent all Military personnel.

The highlights, noted in the following paragraphs, are reported in four sections: (1) health status and health care utilization; (2) health behaviors; (3) psychosocial functioning; and, (4) female health issues. Comparisons between Reserve/Guard and Active-Duty personnel are discussed, and significant sex differences are noted where applicable. Some of the findings noted below do not include accompanying percentages because of the large number of comparisons being described. All estimates can be found in the report's tables.

Health Status and Health Care Utilization

Key findings about health status and health care utilization indicated that females in the Military differ from and may not be doing as well as their male counterparts. For instance, fewer females than males rated their health as "excellent" (22.8% vs. 26.6% for Reserve/Guard; 21.0% vs. 29.1% for Active-Duty), and more females than males described themselves as having low vitality (a measure of energy) (38.4% vs. 26.6% for Reserve/Guard; 46.1% vs. 35.5% for Active-Duty). Moreover, significantly more females than males reported having role limitations due to physical or emotional problems. Our investigation of medical conditions revealed that females were more likely than males to suffer from allergies, urinary tract infections, and sexually transmitted diseases. More females than males in the Reserve/Guard (80.0% vs. 65.4%) and the Active-Duty (81.9% vs. 60.0%) reported any (one or more) medical conditions. Significantly more females than males in the Reserve/Guard and Active-Duty reported any visits to both military and civilian health care providers.

Comparisons between Reserve/Guard and Active-Duty personnel yielded a number of notable differences. Although Active-Duty personnel were more likely to report problems with vitality or role limitations than Reserve/Guard personnel, they were less likely to report physical ailments. More Active-Duty than Reserve/Guard personnel scored "low" on vitality (37.0% vs. 28.4%). Role limitations due to physical problems were reported by more Active-Duty personnel than Reserve/Guard members (22.1% vs. 15.6%). Also, role limitations due to emotional problems were reported by more Active-Duty personnel than Reserve/Guard members (17.5% vs. 13.7%). In terms of medical conditions, Active-Duty personnel were less likely than Reserve/Guard personnel to report chronic rhinitis or hay fever, other allergies, or arthritis. Lifetime prevalence of high cholesterol and high blood pressure was slightly lower among Active-Duty than Reserve/Guard personnel (12.7% of Active Duty vs. 16.9% of Reserve/Guard personnel reported high cholesterol; 9.1% vs. 11.9%, respectively, reported high blood pressure). Not surprisingly, the large majority of Active-Duty personnel (94.6%) had visited a military health care provider one or more times in the past year, and the majority of Reserve/Guard personnel (91.6%) had visited a civilian health care provider one or more times in the past year.

Health Behaviors

A number of the health behaviors investigated in this study showed significant sex differences. In terms of perceived physical fitness, a significantly higher proportion of females than males considered themselves to be physically fit. For example, about 8% of Reserve/Guard females reported their physical fitness was "excellent" compared to only 3% of Reserve/Guard males. Sex differences for selected eating behaviors were present for Reserve/Guard components and Active-Duty Services. Specifically, we noted that significantly more females than males indicated that they tried to lose weight, changed their diet due to a medical condition, or ate in secret, while significantly more males than females reported that they were satisfied with their eating patterns. Moreover, significantly more females than males indicated that the following were important factors in food purchasing: health benefits/nutritional value; taste/likes or dislikes, or eating enjoyment; convenience and ease of preparation; and calories.

In terms of sleep patterns, Active-Duty males were significantly more likely than Active-Duty females to report sleeping 5 to 6 hours (52.7% vs. 47.5%), and Active-Duty females were significantly more likely than Active-Duty males to report sleeping 9 or more hours (4.0% vs. 2.3%). Use of alcohol also showed differences; females generally reported drinking alcoholic drinks on fewer days in the past 30 days, and they reported drinking fewer drinks on a typical day in the past 30 days when compared to males. For example, significantly more Active-Duty females (36.1%) than males (23.7%) reported that they did not drink alcohol in the past 30 days. For number of drinks on a typical day, females in the Reserve/Guard were significantly less likely than their male counterparts to have had one or no drinks in the past 30 days (61.7% vs. 47.0%). In terms of cigarette smoking, we observed that Active-Duty females were significantly less likely than their male counterparts to be current smokers (24.7% vs. 29.6%) or heavy smokers (7.3% vs. 12.6%).

In their current military jobs, females were much more likely than males to report that they did not need to use protective gear. For those who needed to use protective gear, Reserve/Guard females were significantly more likely than Reserve/Guard males to report that gear was "always" available (68.5% vs. 63.0%) and less likely to report that it was "sometimes" available (27.1% vs. 33.7%). In addition, Active-Duty females who needed to use protective gear were significantly more likely than their male counterparts to report that gear was "never" available.

For health behavior differences between Reserve/Guard and Active-Duty personnel, we noted the following. More Active-Duty than Reserve/Guard personnel reported their fitness was "fair" (30.0% vs. 26.7%) or "poor" (11.9% vs. 7.6%), and fewer reported their fitness was

"good" (39.9% vs. 44.1%), "very good" (15.4% vs. 18.0%), or "excellent" (2.8% vs. 3.6%). In terms of dietary behaviors, about one-third (32.8%) of Reserve/Guard personnel said that diet and food choices were important to one's health, while more than one-half (56.1%) of Active-Duty personnel reported the same. Reports of hours slept on an average night differed among Reserve/Guard and Active-Duty personnel. In the Reserve/Guard, 5 to 6 hours (45.9%) or 7 to 8 hours (46.3%) of sleep were commonly reported, while more Active-Duty personnel indicated that they slept 5 to 6 hours (51.9%) than 7 to 8 hours (38.8%) per night.

Beyond sleep habits, we noted that Reserve/Guard personnel were significantly more likely than their Active-Duty counterparts not to drink alcoholic drinks in the past 30 days (29.2% vs. 25.5%) and significantly less likely to report drinking on 4 to 10 of the past 30 days (18.3% vs. 24.5%). Active-Duty personnel had similar rates of current cigarette smoking compared to Reserve/Guard personnel (28.9% vs. 26.6%) and similar rates of heavy smoking (11.9% vs. 11.2%). Significantly more Reserve/Guard personnel reported that they "always" used protective gear compared to Active-Duty personnel (57.3% vs. 52.2%).

Psychosocial Functioning

Females differed significantly from males in terms of their psychosocial functioning, which included (a) exposure to disaster, violence, or accidents; (b) negative and positive life events; (c) need for formal depression evaluation; and (d) suicidal ideation. For exposure to disaster and violence, females were significantly less likely than males to have suffered exposure to a natural disaster, combat or violence, or an accident. Moreover, females were significantly less likely than males to have been exposed to combat or violence whether as a witness, survivor/victim, someone involved in relief efforts, or someone who used deadly force. Aside from these exposure measures, females appeared to have more psychosocial issues with which to contend.

For the estimates of positive and negative life events, few significant sex differences were noted; the most notable difference was that Reserve/Guard females were more likely than their male counterparts to have experienced "many" negative life events (15.5% vs. 8.3%). The prevalence of emotional, sexual, and physical abuse was significantly greater for Reserve/Guard and Active-Duty females in almost every comparison with their male counterparts. For both Active-Duty and Reserve/Guard personnel, the prevalence of treatment or counseling for abuse among those who reported abuse was also significantly higher for females. In addition, females were more likely than males to need further depression evaluation, although this difference was not significant for every Active-Duty Service or Reserve/Guard component. Notably, Reserve/Guard females were more likely than Reserve/Guard males to have considered suicide

within the past 2 months. Surprisingly, females were significantly less likely than males to report high levels of social support.

Differences in psychosocial functioning among Reserve/Guard and Active-Duty personnel were noted. For example, of the different aspects of job stress, stress from responsibilities had the highest prevalence among the Reserve/Guard (31.9%), while among Active-Duty personnel job versus nonjob conflict (43.5%) was greater than the other sources of job stress. Additionally, Active-Duty personnel were more likely than Reserve/Guard members to report a risk level of overall job stress (45.0% vs. 27.8%). Also, the overall prevalence of need for formal depression evaluation was significantly higher among Active-Duty personnel (27.4%) than among Reserve/Guard members (22.9%). The Reserve/Guard reported more social support than did the Active-Duty (41.1% vs. 31.7%).

Female Health Issues

Military females were asked about pregnancy and childbirth, gynecological history, menstrual and gynecological conditions, and cervical and breast health. Age at first menstruation (menarche), as well as age at first live birth, were similar for Reserve/Guard and Active-Duty personnel. About 90% of females reached menarche between 10 and 15 years, and the majority (55.3% for Reserve/Guard and 59.5% for Active-Duty) experienced their first childbirth between ages 21 and 30. Active-Duty and Reserve/Guard females were similar in the duration that they used birth control pills, with over three-quarters of females having some history of taking oral contraceptives.

Females in the Reserve/Guard were significantly more likely than those on Active-Duty to have taken replacement estrogens in the past 30 days (7.5% vs. 3.7%). In addition, about 78% of Reserve/Guard females and 87% of Active-Duty females reported having been pregnant since joining the Military. Reserve/Guard females were significantly less likely to have been pregnant since joining the Military compared to those on Active-Duty. They also were significantly less likely to report being pregnant at the time of the survey (2.7% vs. 11.3%).

In terms of these female health issues, we noted additional differences for females in the Reserve/Guard in comparison to those on Active-Duty. For example, significantly more Reserve/Guard than Active-Duty females reported they had cramps or pain during menstruation that required time off work (30.1% vs. 24.5%). Significantly more Active-Duty females reported bleeding between periods (15.4% vs. 11.0%). In addition, yeast or vaginal infection in the past 3 months was reported at a significantly higher rate among Active-Duty compared to Reserve/Guard females (26.4% vs. 21.9%).

Moreover, Active-Duty females were significantly more likely than Reserve/Guard females to have had a Pap smear in the year preceding the survey (76.9% vs. 71.0%), but receipt of Pap smears was high among females in all segments of the Military. Although Active-Duty females were significantly more likely than Reserve/Guard females to have had a breast exam by a medical provider in the preceding year (75.1% vs. 70.6%), the prevalence was high among military females.

Maintaining the health of all Military personnel is important to mission readiness. The findings noted above and other related findings are discussed in greater detail in the full report, which appears in the appendices.

Summary of Manuscripts

1. "Trends in Overweight and Physical Activity among U.S. Military Personnel, 1995-1998" (2001). Lindquist, C.H., and Bray, R.M. *Preventive Medicine* 32: 57-65. (Appendix B.)

This study utilized data from the 1995 and 1998 waves of the Department of Defense Survey of Health Related Behaviors among Military Personnel. This dataset differs from what was used for most other papers under this grant, however these data still relate to study objectives. The purpose of the study was to determine whether changes in physical activity patterns account for the increasing prevalence of obesity. A total of 33,457 individuals were surveyed between both waves. Overweight was defined as body mass index greater than or equal to 25.

The study found that some 50% of military personnel in 1995 and 54% in 1998 were classified as overweight, representing a significant increase in overweight over the 3-year period for both males and females. Overweight personnel were more likely to be male, older, African American or Hispanic, married, and enlisted. Physical activity was high; although physical activity levels increased among male personnel between 1995 and 1998, there was not an independent association between physical activity and overweight.

The findings from this study suggested a trend among military personnel toward increasing overweight which mirrors that observed among the general population.

2. "Trends in Substance Use among US Military Personnel: The Impact of Changing Demographic Composition" (2000). Bray, R.M., and Marsden, M.E. *Substance Use & Misuse* 35(6-8): 949-969. (Appendix B.)

This study examined the impact of the military population's changing demographic composition on observed changes in substance use by military personnel. Cross-sectional data were drawn from six Department of Defense Worldwide Surveys of Substance Abuse and Health Behaviors among Military Personnel (1980, 1982, 1985, 1988, and 1995). Sample sizes were as follows: 15,268 in 1980; 21,936 in 1982; 17.328 in 1985; 18,673 in 1988; 16,395 in 1992, and 16,193 in 1995. This dataset differs from what was used for most other papers under this grant, however these data still relate to study objectives. Response rates among eligible personnel ranged from 70% to 84% over the survey series.

Results from the study indicated that changes in heavy alcohol use were more affected by demographic changes in the military population than were changes in illicit drug use or cigarette use. In addition, illicit drug use and cigarette smoking has decreased dramatically and heavy alcohol use decreased more moderately over the 15-year period. Findings also showed that, all other things being equal, rates of use would have been higher if the demographic composition of military personnel had remained as it was in 1980.

3. "Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel." Hourani, LL, Yuan, H. & Bray, R.M. In process. (Appendix B.)

This study drew on a combined dataset from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment (Vincus et al., 1999) and (b) the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment (Hourani, Yuan, Bray & Wheeless, 1998). The Total Force Health Assessment surveyed all segments of the Military, except active-duty Navy and Marine Corps personnel, who were studied using the POWR Assessment.

This study showed that among active-duty U.S. military personnel, the lifetime exposure to one or more traumatic event was 65%. The prevalence rates of exposure varied by type of trauma (combat/violence, natural disaster/major accident), type of exposure (relief worker, witness, survivor/victim), and gender; the most prevalent trauma for men was witnessing a major accident and for women, witnessing a natural disaster. Numerous psychosocial and health correlates of traumatic event exposures were identified and these also varied with type of trauma, exposure and gender. In multivariate analyses, whereas male victims/survivors of any traumatic

event had over twice the risk of two or more physical health problems, female victims/survivors had over twice the risk of two or more mental health problems, relative to nonexposed controls. Among trauma-exposed men, those who reported only witnessing one or more traumatic event were at twice the risk for current smoking and heavier drinking, whereas among women, victims and relief workers were at highest risk, after controlling for demographic and social support variables.

4. "Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women." Hourani, LL, Yuan H & Bray, RM. In process. (Appendix B.)

This study also drew on a combined dataset from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment (Vincus et al., 1999) and (b) the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment (Hourani, Yuan, Bray & Wheeless, 1998).

The prevalence of premenstrual symptoms within the prior 3 months among active-duty women was 69%; that is, 2 out of every 3 reproductive-age women experienced symptoms. Premenstrual symptoms were significantly associated with all menstrual dysfunction measures except endometriosis (gynecologic disease). Women with premenstrual symptoms were especially more likely to report heavy periods (excessive menstrual flow), abdominal pain, and bleeding between periods. Women reporting premenstrual symptoms were also more likely to report 2 or more current medical conditions, migraines, and health care provider visits for illness or injury, or mental health care in the past year.

Cases (women with premenstrual symptoms) were significantly more likely than controls (women without premenstrual symptoms) to be among younger and older age groups and among white and Hispanic women than among black women. Cases and controls did not differ with respect to marital status, paygrade, number of children, age at first live birth, or age at menarche.

Women who reported premenstrual symptoms within the prior 3 months were significantly more likely than control women to have tried to lose weight in the past year, rated their physical fitness poorer, had never been pregnant, were current smokers and heavier drinkers, had perceived their health more poorly, had more depression symptoms, and reported a higher level of job stress. A significant interaction was found between depression and abdominal pain such that women with premenstrual symptoms reported more depression with abdominal pain than with either depression or pain alone.

To identify which of the significant bivariate correlates were most important to the report of premenstrual symptoms among these women, a hierarchical logistic regression model was fit by entering all significant variables in three successive blocks: demographic variables on the first step, lifestyle factors on the second step, and psychosocial factors on the third step. The bivariate association with race/ethnicity was lost when lifestyle measures were included indicating that whites and Hispanics were at higher risk for premenstrual symptoms due to their weight/dieting behavior and/or heavier drinking patterns. (After excluding women who reported taking diet pills, attempt to lose weight was still significantly associated with premenstrual symptoms. Therefore, symptoms were not attributed to the pill taking.) Significant variables remaining in the equation after controlling for the protective effects of taking Depo-Provera and never being pregnant, were young age (those less than 20 years of age at twice the risk of premenstrual symptoms than those aged 35+), trying to lose weight, heavier drinking, poorer self-perceived health, and overall job stress. The greatest risk factor for premenstrual symptoms was a high level of job stress, with an odds ratio of almost 3 relative to women without symptoms.

5. "Predictors of Job Satisfaction among Active-Duty and Reserve/Guard Personnel in the U.S. Military." Rebecca P. Sanchez, Robert M. Bray, Amy A. Vincus and Carla M. Bann. In process. (Appendix B.)

Because it is critical that the U.S. Military operate seamlessly, it is important to minimize the time and costs associated with training new personnel and to capitalize on the experience of seasoned personnel. Attrition in the military is both common and costly.

Demographic, physical, and psychological predictors of job satisfaction among military personnel were examined in this study. Data were collected from 24,881 members of the Military, including respondents from all Active-Duty and Reserve/Guard components of each Service. The two strongest predictors of job satisfaction were the perceived amount of job stress experienced by military personnel and having the biggest problem in the one's life result from job-related issues (such as a supervisor) rather than non-job issues (such as health or family). Those reporting higher levels of stress indicated lower levels of job satisfaction. Social support was also positively related to job satisfaction. Findings suggest areas where the military can intervene to increase the satisfaction of personnel and presumably their likelihood of remaining in the military. Because the nature of the military mission seems likely to result in considerable stress for military members, attention should be given to ensuring that personnel have effective coping skills, have good working relationships with immediate supervisors, and have strong support systems within the military.

Summary of Conference Presentations

1. **"Active-Reserve Comparisons of Psychosocial Functioning in the Total Force." Robert M. Bray and Rebecca P. Sanchez. Paper presented at the 108th Annual Meeting of the American Psychological Association, Washington, DC, August, 2000. (Appendix C.)**

This study was conducted using two population-based samples of active-duty U. S. military personnel (the 1998 Health Status of Military Women and Men in the Total Force and the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment). The eligible population included all Military personnel except recruits, academy students, and persons who were AWOL at the time of data collection. Most of the data were collected through a mail survey; responses from almost 25,000 personnel were included in the analyses.

Several significant findings were presented:

- Overall life satisfaction is high for both Active Duty and Reserve/Guard personnel.

- Because of the diverse roles of Reserve/Guard personnel, they have had significant exposure to natural disasters and combat, and were more likely than Active Duty personnel to have participated in relief efforts for these events.

- A substantial proportion of Active Duty personnel report high levels of job-related stress.

- Rates of emotional, sexual, and physical abuse were fairly low, and were similar across Active Duty and Reserve/Guard personnel, both before entering the Military and since that time.

- Compared to Reserve/Guard personnel, those on Active Duty were more likely to show signs of depression and to have seriously considered suicide.

2. **"Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel." Hourani, LL, Yuan, H. & Bray, R.M. Poster presented at the Forty-first Navy Occupational Health and Preventive Medicine Workshop, May 2001, San Diego, CA.**

The prevalence of lifetime exposure to combat or violence, natural disaster, or major accident involving injuries or fatalities was examined in two population-based samples of active-duty U. S. military personnel (the 1998 Health Status of Military Women and Men in the Total Force and the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment). The psychosocial and health effects of types of exposure (witness only, victim/survivor, relief worker), gender differences, and social support were also evaluated. The lifetime exposure to one or more traumatic events was 65%. The prevalence rates of exposure varied by type of trauma (combat/violence, natural disaster/major accident), type of exposure (relief worker, witness, survivor/victim), and gender; the most prevalent trauma for men was witnessing a major accident and for women, witnessing a natural disaster. In multivariate analyses, victims of any traumatic event were at twice the risk of having two or more physical and mental health problems than nonexposed controls; male witnesses had the highest risk for current smoking and heavier drinking. Relief workers were at greater risk for mental, physical, and substance use problems than nonexposed personnel, suggesting that taking an active, helpful role in a traumatic event did not have a protective effect in this population.

Of interest was the role social support may play in this study. In the present study, low social support was associated with at least one mental health problem and with substance use, but not with physical health problems, after controlling for demographic variables, and there was no evidence of a moderating effect.

3. **"Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women." Hourani, LL, Yuan H & Bray, RM. Poster presented at the Forty-first Navy Occupational Health and Preventive Medicine Workshop, May 2001, San Diego, CA.**

This study examined the prevalence of premenstrual symptoms among a large, population-based sample of reproductive-age, active-duty women. A multivariate approach was used to evaluate the relative importance of psychosocial and lifestyle predictors of premenstrual symptoms or pain after controlling for demographic differences in cases and controls.

The following findings were noted.

- Premenstrual symptoms were reported by nearly 2 of every 3 reproductive-age women
- Women reporting premenstrual symptoms were more likely to report other symptoms of menstrual dysfunction, 2 or more current medical conditions, migraines, and health care provider visits in the past year
- After controlling for protective effects of taking Depo-Provera (TM) and never being pregnant, younger age, trying to lose weight, heavier drinking, poorer self-perceived health, and overall job stress were the most significant predictors of premenstrual symptoms
- The greatest risk factor was a high level of job stress, with an almost 3-fold increase in risk relative to those without symptoms

Findings from this study indicated that work stress may mediate the relationship between depression and premenstrual symptoms, but that further research was needed to elucidate the biological interrelationships between work stress, hormonal function, and premenstrual symptomatology.

KEY RESEARCH ACCOMPLISHMENTS

- Created an advisory panel of representatives from all the services involved in the study
- Conducted a pilot test with personnel from the Active-Duty Services and the Reserve/Guard components, totaling 185 people.
- Obtained letters of support from the various branches of the Military who participated in this study
- Developed a questionnaire with items including demographic characteristics, health scales and measures, and alcohol and cigarette use based on existing literature sources

- Conducted a mailout survey
  - Three questionnaire mailings
  - Reminder/thank you post cards sent between the second and third mailings
  - Resulting sample was 15,025

- Combined the final dataset with the POWR dataset - final total sample was 24,881

- Prepared a major technical report and five manuscripts

- Study provides the first comprehensive data on the health status of both active duty and reserve forces

REPORTABLE OUTCOMES

List of Manuscripts and Reports

1. "Health Status of Military Females and Males in All Segments of the U.S. Military" (October 1999). Amy A. Vincus, Miriam L. Ornstein, Danielle A. Lentine, Tracy U. Baird, Joyce C. Chen, June A. Walker, Jill D. Kavee, and Robert M. Bray. Report submitted to the Department of the Army under Cooperative Agreement No. DAMD17-96-2-6021 by the Research Triangle Institute, Research Triangle Park, North Carolina 27709. (Appendix A.)

2. "Trends in Overweight and Physical Activity among U.S. Military Personnel, 1995-1998" (2001). Lindquist, C.H., and Bray, R.M. *Preventive Medicine* 32: 57-65. (Appendix B.)

3. "Trends in Substance Use among US Military Personnel: The Impact of Changing Demographic Composition" (2000). Bray, R.M., and Marsden, M.E. *Substance Use & Misuse* 35(6-8): 949-969. (Appendix B.)

4. "Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel." Hourani, LL, Yuan, H. & Bray, R.M. In process. (Appendix B.)

5. "Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women." Hourani, LL, Yuan H & Bray, RM. In process. (Appendix B.)

6. "Predictors of Job Satisfaction among Active-Duty and Reserve/Guard Personnel in the U.S. Military." Rebecca P. Sanchez, Robert M. Bray, Amy A. Vincus and Carla M. Bann. In process. (Appendix B.)

List of Conference Presentations

1. "Active-Reserve Comparisons of Psychosocial Functioning in the Total Force." Robert M. Bray and Rebecca P. Sanchez. Paper presented at the 108th Annual Meeting of the American Psychological Association, Washington, DC, August, 2000.

2. "Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel." Hourani, LL, Yuan, H. & Bray, R.M. Poster presented at the Forty-first Navy Occupational Health and Preventive Medicine Workshop, May 2001, San Diego, CA.

3. "Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women." Hourani, LL, Yuan H & Bray, RM. Poster presented at the Forty-first Navy Occupational Health and Preventive Medicine Workshop, May 2001, San Diego, CA.

CONCLUSIONS

Women comprise an increasing portion of the military population, and their presence has created new challenges and concerns for the military regarding women's health and safety an their impact on military readiness. Research under this grant provides baseline information from a combined dataset of variables common to the Total Force Health Assessment conducted in 1998 by the Research Triangle Institute of Research Triangle Park, North Carolina and the Perceptions of Wellness and Readiness study conducted in 1995 by the Naval Health Research Center of San Diego, California. In addition, data from the DoD Surveys of Health Related Behaviors among Military Personnel were examined in some analyses. In combination, these data and the current study constitute the single largest and most comprehensive investigation of health issues in the Military. It is also, to our knowledge, the only study to include both active and reserve personnel. Furthermore, this study represents the only military study to date to include both health and psychosocial conditions.

In total, nearly 25,000 military personnel were surveyed (15,025 from Total Force and 9,856 from POWR), allowing for both within- and across-service analyses to be conducted. Additionally, we attempted to include all potential risk factors in our assessment, including reproductive health, medical history, nutritional status, mental health, lifestyle factors, occupational/environmental risks and stressors, and use of health services.

Tracking of health data over time has been deemed an important and cost-effective endeavor. An August 2001 study commissioned by Health-Track and conducted by the Public Health Foundation stated that "For every dollar invested by the federal government in the nationwide health tracking network, the federal government alone would receive a return of $1.44 in reductions in federal health care costs." Perhaps the most important characteristic of this study is that it provides invaluable baseline health and psychosocial data on military personnel that will allow for continued monitoring of overall military health and tracking of key health issues.

Health and Health Care

Over two-thirds of Active-Duty and Reserve/Guard personnel considered themselves to be in "excellent" or "very good" general health. In addition, significantly more males than females in the Military rated their own health as "excellent". For perceived role limitations, significantly more females than males in the total Reserve/Guard and Active-Duty populations reported high role limitations due to physical or emotional problems. Although most personnel felt that their health status was good, it is of concern that more females than males reported greater role limitations and lower levels of vitality.

The most prevalent medical conditions included allergies other than chronic rhinitis or hay fever, hemorrhoids, and hernia or rupture. Military health care providers should be prepared to handle these types of conditions, even when personnel perform their duties away from a medical clinic.

In addition to the medical conditions noted above, high cholesterol and high blood pressure also were likely to be reported. Lifetime prevalence was slightly lower among Active-Duty than Reserve/Guard personnel for both conditions. With greater attention to the prevention and treatment of these two conditions, their prevalence could be even lower.

Female personnel reported similar lifetime prevalence for herpes or genital warts and other sexually transmitted diseases (STDs). For males, herpes and genital warts were less common than other STDs. Total Active-Duty and Reserve/Guard personnel had comparable

rates of herpes and genital warts, but Active-Duty personnel reported higher rates of other STDs. The low rates of all of these STDs suggest that military personnel are heeding health education messages regarding safe sexual practices.

The most commonly reported reasons for visiting a military or civilian health care provider in the past 12 months were for treatment or follow-up of an illness or injury or for a general physical exam. Further research into the causes of these illnesses or injuries and their prevention is warranted.

Health Behaviors

For perceived physical fitness, most Reserve/Guard (65.6%) and Active-Duty (58.1%) personnel indicated their physical fitness was "good" to "excellent." However, fewer Active-Duty than Reserve/Guard personnel reported their fitness was "good" to "excellent." The fact that these data represent self-perceptions of fitness may explain these seemingly counterintuitive results. Individual perception may be strongly influenced by one's frame of reference. Accordingly, Active-Duty personnel are among individuals who must be in stellar physical condition; hence, in comparison to their peers, they may feel less physically fit. In contrast, Reserve/Guard personnel most likely compare themselves to a broader range of people who are less likely to be physically fit. Therefore, Reserve/Guard personnel's perceptions are more likely to be positive than those of Active-Duty personnel.

About one-third of Reserve/Guard personnel said that diet and food choices were important to one's health, while over one-half of Active-Duty personnel reported the same. Small but important percentages of Reserve/Guard and Active-Duty personnel reported not eating enough or overeating regularly (6 to 7 days in the past week). These findings suggest that further nutrition education is needed.

In the overall Reserve/Guard and Active-Duty populations, significantly more females than males indicated that they tried to lose weight, changed their diet due to a medical condition, and ate in secret, while significantly more males than females reported that they were satisfied with their eating patterns. This observation reiterates the need for nutrition and dietary education. Moreover, these efforts should be targeted heavily toward females.

Notably, Active-Duty personnel were more likely than those in the Reserve/Guard to report having five or more drinks on a typical day in the past 30 days (15.3% vs. 10.7%). About 9% of Reserve/Guard females and 12% of Reserve/Guard males would be considered binge

drinkers. Slightly higher percentages were found in the Active-Duty (13.4% for females and 16.4% for males). Plans to reduce alcohol use among military personnel could be directed at personnel who are in the Active-Duty Services and personnel considered to be binge drinkers.

Active-Duty personnel had similar rates of current and heavy cigarette smoking compared to Reserve/Guard personnel. Active-Duty females were significantly less likely than their male counterparts to be current smokers or heavy smokers. Interestingly, Army Reserve females were significantly more likely than their male counterparts to be smokers. Continued smoking cessation efforts are warranted to improve the health of a relatively large portion of military personnel.

Psychosocial Functioning

Findings about exposures to disaster and violence indicated that females in nearly all Reserve/Guard components and Active-Duty Services were significantly less likely than their male counterparts to suffer exposure to natural disasters, combat or violence, or accidents. With the continually expanding role of females in the Military, it is likely that more females will face these types of exposure.

Of the different aspects of job stress, stress from responsibilities had the highest prevalence among the Reserve/Guard; among Active-Duty personnel, job versus nonjob conflict was greater than the other sources of job stress. We examined overall job stress among Reserve/Guard and Active-Duty personnel and found that Active-Duty personnel were more likely to report a high level of overall job stress than Reserve/Guard members. The downsizing of the Military may create more job stress. To alleviate this stress, the DoD could consider focusing on stress management, especially for Active-Duty personnel.

For emotional, sexual, and physical abuse among Reserve/Guard and Active-Duty personnel, we observed a striking finding: The prevalence of each type of abuse was significantly greater for females for almost every comparison with males. For personnel who had been abused, the prevalence of treatment or counseling was also significantly higher for females than males. Given that some of the instances of abuse occurred since the abused personnel entered the Military, the DoD might consider intervening by providing education on abuse prevention and actively encouraging victims to seek counseling.

We examined depressive symptoms among Reserve/Guard and Active-Duty personnel and found that the prevalence of need for further depression evaluation was significantly higher among Active-Duty personnel than among Reserve/Guard members. Females were more likely than males to score as needing further depression evaluation. This was true for both Active-Duty and Reserve/Guard personnel. Given that many personnel were identified as needing further depression evaluation, it might be advisable to routinely screen all military personnel for depression.

Female Health Issues

When asked about menstrual and gynecological conditions experienced in the 3 months preceding the survey, military females were more likely to report the following conditions than other conditions: premenstrual symptoms or pain, cramps or pain during menstruation that required medication or time off work, heavy periods, light periods, abdominal pain (from unknown causes), and yeast or vaginal infection.

Active-Duty females were significantly more likely than Reserve/Guard females to have had a Pap smear in the past year (76.9% vs. 71.0%), but receipt of Pap smears was high among females in all segments of the Military. These rates of Pap smears are commendable and could be one of the main reasons the prevalence of cervical cancer was low among military females.

Having had a breast exam by a medical provider in the past year was reported by more than 70% of military females. Active-Duty females were significantly more likely than Reserve/Guard females to have had one in the past year. Having ever received training on how to perform a breast self-examination was reported at a similar frequency, with about 90% of females reporting such training. About 40% of military females reported that they perform breast self-examination on a monthly basis. Although it is noteworthy that many females have had a breast exam by a provider, self-breast examination also is crucial to early detection of breast cancer. Given that such a high percentage of women have received training in breast self-examination, education efforts could encourage performing it routinely.

Implications for Interventions and Education

Findings from this study suggest many avenues for intervention and education that the DoD might consider. Among them are the following:

- lowering further the prevalence of high cholesterol and high blood pressure;
- encouraging males to visit health care providers;
- providing nutrition education, particularly for females;
- reducing alcohol use, especially among males and Active-Duty personnel;
- emphasizing smoking cessation;
- enhancing the availability of protective gear and of occupational safety training;
- providing education abuse prevention, as well as encouraging victims to seek counseling;
- screening for depression among all personnel;
- advising women to seek prenatal care; and
- educating about the importance of routine breast self-examinations.

Future research efforts should focus on continuing to monitor and track health events among military personnel. In addition, more detailed analyses should be conducted in an effort to further identify key predictors of health issues. Finally, comparisons of military health status should be made with that of the civilian population; doing so may reveal important health disparities that point to specific intervention and/or education needs.

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APPENDIX A

HEALTH STATUS OF MILITARY FEMALES AND MALES IN ALL SEGMENTS OF THE U.S. MILITARY

Health Status of Military Females and Males in All Segments of the U.S. Military

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Research Triangle Institute RTI/06728/006-FR October 1999

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The views, opinions, and findings contained in this report are those of the authors and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other official documentation.

PREFACE AND ACKNOWLEDGMENTS

The 1998 Health Status of Military Women and Men in the Total Force, also known as the Total Force Health Assessment study, was conducted by staff at the Research Triangle Institute (RTI) under the sponsorship of the U.S. Army Medical Research and Materiel Command. The Total Force Health Assessment surveyed all segments of the Military (Active-Duty Services and Reserve/Guard components) except Active-Duty Navy and Marine Corps personnel. In addition to data collected for the Total Force Health Assessment, this study reports on data from the 1995 Perceptions of Wellness and Readiness study, also known as the POWR Assessment, conducted by the Naval Health Research Center. The POWR Assessment surveyed Active-Duty personnel in the Navy and Marine Corps. This study is the first of its kind in its efforts to investigate issues that affect the Reserve/Guard components as well as the Active-Duty Services. As such, it provides comprehensive and detailed estimates in a number of areas: (1) health status, (2) health care utilization, (3) health behaviors, (4) psychosocial functioning, and (5) military females' health.

Many individuals contributed to the 1998 Total Force Health Assessment and to the task of combining the Total Force and POWR datasets. Special appreciation is due Patricia Modrow, the Cooperative Agreement Officer's Representative, for her valuable guidance throughout the conduct of the study. Excellent support came from the Total Force advisory panel during questionnaire development and data collection. Finally, we extend our appreciation to the participating military personnel whose responses made this effort possible.

Under subcontract to RTI, National Computer Systems printed, shipped, and received the questionnaires. They also performed the optical scanning of the Total Force questionnaires and provided a resulting data file for the analysis.

Many RTI staff members contributed significantly to this project. In particular, Carolyn O'Brien designed the questionnaire layout; June Walker led the data collection task and responded to participant inquiries; and Robert Mason and Jill Kavee developed the sampling frames and selected the sample. Jill Kavee and Ruby Johnson performed data imputations, analysis variable construction, and tabulations. Rebecca Sanchez made valuable comments on the report. Finally, many thanks are due Richard S. Straw, who copyedited and proofread the report, and to Linda B. Fonville, who completed the enormous word-processing requirements.

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EXECUTIVE SUMMARY

Much prior research on military health and health-related issues has focused generally on males and on the Active-Duty Services. Consequently, broad-based epidemiological and health services data about military females are lacking, and no comprehensive data are available across all segments of the Military (i.e., Reserve/Guard components and Active-Duty Services). With the expanding role of females in the United States (U.S.) Military, the development of baseline data to monitor changes in health status within the Department of Defense (DoD) is of critical importance.

This report presents findings on selected aspects of the health of the U.S. Military drawing on a combined dataset from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment, and (b) the 1995 POWR Assessment: Perceptions of Wellness and Readiness, also called the POWR Assessment. The Total Force Health Assessment surveyed all segments of the Military (Active-Duty, Reserve, and Guard) except Active-Duty Navy and Marine Corps personnel, who were studied using the POWR Assessment. In combination, these two surveys provide one of the first sets of health status results for personnel from all segments of the Military.

This report presents baseline data on a broad array of health topics, including health status, health care utilization, health behaviors, psychosocial functioning, and female health issues. The specific objectives of this report are to

- provide baseline epidemiological data on health issues and a broad range of potential risk factors,
- compare females and males within Active-Duty Services and Guard/Reserve components to assess who are most at risk of experiencing health problems,
- suggest areas in which health promotion and other interventions can be targeted to improve the health of females and males in the Military, and
- specify gaps in understanding that are in need of further study.

These specific objectives highlight two major purposes. One purpose is to present data for females on a variety of health issues and compare females' health status to that of males. In addition, another purpose is to provide and compare estimates for both Reserve/Guard and Active-Duty personnel. In the following paragraphs, we summarize (a) differences between females and males and (b) differences between Reserve/Guard and Active-Duty personnel.

The eligible population for this combination of Total Force and POWR datasets consisted of all military personnel except recruits, Service academy students and persons absent without leave. The final samples consisted of 15,025 (for Total Force) and 9,856 (for POWR) military personnel who completed self-administered questionnaires for a total of 24,881 cases. Participants were selected to represent females and males in all pay grades of all segments of the U.S. Military throughout the world. Data were primarily collected from participants by mail. The overall response rate was 38.0% for Total Force and 39.6% for POWR. Data for this report come from a combined dataset of variables common to the Total Force and POWR datasets, forming one of the largest sets of data on military females. The data for the combined dataset were weighted so that they would represent all Military personnel.

The highlights, noted in the following paragraphs, are reported in four sections: (1) health status and health care utilization; (2) health behaviors; (3) psychosocial functioning; and, (4) female health issues. Comparisons between Reserve/Guard and Active-Duty personnel are discussed, and significant sex differences are noted where applicable. Some of the findings noted below do not include accompanying percentages because of the large number of comparisons being described. All estimates can be found in the report's tables.

Health Status and Health Care Utilization

Key findings about health status and health care utilization indicate that females in the Military differ from and may not be doing as well as their male counterparts. For instance, fewer females than males rated their health as "excellent" (22.8% vs. 26.6% for Reserve/Guard; 21.0% vs. 29.1% for Active-Duty), and more females than males described themselves as having low vitality (a measure of energy) (38.4% vs. 26.6% for Reserve/Guard; 46.1% vs. 35.5% for Active-Duty). Moreover, significantly more females than males reported having role limitations due to physical or emotional problems. Our investigation of medical conditions revealed that females were more likely than males to suffer from allergies, urinary tract infections, and sexually transmitted diseases. More females than males in the Reserve/Guard (80.0% vs. 65.4%) and the Active-Duty (81.9% vs. 60.0%) reported any (one or more) medical conditions. Significantly more females than males in the Reserve/Guard and Active-Duty reported any visits to both military and civilian health care providers.

Comparisons between Reserve/Guard and Active-Duty personnel yielded a number of notable differences. Although Active-Duty personnel were more likely to report problems with vitality or role limitations than Reserve/Guard personnel, they were less likely to report physical ailments. More Active-Duty than Reserve/Guard personnel scored "low" on vitality (37.0% vs. 28.4%). Role limitations due to physical problems were reported by more Active-Duty personnel than Reserve/Guard members

(22.1% vs. 15.6%). Also, role limitations due to emotional problems were reported by more Active-Duty personnel than Reserve/Guard members (17.5% vs. 13.7%). In terms of medical conditions, Active-Duty personnel were less likely than Reserve/Guard personnel to report chronic rhinitis or hay fever, other allergies, or arthritis. Lifetime prevalence of high cholesterol and high blood pressure was slightly lower among Active-Duty than Reserve/Guard personnel (12.7% of Active Duty vs. 16.9% of Reserve/Guard personnel reported high cholesterol; 9.1% vs. 11.9%, respectively, reported high blood pressure). Not surprisingly, the large majority of Active-Duty personnel (94.6%) had visited a military health care provider one or more times in the past year, and the majority of Reserve/Guard personnel (91.6%) had visited a civilian health care provider one or more times in the past year.

Health Behaviors

A number of the health behaviors investigated in this study showed significant sex differences. In terms of perceived physical fitness, a significantly higher proportion of females than males considered themselves to be physically fit. For example, about 8% of Reserve/Guard females reported their physical fitness was "excellent" compared to only 3% of Reserve/Guard males. Sex differences for selected eating behaviors were present for Reserve/Guard components and Active-Duty Services. Specifically, we noted that significantly more females than males indicated that they tried to lose weight, changed their diet due to a medical condition, or ate in secret, while significantly more males than females reported that they were satisfied with their eating patterns. Moreover, significantly more females than males indicated that the following were important factors in food purchasing: health benefits/nutritional value; taste/likes or dislikes, or eating enjoyment; convenience and ease of preparation; and calories.

In terms of sleep patterns, Active-Duty males were significantly more likely than Active-Duty females to report sleeping 5 to 6 hours (52.7% vs. 47.5%), and Active-Duty females were significantly more likely than Active-Duty males to report sleeping 9 or more hours (4.0% vs. 2.3%). Use of alcohol also showed differences; females generally reported drinking alcoholic drinks on fewer days in the past 30 days, and they reported drinking fewer drinks on a typical day in the past 30 days when compared to males. For example, significantly more Active-Duty females (36.1%) than males (23.7%) reported that they did not drink alcohol in the past 30 days. For number of drinks on a typical day, females in the Reserve/Guard were significantly less likely than their male counterparts to have had one or no drinks in the past 30 days (61.7% vs. 47.0%). In terms of cigarette smoking, we observed that Active-Duty females were significantly less likely than their male counterparts to be current smokers (24.7% vs. 29.6%) or heavy smokers (7.3% vs. 12.6%).

In their current military jobs, females were much more likely than males to report that they did not need to use protective gear. For those who needed to use protective gear, Reserve/Guard females were significantly more likely than Reserve/Guard males

to report that gear was "always" available (68.5% vs. 63.0%) and less likely to report that it was "sometimes" available (27.1% vs. 33.7%). In addition, Active-Duty females who needed to use protective gear were significantly more likely than their male counterparts to report that gear was "never" available.

For health behavior differences between Reserve/Guard and Active-Duty personnel, we noted the following. More Active-Duty than Reserve/Guard personnel reported their fitness was "fair" (30.0% vs. 26.7%) or "poor" (11.9% vs. 7.6%), and fewer reported their fitness was "good" (39.9% vs. 44.1%), "very good" (15.4% vs. 18.0%), or "excellent" (2.8% vs. 3.6%). In terms of dietary behaviors, about one-third (32.8%) of Reserve/Guard personnel said that diet and food choices were important to one's health, while more than one-half (56.1%) of Active-Duty personnel reported the same. Reports of hours slept on an average night differed among Reserve/Guard and Active-Duty personnel. In the Reserve/Guard, 5 to 6 hours (45.9%) or 7 to 8 hours (46.3%) of sleep were commonly reported, while more Active-Duty personnel indicated that they slept 5 to 6 hours (51.9%) than 7 to 8 hours (38.8%) per night.

Beyond sleep habits, we noted that Reserve/Guard personnel were significantly more likely than their Active-Duty counterparts not to drink alcoholic drinks in the past 30 days (29.2% vs. 25.5%) and significantly less likely to report drinking on 4 to 10 of the past 30 days (18.3% vs. 24.5%). Active-Duty personnel had similar rates of current cigarette smoking compared to Reserve/Guard personnel (28.9% vs. 26.6%) and similar rates of heavy smoking (11.9% vs. 11.2%). Significantly more Reserve/Guard personnel reported that they "always" used protective gear compared to Active-Duty personnel (57.3% vs. 52.2%).

Psychosocial Functioning

Females differed significantly from males in terms of their psychosocial functioning, which included (a) exposure to disaster, violence, or accidents; (b) negative and positive life events; (c) need for formal depression evaluation; and (d) suicidal ideation. For exposure to disaster and violence, females were significantly less likely than males to have suffered exposure to a natural disaster, combat or violence, or an accident. Moreover, females were significantly less likely than males to have been exposed to combat or violence whether as a witness, survivor/victim, someone involved in relief efforts, or someone who used deadly force. Aside from these exposure measures, females appeared to have more psychosocial issues with which to contend.

For the estimates of positive and negative life events, few significant sex differences were noted; the most notable difference was that Reserve/Guard females were more likely than their male counterparts to have experienced "many" negative life events (15.5% vs. 8.3%). The prevalence of emotional, sexual, and physical abuse was significantly greater for Reserve/Guard and Active-Duty females in almost every comparison with their male counterparts. For both Active-Duty and Reserve/Guard personnel, the prevalence of treatment or counseling for abuse among those

who reported abuse was also significantly higher for females. In addition, females were more likely than males to need further depression evaluation, although this difference was not significant for every Active-Duty Service or Reserve/Guard component. Notably, Reserve/Guard females were more likely than Reserve/Guard males to have considered suicide within the past 2 months. Surprisingly, females were significantly less likely than males to report high levels of social support.

Differences in psychosocial functioning among Reserve/Guard and Active-Duty personnel were noted. For example, of the different aspects of job stress, stress from responsibilities had the highest prevalence among the Reserve/Guard (31.9%), while among Active-Duty personnel job versus nonjob conflict (43.5%) was greater than the other sources of job stress. Additionally, Active-Duty personnel were more likely than Reserve/Guard members to report a risk level of overall job stress (45.0% vs. 27.8%). Also, the overall prevalence of need for formal depression evaluation was significantly higher among Active-Duty personnel (27.4%) than among Reserve/Guard members (22.9%). The Reserve/Guard reported more social support than did the Active-Duty (41.1% vs. 31.7%).

Female Health Issues

Military females were asked about pregnancy and childbirth, gynecological history, menstrual and gynecological conditions, and cervical and breast health. Age at first menstruation (menarche), as well as age at first live birth, were similar for Reserve/Guard and Active-Duty personnel. About 90% of females reached menarche between 10 and 15 years, and the majority (55.3% for Reserve/Guard and 59.5% for Active-Duty) experienced their first childbirth between ages 21 and 30. Active-Duty and Reserve/Guard females were similar in the duration that they used birth control pills, with over three-quarters of females having some history of taking oral contraceptives.

Females in the Reserve/Guard were significantly more likely than those on Active-Duty to have taken replacement estrogens in the past 30 days (7.5% vs. 3.7%). In addition, about 78% of Reserve/Guard females and 87% of Active-Duty females reported having been pregnant since joining the Military. Reserve/Guard females were significantly less likely to have been pregnant since joining the Military compared to those on Active-Duty. They also were significantly less likely to report being pregnant at the time of the survey (2.7% vs. 11.3%).

In terms of these female health issues, we noted additional differences for females in the Reserve/Guard in comparison to those on Active-Duty. For example, significantly more Reserve/Guard than Active-Duty females reported they had cramps or pain during menstruation that required time off work (30.1% vs. 24.5%). Significantly more Active-Duty females reported bleeding between periods (15.4% vs. 11.0%). In addition, yeast or vaginal infection in the past 3 months was reported at a significantly higher rate among Active-Duty compared to Reserve/Guard females (26.4% vs. 21.9%).

Moreover, Active-Duty females were significantly more likely than Reserve/Guard females to have had a Pap smear in the year preceding the survey (76.9% vs. 71.0%), but receipt of Pap smears was high among females in all segments of the Military. Although Active-Duty females were significantly more likely than Reserve/Guard females to have had a breast exam by a medical provider in the preceding year (75.1% vs. 70.6%), the prevalence was high among military females.

These findings suggest many avenues for intervention and education that the DoD might consider. Among them are the following:

- lowering further the prevalence of high cholesterol and high blood pressure;
- encouraging males to visit health care providers;
- providing nutrition education, particularly for females;
- reducing alcohol use, especially among males and Active-Duty personnel;
- emphasizing smoking cessation;
- enhancing the availability of protective gear and of occupational safety training;
- providing education abuse prevention, as well as encouraging victims to seek counseling;
- screening for depression among all personnel;
- advising women to seek prenatal care; and
- educating about the importance of routine breast self-examinations.

Maintaining the health of all Military personnel is important to mission readiness as the Military moves to the 21st century. The findings noted above and other related findings are discussed in greater detail in the report.

1. INTRODUCTION

Prior research on military health and health-related issues has focused generally on military men and on the Active-Duty Services. Consequently, broad-based epidemiological and health services data about military females are lacking, and no comprehensive data are available across all segments of the Military. In the early 1980s, less than 10% of the Armed Forces was female, but by 1998 that percentage was approximately 14% of the force for a total of nearly 200,000 females on Active-Duty (Bray et al., 1983, 1999; Burt, Biegel, Carnes, & Farley, 1980; Institute of Medicine, 1995). Although females in the U.S. Military have traditionally tended to hold administrative support or health-related occupational positions, all occupations in principle are open to females except those related to direct offensive ground combat (Hoiberg & White, 1993; Naylor & Walker, 1994; Stanley & Segal, 1988). In the Persian Gulf War, however, approximately 33,000 females served in combat-supporting roles, including serving as airplane and helicopter pilots, performing construction and repair, and participating in artillery direction (Becraft, 1992). With the expanding role of females in the Military, the development of baseline data to monitor changes in health status within the Department of Defense (DoD) is of critical importance.

Given the importance of military readiness, increasing pressures to downsize the Active-Duty Services have required greater cooperation and support from Reserve/Guard personnel. DoD policy supports the concept of a "seamless" Military in which the Active-Duty Services and the Reserve/Guard components work together to meet any national defense requirement. Desert Shield/Desert Storm demonstrated the importance of the Reserve/Guard components. These units assimilated into Active-Duty units, shouldered burdens as individual units performing specific tasks, and met needs in the continental United States (CONUS) when the Active-Duty forces were deployed. Clearly, their readiness enabled them to take on these tasks and was as critical as that of the Active-Duty forces.

Multiple large research efforts have been under way within the DoD to understand and analyze the health status, health behaviors, and physical condition of the Active-Duty Military (Institute of Medicine, 1995). Until quite recently, however, the Reserve/Guard components have not received such attention. The Desert Shield/Desert Storm experience showed that previously held concepts of Reserve/Guard health were incorrect. It was assumed that because Reserve/Guard personnel were responsible for maintaining their own health, they could be considered "ready" for possible deployment. Many Reserve and Guard members were discovered to have previously unknown (to the Military, but known to the individual) health conditions that affected their ability to be deployed. The Persian Gulf War illustrated that the health status of the Reserve/Guard personnel may affect their readiness.

Given the changing role of females in the Military and the changing role of the Reserve/Guard components, this study was undertaken so the DoD would have detailed information about these issues and how they affect the DoD's efforts to create a "seamless" and combat-ready Military.

1.1 Objectives of This Report

In this report, we present the primary findings from a combined dataset from two large-scale studies (a) the Health Status of Military Women and Men in the Total Force, also referred to as the 1998 Total Force Health Assessment, conducted by the Research Triangle Institute (RTI) of Research Triangle Park, North Carolina, and (b) the 1995 POWR Assessment: Perceptions of Wellness and Readiness conducted by the Naval Health Research Center (NHRC) of San Diego, California. The Total Force Health Assessment surveyed all segments of the Military (Active-Duty Services and Reserve/Guard components) except Active-Duty Navy and Marine Corps personnel. The POWR Assessment surveyed Active-Duty personnel in the Navy and Marine Corps (Hourani, Yuan, Bray, & Wheeless, 1998). In combination, these data form a comprehensive dataset for personnel from all segments of the Military, and notably, represent one of the largest sets of data on females in the Military.

This report presents results from a broad array of baseline information from five general areas: (1) health status, (2) health care utilization, (3) health behaviors, (4) psychosocial functioning, and (5) female health issues. The specific objectives of this report are to

- provide baseline epidemiological data on health issues and a broad range of potential risk factors,
- compare females and males within the Active-Duty Services and the Reserve/Guard components to assess who are most at risk of experiencing health problems,
- suggest areas in which health promotion and other interventions can be targeted to improve the health of females and males in the Military, and
- specify gaps in understanding that are in need of further study.

Thus, this report provides baseline information from a combined dataset of variables common to the Total Force Health Assessment and the POWR Assessment. Moreover, in keeping within the larger goals of this study, these specific objectives highlight two major purposes. One purpose is to present data for females on a variety of health issues and compare females' health status to that of males. In addition, another purpose is to provide and compare estimates for both Reserve/Guard and Active-Duty personnel.

1.2 Organization of This Report

In this report, the main topics are the health-related issues among U.S. forces throughout the world and the health status of U.S. military personnel. We describe the methodology for the Total Force Health Assessment in greater detail because the methodology for POWR has already been reported (Hourani et al., 1996). In Chapter 2, we describe the sampling design, questionnaire development, data collection procedures, survey performance rates, combining the Total Force and POWR datasets, key definitions and measures, sample participants and military population characteristics, analytical approach, variability and suppression of estimates, and strengths and limitations of the data.

In Chapter 3, we describe health status and role limitations, lifetime prevalence of medical conditions, the number of medical conditions, and the number and nature of visits to a health care provider in the 12 months preceding the receipt of the questionnaire. Chapter 4 examines a variety of health behaviors, including physical fitness, diet, sleep, alcohol use, cigarette smoking, and the use of protective gear at work. In Chapter 5, we report on such stressors as job stress and exposure to violence as well as how personnel perceive their lives by examining life satisfaction, positive and negative life events, and mental health issues. Chapter 6 examines a number of female health issues, including pregnancy status, gynecological conditions, and cervical and breast health.

In general, the tables presented in this report are paired such that Reserve/Guard estimates are presented in the first table of the pair (A) and the Active-Duty estimates are presented in the second table of the pair (B). Given the objectives of this report, we compare key subgroups, such as military females to military males, as well as these personnel within and across various segments of the Military (Active-Duty Services vs. Reserve/Guard components).

We also have included several appendices to assist readers interested in details about our sampling and analysis methodologies, the study questionnaires, and additional tables. Appendix A describes the sampling design and performance rates for the Total Force Health Assessment, and Appendix B discusses our sampling weighting and estimation procedures. We have designed Appendix C to help readers use our estimates of sampling errors and to clarify the suppression rule used with the estimates. Appendix D contains a set of standard error tables that augment data reported in the main text. Appendix E lists the Total Force advisory panel members. Finally, Appendix F contains a copy of the instrument for the 1998 Total Force Assessment, and Appendix G contains a copy of the 1995 POWR Assessment questionnaire.

2. METHODS

In this chapter, we describe the methodology used for the 1998 Total Force Health Assessment, including an overview of the sampling design, questionnaire development, data collection procedures, and survey performance rates. We also discuss the methodology used to combine the Total Force data with the POWR data, thereby creating a combined dataset exploring these issues for personnel in all of the Reserve/Guard components and Active-Duty Services. Details concerning the methodology of the 1995 POWR study have been reported elsewhere (Hourani et al., 1996). Key definitions and measures, however, as well as a description of the study respondents, are included in this chapter.

In Section 2.1 we outline the sampling design, and in Section 2.2 we explain questionnaire development. In Section 2.3, we describe the data collection plans for the 1998 Total Force Health Assessment. Section 2.4 briefly explains the survey performance rates, and Section 2.5 discusses the process we used to combine the Total Force and POWR datasets. Section 2.6 describes our key definitions and measures, and Section 2.7 explores the sample characteristics and the Military population's characteristics. The remainder of this chapter examines our analytical approach (Section 2.8), the variability and suppression of estimates (Section 2.9), and the strengths and limitations of the data (Section 2.10).

2.1 Sampling Design

The target population for the 1998 Total Force Health Assessment study included all personnel in the following Active-Duty Services or Reserve/Guard components:

- Active Army,
- Army National Guard,
- Army Reserve,
- Naval Reserve,
- Active Air Force,
- Air National Guard,
- Air Force Reserve, and
- Marine Corps Reserve.

This study was developed as a complement to the POWR survey and, therefore, excluded military personnel in the active Navy and active Marine Corps. A stratified sample of 47,990 military personnel was selected from the June 1998 files maintained by the Defense Manpower Data Center (DMDC). Strata were constructed using the following variables: sex, Service, pay grade group, race/ethnicity, and location. Details of the sampling design are provided in Appendix A.

2.2 Questionnaire Development

At the initiation of the Total Force Health Assessment, the intention was to use the questionnaire developed by the Naval Health Research Center (NHRC) for the POWR study with a few modifications that would make it applicable to the Reserve/Guard components. POWR was designed to assess the health status of Active-Duty Navy and Marine Corps personnel with regard to reproductive health, medical history, nutritional status, mental health, lifestyle factors, occupational/environmental risks and stressors, and use of health services. In developing the POWR questionnaire, the NHRC gave priority to using well-established instruments that (a) had published and reliable psychometric properties, (b) were appropriate to an Active-Duty military population, and (c) were brief. Their emphasis was on using questions from standardized, large national health surveys and other military surveys for comparability.

Early in the discussions with a military advisory panel (a list of panel members appears in Appendix E), it became apparent that a number of changes would be necessary to address their needs. To be responsive to their suggestions, the study team agreed to revise the questionnaire beyond the modifications we had expected to make. Consequently, advisory panel members became active participants in reviewing and shaping the content of the questionnaire and provided valuable insight into their priority issues. Not only did they propose new issues to include in the Total Force questionnaire, but they also suggested areas to expand and to eliminate.

As a result of the initial advisory panel meeting, the study team spent many hours reviewing alternative instruments and comparing them with the POWR instrument. As a part of this review process, we also consulted with the NHRC about their analyses of the POWR data. We wanted to retain as much of POWR as possible to preserve our ability to link the two datasets.

In developing the Total Force questionnaire, some items were added to provide more in-depth information about basic study constructs and about emerging issues for the Military. In addition, some items from the POWR questionnaire were not included in the Total Force questionnaire based on preliminary analysis of POWR data or critique from the study advisors. Working with the advisors, we gained an understanding of the needs of each Active-Duty Service or Reserve/Guard component, attended to their concerns, and obtained their advice throughout this process. In addition to their input during meetings, the advisors' availability outside meetings also facilitated our questionnaire development efforts.

The result of this review process was a new instrument called the 1998 Total Force Health Assessment. It retains many of POWR's elements, but it varies in a number of ways. More specifically, in comparison to POWR, the Total Force Health Assessment has

- a reorganized demographics section;

- questions included about payment of medical/dental bills and insurance coverage;
- questions added to assess sexual risk-taking behavior;
- an expanded preventive health section;
- no current medications section;
- no Hopkins 21-symptom checklist, which examines anxiety (because this checklist was highly correlated with the Center for Epidemiologic Studies—Depression [CES-D] scale);
- an expanded time period for measuring stress;
- an increased number of questions assessing tobacco use;
- an increased number of questions assessing alcohol use;
- rephrased questions related to child rearing;
- an expanded deployment section to assess satisfaction with facilities during deployment, re-entry stressors, and deployment deferrals;
- a reformulated occupational exposure section;
- questions added to examine how pregnancy may limit work performance; and
- questions modified pertaining to planned pregnancies and prenatal care.

The final questionnaire used for the Total Force Health Assessment appears in Appendix F. Appendix G contains the POWR questionnaire.

To assess the utility of the Total Force questionnaire, a pilot test was conducted with personnel from the Active-Duty Services and the Reserve/Guard components. This was done through group administrations, with 185 people (104 men and 81 women). After these personnel finished the questionnaire, small-group debriefing sessions were held with them as they exited the group administrations. These debriefing sessions allowed us to explore specific issues about the questionnaire in-depth and were particularly beneficial in highlighting issues needing attention.

Based on the pilot test results, we refined the Total Force questionnaire in the following ways:

- expanded the illnesses and injuries section to capture those that limit the respondent's ability to work in his/her non-military job;
- assessed the respondent's strategies for coping with stress;
- explored the cause of any deterrent to receiving health care services;
- made the exercise section more concise;

- increased the number of questions about contraceptive methods;
- introduced a skip pattern that allows respondents who have not had sex or who have not used birth control to skip the questions about contraceptive methods;
- added definitions for physical, sexual, and emotional abuse;
- substituted a different scale to measure the respondent's level of anger;
- revised the deployment section to focus more on the respondent's most recent deployment;
- reformulated the definition for deployment;
- rephrased questions related to occupational hazards;
- allowed female respondents who have had a hysterectomy to skip questions related to menstrual cycles or uterine problems;
- allowed female respondents who have never been pregnant to skip pregnancy-related questions; and
- introduced questions that assess women's ability to work throughout their pregnancies.

As a result of the revisions to the Total Force questionnaire, we lost some of the comparability to the POWR survey. Although our initial goal was to retain comparability, especially in regard to the psychosocial scales included in POWR, our greater priority was to create an instrument that would better meet the Military's needs as indicated by the advisory panel.

2.3 Data Collection Procedures

During the study's second year, data collection plans were finalized and data collection began. We had a number of discussions with the advisory panel members to assess the feasibility of conducting group administration sessions. Although a group administration approach tends to yield a higher response rate compared to other data collection approaches, we determined that it was not feasible to use this methodology for the Reserve/Guard components because of their very limited duty time and heavy commitments during their monthly meetings. Although it was more feasible for Active-Duty personnel, it was not possible to obtain the necessary permissions and support during the time frame and within the budget we had available. Consequently, it was decided the survey would be conducted entirely by mail.

Our data collection involved three questionnaire mailings with a "reminder/thank you" postcard sent between the first and second and between the second and third mailings. The first questionnaire mailing for the study occurred in late September 1998 and consisted of a package that had a letter from a military official encouraging support for the study, a letter of informed

consent information and instructions, the anonymous questionnaire, and a postage-paid return envelope.

To provide credibility to the study, the letters of support were obtained from the various branches of the Military participating in the study. Six different letters were provided by the following officers to cover the range of participating Active-Duty Services and Reserve/Guard components:

- Lieutenant General Charles Roadman, U.S. Air Force Surgeon General, and Major General Robert McIntosh, Chief of Air Force Reserve;
- Rear Admiral G.D. Vaughan, U.S. Naval Reserve;
- Major General Roger Schultz, Director, Army National Guard;
- Brigadier General James Helmly, Deputy Chief, Army Reserve;
- Lieutenant General Ronald Blanck, U.S. Army Surgeon General; and
- Rear Admiral John Weed, U.S. Naval Reserve Force Surgeon, and Major General David Mize, Commander, Marine Forces Reserve.

Section 2.4 and Appendix A describe the number of personnel who were mailed a questionnaire in each Active-Duty Service and Reserve/Guard component. Reminder postcards were sent 2 weeks after the first questionnaire mailing. Approximately 8 weeks after the initial questionnaire mailing, the second questionnaire mailing was sent in early December 1998. The second mailing was similar to the first mailing except it contained a revised cover letter and was sent to nonrespondents only. Again, a reminder postcard was sent 2 weeks after the second questionnaire mailing. The third and final questionnaire was sent to nonrespondents in late January 1999, about 8 weeks after the second questionnaire mailing. It was decided to allow at least 8 weeks between questionnaire mailings so there would be ample time for mail delivery to and from military personnel serving overseas.

Completed questionnaires were optically scanned by National Computer Systems (NCS). Working with NCS, we developed a means of maintaining the respondent's anonymity but, at the same time, tracking who had returned a completed questionnaire. Tracking numbers were printed on envelopes, and these envelopes were immediately separated from their questionnaires upon receipt at NCS. NCS staff tracked the receipt of questionnaires so that we could increase the efficiency of the data collection and minimize costs associated with follow-up mailings by limiting them to nonrespondents only.

RTI's communications office drafted a press release to inform members of the Military about the survey and answer what we anticipated would be commonly asked questions about the study. Beginning in August 1998, this information began appearing in publications produced for the Active-Duty, Reserve,

and Guard populations, such as Army Times or the National Guard Magazine. The press coverage was meant to develop an awareness of the study and explain the importance of the data collection effort.

2.4 Survey Performance Rates

Performance rate information is useful for assessing the quality of survey field operations and for assessing the potential for nonresponse bias. Performance rates can be used to describe several different aspects of a study, each important from a survey operational perspective or from a statistical perspective. For the Total Force Health Assessment, we computed three performance rates—an eligibility rate, a contact rate, and a response rate among contacted eligible sample members. The eligibility rate, which was 99.9% for this study, represents the percentage of persons selected in the sample who were available to take part in the study when data collection was conducted. Persons who were deceased or had left the Military were considered ineligible. The contact rate refers to the extent to which we mailed questionnaires to selected military members and did not receive any information suggesting that they did not receive it. We excluded persons whose questionnaire packets were returned because of unknown or undeliverable addresses or whose family members called to inform us that the person was in a deployed status and unlikely to get the mail. The contact rate for the study was 82.4%. The response rate was defined as the rate at which contacted eligible persons returned a usable questionnaire; this rate was 38.0%.

Although the eligibility and contact rates were high, the response rate was rather low and raises questions about the potential for nonresponse bias in the survey estimates. The number of nonrespondents among eligible persons was greater than the number of respondents who completed a usable interview. Because persons who did not respond to the survey may differ from those who did respond, estimates based on respondents alone have the potential to misrepresent the population of interest. To help compensate for this problem, a nonresponse adjustment was made to the data in which the weights were adjusted by poststratifying them to the DoD population totals within selected demographic and pay grade groupings. These adjustments partially compensate for the fact that some age and sex groupings cooperated with the survey at lower rates than did others and tend to diminish differences attributable to varying cooperation rates among respondents in these groups. Nonetheless, they do not entirely rule out the potential for bias.

Despite the low response rate, the extent to which the survey estimates may be biased is unclear. Several factors may have worked in favor of reduced bias. First, bias between respondents and nonrespondents seems most likely if there was a systematic relationship between the survey questions and reasons for nonparticipation (e.g., if questions asked about sensitive behaviors, such as drug use or illegal behavior, that might implicate respondents). The fact that most of the items did not ask about sensitive behaviors may have resulted in less bias. Second, the large number of respondents may have worked in favor of less bias. Large numbers of respondents provide an opportunity for a

wide range of attitudes and behaviors to be expressed and represented and may help mitigate against bias. As described in Section 2.5, the combined Total Force and POWR sample totaled nearly 25,000 respondents (24,881). Third, comparisons of these data with another recent survey that had a higher response rate showed comparable results. We compared the Total Force Health Assessment's smoking rates for the Army and Air Force with those of the same Services from the 1998 DoD Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1999) and found highly similar results between the two studies (estimates were within approximately 1 percentage point of one another for the Active-Duty Services). To the extent that this pattern occurred for other data, the bias may be minimal in the present study.

2.5 Combining the Total Force and POWR Datasets

After the Total Force data collection was completed, the Total Force data were examined to identify problems with the data, such as missing data and inconsistent responses. Editing was performed to correct problems where possible. The POWR dataset was edited previously, so it was not necessary to reexamine it. We then turned our attention to creating a comprehensive dataset of the entire Military by combining the Total Force data (n=15,025) with the POWR data (n=9,856). In this section, we describe the methods used to create the comprehensive dataset. Based on our questionnaire development efforts, we knew that only some of the variables from the Total Force or the POWR datasets were similar enough to be included in the combined dataset. Thus, we began this process of creating a combined dataset by identifying the variables common to the Total Force and POWR datasets with the goal of retaining as much information as possible.

We approached the task of creating the comprehensive dataset cautiously to maintain the validity and integrity of the data, understanding that even minor changes in question wording, format, or context can alter the results (Schwarz, 1999). With that in mind, we compared the Total Force questionnaire against the POWR questionnaire, eliminating, the obviously incompatible questions and noting those questions that were compatible. As part of this process, we documented the differences in question wording, question introduction, response options, and formatting. We decided to include a variable in the comprehensive dataset if the differences between questionnaires did not appear to dramatically change the meaning of the question or otherwise greatly alter the pattern of responses.

After all variables were identified for the comprehensive dataset, we examined the data files separately to identify potential issues that would affect the combination of the two datasets, such as response options that were coded differently. These issues were resolved by creating identical new variables in the Total Force and POWR datasets. These new variables formed the comprehensive dataset, which was thoroughly examined for errors. Frequencies and cross-tabulations of each new variable with its original variables were examined to verify that the procedure was performed correctly. The comprehensive dataset consisted of 24,881 records.

2.6 Key Definitions and Measures

2.6.1 Demographic Characteristics

The sociodemographic characteristics presented in Tables 1A, 1B, 1C, 2A, 2B, and 2C include sex, Service, race/ethnicity, education, age, marital status, and pay grade. All the analyses in this report are based on the sex and Service variables (the Service variable is an umbrella name that represents all Active-Duty Services and Reserve/Guard components). Definitions for these characteristics are described by the following:

Sex — Sex was defined as male or female.

Service — Active-Duty Services were as follows: Army, Navy, Marine Corps, and Air Force. Reserve/Guard components were as follows: Army Reserve, Army National Guard, Naval Reserve, Marine Corps Reserve, Air Force Reserve, and Air National Guard.

Race/Ethnicity — We divided personnel into the following racial/ethnic groups: non-Hispanic white; non-Hispanic black; Hispanic; American Indian or Alaskan Native; Asian/Filipino/Pacific Islander; and other.

Education — We defined education as the highest level of educational attainment. The three education categories are high school or less, some college, and college degree or beyond. Personnel with General Equivalency Diplomas (GEDs) were classified as high school graduates.

Age — We defined age of respondents as current age at the time of the survey. Ages were grouped as 20 or younger, 21 to 25 years old, 26 to 34 years old, and 35 years old or older.

Marital Status — Personnel were defined as either "married" or "not married". Personnel defined as not married were those who were single, living as married, widowed, and divorced or separated. Personnel defined as "married" were those legally married.

Pay Grade — Military pay grades for enlisted personnel were grouped as E1-E3, E4-E6, E7-E9, W1-W5, O1-O3, and O4-O10.

2.6.2 Health Scales and Measures

Several physical and mental health constructs were assessed using established health scales: health status and role limitations using the Medical Outcome Study (MOS) 36-item Short Form (SF-36) (Ware & Sherbourne, 1992), job stress using the Job Pressures Scale (House, 1980; House, McMichael, Wells, Kaplan, & Landerman, 1979), depression using a shortened form of the Center for Epidemiologic Studies—Depression (CES-D) scale (Radloff, 1977), and social support using the Social Network Index (Berkman & Syme, 1979; Strawbridge, 1995). The

comprehensive dataset includes variables that make up these scales. The responses were scored and the measures were developed according to each scale's protocol. In nearly all cases, data from the health scales are presented as high, medium, or low relative to the entire range of responses received for the scale, except in the case of depression screening. For depression screening, we used a cutpoint to determine who seemed to be depressed. Descriptions of the health scales used and their scoring methodologies are detailed below.

Measures of health status (Tables 3A and 3B) and role limitations (Tables 4A and 4B) are presented in Chapter 3. General health status was measured by a single question. Three subscales of the widely used SF-36 health scale measured role limitations and other aspects of health status. The SF-36 was developed by the Rand Corporation to measure general health status (Ware & Sherbourne, 1992). It consists of eight subscales; the three that are reported for this study are role limitations due to physical health problems, role limitations due to emotional problems, and vitality (a measure of energy). For role limitations, respondents answered "yes" or "no" to questions assessing their ability to perform work and other activities; for vitality, responses to items about feeling energetic and tired were scored on a six-point scale ranging from "none of the time" to "all of the time." Scores can be computed for respondents with small amounts of missing data. As recommended in the SF-36 scoring manual, scores were calculated for respondents who answered at least half the items in each scale (or half plus one for scales with an odd number of items) (Ware, Snow, Kosinski, & Gandek, 1993). Raw scale scores were computed by summing the points across each subscale and then transformed to a 0 to 100 scale.

Based on these final scores, respondents in the highest third on the vitality subscale were classified as "high," the middle third as "medium," and the lowest third as "low," as shown in Tables 3A and 3B. On the role limitations subscales, a high final score corresponds to better role functioning and a classification as having "low" role limitations (see Tables 4A and 4B). In contrast, those respondents classified as "high" were those whose scores indicated the presence of role limitations.

Job stress (Tables 25A and 25B) was measured using the 12-item Job Pressures Scale developed by James House at the University of Michigan from his work on occupational mental health (House, 1980; House et al., 1979). Each item describes a potentially stressful work scenario, with responses representing the frequency of occurrence of the scenario. The scale measures four different aspects of job stress: responsibility, quality concern, role conflict, and job versus nonjob conflict, with the sum of the subscales yielding an overall job stress score. Responses were scored on a five-point scale ranging from "not at all" (zero points) to "nearly all the time" (four points), and scores for relevant items were summed to arrive at subscale scores, and across all items to arrive at an overall measure of job stress. Respondents scoring in the top third on each of these scales were classified as "high," those in the middle third as "medium," and those in the lowest third as "low."

Depression (Tables 29A and 29B) was assessed using a shortened form of a depression screening questionnaire developed by the National Institute of Mental Health, the CES-D (Radloff, 1977). The shortened CES-D consists of seven items measuring the frequency of depressive symptomatology during the past 7 days, with responses on a four-point scale ranging from a score of zero for the response, "rarely or none of the time (less than 1 day)," to a score of three for the response, "most or all of the time (5-7 days)." Responses to the seven questions were summed to give a score between 0 and 21, and following the method described by Shrout and Yager (1989), a score greater than 5.6 was considered an indicator of depression. Depression was assessed only for respondents who completed all seven items of the scale.

The Social Network Index (Tables 30A and 30B) was used to measure social support. This instrument, developed by the Human Population Laboratory, consists of five questions assessing self-reported numbers and frequency of social contacts, including contacts with relatives, friends, spouses, social groups, and a church (Berkman & Syme, 1979; Strawbridge, 1995). Following the scoring protocol, a "relatives and friends" score was assigned based on the number of close friends and relatives reported, then added to a score for the frequency of contact with them to yield a sociability score. Marital status was then taken into account in conjunction with the sociability score to give an index of intimate ties. Finally, social group and church membership were assigned point values and summed with the index of intimate ties to yield a social network index score ranging from 0 to 12. Respondents scoring in the top third on the Social Network Index were classified as having "high" social support, those in the middle third as "medium," and those in the lowest third as "low."

2.6.3 Alcohol and Cigarette Use

Table 21B presents measures of alcohol use, including the number of days alcohol was consumed in the past 30 days, and the number of alcoholic drinks consumed on a typical day in the past 30 days. We use the term "binge drinking" to identify the drinking of excessive amounts of alcohol during a typical drinking occasion. The definition of binge drinking differs by sex. For males, consuming five drinks or more per typical occasion is considered binge drinking; for females, the threshold is four drinks or more (Wechsler, Dowdall, Davenport, & Rimm, 1995). For the measure assessing the number of drinks consumed on a typical day, the wording of the Total Force Health Assessment differed slightly from that of the POWR questionnaire. The Total Force questionnaire asked: "Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a typical day?" This wording differs slightly from the wording used in the POWR questionnaire, which asked: "During the past 30 days, how much alcohol did you drink on a typical day?" Despite the differences in wording, the estimates for Active-Duty Army and Air Force, surveyed with the Total Force questionnaire, and the estimates for Active-Duty Navy and Marine Corps, surveyed with the POWR questionnaire, were similar.

Two levels of cigarette use are presented in Tables 21A and 21B: "current" smoker and "heavy" smoker. Military personnel

were defined as "current" smokers when they indicated that they smoked at least 100 cigarettes during their lifetime and that they had smoked in the past 30 days. Personnel were defined as "heavy" smokers if they were current smokers and also indicated that they smoked at least one pack of cigarettes a day in the past 30 days.

2.7 Sample Participants and Military Population Characteristics

In this section, we present the distribution of study respondents by selected sociodemographic characteristics, as well as weighted population estimates presented as percentages by sociodemographic characteristics. Tables 1A, 1B, and 1C display the number of usable questionnaires returned from Reserve, Guard, and Active-Duty personnel, respectively. Tables 2A, 2B, and 2C display population estimates of eligible Reserve, Guard, and Active-Duty personnel. These estimates are based on data from the sample respondents that were weighted and poststratified to represent the eligible respondent population (see Appendix B for a discussion of weighting procedures).

Table 1A displays the distribution of study respondents for each Reserve component, and Table 1B displays the Guard component, by sociodemographic characteristics. Overall, we obtained 5,709 usable questionnaires from the sampled Reserve personnel. Females account for 2,077 of this total, or about 36%. For the Guard component, we received 3,520 usable questionnaires, with about 26% of them from females (927). The total number of Reserve and Guard respondents together is 9,229, with 33% of these being female.

Among the Reserve components, the Naval Reserve had the most respondents (1,908), followed by the Army Reserve (1,858), and the Air Force Reserve (1,020). The fewest number of responses came from the Marine Corps Reserve (923). Most Reserve personnel reported their race/ethnicity as non-Hispanic white (2,721), followed by Hispanic (1,612) and Asian/Filipino/Pacific Islander (668). Most had some college education (2,246) or a college degree (2,766), were over the age of 25 (4,755), were married (3,299), and were in an E4-E6 pay grade (2,509). However, many Reserve respondents were in an O4-O10 pay grade (1,324).

Table 1B shows that the Army National Guard had 2,003 respondents, while the Air National guard had 1,517. Most Guard personnel reported their race/ethnicity as Hispanic, followed by non-Hispanic white, and Asian/Filipino/Pacific Islander. Most had some college education or a college degree, were over the age of 25, were married, or were in an E4-E6 pay grade.

Table 1C shows the sociodemographic distribution of the 15,265 Active-Duty respondents who completed a usable questionnaire. Active-Duty females accounted for 6,897 of the total number of Active-Duty personnel, or about 45%. The Navy had the highest number of respondents (7,861). The Army had the next highest number of respondents (3,361), followed by the Air Force (2,297), and the Marine Corps (1,746).

Table 1A Number of Reserve Respondents, by Sociodemographic Characteristics

Characteristic	Army Reserve			Naval Reserve			Marine Corps Reserve			Air Force Reserve			Total Reserve Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	172	234	406	444	775	1,219	155	428	583	162	351	513	933	1,788	2,721
Black – not Hispanic	168	87	255	56	66	122	29	48	77	24	26	50	277	227	504
Hispanic	309	472	781	121	241	362	37	153	190	101	178	279	568	1,044	1,612
American Indian/Alaskan Native	28	30	58	13	14	27	0	2	2	7	16	23	48	62	110
Asian/Filipino/Pacific Islander	119	197	316	53	108	161	3	52	55	40	96	136	215	453	668
Other	14	28	42	9	8	17	3	13	16	10	9	19	36	58	94
Education															
High school or less	102	191	293	45	128	173	34	116	150	21	46	67	202	481	683
Some college	332	433	765	270	356	626	114	378	492	130	233	363	846	1,400	2,246
College degree or beyond	375	418	793	380	726	1,106	79	199	278	192	397	589	1,026	1,740	2,766
Age															
20 or younger	89	67	156	1	2	3	23	99	122	7	2	9	120	170	290
21 to 25 years old	138	104	242	22	43	65	57	241	298	20	19	39	237	407	644
26 to 34 years old	215	274	489	168	317	485	58	187	245	70	125	195	511	903	1,414
35 or older	366	597	963	505	846	1,351	88	167	255	243	529	772	1,202	2,139	3,341
Marital Status															
Not married	509	406	915	298	330	628	134	423	557	144	153	297	1,085	1,312	2,397
Married	300	638	938	397	880	1,277	93	273	366	198	520	718	988	2,311	3,299
Pay Grade															
E1-E3	100	89	189	29	38	67	64	204	268	8	8	16	201	339	540
E4-E6	367	489	856	347	514	861	74	312	386	147	259	406	935	1,574	2,509
E7-E9	59	170	229	64	90	154	45	63	108	44	95	139	212	418	630
W1-W5	10	24	34	1	12	13	12	17	29	NA	NA	NA	23	53	76
O1-O3	168	115	283	65	100	165	7	24	31	58	93	151	298	332	630
O4-O10	106	161	267	190	458	648	25	76	101	87	221	308	408	916	1,324
Total Reserve	810	1,048	1,858	696	1,212	1,908	227	696	923	344	676	1,020	2,077	3,632	5,709

Note: Table entries are numbers of respondents who completed a usable questionnaire.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 1B Number of Guard Respondents, by Sociodemographic Characteristics

Characteristic	Army National Guard			Air National Guard			Total Guard Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity									
White – not Hispanic	91	332	423	170	476	646	261	808	1,069
Black – not Hispanic	46	65	111	29	34	63	75	99	174
Hispanic	227	773	1,000	145	302	447	372	1,075	1,447
American Indian/Alaskan Native	39	87	126	27	51	78	66	138	204
Asian/Filipino/Pacific Islander	52	250	302	62	167	229	114	417	531
Other	16	25	41	23	31	54	39	56	95
Education									
High school or less	75	506	581	39	115	154	114	621	735
Some college	270	711	981	227	522	749	497	1,233	1,730
College degree or beyond	124	311	435	190	423	613	314	734	1,048
Age									
20 or younger	61	100	161	13	15	28	74	115	189
21 to 25 years old	88	156	244	43	62	105	131	218	349
26 to 34 years old	133	457	590	153	241	394	286	698	984
35 or older	189	811	1,000	244	737	981	433	1,548	1,981
Marital Status									
Not married	295	583	878	230	284	514	525	867	1,392
Married	175	938	1,113	225	776	1,001	400	1,714	2,114
Pay Grade									
E1-E3	98	152	250	24	15	39	122	167	289
E4-E6	269	1,005	1,274	247	538	785	516	1,543	2,059
E7-E9	30	159	189	88	250	338	118	409	527
W1-W5	9	39	48	NA	NA	NA	9	39	48
O1-O3	50	96	146	45	74	119	95	170	265
O4-O10	15	81	96	52	184	236	67	265	332
Total Guard	471	1,532	2,003	456	1,061	1,517	927	2,593	3,520

Note: Table entries are numbers of respondents who completed a usable questionnaire.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 1C Number of Active-Duty Respondents, by Sociodemographic Characteristics

Characteristic	Army			Navy			Marine Corps			Air Force			Total Active-Duty Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	211	459	670	2,732	2,676	5,408	557	535	1,092	183	460	643	3,683	4,130	7,813
Black – not Hispanic	155	168	323	781	455	1,236	163	187	350	82	72	154	1,181	882	2,063
Hispanic	495	1,050	1,545	236	235	471	99	83	182	314	547	861	1,144	1,915	3,059
American Indian/Alaskan Native	58	90	148	28	36	64	14	16	30	35	34	69	135	176	311
Asian/Filipino/Pacific Islander	206	362	568	166	370	536	24	28	52	178	317	495	574	1,077	1,651
Other	36	71	107	85	61	146	23	17	40	36	39	75	180	188	368
Education															
High school or less	206	449	655	1,028	1,251	2,279	271	263	534	130	168	298	1,635	2,131	3,766
Some college	585	1,082	1,667	1,776	1,416	3,192	374	235	609	437	708	1,145	3,172	3,441	6,613
College degree or beyond	365	668	1,033	1,096	1,015	2,111	195	333	528	257	586	843	1,913	2,602	4,515
Age															
20 or younger	121	155	276	278	75	353	89	41	130	89	65	154	577	336	913
21 to 25 years old	349	406	755	1,049	576	1,625	310	163	473	241	233	474	1,949	1,378	3,327
26 to 34 years old	394	801	1,195	1,513	1,544	3,057	267	262	529	242	479	721	2,416	3,086	5,502
35 or older	287	825	1,112	1,156	1,608	2,764	205	391	596	253	685	938	1,901	3,509	5,410
Marital Status															
Not married	600	657	1,257	1,930	1,047	2,977	434	252	686	393	395	788	3,357	2,351	5,708
Married	555	1,536	2,091	2,079	2,762	4,841	441	608	1,049	432	1,068	1,500	3,507	5,974	9,481
Pay Grade															
E1-E3	184	250	434	685	129	814	181	84	265	189	158	347	1,239	621	1,860
E4-E6	566	979	1,545	2,136	2,021	4,157	398	164	562	356	643	999	3,456	3,807	7,263
E7-E9	140	441	581	386	862	1,248	111	244	355	105	241	346	742	1,788	2,530
W1-W5	32	103	135	13	47	60	43	71	114	NA	NA	NA	88	221	309
O1-O3	159	235	394	464	353	817	101	190	291	114	220	334	838	998	1,836
O4-O10	80	192	272	344	421	765	46	113	159	64	207	271	534	933	1,467
Total Active Duty	1,161	2,200	3,361	4,028	3,833	7,861	880	866	1,746	828	1,469	2,297	6,897	8,368	15,265

Note: Table entries are numbers of respondents who completed a usable questionnaire.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

The largest number of Active-Duty respondents reported their race/ethnicity as non-Hispanic white (7,813), followed by Hispanic (3,059), and non-Hispanic black (2,063). Most respondents had some college education (6,613), were over 25 years old (10,912), and were married (9,481). Most respondents reported being in an E4-E6 pay grade (7,263) or E7-E9 pay grade (2,530).

Table 2A shows percentage estimates for sociodemographic characteristics of Reserve personnel. For all the Reserve components except the Marine Corps Reserve, females represented between 20% and 25% of personnel. The Army Reserve had the most female representation (24.6%), while the Marine Corps Reserve had the least (4.4%). Overall, Reserve personnel tended to be non-Hispanic white (67.5%), with some college education (46.9%) or a college degree or beyond (35.0%), over 35 years old (51.7%), married (55.9%), and in an E4-E6 pay grade (53.0%).

Female Reservists tended to be non-Hispanic white (56.4%) or non-Hispanic black (32.1%), have some college education (49.7%) or a college degree (37.2%), be over 35 years old (50.6%) or between 26 to 34 years old (25.0%), be unmarried (60.2%), and be in an E4-E6 pay grade (52.5%). Males were similar to females in these characteristics, except that more males reported being married (60.1%), and a higher percentage were white (70.3%) while fewer were black (16.3%).

Table 2B shows percentage estimates for sociodemographic characteristics of Guard personnel. About 16% of the Air National Guard were female, while about 10% of the Army National Guard were female. Overall, a majority of Guard personnel were white (75.4%), had a high school education or less (30.6%) or some college education (48.6%), were married (57.0%), and were in an E4-E6 pay grade (63.7%). Most Guard females were white (66.1%), had some college education (54.0%), were unmarried (61.2%) and were in an E4-E6 pay grade (57.5%). Male Guard personnel were similar to females in that more Guard males were white (76.7%) and married (59.4%). A larger percentage of male Guard personnel reported having a high school degree or less (32.3%) compared to female Guard personnel (17.3%).

Table 2C shows that about 14% of Active-Duty personnel were female. The Air Force had the highest percentage of female personnel (18.3%), followed by the Army (14.7%), the Navy (13.1%), and finally the Marine Corps (5.8%). Most of the Active-Duty personnel were white (66.5%), had some college education (43.9%), were 26 to 34 years old (35.0%), were married (59.2%), and were in an E4-E6 pay grade (48.8%). Males and females were similar, but females were more likely to report being unmarried (55.4%) compared to males (37.9%).

2.8 Analytical Approach

The focus of our analyses for this report was to provide baseline information for five general areas: (1) health status, (2) health care utilization, (3) health behaviors, (4) psychosocial functioning, and (5) female health issues. Further, the sample design and the resulting dataset allowed for statistical comparisons

Table 2A Sociodemographic Characteristics Among Reserve Personnel

Characteristic	Army Reserve			Naval Reserve			Marine Corps Reserve			Air Force Reserve			Total Reserve Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	49.4	64.9	61.1	66.4	76.8	74.8	63.7	70.4	70.1	67.7	76.8	74.9	56.4	70.3	67.5
Black – not Hispanic	38.6	21.1	25.4	22.4	11.5	13.5	17.1	10.9	11.2	22.9	13.4	15.4	32.1	16.3	19.6
Hispanic	6.6	8.4	8.0	6.4	7.1	7.0	14.0	12.8	12.8	4.4	5.1	5.0	6.3	8.1	7.7
American Indian/ Alaskan Native	1.0	0.6	0.7	1.0	0.4	0.6	**	0.2	0.2	0.5	0.6	0.6	0.9	0.5	0.6
Asian/Filipino/ Pacific Islander	4.0	4.2	4.2	3.3	3.9	3.8	2.9	4.9	4.8	3.5	3.7	3.7	3.7	4.1	4.1
Other	0.4	0.8	0.7	0.5	0.3	0.3	2.3	0.9	0.9	0.9	0.4	0.5	0.6	0.6	0.6
Education															
High school or less	15.0	19.5	18.4	8.6	17.7	16.0	18.5	20.2	20.2	10.8	14.7	13.9	13.1	18.3	17.2
Some college	50.0	44.3	45.7	50.7	42.1	43.7	52.6	57.7	57.4	47.5	47.7	47.6	49.7	46.2	46.9
College degree or beyond	35.0	34.2	34.4	40.6	39.9	40.0	28.8	21.6	21.9	41.7	37.6	38.5	37.2	34.5	35.0
Age															
20 or younger	18.5	11.1	12.9	0.6	0.3	0.3	15.7	22.5	22.2	1.7	0.1	0.4	11.9	8.2	9.0
21 to 25 years old	15.4	8.9	10.5	3.2	5.3	4.9	32.6	37.4	37.2	8.8	3.1	4.3	12.2	10.7	11.0
26 to 34 years old	23.5	28.1	27.0	29.3	32.3	31.7	25.0	24.0	24.0	25.1	26.7	26.4	25.0	28.2	27.6
35 or older	42.5	50.6	48.6	66.8	61.8	62.8	25.6	15.8	16.2	62.7	69.1	67.7	50.6	52.0	51.7
Marital Status															
Not married	67.4	40.3	47.0	47.1	35.0	37.3	65.4	68.7	68.5	50.0	22.7	28.4	60.2	39.6	43.8
Married	32.6	59.1	52.6	52.8	64.9	62.6	34.6	31.3	31.5	50.0	77.2	71.5	39.8	60.1	55.9
Pay Grade															
E1-E3	22.6	14.4	16.4	5.8	6.2	6.1	43.0	47.9	47.7	1.8	0.2	0.5	15.9	14.3	14.6
E4-E6	46.7	49.8	49.1	68.3	63.7	64.5	34.3	36.3	36.2	56.7	61.0	60.1	52.5	53.1	53.0
E7-E9	9.2	13.0	12.0	6.5	8.2	7.9	10.4	5.9	6.1	15.9	17.1	16.9	10.0	11.8	11.4
W1-W5	0.9	1.7	1.5	0.1	0.5	0.4	2.7	1.1	1.2	NA	NA	NA	0.6	1.1	1.0
O1-O3	12.2	9.5	10.1	5.5	4.8	4.9	1.6	1.6	1.6	12.6	8.0	9.0	10.8	7.2	7.9
O4-O10	8.4	11.6	10.8	13.7	16.7	16.1	8.0	7.1	7.1	13.0	13.6	13.5	10.3	12.5	12.0
Total Reserve	24.6	75.4	100.0	18.9	81.1	100.0	4.4	95.6	100.0	20.9	79.1	100.0	20.6	79.4	100.0

Note: Table entries are percentages. Standard errors are shown in Table 2ASE in Appendix D.

NA: Not applicable.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 2B Sociodemographic Characteristics Among Guard Personnel

Characteristic	Army National Guard			Air National Guard			Total Guard Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity									
White – not Hispanic	62.8	75.3	74.0	73.3	81.5	80.2	66.1	76.7	75.4
Black – not Hispanic	27.1	14.2	15.5	14.8	7.3	8.5	23.2	12.7	13.9
Hispanic	5.9	7.0	6.9	5.3	5.3	5.3	5.7	6.6	6.5
American Indian/Alaskan Native	1.6	0.8	0.9	1.4	1.1	1.2	1.5	0.9	1.0
Asian/Filipino/Pacific Islander	2.0	2.4	2.3	3.8	4.0	4.0	2.5	2.7	2.7
Other	0.7	0.2	0.3	1.4	0.8	0.9	0.9	0.4	0.4
Education									
High school or less	19.4	38.1	36.1	12.8	11.7	11.9	17.3	32.3	30.6
Some college	55.4	44.8	45.9	51.2	59.2	57.9	54.0	47.9	48.6
College degree or beyond	25.2	16.4	17.3	35.9	29.1	30.2	28.6	19.2	20.3
Age									
20 or younger	18.5	12.5	13.1	1.6	0.7	0.9	13.1	9.9	10.3
21 to 25 years old	16.5	9.5	10.2	12.4	9.9	10.3	15.2	9.6	10.3
26 to 34 years old	26.9	32.7	32.1	38.4	24.3	26.6	30.5	30.9	30.8
35 or older	38.1	44.9	44.2	46.7	64.2	61.3	40.8	49.1	48.1
Marital Status									
Not married	64.7	42.7	45.0	53.6	30.8	34.5	61.2	40.1	42.6
Married	35.3	56.8	54.5	45.7	68.9	65.2	38.6	59.4	57.0
Pay Grade									
E1-E3	31.0	15.3	16.9	3.8	4.3	4.2	22.4	12.9	14.0
E4-E6	52.5	65.0	63.7	68.5	62.9	63.8	57.5	64.5	63.7
E7-E9	7.4	8.8	8.7	16.6	20.4	19.8	10.4	11.3	11.2
W1-W5	0.9	2.8	2.6	NA	NA	NA	0.6	2.2	2.0
O1-O3	5.2	5.0	5.0	6.3	4.3	4.7	5.5	4.8	4.9
O4-O10	3.0	3.2	3.1	4.7	8.1	7.6	3.5	4.2	4.2
Total Guard	10.3	89.7	100.0	16.1	83.9	100.0	11.7	88.3	100.0

Note: Table entries are percentages. Standard errors are shown in Table 2BSE in Appendix D.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 2C Sociodemographic Characteristics Among Active-Duty Personnel

Characteristic	Army			Navy			Marine Corps			Air Force			Total Active-Duty Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	43.1	62.6	59.8	56.6	67.1	65.7	57.7	68.8	68.2	65.2	77.4	75.2	54.8	68.4	66.5
Black – not Hispanic	43.1	23.6	26.5	27.3	16.7	18.1	22.6	15.1	15.6	24.1	13.8	15.7	31.6	18.1	20.0
Hispanic	6.8	7.4	7.3	9.4	8.4	8.5	13.6	11.7	11.8	5.1	4.6	4.7	7.2	7.6	7.5
American Indian/ Alaskan Native	1.4	1.1	1.2	0.7	0.8	0.8	1.5	0.8	0.9	0.7	0.3	0.4	1.0	0.8	0.8
Asian/Filipino/ Pacific Islander	4.8	4.4	4.4	3.9	5.6	5.4	2.7	1.5	1.6	4.1	3.4	3.6	4.2	4.1	4.1
Other	0.9	0.9	0.9	2.1	1.5	1.6	1.9	2.0	2.0	0.8	0.4	0.5	1.2	1.1	1.1
Education															
High school or less	23.0	30.2	29.1	33.2	41.4	40.4	40.8	53.3	52.6	20.8	18.9	19.2	25.8	33.6	32.5
Some college	52.8	47.5	48.3	41.8	36.2	36.9	43.0	30.8	31.5	52.6	51.3	51.5	49.4	43.0	43.9
College degree or beyond	24.1	22.3	22.6	21.5	18.1	18.6	11.2	10.9	10.9	26.6	28.7	28.3	23.6	21.2	21.5
Age															
20 or younger	13.7	12.2	12.4	12.6	9.0	9.5	20.0	19.8	19.8	12.6	10.0	10.5	13.4	11.8	12.1
21 to 25 years old	29.9	22.5	23.6	33.9	25.5	26.6	42.5	41.4	41.5	28.8	17.0	19.1	31.2	24.6	25.5
26 to 34 years old	35.8	37.5	37.2	32.5	38.4	37.6	24.5	21.6	21.8	32.2	36.5	35.8	33.2	35.3	35.0
35 or older	20.1	27.5	26.4	20.3	26.5	25.7	12.2	15.8	15.6	26.1	36.0	34.2	21.8	27.7	26.9
Marital Status															
Not married	58.4	39.1	41.9	52.6	36.6	38.7	54.3	52.4	52.5	54.5	29.7	34.2	55.4	37.9	40.4
Married	41.5	60.8	58.0	46.9	62.8	60.7	44.9	47.4	47.3	45.2	69.4	65.0	44.3	61.7	59.2
Pay Grade															
E1-E3	24.2	21.8	22.2	34.7	23.9	25.3	45.4	42.0	42.2	29.2	18.7	20.6	29.7	24.4	25.2
E4-E6	52.6	49.6	50.0	44.7	52.2	51.2	38.9	39.3	39.3	46.5	49.8	49.2	47.8	48.9	48.8
E7-E9	8.2	11.9	11.3	4.8	9.4	8.8	7.0	7.9	7.9	6.4	11.6	10.6	6.7	10.6	10.0
W1-W5	1.8	2.9	2.7	0.2	0.8	0.7	2.6	1.7	1.8	NA	NA	NA	0.8	1.4	1.3
O1-O3	8.5	7.8	7.9	9.7	7.8	8.1	4.6	5.4	5.4	11.5	10.8	11.0	9.6	8.2	8.4
O4-O10	4.7	6.0	5.8	5.8	5.8	5.8	1.5	3.6	3.5	6.3	9.1	8.6	5.4	6.4	6.2
Total Active Duty	14.7	85.3	100.0	13.1	86.9	100.0	5.8	94.2	100.0	18.3	81.7	100.0	14.1	85.9	100.0

Note: Table entries are percentages. Standard errors are shown in Table 2CSE in Appendix D.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

between males and females and across the Active-Duty Services and Reserve/Guard components. These analyses provide information that will help assess the health and readiness of Reserve/Guard personnel, as well as Active-Duty personnel, and thus will help the DoD in its efforts to create a "seamless" Military.

To accomplish these aims, we conducted a series of descriptive cross-tabulations for the variables and measures in the comprehensive dataset by sex and Active-Duty Services or Reserve/Guard components. We assessed significant differences for these data using *z* tests. (Refer to Appendix C for more information about assessing significant differences.)

2.9 Variability and Suppression of Estimates

The tables presented in the body of this report generally present the estimate of the percentage of the population with the characteristics that define the cell. A necessary companion to these percentages, the standard errors, are provided in Appendix D. The standard errors represent the degree of variation associated with observing a sample rather than observing every member of the population.

Confidence intervals, or ranges that are very likely to include the true population value, can be constructed using standard errors. We can compute the 95% confidence interval by adding to and subtracting from the estimated proportion the result of multiplying 1.96 times the standard error for that cell. The confidence interval range means that, if we were to repeat the study with 100 samples, the confidence interval would include the true parameter value in 95 of these 100 cases. For a given confidence level (such as 95%), then, the precision with which the cell proportions estimate the true population value varies with the size of the standard error.

In this report, we omitted estimates that were considered unreliable. More specifically, we suppressed estimates that could not be reported with confidence because they were based on small sample sizes ($n < 30$) or had large sampling errors. The rules for classifying estimates as unreliable are explained in Appendix C. Unreliable estimates that were omitted are noted by a ** in the tables.

2.10 Strengths and Limitations of the Data

Self-reports in which respondents provide data about their behaviors, attitudes, and beliefs rely on respondents' ability and willingness to provide correct information about observations and events. Surveys have been a major vehicle for obtaining self-reported data about a wide variety of topics. A major strength of this study is that it permitted the collection of a rich array of information about the nature and extent of behaviors of interest along with information about correlates of these behaviors. Other strengths include the use of sophisticated sampling techniques and questions from well-researched health scales. The sampling techniques allow for precise estimates of behaviors in specific populations, such as health issues among females, across all

segments of the Military. The well-researched health scales provide valid measures in assessing attitudes and behaviors.

Despite these strengths, survey results also are subject to the potential bias of self-reports and to the ambiguities caused by questions with varying interpretations. Moreover, other potential problems affecting the validity of the survey data include population coverage, response rates, and nonresponse error. If the population is not properly represented in the survey or if response rates are low, biases may be introduced that can invalidate the study results. In addition, combining the Total Force Health Assessment's data with the POWR data could have introduced some error in those instances where the question wording or format on the questionnaires was not identical. Despite a sound study design, the relatively low response rate leaves open the possibility of response bias in the estimates (Groves & Couper, 1998). However, low response rates do not necessarily mean that findings are biased. As noted in Section 2.4, data from the Total Force/POWR comprehensive dataset show comparable smoking rates to those found in the 1998 DoD survey (Bray et al., 1999), suggesting that the comprehensive dataset contains much useful information.

3. HEALTH AND HEALTH CARE

Various dimensions of health and health care were assessed, including lifetime prevalence of a wide range of medical conditions, information on visits to health care providers, and measures derived from the Medical Outcome Study (MOS) 36-item Short Form (SF-36) health questionnaire (Ware & Sherbourne, 1992; Ware et al., 1993). Details on scale scoring and other methodology can be found in Chapter 2.

3.1 Perceived Health Status

Perceived health status is presented in Tables 3A and 3B. The following question was used to assess self-reported general health: "In general, would you say your health is...," with five response choices ranging from "poor" to "excellent." For the measure of vitality, a subscale of the SF-36 that assesses energy, a high score corresponds to feeling full of pep and energy all the time, and a low score corresponds to feeling tired and worn out all of the time. Results are reported as "high," "medium," or "low" relative to the range of responses given.

Nearly half (45.4%) of total Reserve/Guard personnel considered themselves to be in "very good" general health, while nearly three-quarters (71.4%) indicated being in either "excellent" or "very good" general health, the two highest response categories. Significantly more Reserve/Guard males than females reported being in "excellent" health (26.6% of males vs. 22.8% of females); there were no other significant sex differences across the remaining four response categories.

Among Reserve/Guard personnel, nearly three-quarters (71.6%) scored "high" or "medium" on the vitality scale. Females scored significantly lower than males, however, with a significantly higher percentage of females falling in the "low" vitality category (38.4% of females vs. 26.6% of males). Corresponding to this, fewer females scored in the "high" and "medium" categories: About 31% of females scored in each of the categories "high" and "medium" compared to 37% of males scoring in each of these categories. Female Reserve/Guard personnel scored significantly lower in vitality than males in every component except the Army National Guard, with the most striking disparity seen among Army Reservists, among whom twice as many females fell in the "low" vitality category as did males (41.6% vs. 21.1%).

Results for general health and vitality for Active-Duty personnel were similar to those for Reserve/Guard personnel. Overall, approximately 41% of Active-Duty personnel reported being in "very good" health, with over two-thirds (69.3%) rating their health as "excellent" or "very good." As seen among the Reserve/Guard, significantly more males than females in the total Active-Duty force reported being in "excellent" general health (29.1% of males vs. 21.0% of females). This sex difference held

Table 3A Perceived Health Status Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
General Health							
Females							
Excellent	18.8*	22.4	29.2	32.6*	24.8	26.0	22.8*
Very good	41.4	54.3	43.8	44.6	46.6	49.2	46.9
Good	32.4	21.7	23.4	20.1	26.3	21.1	26.1
Fair	5.4	0.6*	3.5*	2.3	2.2	3.1	3.2
Poor	2.0	0.9	0.1	0.4	0.1	0.6	1.1
Males							
Excellent	27.1*	23.7	32.0	42.4*	26.7	25.2	26.6*
Very good	44.1	43.9	44.6	41.6	50.8	49.5	45.1
Good	25.0	28.4	22.6	14.2	19.0	23.4	25.1
Fair	3.4	3.4*	0.8*	1.3	2.3	1.5	2.7
Poor	0.5	0.6	0.1	0.5	1.1	0.4	0.5
Total							
Excellent	25.0	23.6	31.5	42.0	26.3	25.3	26.0
Very good	43.4	45.0	44.4	41.8	50.0	49.5	45.4
Good	26.8	27.7	22.7	14.4	20.6	23.1	25.2
Fair	3.9	3.1	1.3	1.4	2.3	1.8	2.8
Poor	0.9	0.6	0.1	0.5	0.9	0.4	0.6
Vitality[a]							
Females							
High	26.9*	33.5	36.1	30.9	31.8	32.1	31.1*
Medium	31.5	32.1	26.9*	33.2	26.5	31.1	30.5*
Low	41.6*	34.4	37.0*	35.9*	41.7*	36.8*	38.4*
Males							
High	40.3*	34.1	38.8	36.5	40.0	37.7	36.8*
Medium	38.7	36.8	35.0*	37.6	34.3	34.7	36.6*
Low	21.1*	29.1	26.2*	26.0*	25.7*	27.6*	26.6*
Total							
High	37.0	34.0	38.3	36.2	38.3	36.8	35.9
Medium	36.9	36.3	33.5	37.4	32.7	34.1	35.7
Low	26.1	29.7	28.2	26.4	29.0	29.0	28.4

Note: Table entries are column percentages. Standard errors are shown in Table 3ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]Vitality is a summary measure of energy and fatigue.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 3B Perceived Health Status Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
General Health					
Females					
Excellent	16.1*	25.8*	28.0*	21.4	21.0*
Very good	44.9	40.9	39.0	42.6	42.8
Good	32.1	27.7	25.0	30.0	29.9*
Fair	6.0	5.2*	6.3	5.7	5.7
Poor	1.0	0.4	1.8	0.2	0.6
Males					
Excellent	27.7*	30.6*	39.5*	23.5	29.1*
Very good	40.4	40.9	34.7	46.2	41.2
Good	25.9	25.2	20.0	27.4	25.3*
Fair	5.6	3.0*	4.4	2.8	4.0
Poor	0.3	0.3	1.5	**	0.4
Total					
Excellent	26.0	30.0	38.8	23.1	27.9
Very good	41.1	40.9	34.9	45.6	41.4
Good	26.8	25.5	20.3	27.9	25.9
Fair	5.7	3.3	4.5	3.3	4.3
Poor	0.4	0.3	1.5	0.1	0.4
Vitality[a]					
Females					
High	20.2*	25.2*	20.8*	23.8*	22.7*
Medium	27.3	30.1	25.1	36.9	31.2
Low	52.5*	44.7*	54.1*	39.2	46.1*
Males					
High	30.1*	33.8*	32.4*	31.5*	31.8*
Medium	32.4	32.7	30.2	34.6	32.7
Low	37.5*	33.6*	37.5*	33.9	35.5*
Total					
High	28.7	32.6	31.7	30.1	30.5
Medium	31.6	32.3	29.9	35.0	32.5
Low	39.7	35.0	38.5	34.9	37.0

Note: Table entries are column percentages. Standard errors are shown in Table 3BSE in Appendix D.

*Sex differences are significant at $p<.05$.
**Low precision.

[a]Vitality is a summary measure of energy and fatigue.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

for each Service except the Air Force, in which there was no significant sex difference.

Female Active-Duty personnel were more likely than males to score in the "low" category for vitality (46.1% of females vs. 35.5% of males), again similar to the results for total Reserve/Guard personnel. For all Active-Duty Services but the Air Force, more females had "low" vitality; most strikingly, over half of Active-Duty Army and Marine Corps females had "low" vitality (52.5% and 54.1%, respectively), which was 15 percentage points or more higher than the corresponding figures for males. Notably, a greater percentage of total Active-Duty personnel scored "low" on the vitality scale than did Reserve/Guard personnel (37.0% vs. 28.4%).

3.2 Perceived Role Limitations

Tables 4A and 4B show self-reported role limitations due to physical and emotional causes, scores for which also are derived from the SF-36 health questionnaire. As reported, the "high" groups on the role limitations subscales include personnel who have problems with work or other daily activities as a result of physical health or emotional problems, and the "low" groups are personnel with fewer of these problems.

Among Reserve/Guard personnel, about 16% scored "high" on the scale for role limitations due to physical reasons. A significant sex difference was observed, with about 22% of females compared to 15% of males indicating that they had high role limitations due to physical reasons. Of note, among Army and Marine Corps Reservists, nearly twice as many females as males scored "high" on this scale (28.6% vs. 14.6% in the Army Reserve; 23.3% vs. 12.9% in the Marine Corps Reserve). Role limitations due to emotional problems were slightly less common than those due to physical problems, but the responses exhibited the same patterns. Among Reserve/Guard personnel, about 14% scored "high" on the emotional role limitations scale; separated by sex, the figures were 17% of females and 13% of males, a statistically significant difference. Only about 8% of male Air National Guard personnel reported role limitations due to emotional problems. However, over twice as many females in the Air National Guard (19.2%) reported a great deal of role limitations due to emotional reasons.

Role limitations due to physical and emotional reasons were slightly more prevalent among total Active-Duty personnel: Approximately 22% scored "high" for role limitations due to physical problems, and 18% scored "high" for role limitations due to emotional problems. For the total Active-Duty population and for many of the individual Active-Duty Services, significant sex differences again were observed for role limitations due to physical problems and role limitations due to emotional problems. Among Active-Duty personnel, about 30% of females compared to 21% of males had role limitations due to physical problems, which was a significant difference. Similarly, for role limitations due to emotional problems, significantly more Active-Duty females than males (22.3% vs. 16.7%) fell into the "high" category. The disparities between sexes in each Active-Duty Service were not as

Table 4A Perceived Role Limitations Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Role Limitations Due to Physical Health Problems							
Females							
High	28.6*	19.9	18.7*	23.3*	14.8	14.9	21.6*
Low	71.4*	80.1	81.3*	76.7*	85.2	85.1	78.4*
Males							
High	14.6*	16.2	11.6*	12.9*	15.0	10.6	14.5*
Low	85.4*	83.8	88.4*	87.1*	85.0	89.4	85.5*
Total							
High	18.1	16.5	12.9	13.3	14.9	11.3	15.6
Low	81.9	83.5	87.1	86.7	85.1	88.7	84.4
Role Limitations Due to Emotional Health Problems							
Females							
High	19.3*	16.3	12.6	20.3	13.7	19.2*	17.1*
Low	80.7*	83.7	87.4	79.7	86.3	80.8*	82.9*
Males							
High	12.1*	15.2	11.1	14.7	12.9	7.8*	13.1*
Low	87.9*	84.8	88.9	85.3	87.1	92.2*	86.9*
Total							
High	13.9	15.3	11.4	15.0	13.1	9.7	13.7
Low	86.1	84.7	88.6	85.0	86.9	90.3	86.3

Note: Table entries are column percentages. Standard errors are shown in Table 4ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 4B Perceived Role Limitations Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Role Limitations Due to Physical Health Problems					
Females					
High	34.5*	32.3*	43.9*	21.1*	29.9*
Low	65.5*	67.7*	56.1*	78.9*	70.1*
Males					
High	23.2*	22.0*	24.6*	14.3*	20.9*
Low	76.8*	78.0*	75.4*	85.7*	79.1*
Total					
High	24.9	23.3	25.8	15.5	22.1
Low	75.1	76.7	74.2	84.5	77.9
Role Limitations Due to Emotional Health Problems					
Females					
High	26.3*	20.5*	27.2*	18.8	22.3*
Low	73.7*	79.5*	72.8*	81.2	77.7*
Males					
High	18.9*	15.9*	18.9*	13.5	16.7*
Low	81.1*	84.1*	81.1*	86.5	83.3*
Total					
High	20.0	16.5	19.4	14.5	17.5
Low	80.0	83.5	80.6	85.5	82.5

Note: Table entries are column percentages. Standard errors are shown in Table 4BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

large as for role limitations due to physical problems, but they were still significant for Navy, Army, and Marine Corps personnel, ranging from a difference of about 5 to 8 percentage points.

3.3 Lifetime Prevalence of Selected Diseases and Medical Conditions

Tables 5A and 5B through 10A and 10B present the self-reported lifetime prevalence of numerous specific conditions and diseases, grouped by category or affected bodily system. This information was ascertained by asking, "Has a health care provider ever told you that you had any of the following?" Reported here are instances of diseases that were current at the time of the survey as well as those that were problems in the past. The statistical significance of sex differences in disease prevalence was not tested because many diseases affect females and males differently. Instead, results are discussed separately for females and males.

3.3.1 Respiratory or Skeletal Conditions and Allergic or Infectious Diseases

A number of conditions and diseases were assessed in Tables 5A and 5B. Lifetime prevalence data are shown for asthma and chronic bronchitis, two common respiratory conditions; one skeletal condition, arthritis; allergic conditions, such as chronic rhinitis or hay fever and other allergies; and two infectious diseases, tuberculosis and hepatitis. Among the Reserve/Guard, the two most prevalent conditions were allergic in nature, with about 31% of female and 20% of male personnel affected by allergies other than chronic rhinitis or hay fever and 15% of females and 9% of males affected by chronic rhinitis or hay fever at some point in time. Overall, 22% of total Reserve/Guard personnel reported allergies other than chronic rhinitis, and about 10% reported chronic rhinitis. Arthritis was the next most common of these conditions, reported by about 8% of Reserve/Guard personnel. The two respiratory conditions surveyed, asthma and chronic bronchitis, showed lifetime prevalence rates of approximately 10% and 12%, respectively, among female Reserve/Guard personnel and 6% and 4%, respectively, among their male counterparts. The infectious diseases were the least common, with a lifetime prevalence of a positive tuberculosis test at approximately 8% for females and 5% for males, and a lifetime prevalence of 3% overall for hepatitis. Marine Corps Reservists, both female and male, stand out as reporting the lowest lifetime prevalence for many of the respiratory, skeletal, allergic, and infectious conditions surveyed.

As seen among Reserve/Guard personnel, the most prevalent of the respiratory, skeletal, allergic, and infectious conditions among Active-Duty personnel were allergies (other than chronic rhinitis or hay fever), affecting about 27% of female and 16% of male Active-Duty personnel in their lifetime. Chronic rhinitis or hay fever was the second most commonly reported of these conditions, with about 9% of all Active-Duty personnel affected. A positive tuberculosis test and asthma, each with a prevalence of about 6%, tied for the third most common of all respiratory, skeletal, allergic, and infectious conditions among Active-Duty personnel. Moreover, ever having a positive test for

Table 5A Lifetime Prevalence of Respiratory or Skeletal Conditions and Allergic or Infectious Diseases Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Asthma							
Females	12.1	12.6	8.4	8.3	6.0	6.6	10.4
Males	6.0	5.5	7.9	6.1	6.7	6.9	6.1
Total	7.5	6.3	8.0	6.2	6.5	6.8	6.8
Chronic Bronchitis							
Females	13.9	10.7	8.8	8.4	12.9	11.0	11.9
Males	4.8	4.3	4.9	4.3	2.1	4.6	4.3
Total	7.0	4.9	5.6	4.5	4.3	5.6	5.5
Arthritis							
Females	12.9	8.7	9.4	3.9	8.1	10.5	10.3
Males	8.2	8.9	6.2	3.1	9.5	5.2	7.8
Total	9.3	8.9	6.8	3.1	9.2	6.1	8.2
Chronic Rhinitis or Hay Fever							
Females	16.7	9.4	16.1	9.8	20.9	14.4	14.7
Males	8.7	7.6	12.4	6.0	17.2	10.0	9.2
Total	10.6	7.8	13.1	6.1	17.9	10.7	10.1
Other Allergies							
Females	30.6	27.2	32.2	24.0	37.7	35.6	31.2
Males	22.5	18.4	22.5	16.8	24.4	21.0	20.3
Total	24.5	19.3	24.3	17.1	27.2	23.3	22.0
Positive Test for Tuberculosis							
Females	12.0	1.8	8.1	5.5	10.4	5.3	7.6
Males	6.6	2.9	6.5	5.7	8.5	3.5	4.6
Total	7.9	2.8	6.8	5.7	8.9	3.8	5.1
Hepatitis							
Females	2.2	2.2	2.8	1.3	2.1	3.0	2.3
Males	3.8	2.3	2.1	1.7	1.1	3.0	2.5
Total	3.4	2.3	2.2	1.7	1.3	3.0	2.5

Note: Table entries are percentages. Standard errors are shown in Table 5ASE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 5B Lifetime Prevalence of Respiratory or Skeletal Conditions and Allergic or Infectious Diseases Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Asthma					
Females	11.7	6.9	7.7	4.9	8.0
Males	7.1	5.3	6.5	5.6	6.1
Total	7.8	5.5	6.6	5.5	6.4
Chronic Bronchitis					
Females	11.9	7.4	8.1	2.5	7.4
Males	6.7	3.4	4.4	3.8	4.8
Total	7.5	3.9	4.6	3.6	5.2
Arthritis					
Females	10.4	4.9	4.2	4.3	6.6
Males	7.5	4.0	2.2	6.7	5.6
Total	7.9	4.1	2.3	6.3	5.8
Chronic Rhinitis or Hay Fever					
Females	10.7	10.1	5.9	12.4	10.9
Males	8.6	8.6	6.2	9.6	8.5
Total	8.9	8.8	6.1	10.1	8.8
Other Allergies					
Females	25.3	23.5	22.0	30.8	26.5
Males	17.6	13.9	13.0	19.0	16.3
Total	18.7	15.1	13.5	21.1	17.7
Positive Test for Tuberculosis					
Females	10.0	5.0	4.4	8.8	8.0
Males	7.5	6.7	2.8	5.6	6.2
Total	7.9	6.4	2.9	6.2	6.4
Hepatitis					
Females	4.0	2.5	2.8	1.5	2.7
Males	1.8	2.4	1.4	1.6	1.9
Total	2.1	2.4	1.5	1.6	2.0

Note: Table entries are percentages. Standard errors are shown in Table 5BSE in Appendix D.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

tuberculosis was slightly more common for the Active-Duty force. About 6% of Active-Duty personnel had a lifetime prevalence of arthritis. Lifetime prevalence of chronic bronchitis and hepatitis for all Active-Duty personnel was comparable to that reported by Reserve/Guard personnel. Moreover, these conditions were the least common among Active-Duty personnel.

Although allergic conditions were the most widely reported of the respiratory, skeletal, allergic, and infectious conditions among military personnel, lifetime prevalence was slightly lower among Active-Duty than among Reserve/Guard personnel overall and when analyzed by sex. Active-Duty personnel also were less likely to report ever having arthritis, both overall and by sex. The lifetime prevalence of a positive tuberculosis test was comparable for total Active-Duty and Reserve/Guard personnel (6.4% and 5.1%, respectively).

Active-Duty females reported lower lifetime prevalence rates than did Reserve/Guard females for asthma, chronic bronchitis, arthritis, chronic rhinitis or hay fever, and other allergies. Marine Corps Reservists reported especially low lifetime prevalence rates compared to other Reserve/Guard components for arthritis and hepatitis. Similarly, Active-Duty Marine Corps personnel reported especially low rates of chronic rhinitis or hay fever as well as of ever having had a positive tuberculosis test.

3.3.2 Cancer

As shown in Tables 6A and 6B, personnel were asked about lifetime prevalence of cervical, breast, skin, and other cancers. Among Reserve/Guard females, lifetime prevalence of cervical cancer was about 3%, although prevalence ranged widely by Reserve/Guard component, from less than 1% for the Air National Guard to about 5% in the Army National Guard. Skin cancer was the second most common cancer type, reported by about 2% of Reserve/Guard personnel. Overall breast cancer lifetime prevalence rates were about 1% for all females in the Reserve/Guard, but varied widely among females in the different Reserve/Guard components (from 0.2% for the Naval Reserve to 1.4% for the Army Reserve). "Other cancer" was even less common, with a lifetime prevalence rate of less than 1% overall.

Lifetime prevalence of cervical cancer was about 3% for the total Active-Duty, ranging greatly among the Active-Duty Services (from 1.2% among Air Force females to 4.6% in Marine Corps females). Skin cancer and other cancer showed comparable lifetime prevalence figures of below 1% in the overall Active-Duty force. Breast cancer was the least commonly reported of all cancer types among Active-Duty females, with an overall prevalence of 0.3%.

For all military personnel, cervical cancer had the highest occurrence of all cancer types and was the most common cancer among females. Among males, skin cancer was the most common

Table 6A Lifetime Prevalence of Cancer Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cervical Cancer							
Females	1.6	4.5	4.3	1.6	0.9	0.6	2.5
Breast Cancer							
Females	1.4	1.0	0.2	**	0.3	0.4	0.9
Skin Cancer							
Females	1.5	1.2	1.0	1.5	2.0	0.7	1.3
Males	0.7	2.0	2.5	0.4	2.9	2.1	1.8
Total	0.9	1.9	2.2	0.4	2.7	1.9	1.7
Other Cancer							
Females	1.4	**	0.7	**	0.6	0.1	0.7
Males	0.3	0.6	0.2	0.4	0.5	0.8	0.5
Total	0.5	0.6	0.3	0.4	0.5	0.7	0.5

Note: Table entries are percentages. Standard errors are shown in Table 6ASE in Appendix D.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 6B Lifetime Prevalence of Cancer Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cervical Cancer					
Females	4.5	2.4	4.6	1.2	2.9
Breast Cancer					
Females	0.6	0.3	0.1	0.2	0.3
Skin Cancer					
Females	0.4	0.8	1.2	0.4	0.5
Males	1.3	0.8	0.4	1.2	1.0
Total	1.1	0.8	0.4	1.0	0.9
Other Cancer					
Females	0.6	0.4	0.3	0.1	0.4
Males	0.9	0.3	0.7	1.3	0.8
Total	0.9	0.3	0.7	1.1	0.8

Note: Table entries are percentages. Standard errors are shown in Table 6BSE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

(1.8% lifetime prevalence among all Reserve/Guard and 1.0% among Active-Duty personnel).

3.3.3 Cardiovascular and Endocrine Conditions

Data on lifetime prevalence of cardiovascular and endocrine conditions are shown in Tables 7A and 7B. Heart disease or angina, high blood pressure, and high cholesterol were the cardiovascular conditions assessed, along with two endocrine conditions, thyroid disease and diabetes.

As shown in Table 7A, high cholesterol and high blood pressure were the most prevalent of the cardiovascular conditions among Reserve/Guard personnel, with about 17% of personnel reporting high cholesterol and 12% reporting high blood pressure. Examining these data separately by sex showed about 15% of females and 17% of males reporting a diagnosis of high cholesterol at some time, and 9% of females and 12% of males reporting having had a diagnosis of high blood pressure. Marine Corps Reservists had especially low prevalences of both high cholesterol and high blood pressure, both overall and by sex. For high cholesterol, about 6% of all Marine Corps Reservists reported ever being diagnosed compared to 17% of total Reserve/Guard personnel. Similarly, about 5% of all Marine Corps Reservists compared to 12% of total Reserve/Guard personnel reported ever being told they had high blood pressure. Heart disease or angina showed an overall lifetime prevalence of about 1% among total Reserve/Guard personnel. The overall lifetime prevalence of thyroid disease was about 1% (about 3% for females and less than 1% for males) and less than 1% of the total Reserve/Guard force reported a diagnosis of diabetes.

High cholesterol and high blood pressure were again the most prevalent cardiovascular conditions among Active-Duty personnel. However, estimates were lower among Active-Duty personnel than among Reserve/Guard personnel. Among Active-Duty personnel, high cholesterol was reported by about 10% of females and 13% of males, and high blood pressure was reported by about 7% of females and 9% of males. Overall, about 13% of Active-Duty personnel reported high cholesterol and 9% reported high blood pressure. Similar to the patterns seen across Reserve/Guard components, Active-Duty Marine Corps personnel were less likely to ever have been diagnosed with either of these two cardiovascular conditions. Although personnel in other Active-Duty Services reported prevalence rates ranging from approximately 11% to 15% for high cholesterol and from 8% to 11% for high blood pressure, the corresponding figures for the total Marine Corps were 5% for high cholesterol and 4% for high blood pressure. Heart disease or angina were much less common, with a reported lifetime prevalence of about 1% among total Active-Duty personnel, although a wide range of estimates was seen across the Active-Duty Services. Similar to estimates for the Reserve/Guard, thyroid disease was reported by about 3% of Active-Duty females and less than 1% of Active-Duty males, but prevalence varied across the Active-Duty Services. Overall, about 1% of Active-Duty personnel reported this condition. Lifetime prevalence of diabetes was less than 1% with about 2% of females and under 1% of males reporting this disease.

Table 7A Lifetime Prevalence of Cardiovascular and Endocrine Conditions Among Reserve/Guard Personnel

System/Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cardiovascular							
Heart Disease or Angina							
Females	1.3	1.7	3.4	0.8	0.3	1.5	1.5
Males	0.9	1.8	0.8	0.4	1.0	0.6	1.2
Total	1.0	1.8	1.3	0.4	0.9	0.8	1.3
High Blood Pressure							
Females	10.3	9.3	8.5	4.8	8.7	4.8	8.8
Males	12.8	13.1	12.9	4.9	14.1	11.2	12.4
Total	12.2	12.7	12.1	4.9	12.9	10.1	11.9
High Cholesterol							
Females	13.2	15.3	19.1	7.8	14.6	16.3	14.9
Males	15.3	17.0	20.9	5.8	23.6	20.5	17.3
Total	14.8	16.8	20.5	5.8	21.7	19.8	16.9
Endocrine							
Thyroid Disease							
Females	4.7	0.6	4.7	3.8	3.7	3.9	3.3
Males	0.9	0.5	0.8	0.1	1.0	0.7	0.6
Total	1.8	0.5	1.5	0.3	1.5	1.2	1.1
Diabetes							
Females	1.4	0.4	0.7	2.5	0.5	1.6	1.0
Males	1.1	0.9	1.0	**	0.6	0.2	0.8
Total	1.2	0.8	0.9	0.1	0.6	0.4	0.8

Note: Table entries are percentages. Standard errors are shown in Table 7ASE in Appendix D.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 7B Lifetime Prevalence of Cardiovascular and Endocrine Conditions Among Active-Duty Personnel

System/Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cardiovascular					
Heart Disease or Angina					
Females	1.7	0.3	**	0.8	0.9
Males	1.4	0.3	**	1.6	1.0
Total	1.4	0.3	**	1.5	1.0
High Blood Pressure					
Females	10.4	5.6	3.2	5.8	7.2
Males	10.8	7.9	4.2	11.8	9.4
Total	10.7	7.6	4.2	10.7	9.1
High Cholesterol					
Females	13.0	6.5	5.1	10.8	10.2
Males	15.0	11.7	4.8	16.4	13.1
Total	14.7	11.1	4.8	15.4	12.7
Endocrine					
Thyroid Disease					
Females	2.9	2.4	1.0	2.5	2.5
Males	0.5	0.2	0.8	1.9	0.8
Total	0.8	0.5	0.8	2.0	1.0
Diabetes					
Females	1.7	1.2	1.3	2.8	1.9
Males	0.4	0.3	0.1	0.2	0.3
Total	0.6	0.4	0.1	0.7	0.5

Note: Table entries are percentages. Standard errors are shown in Table 7BSE in Appendix D.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

3.3.4 Gastrointestinal and Gallbladder Disorders

Lifetime prevalence of hernia or rupture, hemorrhoids, ulcer, bowel or intestinal trouble, and gallstones appear in Tables 8A and 8B. For total Reserve/Guard personnel, the most commonly reported gastrointestinal conditions were hemorrhoids (15.1%) and hernia or rupture (11.1%). Rates for females in different Reserve/Guard components ranged from about 15% to 25% for hemorrhoids; among males the range was from 6% to 20%. Hernia or rupture rates ranged from about 1% to 5% for females across Reserve/Guard components and from 11% to 13% for males. Overall occurrence of ulcer and bowel or intestinal trouble was lower than the other gastrointestinal conditions among the total Reserve/Guard, with approximately 7% of personnel indicating an ulcer and 5% indicating bowel or intestinal trouble. Prevalence estimates were comparable for females for an ulcer and bowel or intestinal trouble. The estimates among males, however, differed slightly for these two conditions (6.4% for ulcer and 4.7% for bowel or intestinal trouble). Gallstones were the least prevalent disorder, with a total lifetime prevalence of about 1%, ranging from less than 1% to 2% across Reserve/Guard components. Female and male Marine Corps Reservists reported lifetime prevalence rates of ulcers and gallstones that were notably lower than the rates reported by other Reserve/Guard personnel.

Similar patterns were seen among Active-Duty personnel for the gastrointestinal and gallbladder disorders as for Reserve/Guard personnel; however, lifetime prevalence of these disorders was higher among Reserve/Guard personnel overall. Among Active-Duty personnel, the most commonly reported condition was hemorrhoids (10.9% overall). Occurrence of an ulcer was reported by about 4% of Active-Duty personnel. Lifetime prevalence of gallstones was under 1% overall and had a wider range for Active-Duty females (from 0.7% to 3.5%) than for males (from 0.1% to 0.7%). Gallstone occurrence also was much lower among Marine Corps personnel than among members of other Active-Duty Services.

3.3.5 Urinary Tract Conditions

Tables 9A and 9B present the lifetime prevalence of urinary tract infection (UTI), repeated kidney infections, and kidney stones. About 15% of all personnel reported UTIs, while fewer reported kidney stones (4.2%) or repeated kidney infections (1.3%). Roughly half (44.5%) of all females in the Reserve/Guard had ever had a UTI, ranging from about 39% in the Marine Corps Reserve to 53% of Air Force Reservists. For males, approximately 9% of Reserve/Guard personnel reported ever having a UTI, ranging from a low of 4% among Marine Corps Reservists to a high of 11% among Air Force Reservists. Repeated kidney infections and kidney stones were less common than UTIs, but they varied across Reserve/Guard components. Overall, approximately 5% of female and less than 1% of male Reserve/Guard personnel reported having repeated kidney infections, while 2% of females and 5% of males reported ever having kidney stones.

Very similar lifetime prevalence rates for all three urinary tract conditions were observed among Active-Duty personnel.

Table 8A Lifetime Prevalence of Gastrointestinal and Gallbladder Disorders Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Hernia or Rupture							
Females	3.4	5.1	3.4	3.8	0.8	2.8	3.5
Males	12.2	13.3	10.9	11.0	11.5	12.7	12.5
Total	10.0	12.5	9.5	10.6	9.2	11.1	11.1
Hemorrhoids							
Females	15.2	21.3	24.5	16.3	24.0	23.4	20.0
Males	16.2	12.5	14.7	6.3	19.9	16.2	14.2
Total	16.0	13.5	16.6	6.7	20.8	17.4	15.1
Ulcer							
Females	8.4	8.9	6.9	4.1	6.8	10.6	8.4
Males	5.5	7.2	5.4	3.3	8.7	5.4	6.4
Total	6.2	7.4	5.7	3.3	8.3	6.2	6.7
Bowel or Intestinal Trouble							
Females	5.3	6.3	8.0	6.5	14.1	14.1	8.0
Males	3.1	5.6	2.3	2.9	6.6	5.4	4.7
Total	3.7	5.7	3.4	3.0	8.1	6.8	5.2
Gallstones							
Females	4.2	1.8	5.3	1.0	4.4	5.1	3.7
Males	0.5	1.2	0.3	0.1	1.4	1.3	1.0
Total	1.4	1.3	1.3	0.2	2.0	1.9	1.4

Note: Table entries are percentages. Standard errors are shown in Table 8ASE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 8B Lifetime Prevalence of Gastrointestinal and Gallbladder Disorders Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Hernia or Rupture					
Females	3.9	2.4	2.6	6.2	4.2
Males	8.5	8.1	8.2	11.9	9.2
Total	7.8	7.4	7.8	10.9	8.5
Hemorrhoids					
Females	15.1	13.0	9.7	16.4	14.8
Males	9.6	9.7	7.6	13.1	10.2
Total	10.4	10.1	7.7	13.7	10.9
Ulcer					
Females	7.4	4.3	2.8	2.9	4.8
Males	3.6	3.3	2.8	7.1	4.3
Total	4.2	3.4	2.8	6.3	4.3
Bowel or Intestinal Trouble					
Females	8.6	5.6	6.3	10.6	8.4
Males	3.0	2.8	1.0	4.2	3.0
Total	3.8	3.1	1.3	5.3	3.7
Gallstones					
Females	2.8	1.5	0.7	3.5	2.6
Males	0.4	0.7	0.1	0.2	0.4
Total	0.8	0.8	0.2	0.8	0.7

Note: Table entries are percentages. Standard errors are shown in Table 8BSE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 9A Lifetime Prevalence of Urinary Tract Conditions Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Urinary Tract Infection							
Females	45.0	39.5	44.6	38.6	52.5	47.2	44.5
Males	8.6	9.0	10.3	3.8	10.8	9.6	9.0
Total	17.6	12.2	16.8	5.3	19.5	15.7	14.6
Repeated Kidney Infections							
Females	5.7	5.3	4.4	2.5	4.6	3.7	5.0
Males	0.3	1.0	0.8	0.4	0.3	0.5	0.7
Total	1.6	1.4	1.4	0.5	1.2	1.0	1.3
Kidney Stones							
Females	2.2	0.3	3.9	1.0	0.8	3.5	1.9
Males	5.5	4.5	2.9	1.7	8.3	4.5	4.7
Total	4.7	4.0	3.0	1.6	6.7	4.4	4.2

Note: Table entries are percentages. Standard errors are shown in Table 9ASE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 9B Lifetime Prevalence of Urinary Tract Conditions Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Urinary Tract Infection					
Females	48.6	44.8	46.0	44.1	46.0
Males	8.4	9.3	6.6	7.4	8.1
Total	14.3	14.0	8.9	14.1	13.5
Repeated Kidney Infections					
Females	3.9	4.6	5.7	3.5	4.1
Males	1.1	0.5	0.6	0.3	0.7
Total	1.5	1.1	0.9	0.9	1.1
Kidney Stones					
Females	2.9	1.5	0.6	3.0	2.4
Males	2.5	3.0	2.0	1.9	2.4
Total	2.5	2.8	1.9	2.1	2.4

Note: Table entries are percentages. Standard errors are shown in Table 9BSE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

UTIs were reported by about 14% of all personnel, while kidney stones were reported by 2% and repeated kidney infections by 1%. Nearly half (46.0%) of Active-Duty females reported ever having a UTI, ranging from about 44% in the Air Force to 49% in the Army. For males, about 8% overall ever had a UTI, ranging from 7% in the Marine Corps to 9% in the Navy. Repeated kidney infections also were more common among Active-Duty females than males. Approximately 4% of total Active-Duty females reported repeated kidney infections, as did 1% of Active-Duty males. Lifetime prevalence of kidney stones was about 2% for all Active-Duty personnel, regardless of sex.

3.3.6 Reproductive System Disorders

Lifetime diagnoses of sexually transmitted diseases (STDs), pelvic inflammatory disease (PID), and sterility/infertility are reported in Tables 10A and 10B. Overall, about 5% of Reserve/Guard personnel reported they had had herpes or genital warts and 7% reported other STDs. Reserve/Guard females reported similar overall lifetime prevalence rates for herpes or genital warts and other STDs, while for males herpes or genital warts were less common than other STDs. PID was reported by about 7% of all Reserve/Guard females, and estimates ranged from a low of 4% among female Marine Corps Reservists to a high of 9% among females in the Army Reserve. Sterility/infertility was reported by about 3% of all Reserve/Guard females. Although in most Reserve/Guard components the estimates for sterility/infertility ranged from approximately 2% to 4%, Naval Reserve females reported a lifetime prevalence of 7%. Sterility/infertility was reported by about 1% of total males in the Reserve/Guard; this ranged from 1% to 2% across all Reserve/Guard components except the Marine Corps Reserve, where lifetime prevalence of sterility/infertility was quite low (0.3%). In the Reserve/Guard, the overall prevalence of sterility/infertility was about 2%.

Among Active-Duty personnel, estimates for herpes or genital warts (5.5%) were comparable to those for the Reserve/Guard, while the percentage of personnel reporting other STDs was slightly higher than the percentage in the Reserve/Guard population (10.0%). For Active-Duty females, the lifetime prevalence of herpes or genital warts or other STDs ranged from about 9% to 19% across the Active-Duty Services. For Active-Duty males, herpes or genital warts were less common than other STDs, with a reported lifetime prevalence of about 3% to 5% (for herpes or genital warts) and 6% to 11% (for other STDs) across the Active-Duty Services. Lifetime prevalence of PID among all Active-Duty females was about 6%. Sterility/infertility was reported by about 2% to 3% of Active-Duty females and 1% of all Active-Duty males. These estimates were similar to those for the Reserve/Guard. Overall, sterility/infertility was reported by about 1% of Active-Duty personnel.

3.4 Number of Self-Reported Lifetime Medical Conditions

A summary of the number of the medical conditions surveyed in Tables 5A/B to 10A/B is shown in Tables 11A and

Table 10A Lifetime Prevalence of Reproductive System Disorders Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Herpes or Genital Warts							
Females	8.2	9.1	14.6	11.1	15.9	11.6	10.5
Males	5.2	3.6	6.4	3.3	5.9	4.4	4.4
Total	5.9	4.2	7.9	3.7	7.9	5.6	5.4
Other Sexually Transmitted Diseases							
Females	15.1	9.5	6.0	9.4	12.2	5.9	10.9
Males	8.1	4.7	8.4	5.3	5.7	7.3	6.2
Total	9.8	5.2	7.9	5.5	7.1	7.0	6.9
Pelvic Inflammatory Disease							
Females	9.1	5.5	7.8	3.7	5.7	5.8	7.1
Sterility/Infertility							
Females	3.0	1.9	6.6	3.3	3.2	3.5	3.2
Males	1.3	1.4	1.8	0.3	2.0	1.4	1.4
Total	1.7	1.5	2.7	0.4	2.2	1.7	1.7

Note: Table entries are percentages. Standard errors are shown in Table 10ASE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 10B Lifetime Prevalence of Reproductive System Disorders Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Herpes or Genital Warts					
Females	12.1	10.4	11.6	14.4	12.5
Males	3.3	5.4	3.8	5.3	4.4
Total	4.6	6.0	4.3	6.9	5.5
Other Sexually Transmitted Diseases					
Females	18.8	16.1	15.0	9.0	14.6
Males	10.0	11.2	8.4	6.3	9.2
Total	11.3	11.9	8.8	6.8	10.0
Pelvic Inflammatory Disease					
Females	6.4	5.3	5.6	6.5	6.1
Sterility/Infertility					
Females	2.1	3.3	2.7	2.4	2.5
Males	1.0	1.2	1.0	1.2	1.1
Total	1.2	1.5	1.1	1.4	1.3

Note: Table entries are percentages. Standard errors are shown in Table 10BSE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

11B. Overall, approximately 68% of Reserve/Guard personnel and 63% of Active-Duty personnel reported ever having had any of the 28 conditions asked about in the questionnaires. When considered by sex, about 80% to 82% of females overall and 60% to 65% of males overall reported ever having been diagnosed with 1 or more of the 28 reported medical conditions. Active-Duty personnel were slightly more likely to be free of any of the reported medical conditions than Reserve/Guard personnel (36.9% of the overall Active-Duty Services and 32.3% of the overall Reserve/Guard components). About half of males in the Marine Corps Reserve and Active-Duty Marine Corps reported being free of any of the medical conditions surveyed.

3.5 Visits to Military and Civilian Health Care Providers

The number and reasons for visits to military and civilian health care providers in the past 12 months were investigated (see results in Tables 12A and 12B through 15A and 15B). Reasons for visits fell into the following categories: treatment of an illness or injury, follow-up visit for an illness or injury, general physical exam, prescription refill only, eye exam only, prenatal care, same day surgery, mental health care, and emergency care.

3.5.1 Reasons for Visiting a Military Health Care Provider in the Past 12 Months

Table 12A shows that the three most common reasons for Reserve/Guard personnel to visit a military health care provider in the past 12 months were for a general physical exam, treatment of an illness or injury, and follow-up for an illness or injury. About half (46.2%) of the Reserve/Guard personnel received a general physical exam from a military health care provider; slightly more females than males got physical exams but the sex difference was not significant. Visits related to illness or injury were the next most common, with females significantly more likely than males to have received treatment. Nearly half of females in the Reserve/Guard (48.5%) were treated for an illness or injury by a military health care provider, and 35% received follow-up treatment for an illness or injury, compared to 34% of males receiving treatment and 21% receiving follow-up. Of note, almost three times as many female as male Reserve/Guard personnel reported seeing a military health care provider for prescription refills only (29.1% females vs. 10.4% males) and nearly twice as many for emergency care (13.1% females vs. 6.8% males).

Higher percentages of Active-Duty than Reserve/Guard personnel utilized military health care providers in the past 12 months for every reason asked about in the questionnaires, as shown in Table 12B. Additionally, for visits to military health care providers, significant sex differences were seen for all reasons. Specifically, females were more likely than males to visit a health care provider for each reason. As was seen among Reserve/Guard personnel, the top three reasons for visiting a military health care provider among Active-Duty personnel were related to illness or injury or for a general physical exam. Overall, about 71% of Active-Duty personnel went to a military health care provider for treatment of an illness or injury and 52% made a follow-up visit for

Table 11A Number of Self-Reported Lifetime Medical Conditions Among Reserve/Guard Personnel

Service/Sex	Number of Self-Reported Lifetime Medical Conditions							
	0	1	2	3	4	5	6 or More	Any (1 or More)
Army Reserve								
Females	20.1	20.2	16.9	15.3	10.7	7.9	8.8	79.9
Males	33.3	25.2	18.1	13.2	4.5	4.5	1.2	66.7
Total	30.1	24.0	17.8	13.7	6.0	5.3	3.1	69.9
Army National Guard								
Females	22.3	27.4	19.1	9.8	7.9	7.1	6.4	77.7
Males	37.2	25.5	17.8	9.4	5.3	2.4	2.5	62.8
Total	35.6	25.7	17.9	9.5	5.5	2.9	2.9	64.4
Naval Reserve								
Females	14.7	20.5	21.9	15.5	12.5	6.7	8.2	85.3
Males	32.3	27.1	16.1	10.7	7.2	3.5	3.0	67.7
Total	29.0	25.9	17.2	11.6	8.2	4.1	4.0	71.0
Marine Corps Reserve								
Females	29.5	20.2	18.3	16.4	8.7	3.4	3.4	70.5
Males	50.4	25.9	14.7	4.1	2.5	1.5	0.9	49.6
Total	49.5	25.7	14.9	4.7	2.8	1.6	1.0	50.5
Air Force Reserve								
Females	16.0	18.8	23.2	9.5	13.2	6.2	13.2	84.0
Males	24.7	28.6	18.7	12.6	6.2	3.5	5.8	75.3
Total	22.9	26.5	19.6	11.9	7.6	4.1	7.4	77.1
Air National Guard								
Females	21.7	15.9	23.0	14.3	8.8	6.8	9.7	78.3
Males	28.6	30.8	19.1	11.1	5.3	2.0	3.1	71.4
Total	27.5	28.4	19.7	11.6	5.9	2.8	4.1	72.5
Total Reserve/Guard Personnel								
Females	20.0	21.5	19.6	13.0	10.1	7.1	8.6	80.0
Males	34.6	26.5	17.8	10.5	5.2	2.9	2.5	65.4
Total	32.3	25.7	18.0	10.9	6.0	3.6	3.5	67.7

Note: Table entries are percentages. Data in this table are a count of conditions reported in Tables 5A through 10A. Standard errors are shown in Table 11ASE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 11B Number of Self-Reported Lifetime Medical Conditions Among Active-Duty Personnel

Service/Sex	Number of Self-Reported Lifetime Medical Conditions							
	0	1	2	3	4	5	6 or More	Any (1 or More)
Army								
Females	16.3	22.4	20.3	18.0	10.4	3.7	8.9	83.7
Males	37.4	29.4	15.9	8.8	4.2	1.9	2.4	62.6
Total	34.3	28.3	16.6	10.1	5.2	2.1	3.3	65.7
Navy								
Females	24.4	26.7	20.3	12.9	7.3	4.4	4.0	75.6
Males	43.1	25.8	16.3	8.2	3.7	1.7	1.3	56.9
Total	40.6	25.9	16.8	8.8	4.2	2.0	1.7	59.4
Marine Corps								
Females	23.4	28.8	22.1	12.5	7.4	3.2	2.6	76.6
Males	50.7	28.2	11.5	5.7	2.2	1.0	0.7	49.3
Total	49.1	28.3	12.1	6.1	2.5	1.1	0.8	50.9
Air Force								
Females	14.7	31.6	21.3	15.2	8.0	5.8	3.4	85.3
Males	34.4	29.2	18.5	8.3	5.6	2.3	1.7	65.6
Total	30.8	29.7	19.0	9.6	6.0	2.9	2.0	69.2
Total Active-Duty Personnel								
Females	18.1	27.0	20.7	15.5	8.6	4.6	5.5	81.9
Males	40.0	28.2	16.1	8.1	4.1	1.8	1.7	60.0
Total	36.9	28.0	16.7	9.1	4.8	2.2	2.2	63.1

Note: Table entries are percentages. Data in this table are a count of conditions reported in Tables 5B through 10B. Standard errors are shown in Table 11BSE in Appendix D.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 12A Reasons for Visiting Military Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Reason/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Treatment of an Illness or Injury							
Females	50.8*	52.4	45.6*	55.3*	39.4	42.2*	48.5*
Males	36.6*	37.4	28.5*	32.6*	29.3	23.3*	33.7*
Total	40.9	39.2	31.5	33.8	32.3	26.7	36.5
Follow-Up Visit for an Illness or Injury							
Females	37.0*	39.9	28.2	47.5*	25.9	28.1*	34.8*
Males	17.5*	26.1	19.3	21.4*	19.0	13.8*	21.4*
Total	23.4	27.8	20.9	22.8	21.1	16.3	23.9
General Physical Exam							
Females	49.6	50.8	57.0	64.9*	53.4	46.9	51.1
Males	39.9	37.7	66.2	51.7*	64.5	47.9	45.1
Total	42.9	39.2	64.6	52.4	61.4	47.7	46.2
Prescription Refill Only							
Females	32.0*	25.9*	29.7*	29.2*	21.2	34.6*	29.1*
Males	12.6*	10.5*	9.3*	10.0*	9.3	7.9*	10.4*
Total	18.5	12.4	13.0	11.1	12.9	12.6	13.8
Eye Exam Only							
Females	14.4	30.2	19.6	31.3*	17.0	29.8	21.7
Males	18.7	17.6	16.7	20.0*	26.1	18.7	18.6
Total	17.4	19.2	17.2	20.6	23.4	20.7	19.1
Prenatal Care							
Females	2.6	5.3	4.0	6.9	5.2	5.7	4.2
Same Day Surgery							
Females	8.3	8.8	2.8	7.8	7.0	3.9	7.2
Males	3.2	5.9	2.6	4.3	1.3	2.6	4.2
Total	4.8	6.3	2.7	4.5	3.0	2.9	4.8
Mental Health Care							
Females	3.9	**	3.2	1.5	1.5	4.6	2.5
Males	0.1	2.3	1.5	0.6	0.2	1.0	1.4
Total	1.2	2.0	1.8	0.6	0.6	1.6	1.6
Emergency Care							
Females	13.8	14.7	12.7*	14.2*	10.0	10.3	13.1*
Males	6.0	7.9	4.8*	6.1*	8.7	5.1	6.8*
Total	8.4	8.8	6.2	6.6	9.1	6.0	8.0

Note: Table entries are percentages. Standard errors are shown in Table 12ASE in Appendix D.

*Sex differences are significant at $p<.05$.
**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 12B Reasons for Visiting Military Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Reason/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Treatment of an Illness or Injury					
Females	82.8*	77.3*	83.5*	75.1*	78.8*
Males	76.1*	66.8*	69.3*	66.8*	70.1*
Total	77.1	68.2	70.1	68.4	71.4
Follow-Up Visit for an Illness or Injury					
Females	68.3*	58.6*	66.9*	54.4*	61.0*
Males	55.6*	48.8*	51.1*	44.6*	50.3*
Total	57.6	50.1	52.0	46.5	51.9
General Physical Exam					
Females	57.8*	52.5*	60.1*	59.1	57.0*
Males	46.3*	43.7*	46.1*	55.3	47.6*
Total	48.1	44.8	46.9	56.0	49.0
Prescription Refill Only					
Females	60.7*	56.4*	57.1*	58.2*	58.5*
Males	30.1*	24.8*	24.8*	30.0*	27.7*
Total	34.9	28.9	26.7	35.6	32.2
Eye Exam Only					
Females	49.2*	38.0*	32.9	43.9	43.6*
Males	41.6*	30.7*	30.9	39.7	36.3*
Total	42.8	31.7	31.0	40.5	37.4
Prenatal Care					
Females	15.8	17.4	21.7	14.1	16.0
Same Day Surgery					
Females	14.0	15.8*	16.5*	13.2	14.3*
Males	10.7	9.8*	10.0*	11.7	10.6*
Total	11.2	10.6	10.4	12.0	11.1
Mental Health Care					
Females	6.0	6.1*	6.9	9.3*	7.2*
Males	4.6	2.9*	3.8	3.4*	3.7*
Total	4.8	3.3	4.0	4.6	4.2
Emergency Care					
Females	30.7*	27.5*	30.7*	22.0*	26.9*
Males	18.6*	17.8*	21.1*	12.9*	17.4*
Total	20.5	19.1	21.7	14.7	18.8

Note: Table entries are percentages. Standard errors are shown in Table 12BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

an illness or injury. Nearly half (49.0%) of Active-Duty personnel saw a military health care provider for a general physical exam (57.0% of females and 47.6% of males). Eye exams and prescription refills were the next most common reasons for Active-Duty personnel to see a military health care provider (37.4% and 32.2%, respectively). In addition, Active-Duty females were more likely than Reserve/Guard females to receive prenatal care from a military health care provider.

3.5.2 Number of Visits to a Military Health Care Provider in the Past 12 Months

Tables 13A and 13B show the number of visits made to military health care providers. Significantly more males than females made no visits to a military health care provider in the past 12 months. About 19% of Reserve/Guard females and 30% of Reserve/Guard males did not visit a military health care provider at all. Nearly half (45.7%) of Reserve/Guard personnel made between one and three visits, and 43% of females versus 23% of males made four or more visits, a significant sex difference. Overall, about 72% of all Reserve/Guard personnel made one or more visits.

Among Active-Duty personnel, nearly 95% made one or more visits to a military health care provider in the past 12 months, as shown in Table 13B. Nearly 2% of Active-Duty females and 6% of Active-Duty males did not visit a military health care provider at all, reflecting a significant sex difference. Of Active-Duty personnel who did see a military health care provider, the majority (64.1%) made four or more visits; by sex, about 85% of females and 61% of males on Active-Duty made four or more visits to a military health care provider.

Tables 13A and 13B show some of the differences in health care utilization patterns between Reserve/Guard and Active-Duty personnel. Active-Duty personnel made use of military health care services at high rates, with significantly more females (98.3% vs. 94.0%) making at least one visit to a military health care provider in the past 12 months. Although Reserve/Guard personnel were less likely to visit military health care providers, about 81% of Reserve/Guard females and 70% of Reserve/Guard males made at least one visit to a military health care provider, also a significant sex difference.

3.5.3 Reasons for Visiting a Civilian Health Care Provider in the Past 12 Months

As shown in Table 14A, Reserve/Guard personnel were most likely to visit a civilian health care provider in the past 12 months for care related to an illness or injury or for a general physical exam. About 60% of the Reserve/Guard saw a civilian health care provider for treatment of an illness or injury. Approximately 40% overall had a general physical exam or made a follow-up visit for an illness or injury, although significantly more females than males utilized civilian health care providers for either of these two reasons: About 58% of Reserve/Guard females and 37% of Reserve/Guard males had a general physical exam, and 45% of females and 39% of males made a follow-up visit for an

Table 13A Number of Visits to a Military Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Visits/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
No Visits							
Females	26.0	12.4*	14.4	9.8*	21.4	13.5*	18.9*
Males	30.1	32.6*	20.1	27.3*	21.0	34.5*	29.9*
Total	28.8	30.2	19.1	26.3	21.1	30.9	27.9
One Visit							
Females	18.6	20.9	25.0*	17.7	27.9	21.6	21.3
Males	22.2	22.4	34.9*	24.1	32.1	30.2	25.4
Total	21.1	22.3	33.1	23.7	30.9	28.7	24.7
Two Visits							
Females	8.4	11.0	15.2	13.0	5.8	9.9	9.8
Males	10.6	13.7	12.1	14.2	13.2	11.9	12.7
Total	9.9	13.4	12.7	14.1	11.1	11.6	12.2
Three Visits							
Females	5.3	7.3	8.8	10.5	8.4	9.2	7.1
Males	10.2	8.2	10.4	6.2	13.5	10.0	9.2
Total	8.7	8.1	10.1	6.4	12.0	9.9	8.8
Four or More Visits							
Females	41.7*	48.3*	36.7*	49.0*	36.5	45.8*	42.9*
Males	26.9*	23.1*	22.5*	28.3*	20.2	13.4*	22.7*
Total	31.4	26.1	25.0	29.4	24.8	18.9	26.4
At Least One Visit							
Females	74.0	87.6*	85.6	90.2*	78.6	86.5*	81.1*
Males	69.9	67.4*	79.9	72.7*	79.0	65.5*	70.1*
Total	71.2	69.8	80.9	73.7	78.9	69.1	72.1

Note: Table entries are percentages. Standard errors are shown in Table 13ASE in Appendix D.

*Sex differences significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 13B Number of Visits to a Military Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Visits/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
No Visits					
Females	1.4	2.7*	2.3*	1.1	1.7*
Males	2.3	10.9*	10.3*	2.1	6.0*
Total	2.2	9.9	9.8	1.9	5.4
One Visit					
Females	1.3*	5.6*	3.5*	0.6*	2.3*
Males	7.3*	13.9*	10.8*	8.7*	10.1*
Total	6.4	12.8	10.4	7.1	9.0
Two Visits					
Females	5.0*	7.0*	4.5*	3.1*	4.9*
Males	9.8*	12.6*	13.2*	11.3*	11.5*
Total	9.0	11.9	12.7	9.7	10.5
Three Visits					
Females	3.5*	7.0*	6.1*	7.7	6.0*
Males	13.0*	11.3*	9.9*	12.7	12.0*
Total	11.5	10.7	9.7	11.7	11.1
Four or More Visits					
Females	88.8*	77.7*	83.6*	87.4*	85.2*
Males	67.5*	51.3*	55.8*	65.3*	60.5*
Total	70.8	54.8	57.4	69.7	64.1
At Least One Visit					
Females	98.6	97.3*	97.7*	98.9	98.3*
Males	97.7	89.1*	89.7*	97.9	94.0*
Total	97.8	90.1	90.2	98.1	94.6

Note: Table entries are percentages. Standard errors are shown in Table 13BSE in Appendix D.

*Sex differences significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 14A Reasons for Visiting a Civilian Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Reason/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Treatment of an Illness or Injury							
Females	60.9	65.8	62.2	54.0	61.7	64.5	62.9
Males	61.0	56.1	60.8	57.1	60.4	66.3	59.3
Total	61.0	57.2	61.1	57.0	60.7	66.0	59.9
Follow-Up Visit for an Illness or Injury							
Females	48.3	45.9	45.6	35.1	39.2	40.0	45.1*
Males	42.0	36.9	40.3	32.7	41.3	39.5	38.8*
Total	43.7	38.0	41.3	32.9	40.8	39.6	39.9
General Physical Exam							
Females	57.6*	60.9*	56.4*	46.8*	47.5	60.1*	57.5*
Males	34.7*	37.9*	39.8*	30.1*	35.3	35.4*	36.5*
Total	40.8	40.6	43.2	31.0	38.1	39.7	40.2
Prescription Refill Only							
Females	43.2*	34.6	37.6	32.8*	42.3	39.5	39.4*
Males	30.5*	24.3	30.2	18.9*	35.0	32.4	27.8*
Total	33.8	25.6	31.7	19.6	36.6	33.7	29.8
Eye Exam Only							
Females	52.1*	38.7	46.5	40.3*	46.0	47.9*	46.3*
Males	37.2*	31.7	43.1	29.8*	35.7	35.6*	34.7*
Total	41.2	32.5	43.8	30.3	38.0	37.8	36.7
Prenatal Care							
Females	8.0	9.7	6.1	11.9	5.5	6.6	7.9
Same Day Surgery							
Females	10.7	14.0	10.9	4.2*	11.7	11.2	11.7
Males	7.1	10.6	8.6	8.1*	14.3	10.5	9.9
Total	8.1	11.0	9.1	7.9	13.7	10.7	10.2
Mental Health Care							
Females	5.8	2.9	6.2*	5.3	5.8	7.2	5.2*
Males	2.5	3.4	2.5*	1.8	3.6	3.8	3.1*
Total	3.4	3.3	3.2	2.0	4.1	4.4	3.5
Emergency Care							
Females	20.3	21.2	13.3	15.4	13.2	17.7	18.6*
Males	14.6	13.6	11.6	15.6	11.1	15.0	13.7*
Total	16.1	14.5	12.0	15.6	11.5	15.5	14.6

Note: Table entries are percentages. Standard errors are shown in Table 14ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

illness or injury. Over one-third (36.7%) of all Reserve/Guard personnel had an eye exam only from a civilian health care provider, and about 30% got a prescription refill only. For eye exams and prescription refills as well as for emergency care and mental health care, Reserve/Guard females were more likely than their male counterparts to report seeing a civilian health care provider.

Table 14B shows that Active-Duty personnel visited civilian health care providers in the past 12 months at relatively low rates; females were significantly more likely than males to visit civilian providers for general physical exams, prescription refill only, and eye exam only. Overall, about 12% of Active-Duty personnel saw a civilian health care provider for treatment of an illness or injury. Army and Air Force personnel went to civilian health care providers for treatment or follow-up of an illness or injury more than Navy and Marine Corps personnel. General physical exams were one of the least common reasons for Active-Duty personnel to visit civilian health care providers, and among those who reported these types of visits, there were about twice as many females as males. Prenatal care ranked high among Active-Duty females as a reason for visiting a civilian health care provider.

3.5.4 Number of Visits to a Civilian Health Care Provider in the Past 12 Months

Reserve/Guard personnel reported high utilization of civilian health care providers in the past 12 months, as shown in Table 15A. In the Reserve/Guard, approximately 95% of females versus 91% of males made at least one visit to a civilian health care provider, a statistically significant sex difference. Of Reserve/Guard personnel who visited a civilian health care provider, the majority made four or more visits (69.8% for Reserve/Guard females and 50.5% for Reserve/Guard males).

Most Active-Duty personnel did not visit a civilian health care provider in the past 12 months, but in all categories females were significantly more likely than males to have gone to such a provider, as shown in Table 15B. Approximately 41% of Active-Duty females and 25% of Active-Duty males made one or more visits to a civilian health care provider.

Patterns of usage of civilian health care providers in the past 12 months differed between Reserve/Guard and Active-Duty personnel. Over 90% of Reserve/Guard personnel made one or more visits to a civilian health care provider compared to only about 30% of Active-Duty personnel.

Table 14B Reasons for Visiting a Civilian Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Reason/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Treatment of an Illness or Injury					
Females	20.6	7.2	7.9	17.1	12.9
Males	20.1	6.9	7.9	21.7	11.6
Total	20.1	6.9	7.9	20.8	11.8
Follow-Up Visit for an Illness or Injury					
Females	12.0	3.7	3.6	6.7	6.6
Males	10.7	3.7	4.2	6.6	5.6
Total	10.9	3.7	4.2	6.7	5.7
General Physical Exam					
Females	6.5	2.6*	5.0	7.0*	4.8*
Males	5.8	1.6*	2.9	1.0*	2.7*
Total	5.9	1.7	3.1	2.2	2.9
Prescription Refill Only					
Females	9.6	3.3*	3.4	6.9	5.7*
Males	5.2	1.3*	1.8	2.6	2.4*
Total	5.9	1.6	1.9	3.4	2.8
Eye Exam Only					
Females	17.9	10.8*	12.6*	22.0*	15.1*
Males	13.7	7.7*	7.3*	9.7*	9.1*
Total	14.4	8.1	7.6	12.1	9.9
Prenatal Care					
Females	13.3	3.6	5.8	7.3	7.2
Same Day Surgery					
Females	2.8	2.0*	1.6	1.4	2.1
Males	4.1	0.8*	1.4	1.3	1.7
Total	3.9	1.0	1.5	1.3	1.7
Mental Health Care					
Females	2.1	1.4	0.8	4.2	2.1
Males	2.3	1.3	1.5	1.1	1.5
Total	2.3	1.3	1.5	1.7	1.6
Emergency Care					
Females	12.0	4.4	4.9	6.8	7.0
Males	8.2	3.6	3.3	5.8	4.7
Total	8.9	3.7	3.4	6.0	5.0

Note: Table entries are percentages. Standard errors are shown in Table 14BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 15A Number of Visits to a Civilian Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Visits/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
No Visits							
Females	2.7*	7.5	3.7	7.4	5.5	4.2	4.7*
Males	8.5*	12.3	6.6	9.6	5.0	3.7	9.1*
Total	7.0	11.7	6.0	9.5	5.1	3.8	8.4
One Visit							
Females	6.5*	7.2	6.5*	12.5	7.8	5.3*	6.7*
Males	13.8*	11.2	11.5*	16.5	8.2	15.4*	12.4*
Total	11.9	10.8	10.5	16.3	8.1	13.7	11.4
Two Visits							
Females	10.4	6.0*	9.3	9.6*	11.2	7.6*	8.8*
Males	14.8	15.4*	13.4	17.5*	13.1	14.8*	14.9*
Total	13.6	14.3	12.6	17.1	12.7	13.6	13.9
Three Visits							
Females	9.3	8.8	8.8	8.2	10.9	15.1	10.0*
Males	8.3	14.9	13.1	12.3	14.0	14.1	13.1*
Total	8.6	14.2	12.2	12.1	13.3	14.3	12.6
Four or More Visits							
Females	71.2*	70.5*	71.8*	62.3*	64.5	67.7*	69.8*
Males	54.5*	46.1*	55.3*	44.1*	59.7	52.0*	50.5*
Total	58.9	48.9	58.6	45.0	60.8	54.6	53.7
At Least One Visit							
Females	97.3*	92.5	96.3	92.6	94.5	95.8	95.3*
Males	91.5*	87.7	93.4	90.4	95.0	96.3	90.9*
Total	93.0	88.3	94.0	90.5	94.9	96.2	91.6

Note: Table entries are percentages. Standard errors are shown in Table 15ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 15B Number of Visits to a Civilian Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Visits/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
No Visits					
Females	46.3	73.0*	66.9*	43.2*	59.1*
Males	55.9	82.2*	83.3*	62.1*	74.6*
Total	54.2	81.0	82.4	58.4	72.5
One Visit					
Females	17.3	12.1*	15.6*	28.8	17.1*
Males	15.4	9.5*	9.5*	20.3	12.1*
Total	15.7	9.8	9.9	22.0	12.7
Two Visits					
Females	11.8	5.4*	5.9*	9.3	8.0*
Males	12.7	2.4*	1.8*	7.0	4.9*
Total	12.5	2.8	2.0	7.5	5.3
Three Visits					
Females	5.0	2.6*	2.3	1.4	3.0*
Males	3.5	1.2*	0.8	2.5	1.7*
Total	3.7	1.4	0.9	2.3	1.9
Four or More Visits					
Females	19.6	7.0	9.3	17.3*	12.7*
Males	12.6	4.7	4.5	8.0*	6.7*
Total	13.8	5.0	4.8	9.9	7.5
At Least One Visit					
Females	53.7	27.0*	33.1*	56.8*	40.9*
Males	44.1	17.8*	16.7*	37.9*	25.4*
Total	45.8	19.0	17.6	41.6	27.5

Note: Table entries are percentages. Standard errors are shown in Table 15BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

3.6 Summary

This chapter presented data on health and health care patterns among military personnel. Main findings of interest are summarized below.

- Using the Medical Outcome Study (MOS) 36-item Short Form items, we reported health status, role limitations, and levels of vitality. Over two-thirds of Active-Duty and Reserve/Guard personnel considered themselves to be in "excellent" or "very good" general health. In addition, significantly more males than females in the Military rated their own health as "excellent" (26.6% vs. 22.8% among the Reserve/Guard; 29.1% vs. 21.0% in the Active-Duty). For perceived role limitations, significantly more females than males in the total Reserve/Guard and Active-Duty populations reported high role limitations due to physical or emotional problems. For vitality, a summary measure of energy, significantly more females than males in the Military scored "low." Additionally, more Active-Duty personnel scored "low" than did Reserve/Guard personnel. Although most personnel felt that their health status was good, it is of concern that more females than males reported greater role limitations and lower levels of vitality.

- Some chronic or serious medical conditions among military personnel were noteworthy. The most prevalent medical conditions included allergies other than chronic rhinitis or hay fever, hemorrhoids, and hernia or rupture. Military health care providers should be prepared to handle these types of conditions, even when personnel perform their duties away from a medical clinic.

- In addition to the medical conditions noted above, high cholesterol and high blood pressure also were likely to be reported. Lifetime prevalence was slightly lower among Active-Duty than Reserve/Guard personnel for both conditions. With greater attention to the prevention and treatment of these two conditions, their prevalence could be even lower.

- Although rare in this population, some prevalence of cancer was detected. Cervical cancer had the highest prevalence rate among all cancers studied for both Active-Duty and Reserve/Guard personnel, and it was the most commonly reported type of cancer among military females. A history of cervical cancer was reported by about 3% of Reserve/Guard and Active-Duty females. Less than 1% of military females reported ever having breast cancer. Skin cancer also was rare, with about 2% of Reserve/Guard and 1% of Active-Duty personnel reporting it. Although these cancer rates are quite low, early detection and ongoing education could further reduce, if not eliminate, the prevalence of these cancers among military personnel.

- Notably, urinary tract infections (UTIs) were reported by nearly half of military females and about 8% to 9% of males. Additionally, females were at least four times more likely than males to report having repeated kidney infections.

- Female personnel reported similar lifetime prevalence for herpes or genital warts and other sexually transmitted diseases (STDs). For males, herpes and genital warts were less common than other STDs. Total Active-Duty and Reserve/Guard personnel had comparable rates of herpes and genital warts (5.5% and 5.4%), but Active-Duty personnel reported higher rates of other STDs (10.0% vs. 6.9%). The low rates of all of these STDs suggest that military personnel are heeding health education messages regarding safe sexual practices.

- Approximately 68% of all Reserve/Guard personnel and 63% of all Active-Duty personnel reported ever having any of the 28 medical conditions asked about in the questionnaires. More females than males in the Military indicated that they had had any of the 28 medical conditions (80.0% vs. 65.4% for Reserve/Guard; 81.9% vs. 60.0% for Active-Duty). The finding of a sex difference for medical conditions may be linked to the fact that more females visited health care providers. Nonetheless, visits to health care providers are important for health promotion and disease prevention and may need to be encouraged among male personnel.

- The most commonly reported reasons for visiting a military or civilian health care provider in the past 12 months were for treatment or follow-up of an illness or injury or for a general physical exam. Further research into the causes of these illnesses or injuries and their prevention is warranted.

- Significantly more females than males in the total Reserve/Guard and Active-Duty reported any visits to either military and civilian health care providers.

4. HEALTH BEHAVIORS

Proper health behaviors, such as eating a balanced diet, obtaining adequate exercise, using protective gear, and abstaining from excessive alcohol and tobacco use, affect the health of personnel in the Military. This chapter reports on various health behaviors among Reserve/Guard and Active-Duty personnel. Exercise and diet, as measured by perceived physical fitness, eating behaviors, and factors influencing food purchase, are discussed. Hours of sleep per night also are examined. In addition, we report on alcohol use, smoking and exposure to tobacco smoke, and the use and availability of protective gear.

4.1 Perceived Physical Fitness

Perceived physical fitness is a measure of personnel's perception of their state of fitness at the time of the survey. Personnel indicated their responses on a scale ranging from "poor" to "excellent." Responses to this measure for Reserve/Guard personnel are presented in Table 16A. Overall, many Reserve/Guard personnel, about 44%, indicated they felt their physical fitness was "good." The second most common response (26.7%) was that their physical fitness was "fair." Few personnel perceived their physical fitness to be "excellent" (3.6%) or "poor" (7.6%).

Overall, Reserve/Guard females perceived themselves to be more physically fit than males. For example, a significantly higher proportion of females than males indicated their physical fitness was "excellent" (7.5% vs. 2.9%) or "good" (24.2% vs. 16.8%). Furthermore, males were significantly more likely to feel their physical fitness was "fair" (27.9% vs. 20.3%) or "poor" (8.2% vs. 4.4%). Across the Reserve/Guard components, females also were significantly more likely to report being physically fit, although patterns varied by Reserve/Guard component. For some Reserve/Guard components, differences between males and females were particularly pronounced. For example, among Army Reserve personnel, females were three times more likely than males to report that their health was "excellent" (10.5% vs. 3.3%). Notably, the Air Force Reserve was the only Reserve/Guard component where no significant differences between sexes appeared.

Table 16B portrays perceived physical fitness for Active-Duty personnel. Overall, most personnel indicated their physical fitness was "good" (39.9%) or "fair" (30.0%), with smaller percentages of personnel reporting that their physical fitness was "very good" or "poor." Notably, a very small percentage (2.8%) reported they perceived themselves to be in "excellent" physical shape. These findings differ slightly from Reserve/Guard personnel overall in that more Active-Duty personnel than Reserve/Guard personnel reported their fitness was "fair" and "poor" and fewer reported their fitness was "good," "very good," or "excellent."

Table 16A Perceived Physical Fitness Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
Excellent	10.5*	6.6	3.3	5.9	5.5	6.8*	7.5*
Very good	19.5	26.3*	28.5*	20.9*	23.9	29.3*	24.2*
Good	45.3	47.6	37.0	40.4	41.6	38.2	43.6
Fair	21.5	14.4*	25.5	25.8*	22.7	22.6	20.3*
Poor	3.3*	5.1	5.7*	7.0*	6.2	3.2*	4.4*
Males							
Excellent	3.3*	3.1	2.4	2.5	2.1	2.7*	2.9*
Very good	17.8	17.0*	15.9*	14.0*	16.7	16.3*	16.8*
Good	44.3	46.7	40.8	33.1	44.4	42.1	44.2
Fair	26.9	26.7*	28.6	35.5*	27.9	29.9	27.9*
Poor	7.8*	6.5	12.2*	15.0*	8.9	8.9*	8.2*
Total							
Excellent	5.1	3.4	2.6	2.6	2.8	3.4	3.6
Very good	18.2	18.0	18.3	14.3	18.2	18.4	18.0
Good	44.5	46.8	40.1	33.4	43.8	41.5	44.1
Fair	25.6	25.4	28.0	35.1	26.8	28.7	26.7
Poor	6.7	6.4	11.0	14.6	8.4	8.0	7.6

Note: Table entries are percentages. Standard errors are shown in Table 16ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 16B Perceived Physical Fitness Among Active-Duty Personnel

Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
Excellent	4.5*	6.6*	7.9*	5.7*	5.6*
Very good	20.3*	25.1*	24.6*	24.7*	23.2*
Good	42.8	39.1	36.1	45.7	42.5
Fair	25.7*	20.4*	20.5*	18.8*	21.7*
Poor	6.7*	8.8*	10.9*	5.2	6.9*
Males					
Excellent	1.8*	2.8*	2.8*	2.2*	2.3*
Very good	13.3*	16.5*	9.6*	15.2*	14.1*
Good	36.8	38.2	38.1	45.4	39.5
Fair	35.8*	27.7*	31.9*	29.0*	31.4*
Poor	12.3*	14.8*	17.6*	8.2	12.7*
Total					
Excellent	2.2	3.3	3.1	2.8	2.8
Very good	14.3	17.6	10.5	16.9	15.4
Good	37.7	38.3	38.0	45.5	39.9
Fair	34.3	26.8	31.2	27.1	30.0
Poor	11.5	14.0	17.2	7.7	11.9

Note: Table entries are percentages. Standard errors are shown in Table 16BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Examining overall Active-Duty estimates by sex revealed significant differences. As was true for the Reserve/Guard, significantly more females reported being in "excellent" or "very good" physical condition and significantly more males reported being in "fair" or "poor" physical condition. For example, about 6% of Active-Duty females said their physical fitness was "excellent" compared with only 2% of Active-Duty males. The significant differences between females and males in the overall Active-Duty population were also apparent for almost every Active-Duty Service. The Air Force was the only Active-Duty Service for which males were not significantly more likely to report being in "poor" physical condition. The patterns of significance for the Active-Duty Services were more consistent than for the Reserve/Guard components.

4.2 Selected Eating Behaviors

Table 17A depicts various eating behaviors for the week prior to the survey for Reserve/Guard personnel. Data are presented for the number of days personnel ate breakfast, snacked between meals, overate, did not eat enough, and took vitamins. Similar percentages of Reserve/Guard personnel reported that they ate breakfast 0 to 2 days, 3 to 5 days, and 6 to 7 days (34.0%, 30.7%, and 35.3%, respectively). Data for snacking between meals showed similar estimates. The majority of Reserve/Guard personnel reported that overeating or not eating enough was an infrequent occurrence. About 81% of personnel said that they overate for 0 to 2 days, and 79% reported the same number of days for not eating enough. However, small but important percentages reported that they did not eat enough for 6 to 7 days (4.3%) or that they overate for 6 to 7 days (4.2%). Data for taking vitamins were somewhat different from the other behaviors. The largest percentage of personnel (62.5%) reported that they took vitamins 0 to 2 days. Notably, only about one-quarter (25.8%) indicated that they took vitamins regularly (6 to 7 days in the past week).

For two of the behaviors, days that personnel did not eat enough and days that personnel took vitamins, estimates for males and females differed significantly. Moreover, patterns were similar across the two behaviors. Significantly more Reserve/Guard males reported not eating enough for 0 to 2 days and taking vitamins for 0 to 2 days (80.0% vs. 72.5% and 64.1% vs. 53.7%, respectively). The reverse relationship was true for both behaviors for the 6 to 7 days category. Reserve/Guard females were significantly more likely to not eat enough for 6 to 7 days (8.2% vs. 3.5%) and were significantly more likely to take vitamins for 6 to 7 days (32.5% vs. 24.6%).

Significant differences between males and females in the Reserve/Guard components varied greatly across each type of behavior. Notably, data for not eating enough and taking vitamins revealed many significant differences between males and females and similar patterns as in the overall Reserve/Guard population. For the number of days personnel reported not eating enough, among all Reserve/Guard components except the Marine Corps Reserve and Air Force Reserve, significantly more males reported not eating enough for 0 to 2 days and significantly more females reported not eating enough for 6 to 7 days. Moreover, in the Air

Table 17A Selected Eating Behaviors in the Past Week Among Reserve/Guard Personnel

Behavior/Days/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Days Ate Breakfast							
0 to 2 days							
Females	36.3	38.8	29.8	36.7	29.5	33.0	35.1
Males	30.8	36.9	33.8	35.5	28.7	30.6	33.8
Total	32.1	37.1	33.0	35.6	28.9	31.0	34.0
3 to 5 days							
Females	27.1	32.7	27.9	30.2	25.0	34.7	29.5
Males	31.8	32.2	28.3	31.4	30.1	26.7	30.9
Total	30.7	32.3	28.2	31.3	29.1	28.0	30.7
6 to 7 days							
Females	36.6	28.5	42.3	33.1	45.4	32.3*	35.4
Males	37.4	30.9	37.9	33.1	41.2	42.7*	35.3
Total	37.2	30.7	38.8	33.1	42.0	41.0	35.3
Number of Days Ate Snacks Between Meals							
0 to 2 days							
Females	27.1	34.5	36.1	27.1	36.7	26.7	31.2
Males	33.9	37.0	32.7	24.8	29.6	31.4	34.0
Total	32.2	36.7	33.3	24.9	31.1	30.7	33.6
3 to 5 days							
Females	37.5	34.8	33.4	38.6	31.6	36.3	35.5
Males	39.9	34.1	35.4	40.2	42.8	39.0	37.0
Total	39.3	34.2	35.1	40.1	40.5	38.6	36.8
6 to 7 days							
Females	35.4*	30.6	30.5	34.3	31.7	37.0	33.3
Males	26.2*	28.9	31.9	35.0	27.6	29.5	29.0
Total	28.5	29.1	31.6	35.0	28.4	30.7	29.6
Number of Days Overate							
0 to 2 days							
Females	81.0	81.9	81.6	81.8	83.7	83.6	81.9
Males	81.2	81.3	80.1	77.9	78.8	80.3	80.7
Total	81.1	81.4	80.4	78.1	79.8	80.8	80.9
3 to 5 days							
Females	11.9	13.3	14.6	13.3	13.7	12.0	12.8
Males	16.0	14.5	14.8	16.9	16.8	16.4	15.4
Total	15.0	14.3	14.7	16.8	16.2	15.7	15.0
6 to 7 days							
Females	7.2*	4.9	3.9	4.9	2.6	4.3	5.3
Males	2.8*	4.2	5.1	5.2	4.4	3.4	4.0
Total	3.9	4.3	4.9	5.2	4.0	3.5	4.2

See notes at end of table.

(continued)

Table 17A (continued)

Behavior/Days/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Days Did Not Eat Enough							
0 to 2 days							
Females	72.8*	65.5*	78.2	69.8	82.2	74.1*	72.5*
Males	84.8*	76.5*	81.9	70.4	83.2	86.0*	80.0*
Total	81.8	75.3	81.2	70.3	83.0	84.1	78.9
3 to 5 days							
Females	17.9	25.8	14.9	23.7	11.7	18.3*	19.2
Males	12.3	19.6	15.5	22.0	15.5	10.6*	16.4
Total	13.7	20.2	15.4	22.1	14.7	11.8	16.9
6 to 7 days							
Females	9.3*	8.6	6.9*	6.5	6.0	7.7	8.2*
Males	2.9*	4.0	2.6*	7.6	1.3	3.4	3.5*
Total	4.5	4.4	3.4	7.6	2.3	4.1	4.3
Number of Days Took Vitamins							
0 to 2 days							
Females	56.2	58.6	47.3*	59.4*	47.0*	46.9*	53.7*
Males	61.2	68.4	59.4*	67.8*	60.7*	57.7*	64.1*
Total	60.0	67.4	57.1	67.5	57.9	56.0	62.5
3 to 5 days							
Females	16.7	7.4	14.0	13.1	12.3	21.1*	13.8
Males	13.5	9.6	14.0	11.0	10.5	12.4*	11.3
Total	14.3	9.4	14.0	11.1	10.9	13.8	11.7
6 to 7 days							
Females	27.1	33.9*	38.7*	27.5	40.7*	32.0	32.5*
Males	25.3	22.0*	26.6*	21.2	28.8*	29.9	24.6*
Total	25.7	23.2	28.9	21.5	31.3	30.3	25.8

Note: Table entries are percentages. Standard errors are shown in Table 17ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

National Guard, females also were significantly more likely not to eat enough for 3 to 5 days (18.3% vs. 10.6%). Taking vitamins showed the same pattern of male-female differences, although for this behavior all Reserve/Guard components except the Army Reserve showed significant sex differences. Specifically, males were significantly more likely to take vitamins for 0 to 2 days, and females were significantly more likely to take them for 6 to 7 days. Further, only within the Air National Guard did taking vitamins for 3 to 5 days differ significantly between females and males (21.1% vs. 12.4%, respectively).

Table 17B depicts the same eating behaviors for Active-Duty personnel whose estimates overall were similar to those for Reserve/Guard personnel. Percentages of Active-Duty personnel reporting that they ate breakfast and snacked between meals were roughly split across the categories of 0 to 2 days, 3 to 5 days, and 6 to 7 days. Moreover, the majority of Active-Duty personnel reported that overeating or not eating enough happened infrequently. About 82% of personnel said that they overate for 0 to 2 days, and 78% reported the same for not eating enough. However, small but notable percentages reported that they did not eat enough for 6 to 7 days (5.7%) or that they overate for 6 to 7 days (4.1%). For both of these behaviors, as the number of days increased, the prevalence decreased. Data for taking vitamins showed that the largest percentage of personnel (68.5%) reported that they took vitamins for 0 to 2 days; however, only about one-fifth (20.3%) indicated that they took vitamins for 6 to 7 days.

Estimates for Active-Duty males and females differed significantly for the number of days personnel ate breakfast, did not eat enough, and took vitamins. Significantly more females than males reported that they ate breakfast for 6 to 7 days (33.7% vs. 28.9%). Notably, no sex differences were present for this behavior among Reserve/Guard personnel. The pattern of significance for days not eating enough differs from that of the Reserve/Guard population. For example, significantly more Active-Duty females indicated not eating enough for 3 to 5 days (19.4% vs. 16.3%). For days taking vitamins, findings were similar to those of Reserve/Guard personnel. Significantly more males than females (69.8% vs. 60.3%) reported taking vitamins for 0 to 2 days, while females were significantly more likely to take vitamins for 6 to 7 days (27.5% vs. 19.1%).

Significant differences between males and females also were present for the Active-Duty Services for each behavior except days that personnel overate. The Active-Duty Services, however, that showed significant differences and the patterns of significance varied. Interestingly, in all Active-Duty Services except the Air Force, males and females differed significantly in their vitamin-taking behavior for 0 to 2 days and 6 to 7 days. Specifically, significantly more males than females in the Army, Navy, and Marine Corps reported taking vitamins for 0 to 2 days in the week prior to the survey. In contrast, among these three Active-Duty Services, significantly more females than males reported the same behavior for 6 to 7 days. These findings about vitamins are similar to those reported for the Reserve/Guard components.

Table 17B Selected Eating Behaviors in the Past Week Among Active-Duty Personnel

Behavior/Days/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Days Ate Breakfast					
0 to 2 days					
Females	33.0	42.2*	49.6	33.4	36.3
Males	30.7	47.6*	43.3	36.2	38.4
Total	31.0	46.9	43.7	35.7	38.1
3 to 5 days					
Females	35.9	28.0	29.1	25.3	29.9
Males	37.2	28.3	34.7	30.3	32.7
Total	37.0	28.3	34.3	29.4	32.3
6 to 7 days					
Females	31.2	29.8*	21.3	41.3*	33.7*
Males	32.1	24.1*	22.0	33.5*	28.9*
Total	31.9	24.8	22.0	35.0	29.6
Number of Days Ate Snacks Between Meals					
0 to 2 days					
Females	30.8	33.5	37.2	25.2	29.9
Males	34.4	32.9	33.0	27.1	32.0
Total	33.9	33.0	33.2	26.7	31.7
3 to 5 days					
Females	36.1	35.9*	30.3*	46.1	39.1
Males	37.8	40.0*	37.3*	42.0	39.4
Total	37.5	39.5	36.9	42.8	39.3
6 to 7 days					
Females	33.1	30.6*	32.6	28.7	31.0
Males	27.8	27.1*	29.7	30.9	28.6
Total	28.6	27.6	29.8	30.5	29.0
Number of Days Overate					
0 to 2 days					
Females	83.9	81.0	84.5	84.4	83.4
Males	82.3	80.7	83.1	80.0	81.4
Total	82.5	80.7	83.2	80.8	81.7
3 to 5 days					
Females	10.8	14.7	11.3	12.2	12.3
Males	14.2	14.7	12.3	16.3	14.6
Total	13.7	14.7	12.3	15.5	14.3
6 to 7 days					
Females	5.2	4.4	4.3	3.4	4.4
Males	3.5	4.6	4.6	3.7	4.0
Total	3.8	4.6	4.5	3.6	4.1

See notes at end of table.

(continued)

Table 17B (continued)

Behavior/Days/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Days Did Not Eat Enough					
0 to 2 days					
Females	71.7	76.4	70.1	77.6*	74.8
Males	75.6	76.7	72.8	85.6*	78.0
Total	75.0	76.7	72.7	84.2	77.6
3 to 5 days					
Females	22.1*	17.9	22.4	17.3	19.4*
Males	15.6*	18.8	22.0	11.3	16.3*
Total	16.5	18.7	22.0	12.4	16.7
6 to 7 days					
Females	6.3	5.7	7.6	5.1	5.8
Males	8.9	4.5	5.2	3.0	5.7
Total	8.5	4.7	5.3	3.4	5.7
Number of Days Took Vitamins					
0 to 2 days					
Females	60.6*	62.8*	63.8*	57.7	60.3*
Males	69.2*	72.5*	75.6*	64.5	69.8*
Total	67.9	71.2	74.9	63.2	68.5
3 to 5 days					
Females	10.6	10.6	9.4	15.5	12.2
Males	10.7	10.2	9.1	13.5	11.1
Total	10.7	10.3	9.1	13.9	11.2
6 to 7 days					
Females	28.8*	26.6*	26.8*	26.8	27.5*
Males	20.1*	17.3*	15.3*	22.0	19.1*
Total	21.3	18.5	16.0	22.9	20.3

Note: Table entries are percentages. Standard errors are shown in Table 17BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

4.3 Dietary Behaviors and Attitudes

Table 18A depicts a variety of behaviors and attitudes related to diet and food among Reserve/Guard personnel, including trying to lose weight, changing a diet due to medical conditions, satisfaction with eating patterns, eating in secret, and the importance of diet/food in terms of health. Several of these behaviors were quite prevalent in the Reserve/Guard population. Interestingly, about 64% of Reserve/Guard personnel reported that they were satisfied with their eating patterns, yet over half (51.0%) also indicated they had tried to lose weight in the past year. About one-third of personnel (32.8%) indicated that diet and food choices were important to their health. Very few personnel had changed their diet because of a medical condition, and even fewer had eaten in secret. For all behaviors/attitudes except the importance of food on health, males differed significantly from females. Significantly more females than males had tried to lose weight in the past year (65.4% vs. 48.3%) and had eaten in secret (8.2% vs. 3.6%). Notably, the prevalence of eating in secret for females was more than double that of males. Changing a diet due to a medical condition also was significantly more likely among females than males (13.8% vs. 9.7%). In contrast, significantly more males indicated they were satisfied with their eating patterns (65.7% vs. 51.9%).

As can be seen in Table 18A, these same patterns of sex differences for losing weight, changing diet due to medical conditions, satisfaction with eating, and eating in secret were found for many of the Reserve/Guard components. In addition, although there were no significant differences between sexes in the total Reserve/Guard population for attitudes about the impact of diet and food on health, estimates for Air National Guard personnel showed significant differences. Males were significantly more likely than females to report that they felt that food and diet choices had an important health impact (32.3% vs. 20.2%). Striking significant differences between males and females for the other four behaviors were found among Marine Corps Reservists and Air National Guard personnel. In particular, the prevalence of eating in secret for Marine Corps Reserve females was more than five times that of their male counterparts (11.5% vs. 1.8%). For the Air National Guard, females were almost four times more likely than males to eat in secret; about 8% of females reported that they ate in secret compared with only 2% of males.

Table 18B portrays similar information for Active-Duty personnel. Over half of Active-Duty personnel (59.6%) reported that they were satisfied with their eating patterns, and almost half (48.2%) indicated they had tried to lose weight in the previous year. Similar but smaller percentages of Active-Duty than Reserve/Guard personnel reported that they changed their diet for medical reasons. One notable difference between the Active-Duty personnel and their Reserve/Guard counterparts appeared in estimates for the impact of food and diet on health. Over half of Active-Duty personnel (56.1%) stated that they felt food and diet to be important in terms of their health. In contrast, as stated earlier, only about 33% of Reserve/Guard personnel indicated the same. In addition, unlike in the Reserve/Guard population, responses about the impact of food and diet on health varied greatly across the

Table 18A Dietary Behaviors and Attitudes Among Reserve/Guard Personnel

Behaviors and Attitudes/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Have Tried to Lose Weight in Past Year							
Females	62.8*	65.5*	66.9*	70.8*	63.5	72.2*	65.4*
Males	51.3*	44.6*	52.7*	42.4*	56.3	50.6*	48.3*
Total	54.2	46.8	55.4	43.6	57.8	54.1	51.0
Have Changed Diet Because of Medical Conditions							
Females	15.8	10.3	13.3*	10.6*	12.7	17.6*	13.8*
Males	11.0	9.9	8.0*	4.8*	9.2	10.5*	9.7*
Total	12.2	9.9	9.0	5.0	9.9	11.7	10.3
Satisfied with Eating Patterns							
Females	52.9*	51.5*	54.1*	46.5*	48.9*	50.8	51.9*
Males	65.4*	69.7*	61.3*	56.7*	66.4*	58.2	65.7*
Total	62.4	67.8	60.0	56.3	62.8	57.0	63.5
Eat in Secret							
Females	9.3*	6.7	7.9	11.5*	8.7	7.6*	8.2*
Males	3.9*	3.8	5.1	1.8*	4.2	2.1*	3.6*
Total	5.2	4.1	5.6	2.2	5.1	3.0	4.3
Feel Diet or Food Choices Are Important in Terms of Health							
Females	27.5	38.6	25.9	24.4	24.4	20.2*	29.1
Males	29.9	38.8	27.6	28.7	25.1	32.3*	33.5
Total	29.3	38.7	27.2	28.5	25.0	30.4	32.8

Note: Table entries are percentages. Standard errors are shown in Table 18ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 18B Dietary Behaviors and Attitudes Among Active-Duty Personnel

Behaviors and Attitudes/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Have Tried to Lose Weight in Past Year					
Females	65.2*	66.1*	64.1*	74.9*	68.6*
Males	44.3*	40.7*	37.1*	54.5*	44.9*
Total	47.3	44.1	38.7	58.2	48.2
Have Changed Diet Because of Medical Conditions					
Females	20.5*	17.8*	19.9*	12.8*	17.2*
Males	8.8*	10.4*	6.8*	6.3*	8.4*
Total	10.5	11.4	7.6	7.5	9.6
Satisfied with Eating Patterns					
Females	45.2*	50.1*	49.9*	52.5	49.2*
Males	62.6*	60.9*	61.6*	60.0	61.4*
Total	60.1	59.5	60.9	58.6	59.6
Eat in Secret					
Females	9.2*	11.5*	8.9	9.4*	9.8*
Males	3.6*	4.8*	7.0	3.3*	4.3*
Total	4.4	5.7	7.1	4.4	5.1
Feel Diet or Food Choices Are Important in Terms of Health					
Females	28.8*	91.0*	90.7*	30.1	48.2*
Males	40.7*	87.1*	82.5*	33.8	57.5*
Total	38.9	87.6	83.0	33.1	56.1

Note: Table entries are percentages. Standard errors are shown in Table 18BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Active-Duty Services. Estimates for Navy and Marine Corps personnel were similar and much higher than those of Army and Air Force personnel (87.6% and 83.0%, respectively, vs. 38.9% and 33.1%). In fact, Navy personnel were about 2.5 times more likely than Air Force personnel to indicate that food and diet were important to their health.

For all five behaviors/attitudes shown in Table 18B, overall responses for males differed significantly from females. This pattern differs slightly from that of Reserve/Guard personnel as estimates for males and females for attitudes about the impact of diet and food on health were not significantly different for that population. Among Active-Duty personnel, males (57.5%) were significantly more likely than females (48.2%) to indicate that diet and food were important to their health. Data for the remaining four behaviors were similar to those of Reserve/Guard personnel. Females were significantly more likely to have tried to lose weight, to have changed their diet for medical reasons, and to have eaten in secret, and males were significantly more likely to report being satisfied with their eating patterns. Further, estimates for females for changing their diet and eating in secret were more than double that of their male counterparts (17.2% vs. 8.4% and 9.8% vs. 4.3%, respectively).

Estimates of these behaviors/attitudes by Active-Duty Service showed many of the same significant sex discrepancies noted for Reserve/Guard personnel. In all four Active-Duty Services, significantly more females than males reported having tried to lose weight and having changed their diet due to medical conditions. The estimate for changing the diet due to medical reasons among Marine Corps females was almost three times that of their male counterparts (19.9% vs. 6.8%). Among Army, Navy, and Marine Corps personnel, a significantly greater proportion of males indicated that they were satisfied with their eating patterns. Females in the Army, Navy, and Air Force were significantly more likely to state that they ate in secret. These patterns of significance were similar to those of the Reserve/Guard components.

The Active-Duty Services showed some interesting patterns for attitudes about diet and food affecting health. Unlike Reserve/Guard personnel, estimates were significantly different among males and females for three of the four Active-Duty Services. Moreover, although patterns of responses for males and females differed, the direction of influence varied. Among Army personnel, significantly more males than females said that food and diet were important for health (40.7% vs. 28.8%). This pattern is similar to that of the overall Active-Duty population for this attitude. In the Navy and Marine Corps, however, significantly more females than males reported that food and diet were important to their health (91.0% vs. 87.1% and 90.7% vs. 82.5%, respectively).

4.4 Factors Considered Important in Purchasing Food

Table 19A presents information for the Reserve/Guard population for a variety of factors that are often important when purchasing food. A very high percentage of personnel (78.3%) indicated that taste, dislikes, or enjoyment was an important factor

Table 19A Factors Considered Important in Purchasing Food Among Reserve/Guard Personnel

Factors/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Health Benefits/ Nutritional Value							
Females	43.6	44.1	54.4*	57.6*	60.1*	51.6*	48.0*
Males	45.8	36.3	42.1*	38.0*	47.4*	39.9*	40.2*
Total	45.3	37.1	44.5	38.9	50.1	41.8	41.4
Price, Cost							
Females	53.5	52.0	56.3*	57.3	47.3	49.7*	52.3
Males	50.4	51.7	46.9*	52.4	47.8	39.8*	49.3
Total	51.1	51.8	48.7	52.6	47.7	41.4	49.7
Taste/Likes or Dislikes, Eating Enjoyment							
Females	84.5*	85.1*	83.4	77.9	86.7*	85.1*	84.8*
Males	78.2*	75.5*	78.9	81.4	76.3*	78.0*	77.1*
Total	79.7	76.5	79.8	81.3	78.5	79.1	78.3
Convenience, Ease of Preparation							
Females	56.4*	51.7	51.7	52.8	58.0	58.1*	54.9*
Males	45.2*	43.3	45.4	49.8	47.0	39.0*	44.0*
Total	47.9	44.2	46.6	49.9	49.2	42.1	45.7
Calories							
Females	36.0*	29.0	39.1*	38.4*	35.5	41.6*	35.1*
Males	26.4*	21.7	22.5*	16.8*	25.2	16.7*	22.1*
Total	28.7	22.5	25.6	17.7	27.3	20.7	24.1

Note: Table entries are percentages. Important is defined as "very important" or "extremely important" when purchasing foods. Standard errors are shown in Table 19ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

when purchasing food. The least important factor affecting food purchase was calories; only 24% of Reserve/Guard personnel indicated that the caloric content of food influenced them when shopping. For all factors except price/cost, significantly more females than males reported that each factor was important in their food purchasing. The same pattern held true for many of the Reserve/Guard components. In addition, for the Naval Reserve and Air National Guard, females were significantly more likely than males to indicate that price/cost was a concern when buying food (56.3% vs. 46.9% and 49.7% vs. 39.8%, respectively). Notably, the greatest significant discrepancy between females and males occurred among Air National Guard personnel with regard to calories; females were about 2.5 times more likely than males to report that calories were an important consideration when buying food.

Table 19B displays similar information about food purchasing for Active-Duty personnel. Results for the overall Active-Duty population are similar to those of the Reserve/Guard. Considering taste, dislikes, and enjoyment as an important factor in food purchases was common among Active-Duty personnel; approximately 78% of personnel responded that this factor influenced their food purchasing. However, calories were reported as being important by only about 26% of all Active-Duty personnel. Moreover, with the exception of price/cost, females differed significantly from males; a significantly higher proportion of females than males reported that they felt health benefits, taste, convenience, and calories were important considerations in food purchase. Across all Active-Duty Services except the Marine Corps and for all factors except price, similar findings emerged. For example, in the Army, Navy, and Air Force, significantly more females than males reported that they considered the health benefits of food when purchasing it (46.8% vs. 33.5%, 49.7% vs. 40.6%, and 51.0% vs. 36.5%, respectively). These patterns are similar to those in the Reserve/Guard population. Notably, estimates for price/cost by Active-Duty Service differ from that of Reserve/Guard personnel and from the pattern of responses for all other factors. Among Navy personnel, a significantly higher proportion of males than females indicated that cost was an important consideration (58.9% vs. 54.0%).

4.5 Hours of Sleep on an Average Night

Table 20A depicts hours of sleep obtained on an average night for Reserve/Guard personnel. In the overall Reserve/Guard population, 5 to 6 hours of sleep and 7 to 8 hours of sleep were most commonly reported; the proportions of personnel reporting each of these amounts of sleep were roughly equivalent (45.9% for 5 to 6 hours and 46.3% for 7 to 8 hours). Very small percentages of individuals reported receiving fewer than 5 hours of sleep or 9 hours or more of sleep. Notably, hours of sleep reported by males and females were not significantly different for any of the categories. A few sex differences emerged within the Reserve/Guard components. Specifically, among the Marine Corps Reserve, a significantly greater proportion of males than females reported they had received fewer than 5 hours of sleep. Indeed, the percentage of males was about seven times that of females (5.6% vs. 0.8%). Conversely, in the Air National Guard, females were

Table 19B Factors Considered Important in Purchasing Food Among Active-Duty Personnel

Factors/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Health Benefits/ Nutritional Value					
Females	46.8*	49.7*	42.8	51.0*	48.8*
Males	33.5*	40.6*	37.7	36.5*	36.8*
Total	35.4	41.8	38.0	39.2	38.5
Price, Cost					
Females	55.1	54.0*	58.6	48.8	52.9
Males	51.3	58.9*	55.0	48.8	53.2
Total	51.8	58.2	55.2	48.8	53.2
Taste/Likes or Dislikes, Eating Enjoyment					
Females	80.7	77.3*	73.9	84.1	80.7*
Males	78.9	72.3*	70.7	84.2	77.3*
Total	79.2	73.0	70.9	84.2	77.8
Convenience, Ease of Preparation					
Females	55.8*	53.3*	50.2	56.1*	55.0*
Males	45.5*	42.4*	45.8	45.9*	44.8*
Total	47.0	43.8	46.0	47.7	46.2
Calories					
Females	34.9*	37.2*	33.1	35.1*	35.4*
Males	23.7*	23.9*	28.5	21.8*	23.9*
Total	25.4	25.6	28.7	24.2	25.6

Note: Table entries are percentages. Important is defined as "very important" or "extremely important" when purchasing foods. Standard errors are shown in Table 19BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 20A Hours of Sleep on an Average Night Among Reserve/Guard Personnel

Hours/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Less Than 5 Hours							
Females	6.0	3.9	4.4	0.8*	7.6	8.2*	5.6
Males	6.6	2.8	4.4	5.6*	3.3	2.5*	3.9
Total	6.5	2.9	4.4	5.4	4.2	3.4	4.2
5 to 6 Hours							
Females	46.1	43.8	46.4	42.6	48.6	42.8	45.3
Males	46.8	44.6	46.7	49.9	44.5	49.0	46.0
Total	46.6	44.5	46.6	49.6	45.4	48.0	45.9
7 to 8 Hours							
Females	44.8	48.4	46.4	51.0*	38.1	47.4	45.7
Males	44.2	47.5	47.5	38.7*	49.8	46.5	46.4
Total	44.3	47.6	47.3	39.2	47.3	46.7	46.3
9 Hours or More							
Females	3.1	3.9	2.7	5.6	5.7	1.5	3.4
Males	2.4	5.1	1.5	5.8	2.4	2.0	3.7
Total	2.6	5.0	1.7	5.8	3.1	1.9	3.6

Note: Table entries are percentages. Standard errors are shown in Table 20ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

significantly more likely than males to indicate that they had received fewer than 5 hours of sleep. Females in the Marine Corps Reserve also were significantly more likely than their male counterparts to report having slept for 7 to 8 hours.

Estimates for the Active-Duty population differ somewhat from those in the Reserve/Guard population. As can be seen in Table 20B, the majority of Active-Duty personnel reported that they received on average 5 to 6 hours of sleep (51.9%). Sleeping 7 to 8 hours was less prevalent; about 39% of personnel reported they slept that amount on an average night. Unlike the Reserve/Guard population, there were some significant differences between males and females in the total Active-Duty population. A significantly higher proportion of males reported receiving only 5 to 6 hours of sleep (52.7% vs. 47.5%), while females were significantly more likely than males to report sleeping 9 hours or more (4.0% vs. 2.3%). Estimates for the Army and Navy show this same pattern. Among Navy personnel, females were more than two times more likely than males to report sleeping 9 hours or more (4.0% vs. 1.8%). In addition, though the proportion of males and females in the overall Active-Duty population who reported they slept fewer than 5 hours did not differ significantly, in the Marine Corps males were significantly more likely than females to report receiving fewer than 5 hours of sleep (7.3% vs. 3.3%).

4.6 Alcohol Use

In this section, we describe alcohol use, noting the differences between males and females, the individual Reserve/Guard components and Active-Duty Services, and between Reserve/Guard and Active-Duty personnel where appropriate. Measures of alcohol use include the number of days that alcohol was consumed in the past 30 days and the number of alcoholic drinks consumed on a typical day in the past 30 days. We use the term "binge drinking" to identify the drinking of excessive amounts of alcohol during a typical drinking occasion. The definition of binge drinking differs by sex. For males, consuming five drinks or more per typical occasion is considered binge drinking; for females, the threshold is four drinks or more (Wechsler et al., 1995). (A discussion of the alcohol use measures also appears in Chapter 2.)

As shown in Table 21A, estimates for the total Reserve/Guard component reveal that most personnel reported that they did not drink alcohol or drank it on 1 to 3 days in the past 30 days, while few reported nearly daily use of alcohol. Approximately 36% of the Reserve/Guard reported drinking on 1 to 3 days, and nearly 30% reported that they did not drink in the past 30 days. About 3% reported drinking on 28 to 30 days and 4% reported drinking on 20 to 27 days in the past 30 days.

Generally, males in the Reserve/Guard reported drinking alcohol on more days in the past 30 days than females. Males were significantly more likely than females to report drinking alcohol on 28 to 30 days (3.2% vs. 1.8%), 11 to 19 days (9.9% vs. 5.8%), and 4 to 10 days (19.2% vs. 13.6%) in the past 30 days. Furthermore, females were significantly more likely than males to report drinking on 1 to 3 days (41.2% vs. 35.2%) or that they never drank

Table 20B Hours of Sleep on an Average Night Among Active-Duty Personnel

Hours/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Less Than 5 Hours					
Females	11.6	4.3	3.3*	6.5	7.6
Males	9.7	4.6	7.3*	3.8	6.5
Total	10.0	4.6	7.1	4.3	6.7
5 to 6 Hours					
Females	51.2*	46.6*	50.2	43.8	47.5*
Males	58.5*	52.1*	49.5	47.0	52.7*
Total	57.4	51.3	49.6	46.4	51.9
7 to 8 Hours					
Females	33.9	45.2	42.1	45.1	41.0
Males	30.0	41.5	39.4	46.3	38.5
Total	30.5	42.0	39.5	46.1	38.8
9 Hours or More					
Females	3.4	4.0*	4.4	4.6	4.0*
Males	1.8	1.8*	3.8	2.8	2.3*
Total	2.1	2.1	3.8	3.1	2.6

Note: Table entries are percentages. Standard errors are shown in Table 20BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 21A Alcohol Use Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Days Drank Alcohol in Past 30 Days							
Females							
28 to 30 days	1.8	1.7	2.1*	1.2*	1.3	2.2	1.8*
20 to 27 days	3.3	1.7	1.9*	2.2	3.4	5.0	2.9
11 to 19 days	5.6*	6.4	5.3*	8.8	5.8*	5.0*	5.8*
4 to 10 days	11.2*	11.7	14.1*	18.3*	17.7	19.9	13.6*
1 to 3 days	45.5*	40.0	39.3	43.2	35.5	38.4	41.2*
0 days	32.6	38.5	37.3*	26.3*	36.3	29.5*	34.7*
Males							
28 to 30 days	1.9	3.0	4.6*	3.8*	4.8	4.0	3.2*
20 to 27 days	2.9	4.2	4.3*	5.1	5.8	6.0	4.3
11 to 19 days	11.3*	8.0	11.0*	10.5	13.3*	11.0*	9.9*
4 to 10 days	18.9*	17.3	22.5*	26.1*	18.0	21.9	19.2*
1 to 3 days	35.1*	35.9	33.7	36.0	32.2	35.5	35.2*
0 days	30.0	31.6	23.9*	18.4*	25.9	21.6*	28.2*
Total							
28 to 30 days	1.9	2.9	4.1	3.7	4.1	3.7	3.0
20 to 27 days	3.0	3.9	3.8	5.0	5.3	5.8	4.1
11 to 19 days	9.9	7.8	10.0	10.4	11.7	10.0	9.2
4 to 10 days	17.0	16.7	21.0	25.8	17.9	21.6	18.3
1 to 3 days	37.6	36.3	34.8	36.3	32.9	36.0	36.1
0 days	30.6	32.3	26.4	18.8	28.1	22.9	29.2

See notes at end of table.

(continued)

Table 21A (continued)

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Drinks on a Typical Day[a]							
Females							
5 drinks or more	4.6*	6.3*	3.3*	6.2*	1.9*	2.9*	4.4*
4 drinks	5.1	5.3	2.2*	5.7	6.3	4.2*	4.9*
3 drinks	11.3	8.4	5.9*	12.9	7.0	10.2	9.3*
2 drinks	20.1	17.7	21.5	24.9	16.0	24.7	19.8
1 drink	25.4	24.8*	28.9*	23.3*	30.7	27.8*	26.5*
0 drinks	33.6	37.5	38.2*	27.0*	38.1	30.2*	35.2*
Males							
5 drinks or more	9.1*	14.0*	9.0*	22.7*	7.0*	9.2*	11.9*
4 drinks	4.5	9.9	7.4*	9.9	9.2	9.2*	8.5*
3 drinks	11.8	14.0	9.7*	13.7	10.4	13.6	12.8*
2 drinks	21.6	15.6	26.7	20.5	21.2	26.1	19.8
1 drink	22.3	14.2*	22.7*	14.0*	25.1	19.8*	18.2*
0 drinks	30.7	32.2	24.5*	19.3*	27.1	22.1*	28.8*
Total							
5 drinks or more	8.0	13.2	8.0	21.9	5.9	8.2	10.7
4 drinks	4.7	9.4	6.4	9.7	8.6	8.4	7.9
3 drinks	11.7	13.5	9.0	13.7	9.7	13.0	12.3
2 drinks	21.2	15.8	25.7	20.7	20.1	25.9	19.8
1 drink	23.0	15.3	23.9	14.4	26.3	21.1	19.5
0 drinks	31.4	32.8	27.1	19.6	29.4	23.4	29.8

Note: Table entries are percentages. Standard errors are shown in Table 21ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]The 1995 POWR Assessment asked, "During the past 30 days, how much alcohol did you drink on a typical day?" and the 1998 Total Force Assessment asked, "Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a typical day?"

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

(34.7% vs. 28.2%) in the past 30 days. The most notable example of this pattern among the Reserve/Guard components appeared in the Naval Reserve. In comparison to Naval Reserve females, Naval Reserve males were significantly more likely to report drinking alcohol for all categories except for 1 to 3 days.

Table 21A also presents estimates for the number of alcoholic drinks consumed on a typical day in the past month among Reserve/Guard personnel. Overall, Reserve/Guard personnel reported consuming very few alcoholic drinks on a typical day in the past 30 days. Nearly 30% reported having no drinks, and 40% reported having one or two drinks on a typical day. About 12% reported having three drinks, less than 8% reported having four drinks, and 11% reported having five drinks or more on a typical day in the past 30 days. Notably, about 9% of Reserve/Guard females and 12% of Reserve/Guard males would be considered binge drinkers. Reserve/Guard females were significantly more likely than males to report having no alcoholic drinks or one alcoholic drink on a typical day, and females were significantly less likely than males to report having three, four, or five or more alcoholic drinks on a typical day. Examining the Reserve/Guard components individually revealed that a much higher percentage of Marine Corps Reserve personnel reported having three drinks (13.7%), four drinks (9.7%), and five drinks or more (21.9%) on a typical day in the past 30 days compared to the other Reserve/Guard components and to the total Reserve/Guard.

Table 21B displays the estimates for Active-Duty personnel for the two alcohol measures. Most of the Active-Duty personnel reported that they did not drink alcohol in the past 30 days (25.5%) or that they drank it on 1 to 3 days (34.6%) or 4 to 10 days (24.5%). Smaller percentages of personnel reported drinking on 11 to 19 days (9.2%), 20 to 27 days (3.5%), or 28 to 30 days (2.8%). These results differ slightly from the overall Reserve/Guard population. For example, Active-Duty personnel were more likely than their Reserve/Guard counterparts to report drinking alcohol on 4 to 10 days in the past 30 days (24.5% vs. 18.3%), while they were less likely to report that they never drank (25.5% vs. 29.2%).

Active-Duty females were significantly more likely than males to report drinking alcohol on fewer days in the past 30 days and were significantly less likely to report drinking it on most categories of days in the past 30 days. This held true for each category except for 1 to 3 days, where no differences were detected. Further, this pattern held true for males and females in each of the Active-Duty Services, although not all differences were significant.

Data on the number of alcoholic drinks consumed on a typical day in the past 30 days among Active-Duty personnel showed that, overall, most Active-Duty personnel reported having no drinks (27.3%), one drink (22.3%), or two drinks (17.9%) on a typical day in the past 30 days, while fewer Active-Duty personnel reported having three drinks (11.4%), four drinks (5.8%), or five or more drinks (15.3%) on a typical day in the past 30 days. Interestingly, about 13% of Active-Duty females and 16% of Active-Duty males met the criterion for binge drinking. Notably, Active-Duty personnel were more likely than Reserve/Guard

Table 21B Alcohol Use Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Days Drank Alcohol in Past 30 Days					
Females					
28 to 30 days	0.2*	1.0	0.4*	1.9	1.0*
20 to 27 days	2.2	2.1*	0.8*	1.2	1.8*
11 to 19 days	3.3*	4.6*	5.2	7.3	5.1*
4 to 10 days	17.6*	17.0*	16.7*	23.7	19.5*
1 to 3 days	35.2	40.8*	38.4	34.5	36.5
0 days	41.5*	34.5*	38.4*	31.4	36.1*
Males					
28 to 30 days	4.6*	1.4	3.8*	2.4	3.1*
20 to 27 days	4.7	3.3*	3.9*	2.9	3.8*
11 to 19 days	9.7*	10.2*	9.0	10.2	9.9*
4 to 10 days	25.4*	26.6*	27.5*	22.8	25.4*
1 to 3 days	31.9	34.3*	39.5	34.5	34.2
0 days	23.8*	24.2*	16.3*	27.2	23.7*
Total					
28 to 30 days	4.0	1.4	3.6	2.3	2.8
20 to 27 days	4.3	3.2	3.7	2.6	3.5
11 to 19 days	8.8	9.5	8.7	9.6	9.2
4 to 10 days	24.2	25.3	26.9	22.9	24.5
1 to 3 days	32.4	35.1	39.4	34.5	34.6
0 days	26.3	25.6	17.6	28.0	25.5

See notes at end of table.

(continued)

Table 21B (continued)

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Drinks on a Typical Day					
Females					
5 drinks or more	7.4*	9.4*	12.7*	9.3	8.8*
4 drinks	4.4	3.0*	3.7	6.2	4.6
3 drinks	7.4*	7.1*	8.3	9.4	8.1*
2 drinks	15.4	12.7	9.8*	21.7	16.6
1 drink	22.3	29.7	22.8	20.7	23.7
0 drinks	43.0*	38.1*	42.7*	32.6	38.2*
Males					
5 drinks or more	15.5*	16.3*	27.6*	11.4	16.4*
4 drinks	7.8	4.8*	4.7	5.5	6.0
3 drinks	14.5*	9.3*	7.2	14.3	12.0*
2 drinks	20.3	14.0	15.2*	21.4	18.1
1 drink	17.2	28.1	25.2	20.2	22.1
0 drinks	24.7*	27.6*	20.0*	27.2	25.5*
Total					
5 drinks or more	14.3	15.4	26.8	11.0	15.3
4 drinks	7.3	4.5	4.6	5.6	5.8
3 drinks	13.4	9.0	7.3	13.4	11.4
2 drinks	19.6	13.8	14.8	21.5	17.9
1 drink	18.0	28.3	25.1	20.3	22.3
0 drinks	27.4	29.0	21.4	28.2	27.3

Note: Table entries are percentages. Standard errors are shown in Table 21BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]The 1995 POWR Assessment asked, "During the past 30 days, how much alcohol did you drink on a typical day?" and the 1998 Total Force Assessment asked, "Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a typical day?"

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

personnel to report having five or more alcoholic drinks on a typical day in the past 30 days (15.3% vs. 10.7%). Active-Duty females were significantly more likely to report not drinking alcohol on a typical day (38.2%) compared to males (25.5%). Females also were significantly less likely to report having three drinks per typical day (8.1% vs. 12.0%) and five or more drinks per day (8.8% vs. 16.4%) in the past 30 days.

Each Active-Duty Service followed a pattern similar to that seen for the total Active-Duty in that males were drinking more alcoholic drinks on a typical day in the past 30 days than females were. Significant sex differences varied for the Active-Duty Services. For example, males in the Army were significantly more likely than females to report having five alcoholic drinks on a typical occasion (15.5% vs. 7.4%). Males in the Navy were significantly more likely than females to report having four or five alcoholic drinks on a typical occasion (4.8% vs. 3.0% for four drinks; 16.3% vs. 9.4% for five drinks).

4.7 Cigarette Use and Exposure to Tobacco Smoke

Estimates on cigarette use and exposure to tobacco smoke at home and at work are presented among Reserve/Guard personnel in Table 22A and Active-Duty personnel in Table 22B. Military personnel defined as "current" smokers reported having smoked at least 100 cigarettes in their lifetime and having smoked in the past 30 days. Those defined as "heavy" smokers were current smokers who reported smoking at least one pack of cigarettes a day in the past 30 days. These tables also present estimates on personnel who were not current smokers themselves but who reported that they were exposed to tobacco smoke for an hour or more per day at home, at work, or both at home and work. Moreover, estimates are presented on current smokers who reported that they were exposed to tobacco smoke for an hour or more per day at home, at work, and both at home and at work.

As shown in Table 22A, slightly more than one-quarter of the total Reserve/Guard were current cigarette smokers (26.6%) and 11% were heavy smokers. There were no significant differences between males and females in either the current or heavy smoking categories. Across the Reserve/Guard components, the totals for Army National Guard personnel had the highest prevalence of current and heavy smoking, while the Air Force Reserve had the lowest prevalence. Males in the Army National Guard and Marine Corps Reserve were significantly more likely than females to be current smokers. Females in the Army Reserve, however, were more likely than males to be current smokers (28.7% vs. 21.0%). The only significant sex difference for heavy smokers was detected among Marine Corps Reserve personnel with males more likely to be heavy smokers (9.9% vs. 3.7%).

Table 22A also displays the percentage of Reserve/Guard personnel who were not smokers and who reported being exposed to tobacco smoke at home, at work, and both at home and at work. About 21% of the nonsmoking Reserve/Guard personnel reported being exposed only at work, and nearly 9% reported being exposed only at home. Approximately one-quarter (26.6%) reported being exposed to tobacco smoke both at home and at work.

Table 22A Cigarette Use and Exposure to Tobacco Smoke Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cigarette Use							
Females							
Current smoker[a]	28.7*	23.0*	26.1	18.0*	18.1	24.3	24.9
Heavy smoker[b]	9.0	13.4	7.5	3.7*	8.9	9.6	10.1
Males							
Current smoker[a]	21.0*	33.2*	21.6	27.6*	19.6	22.6	27.0
Heavy smoker[b]	7.8	14.4	9.5	9.9*	8.2	10.5	11.4
Total							
Current smoker[a]	22.9	32.1	22.5	27.1	19.3	22.8	26.6
Heavy smoker[b]	8.1	14.3	9.1	9.7	8.4	10.4	11.2
Exposure to Tobacco Smoke Among Nonsmokers							
Females							
Exposed at work	15.9*	21.2	12.1	16.1	17.4	13.4	16.8*
Exposed at home	13.9	16.6	7.7	14.4	11.7	5.7	12.6*
Exposed at work and at home	26.6	33.1	18.3	26.0	24.8	17.8	26.2
Males							
Exposed at work	24.4*	26.0	17.1	22.5	14.4	16.0	22.3*
Exposed at home	8.1	10.3	5.0	11.9	4.0	5.2	8.2*
Exposed at work and at home	28.1	31.5	19.5	29.5	17.0	19.7	26.7
Total							
Exposed at work	22.5	25.5	16.2	22.2	15.1	15.6	21.4
Exposed at home	9.4	11.0	5.5	12.0	5.7	5.3	8.9
Exposed at work and at home	27.8	31.7	19.3	29.3	18.7	19.4	26.6
Exposure to Tobacco Smoke Among Smokers							
Females							
Exposed at work	44.6	42.2	36.3*	38.2	38.4	38.3	41.6*
Exposed at home	68.1	58.2	62.4	55.6	67.7	59.3	63.6
Exposed at work and at home	73.1	63.5	68.1	74.7	70.4	64.3	68.7
Males							
Exposed at work	55.0	56.1	58.2*	52.8	45.6	54.9	55.1*
Exposed at home	54.9	53.9	58.6	53.7	57.9	53.9	54.7
Exposed at work and at home	70.6	67.4	70.7	67.1	59.0	66.9	67.6
Total							
Exposed at work	51.9	55.0	53.3	52.3	44.2	52.1	53.2
Exposed at home	59.1	54.3	59.4	53.8	59.9	54.9	56.0
Exposed at work and at home	71.4	67.1	70.1	67.3	61.2	66.5	67.8

Note: Table entries are percentages. Standard errors are shown in Table 22ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]Current smoker is defined as smoking at least 100 cigarettes during one's lifetime and smoking in the past 30 days.
[b]Heavy smoker is defined as current smokers who smoke one or more packs of cigarettes per day.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Female nonsmoking personnel were significantly less likely than males to be exposed at work (16.8% vs. 22.3%), while they were significantly more likely to be exposed at home (12.6% vs. 8.2%). Female nonsmokers in the Army Reserve were also significantly less likely to be exposed at work. For nonsmoking Reserve/Guard personnel reporting exposure at both home and work, female and male Reserve/Guard personnel had similar percentages.

Among the total Reserve/Guard personnel who smoked, more than half reported being exposed to tobacco smoke at work (53.2%) and at home (56.0%), and more than two-thirds reported being exposed both at work and at home (67.8%). Significantly fewer female than male Reserve/Guard personnel who smoked reported being exposed to tobacco smoke at work (41.6% vs. 55.1%). In terms of comparisons among the Reserve/Guard components, the only significant sex difference was found among females in the Naval Reserve who were significantly less likely than males to report exposure to tobacco smoke at work (36.3% vs. 58.2%).

Table 22B shows that, among Active-Duty personnel, roughly 30% were current cigarette smokers and about 12% were heavy smokers. Active-Duty personnel had similar rates of current and heavy cigarette smoking compared to Reserve/Guard personnel. Active-Duty females were significantly less likely than males to be current smokers (24.7% vs. 29.6%) or heavy smokers (7.3% vs. 12.6%). Each Active-Duty Service except the Air Force showed a similar pattern in terms of significant sex differences. Overall, the Marine Corps had the highest prevalence of current and heavy cigarette smokers, while the Air Force had the lowest prevalence.

Analysis of exposure to tobacco smoke among nonsmoking Active-Duty personnel revealed that nearly 20% were exposed at work and 12% were exposed at home. More than one-quarter (26.7%) of nonsmokers were exposed both at home and at work. The Army had the highest prevalence of personnel exposed at work (26.9%) and both at work and at home (34.2%), while the Air Force had the lowest estimates in all three exposure categories. The Marine Corps had the highest percentage of personnel exposed at home (19.6%), more than double the percentage of Air Force personnel in this exposure category.

Compared to their male counterparts, nonsmoking Active-Duty female personnel reported significantly lower exposure to tobacco smoke at work (13.6% vs. 19.5%) and both at work and at home (22.8% vs. 27.3%). The same significant sex difference for exposure at work was found in the Army (19.9% females vs. 28.1% males) and Air Force (6.5% females vs. 13.2% males).

Among smokers in Active-Duty Services, about 45% reported exposure at work, nearly 64% reported being exposed at home, and more than 70% reported being exposed both at work and at home. Of the Active-Duty Services, the Marine Corps had the highest estimates in each exposure category, and the Air Force had the lowest estimates. In addition, Active-Duty females who smoked were significantly more likely than males to report

Table 22B Cigarette Use and Exposure to Tobacco Smoke Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cigarette Use					
Females					
Current smoker[a]	23.1*	26.4*	23.9*	25.2	24.7*
Heavy smoker[b]	6.7*	9.0*	6.0*	6.8	7.3*
Males					
Current smoker[a]	30.5*	31.5*	34.7*	23.4	29.6*
Heavy smoker[b]	14.7*	13.8*	14.7*	7.5	12.6*
Total					
Current smoker[a]	29.4	30.8	34.1	23.7	28.9
Heavy smoker[b]	13.5	13.2	14.2	7.3	11.9
Exposure to Tobacco Smoke Among Nonsmokers					
Females					
Exposed at work	19.9*	12.5	22.2	6.5*	13.6*
Exposed at home	10.2	14.6	17.6	9.8	11.6
Exposed at work and at home	27.7	23.3	34.3	15.6	22.8*
Males					
Exposed at work	28.1*	13.5	22.9	13.2*	19.5*
Exposed at home	11.6	13.9	19.7	8.3	12.3
Exposed at work and at home	35.4	23.5	32.0	19.1	27.3*
Total					
Exposed at work	26.9	13.3	22.8	12.0	18.6
Exposed at home	11.4	14.0	19.6	8.6	12.2
Exposed at work and at home	34.2	23.5	32.1	18.5	26.7
Exposure to Tobacco Smoke Among Smokers					
Females					
Exposed at work	43.9	32.6	41.5	56.6*	45.1
Exposed at home	68.8	69.5*	68.2	73.7*	70.7*
Exposed at work and at home	76.5	73.7	74.9	75.9*	75.4
Males					
Exposed at work	50.6	41.1	51.7	36.4*	45.2
Exposed at home	65.1	64.0*	70.0	49.6*	62.5*
Exposed at work and at home	76.2	71.0	77.7	57.2*	71.1
Total					
Exposed at work	49.9	40.2	51.3	40.3	45.2
Exposed at home	65.5	64.6	69.9	54.4	63.5
Exposed at work and at home	76.2	71.3	77.6	60.8	71.6

Note: Table entries are percentages. Standard errors are shown in Table 22BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]Current smoker is defined as smoking at least 100 cigarettes during one's lifetime and smoking in the past 30 days.
[b]Heavy smoker is defined as current smokers who smoke one or more packs of cigarettes per day.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

exposure to tobacco smoke at home (70.7% vs. 62.5%). Reserve/Guard and Active-Duty personnel who smoked reported being exposed to tobacco smoke at home, at work, and both at home and at work more than twice as much as nonsmokers.

4.8 Availability and Use of Protective Gear

In this section, we discuss the availability and use of protective gear by Reserve/Guard and Active-Duty personnel in their military job. These tables present the estimates of military personnel who reported that protective gear, such as gloves, respirator, filter, mask, and ear plugs, was available to use either "always," "sometimes," or "never" in their military job. Personnel also were asked how regularly they used protective gear when they needed to in the course of their military job, using the same response options of "always," "sometimes," or "never." For questions on the availability and use of protective gear, a separate response category shows the percentage of personnel who reported that they did not need to use protective gear in their military job because they did not come in contact with harmful substances.

As shown in Table 23A, approximately 19% of the total Reserve/Guard reported that they did not need to use protective gear for their military job. Of the remaining personnel, a majority reported that protective gear was "always" available (63.7%) for use. Approximately one-third (32.9%) of the total Reserve/Guard who needed protective gear reported it was "sometimes" available, while only 3% reported that it was "never" available. Across the individual Reserve/Guard components, more Army Reserve personnel reported that they did not need to use protective gear (28.1%), followed by Naval Reserve personnel (23.1%).

Female Reserve/Guard personnel were nearly twice as likely as males to report that they did not need to use protective gear (32.2% vs. 16.7%). Females also were significantly more likely than males to report that gear was "always" available (68.5% vs. 63.0%) and significantly less likely to report that protective gear was "sometimes" available (27.1% vs. 33.7%). No significant differences were detected between female and male Reserve/Guard personnel who reported "never" having protective gear available. Although there was less relative need for protective gear among Naval Reserve personnel, Naval Reserve females were significantly more likely than their male counterparts to report that gear was "never" available (6.4% vs. 1.7%).

Overall, the rates for Reserve/Guard personnel who reported using protective gear were nearly the same as the rates for its availability. Approximately 22% reported that they did not encounter harmful substances and therefore did not use protective gear. Of those who had a need for protective gear, about 57% reported "always" using protective gear. Approximately 39% reported "sometimes" using protective gear, while few (3.9%) reported that they "never" used protective gear.

Of Reserve/Guard personnel needing protective gear, females were significantly more likely than their male counterparts to report using protective gear "always" (71.2% vs. 55.3%) and significantly less likely to report using it "sometimes" (24.0% vs.

Table 23A Availability and Use of Protective Gear in Current Military Job Among Reserve/Guard Personnel

Availability and Use/Sex/Frequency	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Availability of Protective Gear							
Females							
Always[a]	64.9*	68.4	65.0	60.7	71.0	78.9	68.5*
Sometimes[a]	29.6	27.3	28.6*	31.4*	27.1	19.2	27.1*
Never[a]	5.6	4.3	6.4*	7.9	2.0	1.9	4.4
Don't need to use protective gear[b]	37.0*	26.3*	34.1*	45.7*	35.9*	25.3*	32.2*
Males							
Always[a]	54.3*	60.1	59.3	54.4	81.0	79.1	63.0*
Sometimes[a]	38.6	36.9	39.0*	42.6*	18.2	19.0	33.7*
Never[a]	7.1	3.0	1.7*	3.1	0.8	1.9	3.3
Don't need to use protective gear[b]	25.1*	14.3*	20.6*	19.2*	15.4*	8.4*	16.7*
Total							
Always[a]	56.6	60.8	60.2	54.5	79.3	79.1	63.7
Sometimes[a]	36.6	36.1	37.3	42.2	19.7	19.0	32.9
Never[a]	6.7	3.1	2.4	3.2	1.0	1.9	3.4
Don't need to use protective gear[b]	28.1	15.5	23.1	20.4	19.7	11.1	19.1
Use of Protective Gear							
Females							
Always[a]	68.8*	69.0*	72.5	60.0*	73.2	79.4*	71.2*
Sometimes[a]	22.8*	28.9*	22.0*	32.6*	23.2	19.0*	24.0*
Never[a]	8.4	2.1	5.5*	7.5	3.7	1.6	4.8
Don't need to use protective gear[b]	39.9*	36.5*	36.6*	46.2*	35.6*	31.1*	37.0*
Males							
Always[a]	52.1*	50.8*	65.4	46.1*	65.6	66.0*	55.3*
Sometimes[a]	42.5*	44.7*	33.4*	49.3*	32.4	32.6*	41.0*
Never[a]	5.4	4.5	1.2*	4.6	2.1	1.4	3.7
Don't need to use protective gear[b]	29.5*	15.1*	21.1*	19.0*	20.0*	11.7*	18.7*
Total							
Always[a]	55.7	52.3	66.5	46.5	66.9	67.7	57.3
Sometimes[a]	38.2	43.5	31.6	48.8	30.7	30.9	38.8
Never[a]	6.1	4.3	1.9	4.7	2.3	1.4	3.9
Don't need to use protective gear[b]	32.1	17.3	24.0	20.1	23.3	14.8	21.6

Note: Table entries are percentages. Standard errors are shown in Table 23ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]This category excludes those who do not need to use protective gear.
[b]This category is the percentage of personnel who report they do not need to use protective gear.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

41.0%). Among Reserve/Guard components, Army Reserve and Marine Corps Reserve personnel needing protective gear in their military job were less likely to report that they "always" used it. These Reserve/Guard components also had the highest percentage of personnel reporting that they "never" used protective gear. Air National Guard, Air Force Reserve, and Naval Reserve personnel were more likely to report that they "always" used protective gear.

For Active-Duty personnel, Table 23B reveals that approximately 20% reported that they did not need to use protective gear during their military job. Of those needing protective gear, about 68% reported that protective gear was "always" available. About 27% reported that gear was "sometimes" available, and 5% reported that it was "never" available.

Similar to findings for Reserve/Guard components, more Active-Duty females than males reported that they did not need protective gear for their military job (36.6% vs. 17.8%). Of those needing protective gear, Active-Duty females and males reported about the same availability. Active-Duty females, however, were significantly more likely than Active-Duty males to report "never" having protective gear available (7.7% vs. 4.9%).

Estimates for the Navy and the Marine Corps were different from the other Active-Duty Services in terms of availability. First, these Active-Duty Services had the highest percentages of personnel reporting that gear was "always" available. For Navy personnel, fewer females than males reported that gear was "always" available (77.8% vs. 83.1%), and more females reported that gear was "never" available (11.2% vs. 6.1%). The same pattern was seen in the Marine Corps, where fewer females than males reported that gear was "always" available (72.8% vs. 82.1%), and more females reported that it was "never" available (12.1% vs. 5.0%).

Although availability of protective gear was generally high, a lower percentage of personnel reported "always" using it. Of the Active-Duty personnel who reported that they need to use protective gear, about 52% reported that they "always" used it, and 43% reported that they "sometimes" used it. Less than 5% reported that they "never" used protective gear when they encounter harmful substances in their military job.

Of those needing protective gear, female Active-Duty personnel were significantly more likely than males to report that they "always" used it (57.4% vs. 51.6%). Male personnel were significantly more likely than females to report that they "sometimes" used protective gear (44.1% vs. 37.5%).

Among the Active-Duty Services, more Navy (60.5%) and Air Force (61.4%) personnel reported "always" using protective gear, and fewer reported "never" using it (2.7% and 3.2%, respectively). Conversely, fewer Army (41.6%) and Marine Corps (45.6%) personnel reported "always" using protective gear, and more reported "never" using it (6.7% and 4.0%, respectively).

Table 23B Availability and Use of Protective Gear in Current Military Job Among Active-Duty Personnel

Availability and Use/Sex/Frequency	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Availability of Protective Gear					
Females					
Always[a]	52.3	77.8*	72.8*	75.9	67.2
Sometimes[a]	40.9	10.9	15.0	19.3	25.1
Never[a]	6.8	11.2*	12.1*	4.8	7.7*
Don't need to use protective gear[b]	30.9*	32.5*	39.1*	45.0*	36.6*
Males					
Always[a]	47.5	83.1*	82.1*	74.4	68.4
Sometimes[a]	47.1	10.8	13.0	22.6	26.7
Never[a]	5.4	6.1*	5.0*	3.0	4.9*
Don't need to use protective gear[b]	15.3*	20.1*	16.9*	19.1*	17.8*
Total					
Always[a]	48.1	82.5	81.7	74.6	68.3
Sometimes[b]	46.3	10.8	13.0	22.2	26.5
Never[a]	5.6	6.7	5.3	3.2	5.2
Don't need to use protective gear[b]	17.5	21.8	18.2	23.9	20.4
Use of Protective Gear					
Females					
Always[a]	50.8*	61.0	45.3	64.6	57.4*
Sometimes[a]	43.1*	34.5	48.0	31.3	37.5*
Never[a]	6.1	4.4*	6.7*	4.1	5.1
Don't need to use protective gear[b]	32.3*	37.8*	46.1*	44.5*	38.5*
Males					
Always[a]	40.3*	60.5	45.6	60.9	51.6*
Sometimes[a]	52.9*	37.1	50.5	36.0	44.1*
Never[a]	6.7	2.5*	3.9*	3.1	4.3
Don't need to use protective gear[b]	15.2*	17.4*	19.0*	19.4*	17.4*
Total					
Always[a]	41.6	60.5	45.6	61.4	52.2
Sometimes[a]	51.7	36.8	50.4	35.4	43.4
Never[a]	6.7	2.7	4.0	3.2	4.4
Don't need to use protective gear[b]	17.7	20.1	20.6	24.0	20.4

Note: Table entries are percentages. Standard errors are shown in Table 23BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]This category excludes those who do not need to use protective gear.
[b]This category is the percentage of personnel who reported they do not need to use protective gear.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Among those needing protective gear, significantly more Active-Duty than Reserve/Guard personnel reported that it was "always" available (68.3% vs. 63.7%) or "never" available (5.2% vs. 3.4%). Significantly more Reserve/Guard than Active-Duty personnel reported that they "always" used protective gear (57.3% vs. 52.2%) when they encounter hazardous substances or noises in their military jobs.

4.9 Summary

In this chapter, we examined a variety of different health behaviors. Main findings are summarized below.

- For perceived physical fitness, most Reserve/Guard (65.6%) and Active-Duty (58.1%) personnel indicated their physical fitness was "good" to "excellent." However, fewer Active-Duty than Reserve/Guard personnel reported their fitness was "good" to "excellent." The fact that these data represent self-perceptions of fitness may explain these seemingly counterintuitive results. Individual perception may be strongly influenced by one's frame of reference. Accordingly, Active-Duty personnel are among individuals who must be in stellar physical condition; hence, in comparison to their peers, they may feel less physically fit. In contrast, Reserve/Guard personnel most likely compare themselves to a broader range of people who are less likely to be physically fit. Therefore, Reserve/Guard personnel's perceptions are more likely to be positive than those of Active-Duty personnel.

- In the overall Reserve/Guard and Active-Duty populations, a significantly higher proportion of females than males considered themselves to be physically fit.

- About one-third (32.8%) of Reserve/Guard personnel said that diet and food choices were important to one's health, while over one-half (56.1%) of Active-Duty personnel reported the same. Small but important percentages of Reserve/Guard and Active-Duty personnel reported not eating enough or overeating regularly (6 to 7 days in the past week). Notably, about one-quarter of Reserve/Guard personnel indicated that they took vitamins consistently (6 to 7 days in the past week), and about one-fifth of Active-Duty personnel reported the same habit. These findings suggest that further nutrition education is needed.

- In the overall Reserve/Guard and Active-Duty populations, significantly more females than males indicated that they tried to lose weight, changed their diet due to a medical condition, and ate in secret, while significantly more males than females reported that they were satisfied with their eating patterns. This observation reiterates the need for nutrition and dietary education. Moreover, these efforts should be targeted heavily toward females.

- Reports of hours of sleep obtained on an average night differed among Reserve/Guard and Active-Duty personnel. In the Reserve/Guard population, 5 to 6 hours (45.9%) or 7 to 8 hours (46.3%) of sleep were most commonly reported. In contrast, more Active-Duty personnel indicated that they slept 5 to 6 hours (51.9%) than 7 to 8 hours (38.8%) per night. In the Active-Duty population, males were more likely than females to report sleeping 5 to 6 hours (52.7% vs. 47.5%). Assuming a relationship between sleep and productivity, efforts to increase the average number of hours slept, particularly among Active-Duty personnel, could affect productivity.

- In general, reports of alcohol use were low. Most Reserve/Guard and Active-Duty personnel reported that they did not drink or drank on 1 to 3 days in the past 30 days. Moreover, most military personnel reported having no drinks or just one or two drinks on a typical day in the past 30 days. Reserve/Guard and Active-Duty females generally reported drinking on fewer days and reported having fewer drinks on a typical day in the past 30 days than males.

- Notably, Active-Duty personnel were more likely than those in the Reserve/Guard to report having five or more drinks on a typical day in the past 30 days (15.3% vs. 10.7%). About 9% of Reserve/Guard females and 12% of Reserve/Guard males would be considered binge drinkers. Slightly higher percentages were found in the Active-Duty (13.4% for females and 16.4% for males). Plans to reduce alcohol use among military personnel could be directed at personnel who are in the Active-Duty Services and personnel considered to be binge drinkers.

- Active-Duty personnel had similar rates of current and heavy cigarette smoking compared to Reserve/Guard personnel. Approximately one-quarter of Reserve/Guard personnel were current smokers, and 11% were heavy smokers. Nearly 30% of Active-Duty personnel were current smokers, and about 12% were heavy smokers. Active-Duty females were significantly less likely than their male counterparts to be current smokers (24.7% vs. 29.6%) or heavy smokers (7.3% vs. 12.6%). Interestingly, Army Reserve females were significantly more likely than their male counterparts to be smokers. Continued smoking cessation efforts are warranted to improve the health of a relatively large portion of military personnel.

- About 80% of Reserve/Guard and Active-Duty personnel reported that they needed to use protective gear in their military job.

- Most Reserve/Guard and Active-Duty personnel reported that protective gear was "always" available (63.7% and 68.3%), while very few reported that it was "never" available (3.4% and 5.2%). Never having protective gear available

highlights an occupational safety hazard. The DoD may want to consider ways to enhance the availability of protective gear.

- Although many Reserve/Guard and Active-Duty personnel reported "always" using protective gear when they encountered hazardous substances or noises in their military job, significantly more Reserve/Guard personnel did so (57.3% vs. 52.2%). This finding suggests that all personnel could benefit from occupational safety training.

5. PSYCHOSOCIAL FUNCTIONING

In this chapter, we discuss a variety of stressors that may affect military personnel. The questionnaires included items that assessed the nature of military personnel's exposure to disaster and violence, as well as items that identified specific sources of job stress and overall job stress. Psychosocial measures aimed at assessing "quality of life" included a life satisfaction scale, a social support scale, and a pair of items assessing positive and negative life events. In addition, the questionnaires included items to ascertain the prevalence of emotional, sexual, or physical abuse and treatment for abuse, as well as the prevalence of suicidal thoughts and need for formal depression evaluation.

5.1 Exposure to Disaster and Violence

Exposure to disaster or violence can sometimes have long-term effects on individuals. We included an original set of questions in the questionnaires that measures exposure to natural disasters, combat or violence, and major accidents involving injuries or fatalities so that we would be able to provide a history of these exposures, which in turn may help in studying their effects. Each of these exposures was assessed to discover if the individual had been a witness, survivor/victim, or someone involved in relief efforts. The question about exposure to combat or violence also assessed whether the individual had used deadly force in combat. Given the amount of information presented on this topic, these issues are examined in three tables: The first presents data for Reserve personnel (24A), the second for Guard personnel (24B), and the third for Active-Duty personnel (24C).

In comparing exposure to disaster and violence among female and male Reserve personnel in Table 24A, we noted many significant differences. For the three types of exposure, we found the fewest significant sex differences for exposure to natural disasters and the greatest number for exposure to combat or violence. With the exception of Naval Reservists as a survivor/victim of violence, the exposure to combat or violence involving injuries or fatalities was significantly greater for males in the Reserve component.

Among Reserve personnel, more than 25% had been exposed to a natural disaster as a witness or as someone involved in relief work, while about 16% had been exposed as a survivor/victim. About one in five had been exposed to combat or violence as a witness (22.7%) or as someone involved in relief efforts (20.8%); fewer Reservists had been exposed to combat or violence as a survivor/victim (11.1%) or as someone who had used deadly force (7.7%). In terms of exposure to a major accident, greater percentages of Reserve personnel reported having been a witness (40.7%) than being involved in relief efforts (26.2%) or being a survivor/victim (15.2%).

Table 24A Exposure to Disaster and Violence Among Reserve Personnel

Exposure/Type	Army Reserve			Naval Reserve			Marine Corps Reserve			Air Force Reserve			Total Reserve Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Exposed to a Natural Disaster Involving Injuries/Fatalities															
Witness	17.5*	28.1*	25.5	21.0	24.0	23.4	20.4	24.0	23.8	16.1*	38.2*	33.5	18.0*	28.6*	26.4
Survivor or victim	14.7	14.9	14.8	16.6	13.7	14.2	13.6	13.9	13.9	15.8	24.7	22.8	15.3	16.3	16.1
Involved in relief efforts[a]	15.7*	28.1*	25.0	18.3*	25.3*	24.0	12.2*	20.7*	20.3	19.3*	36.7*	33.0	16.8*	28.1*	25.8
Exposed to Combat or Violence Involving Injuries/Fatalities															
Witness	11.8*	27.1*	23.3	10.1*	18.4*	16.9	10.4*	30.4*	29.5	7.9*	28.0*	23.7	10.7*	25.8*	22.7
Survivor or victim	5.1*	14.5*	12.2	7.3	8.9	8.6	5.1*	13.0*	12.6	3.6*	11.7*	9.9	5.2*	12.6*	11.1
Involved in relief efforts[a]	11.2*	24.0*	20.8	10.6*	18.6*	17.1	7.2*	18.2*	17.7	11.5*	30.7*	26.7	11.0*	23.4*	20.8
Used deadly force	3.2*	10.2*	8.5	0.6*	6.5*	5.4	0.8*	7.4*	7.1	0.9*	10.7*	8.6	2.2*	9.1*	7.7
Exposed to a Major Accident Involving Injuries/Fatalities															
Witness	28.8*	43.2*	39.6	26.2*	41.2*	38.3	32.0*	46.5*	45.8	25.0*	48.4*	43.4	27.7*	44.1*	40.7
Survivor or victim	11.9	17.9	16.4	11.3	13.4	13.0	13.2	14.7	14.7	12.1	15.3	14.6	11.8*	16.0*	15.2
Involved in relief efforts[a]	13.6*	27.3*	23.9	16.8*	28.9*	26.6	11.2*	25.1*	24.5	19.4*	36.4*	32.8	15.2*	29.0*	26.2

Note: Table entries are percentages. Standard errors are shown in Table 24ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Regardless of the type of exposure (natural disaster, combat or violence, or major accident), males in each of the Reserve components were significantly more likely than females to have been involved in relief efforts. Similarly, male Reservists were significantly more likely than females to have witnessed violence or a major accident. Only three Reserve components showed significant differences between females and males as a survivor or victim of any of the possible types of exposure: Females in the Army Reserve, Marine Corps Reserve, and Air Force Reserve were significantly less likely to indicate that they were a survivor or victim of combat or violence.

In comparing the exposure to disaster and violence among female and male Guard personnel in Table 24B, we discovered significant sex differences for nearly all exposures to disaster and violence. For the three types of exposure, we found fewer significant differences for males and females exposed to a natural disaster, while all comparisons of males and females exposed to a major accident or combat/violence were significant. The categories of witness to a natural disaster and survivor/victim of a natural disaster were the only ones that did not include universal sex differences among Guard personnel.

Among Guard personnel, approximately 42% had been exposed to a natural disaster as someone involved in relief work, while 26% had been exposed as a witness and 13% as a survivor or victim. Nearly one-quarter of the Guard members had been exposed to combat/violence as witnesses (23.2%) or as someone involved in relief efforts (23.5%); fewer had been exposed to combat/violence as a survivor/victim (11.7%) or as someone who had used deadly force (8.4%). In terms of exposure to a major accident, greater percentages of Guard personnel reported having been a witness to a major accident (40.9%) than being involved in relief efforts (31.9%) or being a survivor or victim (16.2%).

For the three types of exposure (natural disaster, combat or violence, or major accident), males in both of the Guard components generally were significantly more likely than their female counterparts to have been a witness, involved in relief efforts, or to have used deadly force. One exception was the prevalence rates for Army National Guard personnel involved in natural disasters, which were similar among females and males as witnesses (22.7% vs. 26.2%) or survivors/victims (12.4% vs. 11.7%). Another exception was that Air National Guard members did not show significant differences among females and males who indicated they had been survivors or victims of a natural disaster.

In comparing the exposure to disaster and violence among female and male Active-Duty personnel, we noted many significant sex differences. The results of these comparisons are shown in Table 24C. For the three types of exposures, we found the fewest significant sex differences for exposures to natural disasters and the greatest number for exposures to combat or violence.

Among Active-Duty personnel, more than 25% had been exposed to natural disasters as a witness or as someone involved in relief work while about 17% had been exposed as a survivor/victim. Among Active-Duty personnel, about one in five

Table 24B Exposure to Disaster and Violence Among Guard Personnel

Exposure/Type	Army National Guard			Air National Guard			Total Guard Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
Exposed to a Natural Disaster Involving Injuries/Fatalities									
Witness	22.7	26.2	25.9	15.0*	29.7*	27.4	20.3*	27.0*	26.2
Survivor or victim	12.4	11.7	11.8	12.1	15.6	15.1	12.3	12.6	12.6
Involved in relief efforts[a]	25.3*	46.3*	44.2	21.0*	36.7*	34.2	24.0*	44.2*	41.9
Exposed to Combat or Violence Involving Injuries/Fatalities									
Witness	11.4*	25.5*	24.0	5.1*	23.3*	20.3	9.4*	25.0*	23.2
Survivor or victim	7.0*	13.0*	12.4	2.7*	11.0*	9.7	5.6*	12.6*	11.7
Involved in relief efforts[a]	7.0*	26.1*	24.1	7.1*	24.1*	21.4	7.0*	25.7*	23.5
Used deadly force	3.0*	10.4*	9.6	0.3*	5.4*	4.6	2.1*	9.3*	8.4
Exposed to a Major Accident Involving Injuries/Fatalities									
Witness	28.2*	43.4*	41.8	21.2*	41.1*	37.9	26.0*	42.9*	40.9
Survivor or victim	5.5*	18.0*	16.7	8.9*	15.5*	14.4	6.6*	17.5*	16.2
Involved in relief efforts[a]	18.0*	33.6*	32.0	19.6*	33.6*	31.3	18.5*	33.6*	31.9

Note: Table entries are percentages. Standard errors are shown in Table 24BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 24C Exposure to Disaster and Violence Among Active-Duty Personnel

Exposure/Type	Army			Navy			Marine Corps			Air Force			Total Active-Duty Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Exposed to a Natural Disaster Involving Injuries/Fatalities															
Witness	21.5*	28.1*	27.2	16.9*	27.4*	25.9	16.2*	24.2*	23.7	29.5	25.2	26.0	23.1	26.7	26.2
Survivor or victim	12.6	13.6	13.4	15.1*	21.6*	20.7	9.5*	15.4*	15.0	18.6	19.3	19.2	15.2	17.2	16.9
Involved in relief efforts[a]	19.8*	27.7*	26.6	15.0*	28.7*	26.9	9.2*	20.0*	19.3	26.7	30.0	29.4	20.7*	27.7*	26.7
Exposed to Combat or Violence Involving Injuries/Fatalities															
Witness	12.4*	32.7*	29.8	7.0*	20.9*	19.0	8.3*	24.7*	23.6	8.4*	19.5*	17.5	9.5*	25.3*	23.0
Survivor or victim	5.9*	14.1*	12.9	2.8*	7.6*	6.9	1.8*	9.8*	9.2	1.2*	7.7*	6.5	3.3*	10.4*	9.3
Involved in relief efforts[a]	10.7*	25.7*	23.5	6.3*	17.7*	16.0	3.6*	16.1*	15.2	6.0*	16.3*	14.4	7.7*	20.0*	18.2
Used deadly force	1.3*	12.5*	10.9	0.3*	5.2*	4.5	0.3*	10.0*	9.3	0.7*	2.5*	2.2	0.8*	7.8*	6.7
Exposed to a Major Accident Involving Injuries/Fatalities															
Witness	22.3*	41.2*	38.5	16.6*	36.0*	33.2	19.8*	37.1*	36.0	21.4*	36.6*	33.8	20.6*	38.2*	35.7
Survivor or victim	10.6	13.8	13.4	13.0*	25.6*	23.6	12.2*	26.1*	25.1	7.6	10.4	9.9	10.1*	16.6*	15.6
Involved in relief efforts[a]	11.4*	24.5*	22.7	12.8*	30.1*	27.6	7.8*	24.8*	23.7	12.8*	30.8*	27.5	12.1*	27.6*	25.3

Note: Table entries are percentages. Standard errors are shown in Table 24CSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

had been exposed to combat or violence as a witness (23.0%) or as someone involved in relief efforts (18.2%); fewer Active-Duty personnel had been exposed to combat or violence as a survivor/victim (9.3%) or as someone who had used deadly force (6.7%). In terms of exposure to a major accident, greater percentages of personnel reported having witnessed a major accident (35.7%) than either those who reported being involved in relief efforts (25.3%) or those who reported being a survivor or victim (15.6%).

One of the notable Active-Duty Service differences occurred among those personnel exposed to natural disasters: Unlike personnel in the other Active-Duty Services, Air Force females and males reported similar exposure to a natural disaster as a witness, survivor/victim, and someone involved in relief efforts. Regardless of the type of exposure (natural disaster, combat or violence, or major accident), males in the Navy and Marine Corps were significantly more likely than females to have been exposed to them as a witness, survivor/victim, someone involved in relief efforts, or as someone who had used deadly force. Similarly, males in the Army were more likely to have been exposed to disaster or violence as a witness, someone involved in relief efforts, or as someone who had used deadly force. We did not find significant sex differences among Army personnel involved in natural disasters or major accidents as survivors or victims.

5.2 Job Stress

Exposure to job stress can affect how well military personnel function at work and at home. We included a set of questions to explore various facets of job stress, including stress arising from responsibilities, concerns about quality, role conflict, job versus nonjob conflict, and a summary measure of overall job stress (House, 1980; House et al., 1979). Personnel were asked to indicate how often they were bothered by something as a part of their current military job. Questions about stress from job responsibilities asked personnel about having enough help and equipment to get the job done well, about having too much responsibility for the work of others, and about having to do or decide things where mistakes could be quite costly. Items used to assess concerns about quality asked about the amount of work interfering with how well it gets done, about having to do things on the job that are against better judgment, and about being unable to influence an immediate supervisor's decisions. Items used to investigate role conflict included those about not being able to meet the conflicting demands of various people at work, not knowing just what people at work expect, and having to deal with or satisfy too many different people. We asked questions about job versus nonjob conflict, such as how often personnel feel that work tends to interfere with family life, how often personnel work overtime without wanting to do so, and how often personnel feel trapped in a job that they cannot change or get out of. These issues are examined in two tables; the first discusses Reserve/Guard personnel (25A), the second Active-duty personnel (25B).

In comparing females and males in the Reserve and Guard for the various facets of job stress in Table 25A, we noted more significant sex differences in terms of stress arising from responsibilities, with fewer differences for stress from quality concerns, even fewer differences from role conflicts, and the fewest number of significant sex differences for job versus nonjob conflict.

In general, Reserve/Guard personnel indicated a moderate amount of stress as a result of their current military job. Although about 32% of the total Reserve/Guard indicated a high level of stress from responsibilities, 28% of these personnel indicated a high level of stress for quality concerns, 23% did so for role conflict, and 21% did so for job versus nonjob conflict. Although only about one-fourth (23.3%) of Reserve/Guard females reported a high level of stress because of their responsibilities, a significantly greater proportion of Reserve/Guard males (33.5%) reported a high level of stress.

For the measures of job stress due to quality concerns, we observed significant differences between Reserve/Guard females and males. More males than females reported a high level of stress for this reason. As with stress from responsibilities, a significantly greater proportion of males (29.3%) reported a high level of stress due to quality concerns compared to females (23.9%), while a significantly lower proportion of males (40.9%) expressed a low level of stress because of their concerns about quality in comparison to females (49.6%).

Our review of stress from role conflict showed that Reserve/Guard females and males had similar rates, with about 23% of females and males indicating a high level of stress from role conflict. Moreover, females (18.9%) and males (21.2%) indicated similar rates of stress arising from job versus nonjob conflict for a high level of stress.

No consistent sex differences were noted among Reserve/Guard components, but the summary measure, overall stress, showed at least one significant difference between females and males in each Reserve/Guard component except for the Air National Guard. For example, females in the Army Reserve and Marine Corps Reserve were significantly less likely than their male counterparts to indicate a high level of overall job stress, but similar findings were not seen among females in the Army National Guard, Naval Reserve, or Air National Guard. Where there were significant differences within the individual Guard/Reserve components, they showed males reporting more stress than females.

In comparing Active-Duty females and males for various facets of job stress in Table 25B, we noted a greater number of significant sex differences in terms of stress arising from responsibilities, with fewer differences for stress from quality concerns or from role conflicts, and no significant sex differences for job versus nonjob conflict.

In general, Active-Duty personnel indicated a relatively high level of stress as a result of their current military job. Among

Table 25A Job Stress Among Reserve/Guard Personnel

Measure/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Job Stress Due to Responsibility							
Females							
High	24.5	16.4*	21.8*	21.6	31.2	29.5	23.3*
Medium	28.0	28.5	29.8	22.4*	23.0	21.1	26.8
Low	47.5*	55.0*	48.4*	56.0*	45.8	49.3*	49.9*
Males							
High	31.3	36.0*	30.0*	25.1	33.8	33.9	33.5*
Medium	30.9	27.6	29.7	32.7*	29.2	28.1	28.9
Low	37.9*	36.4*	40.3*	42.3*	37.0	38.0*	37.6*
Total							
High	29.6	34.0	28.4	24.9	33.3	33.2	31.9
Medium	30.2	27.7	29.7	32.2	27.9	27.0	28.6
Low	40.2	38.3	41.8	42.9	38.8	39.8	39.5
Job Stress Due to Concerns About Quality							
Females							
High	24.8	18.5*	22.8	18.4*	27.3	31.4	23.9*
Medium	27.9	25.1	26.8*	24.7	26.9	25.0	26.5
Low	47.3	56.4*	50.4*	56.8*	45.8	43.5	49.6*
Males							
High	27.7	31.2*	23.6	25.2*	29.7	30.8	29.3*
Medium	31.4	27.4	33.6*	29.1	34.4	30.7	29.8
Low	40.9	41.4*	42.9*	45.7*	35.8	38.5	40.9*
Total							
High	27.0	29.9	23.4	24.9	29.2	30.9	28.4
Medium	30.5	27.1	32.3	28.9	32.9	29.8	29.3
Low	42.5	43.0	44.3	46.2	37.9	39.3	42.3
Job Stress Due to Role Conflict							
Females							
High	22.7	20.1	21.3	18.5	23.0	29.5	22.7
Medium	40.8	37.4	35.7*	41.5	35.2*	37.2	38.2
Low	36.5	42.5	43.0	39.9	41.8*	33.3	39.2
Males							
High	24.8	22.2	19.4	18.2	26.3	22.9	22.7
Medium	43.2	39.8	44.0*	42.9	48.9*	43.4	42.2
Low	32.0	38.0	36.5	38.9	24.8*	33.7	35.1
Total							
High	24.3	22.0	19.8	18.2	25.6	24.0	22.7
Medium	42.6	39.5	42.5	42.9	46.0	42.4	41.6
Low	33.1	38.5	37.7	38.9	28.4	33.7	35.8

See notes at end of table.

(continued)

Table 25A (continued)

Measure/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Job Stress Due to Job Versus Nonjob Conflict							
Females							
High	20.4	17.4	17.4	20.2	20.8	17.6	18.9
Medium	40.8	36.4	41.9	41.9	36.4*	43.3	39.6
Low	38.7	46.3	40.7	37.9	42.8*	39.2	41.6
Males							
High	22.6	21.1	19.4	25.3	18.4	20.8	21.2
Medium	38.6	39.7	42.7	37.5	51.1*	44.3	41.1
Low	38.7	39.2	37.8	37.2	30.5*	34.9	37.7
Total							
High	22.1	20.7	19.0	25.1	18.9	20.3	20.9
Medium	39.2	39.4	42.6	37.7	48.1	44.1	40.9
Low	38.7	40.0	38.4	37.2	33.1	35.6	38.3
Overall Job Stress							
Females							
High	22.7*	21.8	21.9	18.6*	26.9	28.8	23.6*
Medium	36.1	24.1	32.7	33.6	30.2*	34.8	31.5
Low	41.2	54.0*	45.4*	47.8	42.9*	36.4	44.9*
Males							
High	29.9*	28.9	24.9	25.7*	27.5	29.7	28.5*
Medium	33.3	33.1	37.8	34.3	43.7*	34.8	34.7
Low	36.8	38.0*	37.2*	40.0	28.8*	35.5	36.8*
Total							
High	28.1	28.1	24.4	25.4	27.4	29.6	27.8
Medium	34.0	32.2	36.9	34.3	40.9	34.8	34.2
Low	37.9	39.7	38.8	40.3	31.8	35.6	38.0

Note: Table entries are column percentages. Standard errors are shown in Table 25ASE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 25B Job Stress Among Active-Duty Personnel

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Job Stress Due to Responsibility					
Females					
High	46.7	27.3*	31.9*	38.6	38.3*
Medium	27.0	29.3*	26.0	28.0	27.9
Low	26.3	43.4*	42.1*	33.3	33.9*
Males					
High	52.0	32.2*	39.7*	43.0	42.6*
Medium	27.0	32.8*	29.6	26.6	28.9
Low	20.9	35.0*	30.7*	30.3	28.5*
Total					
High	51.3	31.5	39.2	42.2	42.0
Medium	27.0	32.4	29.4	26.9	28.8
Low	21.7	36.1	31.3	30.9	29.2
Job Stress Due to Concerns About Quality					
Females					
High	42.2	30.0*	29.6	33.3	35.4*
Medium	29.0	29.0	29.7	32.1	30.1
Low	28.8	40.9*	40.6*	34.6	34.5*
Males					
High	44.9	37.0*	35.1	40.5	40.3*
Medium	31.1	30.4	31.4	27.8	30.1
Low	24.0	32.6*	33.5*	31.7	29.6*
Total					
High	44.5	36.1	34.8	39.2	39.6
Medium	30.8	30.2	31.3	28.6	30.1
Low	24.7	33.7	33.9	32.2	30.3
Job Stress Due to Role Conflict					
Females					
High	36.9	28.1	29.9	36.4	34.1
Medium	38.0	38.3*	36.5	36.7	37.5
Low	25.2	33.6*	33.6	27.0	28.4
Males					
High	37.1	28.6	28.9	34.9	33.1
Medium	40.7	41.8*	40.6	38.2	40.4
Low	22.1	29.6*	30.5	27.0	26.5
Total					
High	37.1	28.5	29.0	35.1	33.2
Medium	40.3	41.4	40.3	37.9	40.0
Low	22.6	30.1	30.7	27.0	26.8

See notes at end of table.

(continued)

Table 25B (continued)

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Job Stress Due to Job Versus Nonjob Conflict					
Females					
High	50.8	35.3	37.8	34.7	40.7
Medium	32.1	37.9	34.1	39.4	36.2
Low	17.1	26.8	28.0	25.8	23.1
Males					
High	51.6	36.9	46.1	40.4	44.0
Medium	31.4	38.4	30.6	39.0	35.1
Low	17.0	24.7	23.4	20.6	20.9
Total					
High	51.5	36.7	45.6	39.4	43.5
Medium	31.5	38.3	30.8	39.1	35.3
Low	17.1	24.9	23.6	21.5	21.2
Overall Job Stress					
Females					
High	51.2	32.4*	35.7	40.4	41.9
Medium	27.3	34.6	29.3	33.6	31.4
Low	21.5	33.0*	35.1*	26.0	26.6
Males					
High	55.3	37.9*	40.3	43.3	45.5
Medium	27.3	33.7	32.7	31.6	30.9
Low	17.4	28.4*	27.0*	25.1	23.7
Total					
High	54.7	37.2	40.1	42.7	45.0
Medium	27.3	33.8	32.5	32.0	31.0
Low	18.0	29.0	27.4	25.3	24.1

Note: Table entries are column percentages. Standard errors are shown in Table 25BSE in Appendix D.

*Sex differences are significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Active-Duty personnel, we noted that although about 42% indicated a high level of stress from responsibilities, 40% indicated a high level of stress for quality concerns, 33% indicated the same for role conflict, and 44% indicated a high level of stress for job versus nonjob conflict. In terms of job stress due to responsibilities, more males than females reported a high level of stress. Although about 38% of females reported a high level of stress because of their responsibilities, a significantly greater proportion of males (42.6%) reported the same high level.

For the measure of job stress due to quality concerns, we observed significant differences between Active-Duty females and males. A significantly greater proportion of males (40.3%) reported a high level of stress in comparison to females (35.4%).

Our review of stress from role conflict showed that Active-Duty females and males had similar rates, with approximately 34% of females and 33% of males indicating a high level of stress from role conflict. Also, females (40.7%) and males (44.0%) indicated similar rates of stress arising from job versus nonjob conflict for high levels of stress, although none of the relationships for job versus nonjob conflict was significant.

Although we found a few significant differences between females and males in the Navy and Marine Corps in terms of overall stress, we did not observe any significant sex differences for personnel in the Army or Air Force. Where significant differences did exist within Active-Duty Services, they showed males reporting more stress than females.

5.3 Life Satisfaction

A measure of "life satisfaction" (Andrews & Withey, 1976) was included to provide insight into how personnel perceived their professional and family lives in tandem. We asked personnel, "How do you feel about your life as a whole?" The response options included "pleased/delighted"; "mostly satisfied"; "mixed"; "mostly dissatisfied"; and "terrible/unhappy." These data are presented in two tables: The first shows data for Reserve/Guard personnel (26A) and the second Active-Duty personnel (26B).

We reviewed the prevalence estimates of life satisfaction among Reserve/Guard personnel as presented in Table 26A and found very few significant differences for females and males. In general, the estimates of life satisfaction showed that about three-fourths of Reserve/Guard personnel were either pleased or mostly satisfied with their lives. We did observe slight variations among Reserve/Guard personnel. About 20% of Reserve/Guard personnel had mixed feelings about their lives as a whole, while 3% said they were mostly dissatisfied with their lives. Very few personnel judged their lives to be "terrible or unhappy" (1.3%). More specifically, the highest percentage of personnel who indicated they were pleased with their lives was found among Air National Guard personnel, and the highest percentage of personnel who were unhappy with their lives was found among Army National Guard personnel.

In Table 26B, we reviewed the prevalence estimates of life satisfaction among Active-Duty personnel and found very few

Table 26A Life Satisfaction Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
Pleased/delighted[a]	20.3	18.8	23.0	24.9	29.5	27.0	22.1
Mostly satisfied	46.3*	55.3	50.7	45.1	47.1	55.5	50.6
Mixed	24.8*	21.2	23.4	22.9	17.5	14.6	21.5
Mostly dissatisfied	7.9	2.3	2.6	6.4	5.7	0.4*	4.5*
Terrible/unhappy	0.7	2.5	0.2	0.7	0.2	2.4	1.3
Males							
Pleased/delighted[a]	25.7	21.0	25.2	27.3	26.3	28.3	24.0
Mostly satisfied	55.3*	53.1	51.9	47.0	56.7	53.6	53.4
Mixed	14.3*	22.4	19.3	22.5	15.1	16.4	19.1
Mostly dissatisfied	3.5	1.3	3.4	3.2	1.6	1.7*	2.1*
Terrible/unhappy	1.2	2.2	0.2	**	0.3	**	1.3
Total							
Pleased/delighted[a]	24.4	20.8	24.8	27.2	26.9	28.1	23.7
Mostly satisfied	53.1	53.3	51.7	46.9	54.7	53.9	53.0
Mixed	16.9	22.3	20.1	22.5	15.6	16.1	19.5
Mostly dissatisfied	4.6	1.4	3.2	3.4	2.5	1.5	2.5
Terrible/unhappy	1.1	2.3	0.2	0.1	0.3	0.4	1.3

Note: Table entries are column percentages. Standard errors are shown in Table 26ASE in Appendix D.

*Sex differences are significant at $p<.05$.
**Low precision.

[a]The 1998 Total Force Health Assessment used the response option "pleased," while the 1995 POWR Assessment used the response option "delighted."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 26B Life Satisfaction Among Active-Duty Personnel

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
Pleased/delighted[a]	21.6	29.4	28.8	25.2	25.2*
Mostly satisfied	47.7	49.5	47.8	54.6	50.5
Mixed	25.0	17.3	19.3*	17.6	20.2
Mostly dissatisfied	4.6	3.0	2.3*	2.0	3.2
Terrible/unhappy	1.2	0.8*	1.8	0.6	0.9
Males					
Pleased/delighted[a]	25.6	31.4	33.9	27.2	28.7*
Mostly satisfied	45.5	50.2	45.8	50.4	48.1
Mixed	24.1	15.3	13.9*	17.8	18.7
Mostly dissatisfied	3.5	2.7	5.7*	4.5	3.8
Terrible/unhappy	1.2	0.3*	0.7	0.2	0.6
Total					
Pleased/delighted[a]	25.0	31.2	33.6	26.8	28.2
Mostly satisfied	45.8	50.1	45.9	51.2	48.4
Mixed	24.2	15.6	14.3	17.8	18.9
Mostly dissatisfied	3.7	2.7	5.5	4.0	3.8
Terrible/unhappy	1.2	0.4	0.8	0.2	0.7

Note: Table entries are column percentages. Standard errors are shown in Table 26BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]The 1998 Total Force Health Assessment used the response option "pleased," while the 1995 POWR Assessment used the response option "delighted."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

significant differences for females and males. In general, the estimates of life satisfaction showed that about three-fourths of Active-Duty personnel were either pleased or mostly satisfied with their lives. We found similar patterns among Active-Duty personnel. About 20% had mixed feelings about their lives as a whole, while about 4% said they were mostly dissatisfied with their lives. Very few personnel judged their lives to be "terrible or unhappy" (0.7%). More specifically, the highest percentage of personnel who indicated they were pleased with their lives was found among Marine Corps personnel, and the highest percentage of personnel who were unhappy with their lives was found among Army personnel.

5.4 Negative and Positive Life Events

A measure of "negative life events" and a measure of "positive life events" were included to help describe events that had occurred in the personal lives of Military personnel during the past year. These measures were taken from the Health Risk Appraisal (U.S. Army, n.d.). These events, including those perceived as positive, could be considered stressors and, therefore, adversely affect personnel's ability to carry out their military responsibilities. To assess negative life events, we asked personnel, "In the past 12 months, how many serious personal losses or difficult problems have you had to handle (e.g., promotion passover, divorce or separation, legal or disciplinary action, bankruptcy, death of someone close, serious illness or injury of a loved one, etc.)?" Response options were "many," "some," "few," or "none." These data are presented in two tables: The first shows data for Reserve/Guard personnel (27A) and the second for Active-Duty personnel (27B). To assess positive life events, we asked personnel, "In the past 12 months, how often did you experience a major pleasant change (for example, promotion, marriage, birth, award, etc.)?" Response options were "often," "sometimes," "rarely (but at least once)," or "never."

In general, about two-thirds of Reserve/Guard personnel reported having had either few (42.4%) or no (26.5%) negative life events in the past year. Nearly 10% of Reserve/Guard personnel indicated they had had many/several negative life events occur in the past year, while about 20% indicated that they had had some negative life events. We did observe slight variations across the Reserve/Guard components. Army National Guard personnel reported the fewest negative events (66.3% for the "few" and "none" categories combined), while Air National Guard members reported the most (75.0% for the "few" and "none" categories combined).

In Table 27A, the prevalence estimates of negative life events among Reserve/Guard personnel showed some significant differences for females and males with females reporting more negative events than males (39.5% of females reported many or some negative life events while 29.5% of males reported many or some negative life events). We examined differences within Reserve/Guard components and found that females were more likely than males to indicate negative life events. For example, Army Reserve, Army National Guard, and Air National Guard females when compared to their male counterparts showed

Table 27A Negative and Positive Life Events in the Past Year Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Negative Events							
Females							
Many/several[a]	17.7*	17.5*	13.2	11.0	10.9	11.4*	15.5*
Some	27.5*	20.7	21.2	22.7	26.4	22.1	24.0
Few	38.1	39.4	43.6	47.0	50.1	46.5	41.7
None	16.7*	22.3	22.0*	19.3	12.6*	20.1*	18.9*
Males							
Many/several[a]	7.5*	9.6*	9.1	8.8	6.7	5.3*	8.3*
Some	19.3*	23.6	18.5	20.4	21.2	18.1	21.2
Few	43.2	41.6	41.7	45.4	40.3	45.6	42.5
None	30.1*	25.2	30.6*	25.4	31.8*	31.0*	27.9*
Total							
Many/several[a]	10.0	10.5	9.9	8.9	7.6	6.3	9.5
Some	21.3	23.3	19.0	20.5	22.3	18.8	21.6
Few	41.9	41.4	42.1	45.5	42.4	45.8	42.4
None	26.8	24.9	29.0	25.1	27.7	29.2	26.5
Positive Events							
Females							
Often	6.7	11.8	6.7	7.8	9.2	7.2	8.5*
Sometimes	34.1*	38.9	34.6	48.3	42.9	39.1	37.3
Rarely/seldom[b] (but at least once)	47.4*	32.2	37.7	34.0	37.5	36.0	39.3
Never	11.8	17.1	21.0	9.9	10.3	17.6	14.9
Males							
Often	5.7	5.7	5.3	7.4	3.8	4.8	5.5*
Sometimes	45.0*	39.8	37.6	42.5	42.6	38.2	40.8
Rarely/seldom[b] (but at least once)	36.3*	38.0	40.6	39.3	42.1	40.3	38.6
Never	13.0	16.6	16.5	10.8	11.5	16.8	15.2
Total							
Often	6.0	6.3	5.6	7.4	5.0	5.2	6.0
Sometimes	42.3	39.7	37.0	42.7	42.7	38.3	40.2
Rarely/seldom[b] (but at least once)	39.0	37.4	40.1	39.1	41.1	39.6	38.7
Never	12.7	16.6	17.3	10.8	11.2	16.9	15.1

Note: Table entries are column percentages. Standard errors are shown in Table 27ASE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]The 1998 Total Force Health Assessment used the response option "many," while the 1995 POWR Assessment used the response option "several."
[b]The 1998 Total Force Health Assessment used the response option "rarely," while the 1995 POWR Assessment used the response option "seldom."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

significantly greater percentages of "many/several" negative life events in the past year (17.7% vs. 7.5%, 17.5% vs. 9.6%, and 11.4% vs. 5.3%, respectively).

Overall, nearly half of Reserve/Guard personnel had had positive events that occurred either often (6.0%) or sometimes (40.2%) in the past year. About 40% of Reserve/Guard personnel indicated they had experienced positive life events rarely in the past year, while 15% indicated that they had not had any positive life events occur. We did observe slight variations across the Reserve/Guard components. Marine Corps Reserve personnel reported the most positive events (50.1% for the "often" and "sometimes" categories combined), while Naval Reservists reported the fewest positive events (42.6%).

The prevalence estimates of positive life events among Reserve/Guard personnel showed fewer significant differences among females and males, although females were more likely to indicate that they had experienced positive events, as seen by examining the "often" category. We found that females and males within each component were similar to each other. Only Army Reserve females indicated significantly lower prevalence of positive life events in comparison to their male counterparts (34.1% vs. 45.0% for the "sometimes" category and 47.4% vs. 36.3% for the "rarely/seldom" category).

The prevalence estimates shown in Table 27B on negative life events among Active-Duty personnel showed just one significant difference for females and males. Similarly, we did not uncover notable differences for Active-Duty personnel.

In general, more than two-thirds of Active-Duty personnel had either few (43.0%) or no (28.8%) negative life events in the past year. About 11% indicated they had had many/several negative life events occur in the past year, while nearly 20% indicated that they had had some negative life events. We observed only slight variations to this pattern across the Active-Duty Services. Navy personnel reported the fewest negative events (73.9% for the "few" and "none" categories combined), while Army personnel reported the most (70.3% for the "few" and "none" categories combined). None of these differences, however, was significant.

The prevalence estimates of positive life events among Active-Duty personnel showed a few significant differences among females and males, with females more likely to indicate that they had experienced positive events (examining the "often" category). We found that females and males were more similar to each other than different within each Active-Duty Service with only two exceptions: Females in the Army were significantly more likely than Army males to report positive events occurring rarely or never in the past year, and females in the Navy were more likely than Navy males to report positive life events that occurred often in the past year.

Overall, about 40% of Active-Duty personnel reported having had positive events that occurred either often (7.7%) or

Table 27B Negative and Positive Life Events in the Past Year Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Negative Events					
Females					
Many/several[a]	10.4	10.5	14.0*	12.6	11.4
Some	17.1	13.5	14.2	21.1	17.4
Few	47.4	43.3	40.4	43.1	44.5
None	25.0	32.6	31.4	23.2	26.7
Males					
Many/several[a]	10.9	12.1	9.0*	8.8	10.5
Some	19.0	14.2	17.4	19.8	17.7
Few	44.4	41.5	40.1	43.3	42.7
None	25.6	32.2	33.4	28.1	29.1
Total					
Many/several[a]	10.9	11.9	9.3	9.5	10.6
Some	18.7	14.1	17.2	20.0	17.6
Few	44.8	41.7	40.2	43.3	43.0
None	25.5	32.2	33.3	27.2	28.8
Positive Events					
Females					
Often	9.8	8.4*	10.4	8.7	9.1
Sometimes	37.9	31.5	28.4	39.9	36.4
Rarely/seldom[b] (but at least once)	32.8*	42.3	45.5	38.9	37.9*
Never	19.6*	17.8	15.7	12.5	16.5
Males					
Often	9.3	6.3*	9.3	5.2	7.5
Sometimes	33.0	30.3	31.0	42.5	34.3
Rarely/seldom[b] (but at least once)	43.7*	43.0	44.8	37.5	42.1*
Never	13.9*	20.5	14.9	14.8	16.1
Total					
Often	9.4	6.6	9.4	5.8	7.7
Sometimes	33.7	30.4	30.8	42.0	34.6
Rarely/seldom[b] (but at least once)	42.1	42.9	44.9	37.8	41.5
Never	14.8	20.1	14.9	14.4	16.1

Note: Table entries are column percentages. Standard errors are shown in Table 27BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]The 1998 Total Force Health Assessment used the response option "many," while the 1995 POWR Assessment used the response option "several."
[b]The 1998 Total Force Health Assessment used the response option "rarely," while the 1995 POWR Assessment used the response option "seldom."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

sometimes (34.6%) in the past year. About 42% indicated they had experienced positive life events rarely in the past year, while 16% indicated that they had not had any positive life events. We did observe slight variations across the Active-Duty Services. Air Force personnel reported more positive events (47.8% for the "often" and "sometimes" categories combined), while Navy members reported the fewest positive events (37.0% for the "often" and "sometimes" categories combined).

5.5 Prevalence of Abuse and Treatment for Abuse

To be able to describe an issue that has received increased attention by the Military in recent years, we included a series of questions about the prevalence of emotional abuse, sexual abuse, and physical abuse that had been designed for this study. We assessed these types of abuse by asking personnel whether they had been abused in any of these ways before entering the Military, as well as whether they had been abused since entering the Military. In addition to these questions, we asked whether military personnel who had been abused had ever received treatment or counseling for the abuse. Tables 28A (for Reserve/Guard personnel) and 28B (for Active-Duty personnel) show, by sex and Reserve/Guard component and Active-Duty Service, the percentages of military personnel who had been abused and, among those, who had received treatment or counseling for the abuse.

In comparing the prevalence of abuse among female and male Reserve/Guard personnel as shown in Table 28A, we noted nearly universal significant sex differences. One exception was that Reserve/Guard females and males had been emotionally abused prior to entering the Military at similar frequencies. Aside from this exception, females were significantly more likely than males to have been abused emotionally, sexually, or physically prior to entering the Military, as well as after having entered the Military.

Examining the types of abuse experienced prior to entering the Military among Reserve/Guard personnel, we observed that about 7% of all personnel had suffered emotional abuse and 6% had suffered sexual abuse, while almost 13% had been physically abused. About one in five females had been abused emotionally prior to entering the Military, while one in four females had been abused sexually and one in three had been abused physically. Males indicated much lower prevalence of emotional, sexual, or physical abuse prior to entering the Military (5.1%, 2.6%, and 9.4% respectively). Estimates of emotional and sexual abuse experienced among all Reserve/Guard personnel since entering the Military were low (4.2% and 2.1%, respectively). However, about 15% of all personnel indicated they had been physically abused since entering the Military. For females who reported being abused since entering the Military, we noted that about 12% had suffered emotional abuse and about the same percentage had experienced sexual abuse, while a much larger percentage (32.2%) had suffered physical abuse. Males reported much less abuse since entering the Military: About 3% had suffered emotional abuse, less than 1% had suffered sexual abuse, and 12% had suffered physical abuse.

Table 28A Prevalence of Abuse and Treatment for Abuse Among Reserve/Guard Personnel

Measure/Sex/Prevalence	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Abused Prior to Entering Military[a]							
Females							
Emotional abuse	19.9*	22.6*	23.4*	10.6	16.4*	16.2*	20.1*
Sexual abuse	23.6*	24.8*	25.4*	23.7*	26.6*	23.3*	24.5*
Physical abuse	33.3*	34.0*	35.9*	27.7*	26.9*	27.0*	32.2*
Males							
Emotional abuse	4.8*	5.0*	5.8*	6.5	6.3*	3.9*	5.1*
Sexual abuse	1.8*	2.1*	4.0*	2.1*	3.6*	3.8*	2.6*
Physical abuse	9.6*	8.1*	10.4*	11.8*	13.6*	9.1*	9.4*
Total							
Emotional abuse	8.5	6.8	9.1	6.7	8.4	5.8	7.4
Sexual abuse	7.2	4.5	8.0	3.1	8.4	6.9	6.0
Physical abuse	15.4	10.8	15.1	12.5	16.4	12.0	12.9
Abused Since Entering Military[a]							
Females							
Emotional abuse	12.1*	11.1*	13.3*	11.1*	10.7*	13.1*	11.9*
Sexual abuse	13.4*	10.0*	9.3*	14.6*	12.9*	14.3*	12.1*
Physical abuse	35.1*	28.5*	31.7*	32.3*	26.4*	37.8*	32.2*
Males							
Emotional abuse	4.0*	2.8*	2.8*	3.3*	1.3*	1.8*	2.8*
Sexual abuse	0.1*	0.4*	0.1*	0.2*	**	0.5*	0.3*
Physical abuse	12.6*	11.2*	11.5*	9.7*	12.7*	11.7*	11.6*
Total							
Emotional abuse	6.0	3.6	4.8	3.7	3.3	3.6	4.2
Sexual abuse	3.4	1.4	1.8	0.8	2.7	2.7	2.1
Physical abuse	18.1	13.0	15.3	10.7	15.6	15.9	14.8
Ever Received Treatment/ Counseling for Abuse[b]							
Females							
Yes	33.5	37.8*	44.6*	36.9*	32.3	46.5*	37.6*
No	66.5	62.2*	55.4*	63.1*	67.7	53.5*	62.4*
Males							
Yes	25.7	19.5*	24.1*	14.5*	28.5	18.7*	21.6*
No	74.3	80.5*	75.9*	85.5*	71.5	81.3*	78.4*
Total							
Yes	28.9	23.6	31.1	17.1	30.0	27.1	26.4
No	71.1	76.4	68.9	82.9	70.0	72.9	73.6

Note: Table entries are percentages. Standard errors are shown in Table 28ASE in Appendix D.

*Sex differences are significant at $p<.05$.
**Low precision.

[a]Individual respondents may have reported more than one type of abuse.
[b]This item only includes personnel who reported emotional, sexual, or physical abuse at any time.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Overall, only about 26% of personnel who had ever been abused reported that they had received treatment for the abuse they experienced. Similar to the findings for the types of abuse experienced by Reserve/Guard personnel, females (37.6%) were significantly more likely than males (21.6%) to have received treatment for abuse they had experienced. The prevalence of abused females who received treatment or counseling was significantly higher in each of the Reserve/Guard components except for the Army Reserve and Air Force Reserve where the comparison of females to males did not yield significant differences.

In comparing the prevalence of abuse among female and male Active-Duty personnel in Table 28B, we noted significant sex differences overall and for all the Active-Duty Services. For the three types of abuse, we found that Active-Duty females were significantly more likely than their male counterparts to have experienced emotional, sexual, or physical abuse prior to entering the Military. Active-Duty females also were significantly more likely to have been abused emotionally, sexually, or physically since entering the Military in comparison to Active-Duty males.

Examining the types of abuse experienced prior to entering the Military among Active-Duty personnel, we found that similar percentages of personnel reported that they had been emotionally or sexually abused (7.4% and 6.9%, respectively), while about 13% reported being physically abused. These results are similar to those found in the Reserve/Guard population. We observed that about one in five females had been abused emotionally prior to entering the Military, while similar percentages of females had been abused sexually and physically (23.7% and 25.0%). Males indicated much lower prevalence of emotional, sexual, or physical abuse prior to entering the Military (5.9%, 4.1%, and 10.7% respectively). Similar to the findings for the Reserve/Guard, small percentages of all Active-Duty personnel reported experiencing emotional or sexual abuse since entering the Military (3.8% and 1.5%, respectively), while almost 15% reported experiencing physical abuse. For females reporting abuse since entering the Military, we noted that similar percentages had suffered emotional abuse (9.2%) and sexual abuse (8.6%), while a much larger percentage (24.7%) had suffered physical abuse. Males experienced much less abuse since entering the Military: About 3% had suffered emotional abuse, less than 1% had suffered sexual abuse, and 13% had suffered physical abuse.

Similar to the findings among the total Reserve/Guard, about 23% of all Active-Duty personnel indicated that they had received treatment for abuse they had suffered. Active-Duty females (32.6%) were more likely than males (19.1%) to have received treatment for abuse they had experienced. The prevalence of abused females who received treatment or counseling was significantly higher in each of the Active-Duty Services except for the Air Force where the comparison of females to males did not yield significant differences.

Table 28B Prevalence of Abuse and Treatment for Abuse Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Abused Prior to Entering Military[a]					
Females					
Emotional abuse	18.9*	11.8*	13.7*	19.4*	17.0*
Sexual abuse	24.4*	16.4*	19.2*	29.2*	23.7*
Physical abuse	29.2*	18.1*	19.5*	26.5*	25.0*
Males					
Emotional abuse	9.3*	5.1*	4.6*	2.9*	5.9*
Sexual abuse	5.0*	2.2*	3.8*	5.3*	4.1*
Physical abuse	13.2*	9.4*	6.3*	11.2*	10.7*
Total					
Emotional abuse	10.7	6.0	5.1	5.8	7.4
Sexual abuse	7.8	4.0	4.7	9.7	6.9
Physical abuse	15.5	10.5	7.0	14.0	12.7
Abused Since Entering Military[a]					
Females					
Emotional abuse	10.1*	8.5*	11.5*	8.5*	9.2*
Sexual abuse	9.9*	5.5*	5.8*	10.1*	8.6*
Physical abuse	29.6*	17.6*	22.9*	25.2*	24.7*
Males					
Emotional abuse	4.3*	1.7*	2.8*	2.1*	2.9*
Sexual abuse	0.4*	0.2*	0.6*	0.1*	0.3*
Physical abuse	14.4*	10.7*	8.4*	15.5*	12.8*
Total					
Emotional abuse	5.2	2.6	3.3	3.3	3.8
Sexual abuse	1.8	0.9	0.9	2.0	1.5
Physical abuse	16.6	11.6	9.3	17.2	14.5
Ever Received Treatment/ Counseling for Abuse[b]					
Females					
Yes	32.7*	33.5*	30.7*	32.2	32.6*
No	67.3*	66.5*	69.3*	67.8	67.4*
Males					
Yes	20.9*	16.0*	8.1*	23.6	19.1*
No	79.1*	84.0*	91.9*	76.4	80.9*
Total					
Yes	23.9	19.9	11.3	26.3	22.5
No	76.1	80.1	88.7	73.7	77.5

Note: Table entries are percentages. Standard errors are shown in Table 28BSE in Appendix D.

*Sex differences are significant at $p<.05$.

[a]Individual respondents may have reported more than one type of abuse.
[b]This item only includes personnel who reported emotional, sexual, or physical abuse at any time.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

5.6 Selected Mental Health Measures

We included a scale item to screen for the presence of possible depressive symptoms. The scale items asked personnel to indicate how often in the past week they had experienced a number of symptoms. The seven items included in the shortened version of the scale were (1) "My sleep was restless," (2) "I felt lonely," (3) "I felt I could not shake off the blues even with the help from my family or friends," (4) "I felt sad," (5) "I could not get 'going,'" (6) "I had trouble keeping my mind on what I was doing," and (7) "I felt that everything I did was an effort." We combined scale items to develop a composite indicator of personnel's probable need for further assessment for depression using this shortened version (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993) of the scale developed by the Center for Epidemiologic Studies (Comstock & Helsing, 1976; Radloff, 1977; Radloff & Locke, 1986; Weisman, Sholomskas, Pottenger, Prusoff, & Locke, 1977).

Tables 29A (for Reserve/Guard personnel) and 29B (for Active-Duty personnel) show, by sex and Reserve/Guard component and Active-Duty Service, the percentages of military personnel who met this composite screening criterion. An additional set of items was taken from the U.S. Army's Health Risk Appraisal designed to detect suicidal ideation by asking, "Have you seriously considered committing suicide in the past 2 months, within the past year, or within the past 2 years?" (yes/no response options were provided for each segment of this question).

As shown in Table 29A, almost 23% of personnel in the Reserve/Guard scored as being in need of formal depression evaluation. We found evidence of sex differences in the need for further assessment for depression. For the total Reserve/Guard, the percentage of females who had a score suggestive of a need for further depression evaluation was about 30%, whereas the percentage of males was 22%. Although this difference was statistically significant for the total Reserve/Guard personnel, it was not significant for each Reserve/Guard component. In the Army Reserve, Army National Guard, Marine Corps Reserve, and Air National Guard, females were significantly more likely than males to score as needing further depression evaluation. In the Naval Reserve and Air Force Reserve, however, there were no significant sex differences.

Prevalence of suicidal ideation is presented in Table 29A. Consideration of suicide was asked separately for each time frame, and the percentages shown in the table are responses to each time frame exclusively. About 1% of the total Reserve/Guard reported that they had considered suicide in the past 2 months (1.4%), roughly 2% reported considering it in the past 3 to 13 months (1.5%), and more than 2% in the past 13 to 24 months (2.4%). Although the estimates for suicidal ideation were low, they are nonetheless important to note. Overall, the prevalence of suicidal ideation was significantly higher among Reserve/Guard females (3.0%) than males (1.1%) for those who considered suicide within the past 2 months. In the Army Reserve, Army National Guard, and Marine Corps Reserve, significant sex differences were evident. In the Army Reserve and Marine Corps Reserve, more

Table 29A Selected Mental Health Measures Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Depression[a]							
Females							
Depressed	33.8*	35.4*	20.2	34.9*	19.3	28.1*	30.3*
Not depressed	66.2*	64.6*	79.8	65.1*	80.7	71.9*	69.7*
Males							
Depressed	21.0*	23.3*	17.6	26.4*	22.3	16.6*	21.5*
Not depressed	79.0*	76.7*	82.4	73.6*	77.7	83.4*	78.5*
Total							
Depressed	24.1	24.5	18.1	26.8	21.7	18.4	22.9
Not depressed	75.9	75.5	81.9	73.2	78.3	81.6	77.1
Personnel Who Seriously Considered Suicide							
Females							
Within past 2 months	4.2*	2.9	1.6	5.0*	2.0	1.6	3.0*
3 to 12 months ago	2.2	0.1*	0.2	1.5	2.0	1.6	1.3
13 to 24 months ago	3.5*	2.1	1.1	1.1*	0.2	1.4	2.2
Males							
Within past 2 months	0.4*	2.0	0.4	0.6*	0.3	0.7	1.1*
3 to 12 months ago	1.6	2.0*	1.2	2.5	0.2	0.7	1.6
13 to 24 months ago	0.6*	3.8	1.0	3.5*	1.4	1.5	2.4
Total							
Within past 2 months	1.3	2.1	0.6	0.8	0.7	0.8	1.4
3 to 12 months ago	1.7	1.8	1.0	2.4	0.6	0.9	1.5
13 to 24 months ago	1.3	3.6	1.0	3.4	1.1	1.5	2.4

Note: Table entries are percentages. Standard errors are shown in Table 29ASE in Appendix D.

*Sex differences significant at $p<.05$.

[a]Personnel are categorized as "depressed" or "not depressed" based on their scores on the CES-D (Center for Epidemiologic Studies—Depression), which is only an indicator of depression, not a clinical diagnosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

females (4.2% and 5.0%, respectively) than males (0.4% and 0.6%, respectively) had considered suicide within the past 2 months. When prevalence of suicidal thoughts in the past 3 to 12 months was examined, however, males tended to show higher rates than females, and this difference was significant among Army National Guard personnel (0.1% vs. 2.0%).

Active-Duty personnel also responded to the questions about depressive symptoms and suicidal ideation. The results are shown in Table 29B. In general, patterns of depressive symptoms and suicidal ideation were similar for Active-Duty and Reserve/Guard personnel. The comparisons reaching statistical significance, however, varied somewhat.

Table 29B shows the prevalence of Active-Duty personnel in need of formal depression evaluation. As was the case with Reserve/Guard personnel, symptoms of depression were more common among females (35.2%) than males (26.1%). This difference was significant in the Army (females, 43.1%; males, 31.1%), Navy (females, 30.7%; males, 21.2%), and Marine Corps (females, 40.7%; males, 30.4%). Notably, the overall prevalence of the need for further depression evaluation was significantly higher among Active-Duty personnel (27.4%) than among Reserve/Guard members (22.9%).

The findings on suicidal ideation among Active-Duty personnel were similar to those for Reserve/Guard personnel. Rates of suicidal ideation were low, and few significant sex differences were found. About 2% of Active-Duty personnel reported that they had considered suicide within the past 2 months and in the past 3 to 12 months (1.6% and 2.2%, respectively), while 3% reported considering it in the past 13 to 24 months (3.1%). Among Active-Duty personnel, the only significant sex differences were that Army females (7.4%) were more likely than males (2.7%) to report having seriously considered suicide in the past 13 to 24 months, and Navy females were more likely than males to report having seriously considered suicide in the past 2 months (1.5% vs. 0.5%) and the past 3 to 12 months (2.0% vs. 1.1%). In addition to what is reported in this section, we examined the association between the need for further depression evaluation and suicidal ideation and found that depressed personnel were more likely to have considered suicide.

5.7 Social Support

Social support can have an important, long-term impact on how well military personnel function. To measure social support, we included a modified version of the Social Network Index, which is explained in more detail in Chapter 2 and by Berkman (1977), Berkman and Syme (1979), and Strawbridge (1995). The Social Network Index includes five questions: (1) "How many close friends do you have (people that you feel at ease with, can talk to about private matters, and can call for help)?" (2) "How many relatives do you have that you feel close to?" (3) "How many of these friends or relatives do you see at least once a month?" (4) "Are you a member of any social clubs or groups?" and (5) "Are you an active member of a church, temple, or other religious organization?" These five items then are scored, and the

Table 29B Selected Mental Health Measures Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Depression[a]					
Females					
Depressed	43.1*	30.7*	40.7*	29.7	35.2*
Not depressed	56.9*	69.3*	59.3*	70.3	64.8*
Males					
Depressed	31.1*	21.2*	30.4*	22.3	26.1*
Not depressed	68.9*	78.8*	69.6*	77.7	73.9*
Total					
Depressed	32.8	22.4	31.0	23.7	27.4
Not depressed	67.2	77.6	69.0	76.3	72.6
Personnel Who Seriously Considered Suicide					
Females					
Within past 2 months	2.3	1.5*	1.2	2.1	2.0
3 to 12 months	3.0	2.0*	3.3	1.0	2.1
13 to 24 months	7.4*	3.7	5.7	1.3	4.2
Males					
Within past 2 months	2.6	0.5*	1.3	1.5	1.6
3 to 12 months ago	3.2	1.1*	4.0	1.1	2.2
13 to 24 months ago	2.7*	2.9	5.7	1.6	2.9
Total					
Within past 2 months	2.6	0.6	1.3	1.6	1.6
3 to 12 months ago	3.2	1.3	3.9	1.1	2.2
13 to 24 months ago	3.4	3.0	5.7	1.5	3.1

Note: Table entries are percentages. Standard errors are shown in Table 29BSE in Appendix D.

*Sex differences significant at $p<.05$.

[a]Personnel are categorized as "depressed" or "not depressed" based on their scores on the CES-D (Center for Epidemiologic Studies—Depression), which is only an indicator of depression, not a clinical diagnosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

composite score is used as an indicator of social support. These findings are presented for Reserve/Guard personnel in Table 30A and for Active-Duty personnel in Table 30B.

Overall, about two-fifths of all Reserve/Guard personnel reported a high level of social support. About 30% of Reserve/Guard personnel reported medium levels of social support, and 29% reported low levels of social support. In general, males in the Reserve/Guard fared better than females in terms of social support. For example, males in the Army Reserve, Army National Guard, and Air Force Reserve had significantly greater levels of social support than their female counterparts (38.3% vs. 28.5%, 44.1% vs. 21.8%, and 51.4% vs. 30.9%, respectively). For the Reserve/Guard overall, we noted that more males reported high levels of social support (43.4%) compared to females (28.4%).

Although nearly all of the Reserve/Guard components showed at least one significant difference in comparisons of females and males, we found no significant differences in social support among Naval Reserve members. Air National Guard members indicated the most social support (48.9% with high levels of social support) while members of the Marine Corps Reserve indicated the least (23.6% with high levels of social support).

Roughly one-third of Active-Duty personnel reported each level of social support, a pattern that differed slightly from the pattern for the Reserve/Guard population. Akin to findings about social support among Reserve/Guard personnel, Active-Duty males fared better than their female counterparts in terms of social support (see Table 30B). For example, males in the Army, Navy, and Air Force had significantly greater levels of social support than their female counterparts (30.2% vs. 20.6%, 34.4% vs. 22.6%, and 43.6% vs. 19.8%, respectively). For Active-Duty personnel overall, we noted that more males reported high and medium levels of social support (67.5%) compared to females (61.2%).

Although nearly all of the Active-Duty Services showed at least one significant difference when comparing females and males, we found no significant differences in social support among Marine Corps personnel. Air Force personnel indicated the most social support (39.3% with high levels of social support) while members of the Marine Corps personnel indicated the least (21.0% with high levels of social support).

Most of the Active-Duty Services showed at least one significant difference in comparisons of females and males, but we found no significant differences in social support among Marine Corps members.

5.8 Summary

This chapter investigated several psychosocial issues that may affect the readiness of the force, including (1) exposure to disaster and violence; (2) job stress; (3) life satisfaction; (4) positive and negative life events; (5) emotional, sexual, and physical abuse and treatment for abuse; (6) depression and suicidal ideation; and (7) social support. Key findings for each issue are discussed here.

Table 30A Social Support Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
High	28.5*	21.8*	37.6	24.1	30.9*	33.1*	28.4*
Medium	33.5	31.6	33.4	40.4	44.7*	30.2	33.8
Low	38.0	46.6*	29.0	35.4*	24.4	36.7*	37.7*
Males							
High	38.3*	44.1*	45.0	23.6	51.4*	51.9*	43.4*
Medium	32.6	29.6	31.0	31.5	25.6*	24.9	29.5
Low	29.1	26.3*	24.0	44.9*	22.9	23.2*	27.1*
Total							
High	35.9	41.8	43.6	23.6	47.1	48.9	41.1
Medium	32.8	29.8	31.4	31.9	29.7	25.7	30.2
Low	31.3	28.5	25.0	44.5	23.2	25.3	28.8

Note: Table entries are column percentages. Standard errors are shown in Table 30ASE in Appendix D.

*Sex differences significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 30B Social Support Among Active-Duty Personnel

Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
High	20.6*	22.6*	15.5	19.8*	20.6*
Medium	42.2	37.8	39.0	41.4*	40.6*
Low	37.2	39.6*	45.5	38.7*	38.8*
Males					
High	30.2*	34.4*	21.4	43.6*	33.5*
Medium	37.8	34.0	31.8	30.2*	34.0*
Low	32.1	31.6*	46.8	26.2*	32.5*
Total					
High	28.8	32.8	21.0	39.3	31.7
Medium	38.4	34.5	32.2	32.2	34.9
Low	32.8	32.7	46.8	28.5	33.4

Note: Table entries are column percentages. Standard errors are shown in Table 30BSE in Appendix D.

*Sex differences significant at $p<.05$.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

- Findings about exposures to disaster and violence indicated that females in nearly all Reserve/Guard components and Active-Duty Services were significantly less likely than their male counterparts to suffer exposure to natural disasters, combat or violence, or accidents. With the continually expanding role of females in the Military, it is likely that more females will face these types of exposure.

- Of the different aspects of job stress, stress from responsibilities had the highest prevalence among the Reserve/Guard (31.9%); among Active-Duty personnel, job versus nonjob conflict (43.5%) was greater than the other sources of job stress. We examined overall job stress among Reserve/Guard and Active-Duty personnel and found that Active-Duty personnel were more likely to report a high level of overall job stress than Reserve/Guard members (45.0% vs. 27.8%). The downsizing of the Military may create more job stress. To alleviate this stress, the DoD could consider focusing on stress management, especially for Active-Duty personnel.

- Although about 77% of military personnel indicated that they were either "pleased" or "mostly satisfied" with their life as a whole, Reserve/Guard females were more likely than their male counterparts to have experienced many negative life events (15.5% vs. 8.3%). In addition, Navy personnel reported the fewest negative and positive life events.

- For emotional, sexual, and physical abuse among Reserve/Guard and Active-Duty personnel, we observed a striking finding: The prevalence of each type of abuse was significantly greater for females for almost every comparison with males. For personnel who had been abused, the prevalence of treatment or counseling was also significantly higher for females than males (37.6% vs. 21.6% for Reserve/Guard personnel; 32.6% vs. 19.1% for Active-Duty personnel). Given that some of the instances of abuse occurred since the abused personnel entered the Military, the DoD might consider intervening by providing education on abuse prevention and actively encouraging victims to seek counseling.

- We examined depressive symptoms among Reserve/Guard and Active-Duty personnel and found that the prevalence of need for further depression evaluation was significantly higher among Active-Duty personnel (27.4%) than among Reserve/Guard members (22.9%). Females were more likely than males to score as needing further depression evaluation. This was true for both Active-Duty and Reserve/Guard personnel. Given that many personnel were identified as needing further depression evaluation, it might be advisable to routinely screen all military personnel for depression.

- Rates of suicidal ideation among Reserve/Guard and Active-Duty personnel were low. Notably, however, Reserve/Guard females were more

likely than Reserve/Guard males to have considered suicide within the past 2 months. These findings further substantiate the need to screen personnel for depression.

- Surprisingly, males were significantly more likely than females to indicate high levels of social support. This was true for both Active-Duty and Reserve/Guard personnel overall (33.5% vs. 20.6% for Active-Duty; 43.4% vs. 28.4% for Reserve/Guard).

6. FEMALE HEALTH ISSUES

In this chapter, we focus on various female health issues. Gynecological history is discussed, including age at first menstruation and first live birth, as well as females' use of birth control pills and replacement estrogens. Pregnancy status, childbirth history, and menstrual issues, such as premenstrual pain, pain during menstruation, menstrual timing, and duration of menstrual flow, are addressed. Gynecological conditions, such as abdominal pain, vaginal infections, and other vaginal disorders, also are discussed in this chapter. Females' health screening practices, including receipt of Pap smears, breast examinations by a health care provider, and breast self-examination, are additional topics that are addressed.

6.1 Gynecological History

A number of gynecological issues are presented in Tables 31A and 31B. Among Reserve/Guard personnel, many females reported that their first menstruation (i.e., menarche) occurred when they were 10 to 12 years old (46.8%). Almost as many females reported that menarche happened between the ages of 13 and 15 (43.3%), for a total of about 90% experiencing first menstruation within the age range of 10 to 15 years. Reserve/Guard females also were asked about their age at first live birth. A majority of the females indicated that they were aged 21 to 30, with the next most frequently reported age range being 17 to 20. Approximately 86% of Reserve/Guard females reported their first live birth between ages 17 and 30, with 4% reporting younger ages and 10% reporting older ages.

Reserve/Guard females also were asked about their use of birth control pills and replacement estrogens (i.e., hormone replacement therapy). About one-quarter of these females reported taking birth control pills for less than 1 year or not at all. An estimated 38% indicated that they had taken an oral contraceptive for 1 to 4 years, and the rest were about equally divided between the categories of 5 to 8 years and 9 or more years. Females in the Marine Corps Reserve (34.8%) and Army National Guard (31.9%) reported taking birth control pills for zero years more frequently than other Reserve/Guard components. Personnel were asked if they had taken replacement estrogens in the past 30 days, and about 8% reported affirmatively. Females in the Naval Reserve and Air Force Reserve reported taking replacement estrogens at the highest levels (13.1% and 10.1%, respectively). Only about 1% of Marine Corps Reserve females said that they took replacement estrogens in the past 30 days.

Active-Duty personnel also were asked about age at first menstruation and age at first live birth (presented in Table 31B). Most frequently, females reported their menarche at ages 13 to 15 years (46.7%). The next most frequent response was ages 10 to 12 (43.9%). About 91% of females reported that menarche happened within the age range of 10 to 15 years. Regarding age at first live

Table 31A Gynecological History Among Reserve/Guard Personnel

History	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Age of First Menstruation							
9 or younger	2.4	1.5	2.8	2.0	0.7	1.8	1.9
10 to 12 years old	46.7	52.0	44.7	46.6	42.2	42.0	46.8
13 to 15 years old	38.9	42.4	42.8	42.7	52.7	49.8	43.3
16 years or older	10.5	3.1	7.8	7.8	4.0	5.6	6.7
Don't know	1.5	1.0	1.9	0.9	0.4	0.9	1.2
Age at First Live Birth							
12 or younger	0.1	0.1	1.1	**	**	0.3	0.3
13 to 16 years old	2.2	4.4	7.0	5.0	3.0	2.8	3.6
17 to 20 years old	27.5	42.0	24.9	19.1	28.3	26.2	30.7
21 to 30 years old	59.9	46.9	58.1	61.0	50.5	60.9	55.3
31 to 40 years old	10.3	6.6	8.8	14.9	18.2	9.8	10.1
Over 40 years old	**	**	**	**	**	**	**
Total Number of Years Taking Birth Control Pills							
0 years	25.8	31.9	16.2	34.8	15.3	17.2	24.3
1 to 4 years	38.9	39.1	37.3	33.7	40.9	32.0	38.0
5 to 8 years	16.4	14.5	18.5	20.2	19.8	25.3	17.7
9 or more years	18.9	14.5	28.0	11.2	24.1	25.5	20.0
Taken Replacement Estrogens in the Past 30 Days							
Yes	6.8	5.2	13.1	1.3	10.1	7.6	7.5
No	93.2	94.8	86.9	98.7	89.9	92.4	92.5

Note: Table entries are column percentages. Standard errors are shown in Table 31ASE in Appendix D.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 31B Gynecological History Among Active-Duty Personnel

History	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Age of First Menstruation					
9 or younger	3.2	3.1	1.5	0.5	2.2
10 to 12 years old	41.2	45.6	43.3	45.5	43.9
13 to 15 years old	47.7	44.2	49.2	47.3	46.7
16 years or older	7.3	6.3	5.6	5.4	6.3
Don't know	0.5	0.9	0.4	1.3	0.9
Age at First Live Birth					
12 years old or younger	**	**	**	**	**
13 to 16 years old	4.3	2.0	2.2	1.1	2.6
17 to 20 years old	33.8	28.3	31.7	26.3	29.8
21 to 30 years old	54.6	61.0	60.4	63.7	59.5
31 to 40 years old	7.1	8.6	5.6	8.8	8.0
Over 40 years old	0.1	0.2	0.1	**	0.1
Total Number of Years Taking Birth Control Pills					
0 years	23.5	19.0	26.7	18.7	20.9
1 to 4 years	41.1	41.6	40.4	30.3	37.5
5 to 8 years	16.4	22.0	20.2	25.9	21.3
9 or more years	19.0	17.4	12.7	25.0	20.3
Taken Replacement Estrogens in the Past 30 Days					
Yes	3.4	3.2	2.0	4.8	3.7
No	96.6	96.8	98.0	95.2	96.3

Note: Table entries are column percentages. Standard errors are shown in Table 31BSE in Appendix D.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

birth, most Active-Duty females reported 21 to 30 years (59.5%). About 30% of Active-Duty females said that their first live birth occurred at 17 to 20 years of age. About 8% of Active-Duty females reported a first birth when they were 31 or older and 3% between the ages of 13 and 16.

Lifetime use of birth control pills and past 30 day use of replacement estrogens also were determined for Active-Duty females. About 21% said that they took birth control pills for less than 1 year or not at all. The most frequent response to this question was 1 to 4 years, with about 38% of Active-Duty females responding this way. Over one-fifth of females reported 5 to 8 years of use, and about one-fifth said they had used birth control pills for 9 or more years. When asked about replacement estrogen use in the past 30 days, less than 4% of females reported such use. Responses among the Active-Duty Services ranged from 2% (Marine Corps) to nearly 5% (Air Force).

Age at first menstruation was similar for Reserve/Guard and Active-Duty personnel. Overall responses for age at first live birth and number of years taking birth control pills also were similar. Female personnel in the Reserve/Guard were significantly more likely than those on Active-Duty to have taken replacement estrogens in the past 30 days.

6.2 Pregnancy Status and Childbirth History

Pregnancy status and childbirth history are presented in Tables 32A and 32B. Among Reserve/Guard females, about 78% reported that they had been pregnant since joining the Military. Females in the Naval Reserve (62.5%) reported that they had been pregnant since joining the Military less frequently than females in the other Reserve/Guard components, whereas Marine Corps Reserve females (93.3%) reported it more frequently. When asked whether they were pregnant at the time of the survey, about 3% of Reserve/Guard females responded affirmatively. This varied within the personnel groupings from just under 2% (Army National Guard) to a little more than 7% (Marine Corps Reserve).

Personnel were asked their history of live births and of infants who were premature or low birth weight (i.e., weighing less than 5 pounds). Approximately 10% of Reserve/Guard females reported no live births, and about one-third each reported one and two live births. Three, four, and five or more births were reported less frequently (16.3%, 5.6%, and 1.8%, respectively). Having had three or more live births was reported with the highest frequency among the Army National Guard (31.7%), and with the lowest frequency among the Army Reserve (15.6%). Reserve/Guard females reported having had a premature baby or one weighing less than 5 pounds at a frequency of about 11%. This varied from 7% (Air National Guard) to about 15% (Army National Guard).

About 87% of Active-Duty females reported being pregnant since joining the Military (see Table 32B). Just over 11% reported being pregnant at the time of the survey, ranging from 7% (Navy) to 15% (Army). An estimated 14% of Active-Duty females said that they had no live births, with females in the Navy (3.3%) and Marine Corps (4.0%) reporting no live births less frequently than

Table 32A Pregnancy Status and Childbirth History Among Reserve/Guard Females

Status or History	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Been Pregnant Since Joining the Service							
Yes	81.4	76.7	62.5	93.3	81.2	84.7	78.1
No	18.6	23.3	37.5	6.7	18.8	15.3	21.9
Currently Pregnant							
Yes	2.9	1.7	3.9	7.2	3.0	2.1	2.7
No	96.7	98.3	96.0	92.8	96.6	97.6	97.1
Not sure	0.4	**	0.2	**	0.4	0.3	0.2
Number of Live Births							
0 births	12.9	11.2	7.1	18.4	10.1	2.8	10.0
1 birth	34.5	29.1	26.0	35.4	35.8	35.4	32.2
2 births	37.1	28.0	44.0	29.0	28.3	33.7	34.1
3 births	11.4	19.7	14.5	13.0	19.4	21.7	16.3
4 births	3.1	8.6	5.6	0.7	6.2	5.5	5.6
5 or more births	1.1	3.4	2.8	3.6	0.2	1.0	1.8
Ever Had a Premature Baby or a Baby Weighing Less Than 5 Pounds[a]							
Yes	9.2	15.4	13.7	11.2	9.8	7.0	11.3
No	90.8	84.6	86.3	88.8	90.2	93.0	88.7

Note: Table entries are column percentages. Standard errors are shown in Table 32ASE in Appendix D.

**Low precision.

[a]Among females who have been pregnant.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 32B Pregnancy Status and Childbirth History Among Active-Duty Females

Status/History	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Been Pregnant Since Joining the Service					
Yes	86.3	85.7	94.1	88.3	87.1
No	13.7	14.3	5.9	11.7	12.9
Currently Pregnant					
Yes	14.5	7.1	9.3	10.9	11.3
No	84.8	91.0	88.0	89.1	87.8
Not sure	0.7	1.9	2.7	**	0.8
Number of Live Births					
0 births	16.3	3.3	4.0	19.0	13.5
1 births	39.9	53.9	57.3	40.3	44.2
2 births	34.3	31.8	29.2	28.0	31.4
3 births	6.8	9.0	7.4	10.7	8.7
4 births	2.4	1.5	1.9	1.4	1.8
5 or more births	0.2	0.6	0.2	0.6	0.4
Given Enough Time Off Military Job to See an OB/GYN When Pregnant[a]					
Yes	81.3	85.7	85.1	81.9	82.6
No	18.7	14.3	14.9	18.1	17.4
Ever Had a Premature Baby or a Baby Weighing Less than 5 Pounds[a]					
Yes	12.5	12.3	10.4	11.0	11.9
No	87.5	87.7	89.6	89.0	88.1

Note: Table entries are column percentages. Standard errors are shown in Table 32BSE in Appendix D.

**Low precision.

[a]Among females who have been pregnant.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

those in the Army (16.3%) and Air Force (19.0%). Three-quarters of Active-Duty females reported either one or two live births, and about 11% reported three or more. About 12% of female personnel said that they had given birth to a premature baby or one weighing less than 5 pounds.

Active-Duty personnel were asked whether they were given enough time off their military job to see an obstetrician when they were pregnant. Among those who had been pregnant since joining the Military, approximately 83% reported that they had been given enough time off to go to an OB/GYN. Estimates of having enough time off from work to see an OB/GYN during pregnancy are not presented for Reserve/Guard personnel given that these women hold civilian jobs and that this report focuses on military operations amenable to intervention.

Reserve/Guard personnel were significantly less likely to have been pregnant since joining the Military compared to those on Active-Duty. They also were significantly less likely to report being pregnant at the time of the survey. Having had zero live births was not significantly different between Reserve/Guard personnel compared to Active-Duty females. There did appear to be a trend toward a greater number of births among those on Reserve/Guard duty, with about 24% reporting three or more live births compared to 11% of those on Active-Duty. Reports of having premature or low birth weight babies did not differ between females of Reserve/Guard versus Active-Duty status.

6.3 Menstrual Conditions

Females were asked about various menstrual conditions that had occurred during the 3 months preceding the survey, as presented in Tables 33A and 33B. Those who had received a hysterectomy or were currently pregnant were excluded from the analysis. About 69% of Reserve/Guard females reported experiencing premenstrual symptoms or pain, and approximately 30% had cramps or pain during menstruation that required medication or time off from work. Reports of cramps ranged from about 20% (Marine Corps Reserve) to 35% (Army Reserve). Problems with the uterus (excluding endometriosis) were experienced by about 3% of Reserve/Guard females.

Reserve/Guard females were asked about menstrual flow and timing over the preceding 3 months. Heavy periods were reported by about 38%, and light periods were reported by 35%. Reports of light periods varied among Reserve/Guard components; they were experienced by about one-quarter of those in the Naval Reserve and Air Force Reserve, but by almost half of the females in the Army National Guard. About 15% of Reserve/Guard female personnel reported that they had a period that lasted longer than 1 week during the preceding 3 months. Females in the Air National Guard (17.3%) and the Army Reserve (17.1%) were most likely to report having long periods. About 14% of Reserve/Guard females had missed a period, with reports among the Reserve/Guard components ranging from 8% (Air Force Reserve) to 19% (Army Reserve). Approximately 13% had no menstrual period for 2 of the 3 months. An estimated 9% had too many periods over the

Table 33A Menstrual Conditions Among Reserve/Guard Females in the Past 3 Months

Condition	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Premenstrual Symptoms or Pain (PMS)	68.4	74.4	64.8	68.2	67.3	65.9	69.3
Cramps or Pain During Menstruation That Required Medication or Time off Work	35.1	29.1	25.8	20.4	28.9	24.9	30.1
Heavy Periods	36.9	41.1	32.7	35.4	40.6	36.5	38.0
Light Periods	31.1	47.8	24.9	31.5	25.7	32.1	34.7
One Missed Period	18.6	14.2	11.5	14.0	7.6	10.8	14.3
No Menstrual Period for 2 Months	13.3	15.4	12.3	14.1	7.5	14.3	13.3
Menstrual Period That Lasts More than 1 Week	17.1	15.4	9.2	13.3	14.7	17.3	15.4
Too Many Periods (Short Time Between Periods)	10.3	9.0	6.6	10.8	6.8	9.0	9.0
Bleeding Between Periods	12.5	12.5	6.6	10.3	7.3	10.6	11.0
Problems with Uterus[a]	2.0	3.1	4.4	2.7	3.7	2.3	2.8

Note: Table entries are percentages of all females except those who have had hysterectomies and those who reported being currently pregnant. Standard errors are shown in Table 33ASE in Appendix D.

[a]Other than endometriosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

preceding 3 months (i.e., a short time between periods), and 11% reported bleeding between periods, with the highest frequency of this condition reported in the Army Reserve and Army National Guard (12.5% each).

Active-Duty females also reported having had premenstrual symptoms or pain over the preceding 3 months at a frequency of approximately 69%. Reports of these premenstrual problems were highest among Air Force (73.1%) and Army (70.8%) personnel. Cramps or pain during menstruation that required medication or time off work occurred in about one-quarter of Active-Duty females. Problems with the uterus other than endometriosis were reported by 3% of Active-Duty females. Over 5% of females in the Army reported uterine problems compared with less than 1% of Air Force females.

About 36% of Active-Duty females had heavy periods over the 3 months prior to the survey, and almost 45% of Army females reported this problem. Light periods were experienced by about 31% of Active-Duty females, with Air Force (41.3%) and Army (35.5%) females reporting light periods at a much higher frequency than those in the Navy (14.6%) and Marine Corps (15.3%). About 18% of Active-Duty females reported that they had a period lasting more than 1 week in the preceding 3 months. Approximately 23% of Army females experienced this symptom compared with 12% of Navy females. Approximately 17% of Active-Duty females had missed one period over the preceding 3 months, and 16% had missed a period for 2 of the 3 months. About 12% said that they had too many periods (i.e., short time between periods), and 15% reported bleeding between periods. The latter symptom was reported more frequently among Marine Corps (23.6%) and Army (19.0%) personnel.

Reports of cramps or pain during menstruation that required medication or time off work were significantly more frequent among Reserve/Guard females (30.1%) compared to Active-Duty females (24.5%). Bleeding between periods was reported significantly more frequently among Active-Duty females (15.4%) as opposed to those in the Reserve/Guard (11.0%). Results for the remaining menstrual conditions were similar for both the Active-Duty Services and the Reserve/Guard components.

6.4 Gynecological Conditions

In the context of a females' health section in the questionnaires, females were asked to report on abdominal pain in the past 3 months, both from known cysts and from unknown sources. These results are presented in Tables 34A and 34B. Among Reserve/Guard females, about 5% reported abdominal pain from known cysts, and 23% said that they had this type of pain from unknown causes. Abdominal pain from unknown causes varied somewhat across Reserve/Guard components, ranging from about 13% (Air Force Reserve) to 27% (Army National Guard).

Females also were asked about their past 3 month history of yeast or vaginal infection, vaginal rash, discharge, or other gynecological disorder. Over this time period, about 22% of Reserve/Guard females reported having had a yeast or vaginal

Table 33B Menstrual Conditions Among Active-Duty Females in the Past 3 Months

Condition	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Premenstrual Symptoms or Pain (PMS)	70.8	61.6	62.3	73.1	68.8
Cramps or Pain During Menstruation That Required Medication or Time Off Work	26.6	28.0	23.1	19.9	24.5
Heavy Periods	44.5	26.0	27.2	36.7	36.2
Light Periods	35.5	14.6	15.3	41.3	31.1
One Missed Period	14.9	18.0	23.5	17.7	17.1
No Menstrual Period for 2 Months	18.1	14.8	19.0	14.3	16.0
Menstrual Period That Lasts More Than 1 Week	23.4	12.4	17.7	17.5	18.3
Too Many Periods (Short Time Between Periods)	15.9	9.7	11.3	8.9	11.7
Bleeding Between Periods	19.0	16.2	23.6	9.8	15.4
Problems with Uterus[a]	5.1	3.0	3.8	0.7	3.0

Note: Table entries are percentages of all females except those who have had hysterectomies and those who reported being currently pregnant. Standard errors are shown in Table 33BSE in Appendix D.

[a]Other than endometriosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 34A Gynecological Conditions Among Reserve/Guard Females in the Past 3 Months

Condition	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Abdominal Pain from Known Cysts	5.5	5.6	4.7	6.3	4.7	4.3	5.2
Abdominal Pain from Unknown Causes	25.2	26.6	15.7	16.8	12.5	22.3	22.6
Yeast or Vaginal Infection	22.1	24.9	18.2	23.0	22.8	17.2	21.9
Vaginal Rash, Discharge, or Other Disorder[a]	10.0	12.3	8.7	7.7	5.2	7.2	9.6

Note: Table entries are percentages. Standard errors are shown in Table 34ASE in Appendix D.

[a]Excludes yeast infection and sexually transmitted disease.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

infection. When asked whether they had experienced a vaginal rash, discharge, or other disorder except yeast infection or sexually transmitted disease, approximately 10% of Reserve/Guard females responded affirmatively. Army National Guard females were more than twice as likely as Air Force Reserve females to report the same (12.3% vs. 5.2%).

Active-Duty females also were asked about abdominal pain from known cysts and unknown causes. For known cysts, about 5% responded affirmatively, ranging from 4% in the Air Force to 9% in the Marine Corps. Abdominal pain from unknown causes over the past 3 months was reported by about 26% of Active-Duty personnel.

Having had a yeast or vaginal infection in the past 3 months was reported by an estimated 27% of Active-Duty females. About 10% of Active-Duty females reported vaginal rash, discharge, or other disorder excluding yeast infection and sexually transmitted disease. The percentage of Marine Corps females reporting this problem was about two times that of Air Force females.

Estimates for abdominal pain from known cysts and from unknown causes were similar for Reserve/Guard and Active-Duty personnel. Yeast or vaginal infection in the past 3 months was reported at a significantly higher rate among Active-Duty compared to Reserve/Guard personnel (26.4% vs. 21.9%). Having had a vaginal rash, discharge, or other disorder was reported at about the same rate for both the Active-Duty Services and the Reserve/Guard components.

6.5 Cervical Health and Cancer Screening

Issues related to cervical health and cancer screening are presented in Tables 35A and 35B. Military females who had not reported having a hysterectomy were asked the time since their most recent Pap smear. An estimated 71% of Reserve/Guard personnel said that they had received a Pap smear in the year preceding the survey, 22% said that they had last received one more than 1 year ago but in the preceding 3 years, and 3% said that they last had one more than 3 years ago (see Table 35A). The remaining percentage (3.8%) reported that they never had a Pap smear. Having had a Pap smear in the 3 years preceding the survey was reported by about 93% of all Reserve/Guard females.

These females also were asked whether they had ever had a Pap smear result that was not normal. About 64% responded "no," 1% said "yes," and 34% reported that they did not know. The percentage of females who reported having had an abnormal Pap smear varied across the Reserve/Guard components; Air National Guard (0.1%) and Air Force Reserve (0.4%) females reported abnormal Pap smear results very infrequently, whereas Army Reserve (1.9%) females reported these results at a much higher frequency. Not knowing whether one ever had an abnormal result ranged from about 27% in the Air Force Reserve to 43% in the Air National Guard.

Approximately 77% of Active-Duty females reported having had a Pap smear in the year preceding the survey. Having had the test more than 1 year ago but in the preceding 3 years was

Table 34B Gynecological Conditions Among Active-Duty Females in st 3 Months

Condition	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Abdominal Pain from Known Cysts	5.1	5.3	8.5	4.2	5.0
Abdominal Pain from Unknown Causes	31.1	23.2	27.2	22.4	25.9
Yeast or Vaginal Infection	31.9	23.7	28.6	22.4	26.4
Vaginal Rash, Discharge, or Other Disorder[a]	12.9	9.6	14.9	7.1	10.2

Note: Table entries are percentages. Standard errors are shown in Table 34BSE in Appendix D.

[a]Excludes yeast infection and sexually transmitted disease.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 35A Cervical Health and Cancer Screening Among Reserve/Guard Females

Screening	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Time Since Last Pap Smear[a]							
Less than 1 year ago	66.0	70.9	74.3	72.4	71.8	81.1	71.0
More than 1 year ago, but within the past 3 years	24.5	20.2	22.2	23.0	23.4	17.0	21.9
3 years or more	5.1	2.4	3.3	2.9	2.9	0.9	3.3
Never	4.4	6.5	0.2	1.7	1.9	1.0	3.8
Ever Had an Abnormal Pap Smear[b]							
Yes	1.9	1.7	1.7	1.5	0.4	0.1	1.4
No	65.3	65.9	56.2	63.8	72.4	57.4	64.2
Don't know	32.8	32.4	42.2	34.8	27.2	42.5	34.4

Note: Table entries are column percentages. Standard errors are shown in Table 35ASE in Appendix D.

[a]Percentages are based on all females except those who have had hysterectomies.
[b]Percentages are based on all females.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

reported by about 19% of Active-Duty females, having one more than 3 years ago by 3%, and never having had a Pap smear by 1%. Having had a Pap smear in the preceding 3 years was reported by approximately 96% of Active-Duty females. About 2% of Army females reported never having had a Pap smear, more than double the frequency in the other Active-Duty Services. Having ever had an abnormal Pap smear was reported by a little more than 1% of Active-Duty females. An estimated 60% of Active-Duty females reported never having an abnormal result, and 39% did not know whether they ever had an abnormal result.

Active-Duty females were significantly more likely to have had a Pap smear in the year preceding the survey compared to those in the Reserve/Guard (76.9% vs. 71.0%). Those on Active-Duty were significantly less likely than Reserve/Guard females to report having never had a Pap smear (1.1% vs. 3.8%). Results regarding the history of abnormal Pap smears were similar.

6.6 Breast Health, Breast Cancer Screening, and Other Early Detection Behavior

Breast health, breast cancer screening, and other early detection behavior are presented in Tables 36A and 36B. Females were asked about having their breasts examined by a medical provider and about performing breast self-examinations. Among Reserve/Guard females, approximately 71% indicated that they had received a breast exam in the preceding year, 22% in the preceding 3 years, and 5% more than 3 years or more prior to the survey (see Table 36A). An estimated 3% reported that they had never had a breast exam by a medical provider. Rates of never having had a breast exam by a medical provider were lower among female personnel in the Air Force Reserve (0.1%), Air National Guard (0.3%), and Naval Reserve (0.5%) and higher among those in the Army National Guard (4.2%), Army Reserve (4.7%), and Marine Corps Reserve (5.6%). About 90% of females in the Reserve/Guard reported receiving training from a medical provider on how to perform a breast self-examination. About 39% reported performing these exams monthly, 34% said they did them every few months, and 27% responded that they rarely or never performed breast self-examinations.

Items about breast discharge and history of breast lumps also were included in the questionnaires. Females were asked if they had discharge from their breast in the past 3 months, and about 5% responded affirmatively. Those in the Army Reserve (6.4%) and the Army National Guard (5.6%) had relatively high reports of breast discharge. About 7% of Reserve/Guard females said that they had a breast lump in the past 3 months; responses varied from 4% in the Naval Reserve to higher rates of 9% in the Army Reserve and the Air Force Reserve. About 7% of Reserve/Guard female personnel said that they had been operated on to remove a breast lump that was found to be non-cancerous.

About three-quarters of Active-Duty females said that they had a breast exam by a medical provider in the year preceding the survey. About 20% reported having had an exam more than 1 but less than 3 years ago. Approximately 4% indicated their last breast exam by a provider was 3 years or more prior to the survey, while

Table 35B Cervical Health and Cancer Screening Among Active-Duty Females

Screening	Army	Navy	Marine Corps	Air Force	Total Reserve/Guard Personnel
Time Since Last Pap Smear[a]					
Less than 1 year ago	77.3	71.8	79.6	79.7	76.9
More than 1 year ago, but within the past 3 years	16.3	26.5	18.1	17.1	19.3
3 years or more	4.2	1.7	1.5	2.3	2.8
Never	2.1	**	0.8	0.9	1.1
Ever Had an Abnormal Pap Smear[b]					
Yes	1.0	1.6	1.9	1.3	1.3
No	59.3	58.7	58.6	61.8	60.0
Don't know	39.7	39.7	39.5	36.9	38.7

Note: Table entries are column percentages. Standard errors are shown in Table 35BSE in Appendix D.

**Low precision.

[a]Percentages are based on all females except those who have had hysterectomies.
[b]Percentages are based on all females.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 36A Breast Health, Breast Cancer Screening, and Other Early Detection Behavior Among Reserve/Guard Females

Measure/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Females
Time Since Last Breast Exam by a Medical Provider							
Less than 1 year ago	67.7	68.4	72.2	70.8	76.2	76.8	70.6
More than 1 year ago, but within the past 3 years	20.4	24.0	22.2	21.3	21.6	19.9	21.7
3 years or more	7.2	3.5	5.1	2.2	2.1	3.0	4.7
Never	4.7	4.2	0.5	5.6	0.1	0.3	3.0
Ever Received Training from a Medical Provider on How to Perform a Breast Self-Exam							
Yes	91.7	85.1	92.9	89.1	93.4	93.5	90.4
No	8.3	14.9	7.1	10.9	6.6	6.5	9.6
Frequency of Breast Self-Exam							
Monthly	45.1	32.4	44.6	33.3	31.3	40.1	39.2
Once every few months	27.9	37.2	32.5	35.7	46.9	36.1	34.3
Rarely or never	27.0	30.4	22.9	31.0	21.8	23.7	26.5
Discharge from Breast in Past 3 Months							
Yes	6.4	5.6	2.3	2.3	2.5	2.5	4.7
No	93.6	94.4	97.7	97.7	97.5	97.5	95.3
Breast Lump in Past 3 Months							
Yes	8.8	7.6	3.5	6.1	9.3	4.6	7.3
No	91.2	92.4	96.5	93.9	90.7	95.4	92.7
Ever Had an Operation to Remove a Breast Lump That Was Found to Be Non-Cancerous							
Yes	6.2	7.6	7.8	3.3	5.8	6.3	6.7
No	93.8	92.4	92.2	96.7	94.2	93.7	93.3

Note: Table entries are percentages. Standard errors are shown in Table 36ASE in Appendix D.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

only 2% said that they had never received a breast exam by a medical provider. Air Force females were most likely to report having had a breast exam by a medical provider in the preceding year (80.1%) and least likely to report having never had one (0.9%), compared to other Active-Duty Services. About 91% of Active-Duty females reported having received training on how to perform a breast self-examination by a medical provider. About 41% said that they performed these exams monthly, 35% said once every few months, and 24% said that they rarely or never performed them.

Discharge from the breast in the past 3 months was reported by about 7% of Active-Duty females. Marine Corps (9.1%) and Army (7.2%) had relatively high rates of recent breast discharge. Breast lumps in the past 3 months occurred at a frequency of approximately 6% among Active-Duty females, with Army females (6.4%) having the highest reports and Marine Corps females (3.4%) having the lowest reports of such lumps. About 6% of Active-Duty females said that they had an operation to remove a breast lump that was determined to be non-cancerous.

Active-Duty females were significantly more likely than Reserve/Guard females to have had a breast exam by a medical provider in the preceding year. Having ever received training on how to perform a breast self-examination was reported at a similar frequency. Frequency of breast self-examination was about the same between Active-Duty and Reserve/Guard personnel, as was frequency of breast discharge and breast lumps in the past 3 months. Having had an operation to remove a breast lump that was found to be non-cancerous also was reported at a similar rate.

6.7 Summary

This chapter investigated several health issues pertinent to military females. Highlights for these issues are discussed in the following.

- Active-Duty and Reserve/Guard females were similar in the duration that they used birth control pills, with over three-quarters of females having some history of taking oral contraceptives. Female personnel in the Reserve/Guard were significantly more likely than those on Active-Duty to have taken replacement estrogens in the past 30 days (7.5% vs. 3.7%). Given that Reserve/Guard personnel tend to be older than Active-Duty personnel, it is not unexpected to observe higher percentages of Reserve/Guard females taking replacement estrogens.

- The majority of military females (55.3% for Reserve/Guard and 59.5% for Active-Duty) experienced their first childbirth between the ages of 21 and 30. About 78% of Reserve/Guard females and 87% of Active-Duty females reported having been pregnant since joining the Military. Reserve/Guard personnel were significantly less likely than those on Active-Duty to have been pregnant since joining the Military. They also were significantly less

Table 36B Breast Health, Breast Cancer Screening, and Other Early Detection Behavior Among Active-Duty Females

Measure/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Time Since Last Breast Exam by a Medical Provider					
Less than 1 year ago	73.1	71.3	73.7	80.1	75.1
More than 1 year ago, but within the past 3 years	19.3	24.8	20.8	15.6	19.5
3 years or more	4.6	2.6	3.2	3.4	3.6
Never	3.0	1.3	2.3	0.9	1.8
Ever Received Training from a Medical Provider on How to Perform a Breast Self-Exam					
Yes	90.9	90.2	89.5	91.2	90.7
No	9.1	9.8	10.5	8.8	9.3
Frequency of Breast Self-Exam					
Monthly	43.8	41.7	36.7	38.8	41.2
Once every few months	33.2	35.1	32.5	36.3	34.7
Rarely or never	23.0	23.2	30.8	24.9	24.1
Discharge from Breast in Past 3 Months					
Yes	7.2	5.2	9.1	6.1	6.5
No	92.8	94.8	90.9	93.9	93.5
Breast Lump in Past 3 Months					
Yes	6.4	5.2	3.4	5.6	5.7
No	93.6	94.8	96.6	94.4	94.3
Ever Had an Operation to Remove a Breast Lump That Was Found to Be Non-Cancerous					
Yes	4.6	6.0	4.5	6.8	5.7
No	95.4	94.0	95.5	93.2	94.3

Note: Table entries are percentages. Standard errors are shown in Table 36BSE in Appendix D.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

likely to report being pregnant at the time of the survey (2.7% vs. 11.3%). Given the increasing numbers of young females entering the Military, encouraging females to seek prenatal care is vital to proper maternal and infant health.

- When asked about menstrual and gynecological conditions experienced in the 3 months preceding the survey, military females were more likely to report the following conditions than other conditions: premenstrual symptoms or pain, cramps or pain during menstruation that required medication or time off work, heavy periods, light periods, abdominal pain (from unknown causes), and yeast or vaginal infection. About 70% of military females reported premenstrual symptoms or pain, while cramps or pain during menstruation that required medication or time off work ranged from approximately 20% to 35% of military females. Yeast or vaginal infection was reported at a significantly higher rate among Active-Duty compared to Reserve/Guard personnel (26.4% vs. 21.9%).

- Active-Duty females were significantly more likely than Reserve/Guard females to have had a Pap smear in the past year (76.9% vs. 71.0%), but receipt of Pap smears was high among females in all segments of the Military. These rates of Pap smears are commendable and could be one of the main reasons the prevalence of cervical cancer was low among military females.

- Having had a breast exam by a medical provider in the past year was reported by more than 70% of military females. Active-Duty females were significantly more likely than Reserve/Guard females to have had one in the past year (75.1% vs. 70.6%). Having ever received training on how to perform a breast self-examination was reported at a similar frequency, with about 90% of females reporting such training. About 40% of military females reported that they perform breast self-examination on a monthly basis. Although it is noteworthy that many females have had a breast exam by a provider, self-breast examination also is crucial to early detection of breast cancer. Given that such a high percentage of women have received training in breast self-examination, education efforts could encourage performing it routinely.

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APPENDIX A

SAMPLING DESIGN AND SURVEY PERFORMANCE RATES

APPENDIX A

SAMPLING DESIGN AND SURVEY PERFORMANCE RATES

In this appendix, we describe the activities used to create the sampling design for the 1998 Health Status of Military Women and Men in the Total Force, also referred to as the Total Force Health Assessment. The activities include the identification of the sampling frame, creation of the allocation, and selection of the sample. We also describe the survey performance rates, including the contact, eligibility, and response rates.

A.1 Sampling Frame

The sample for the study was selected using a stratified random sampling design. Source information for constructing the sampling frame consisted of person-level records from the Active Duty Master File (ADMF) and the Reserve Components Common Personnel Data System (RCCPDS). The source information was provided by the Defense Manpower Data Center (DMDC). The sampling frame information used to develop the sampling design was current for May 1998. Per instructions from staff at the Research Triangle Institute (RTI), the DMDC selected the sample from the June 1998 files.

A.2 Sample Allocation and Selection

Key reporting domains were identified to form the basis of the design. A total of 66 domains were defined based on the variables listed in Table A1. Using essentially these same variables, a total of 162 strata were constructed to control the distribution of the sample with respect to the identified key domains.

A DMDC sample planning tool, developed by RTI staff, was used to develop the sample allocation (Mason et al., 1995). For design purposes, the objectives of the survey were to determine the total sample size and allocation (to the strata) that will satisfy precision constraints imposed on each of the domains while minimizing cost. To this end, equations were developed that described the variable survey cost (i.e., that part of the total cost that depends on the sample size and allocation) and the variances associated with parameter estimates within each reporting domain. The precision requirements took the form of the maximum value of the sampling variances associated with each parameter estimate. For design purposes, the parameter estimates were taken to be domain proportions or prevalence estimates. To specify the domain-level precision constraints, both the value of the domain

Table A1 Variables Used in the Construction of the Sampling Strata and the Reporting Domains for the 1998 Health Status of Military Women and Men in the Total Force

Variable	Variable Value
Sex	Male
	Female
Service	Active Army
	Active Air Force
	Naval Reserve
	Marine Corps Reserve, Army National Guard, and Army Reserve (combined)
Pay Grade Group	Air National Guard and Air Force Reserve (combined)
	Junior enlisted (E1-E5)
	Senior enlisted (E6-E9)
Race/Ethnicity	Warrant officers and company grade officers (W1-W5, O1-O3 combined)
	Field grade officers (O4-O11)
	Non-Hispanic White
Location	Non-Hispanic Black
	Hispanic, American Indian and Alaskan Native, Asian and Pacific Islander, and "other" race/ethnicity (combined)
	Within the Continental United States (CONUS)
	Outside the Continental United States (OCONUS)

proportion and the maximum value of the variance were specified. Once the precision constraints were developed, the cost equation was minimized subject to the constraints placed on the variances.

The allocation solutions were obtained by setting all of the domain proportions to 0.10 and by requiring a confidence interval half-width of 0.034 for most of the domains. Stricter precision requirements were set for larger domains (e.g., a confidence interval half-width of 0.02 for total females). To obtain a total sample size that stays within the data collection budget for this work, precision constraints were removed for some very small domains. For example, the confidence interval half-width was removed for female warrant officers, representing only 0.09% of the inferential population. Those constraints found to have the most effect on the allocation solutions were those imposed on females in the Marine Corps Reserve and the American Indian-Alaskan Native racial/ethnic group.

The solutions provide a disproportionate allocation of the total sample to the design strata. The allocation depends on the distribution of the identified key domains in each of the design strata, the stratum sizes, the specified domain-level precision constraints, and the variable survey costs in each of the strata. Over the entire design, a minimum of 22,325 observations were required to jointly satisfy the imposed constraints.

The allocation solutions are inflated to compensate for the expected response rates. Experience with surveys of military personnel has shown that response rates depend on a variety of factors in addition to the subject matter concerns and complexity of the questionnaire. These factors include sex, Service (i.e., Active-Duty Services and Reserve/Guard components), pay grade, and race/ethnicity, all of which were used in constructing the strata.

The expected response rate for each of the design strata was determined based on our recent past experience with other military surveys. These rates range from a low of 18% (Marine Corps Reserve, junior enlisted, non-Hispanic black males) to a high of 75% (Active Air Force, warrant and company grade officers, Hispanic, American Indian-Alaskan Native, Asian-Pacific Islander males). Approximately, 22,325 completed questionnaires were expected to be obtained from a total sample size of 47,990 individuals given the distribution of the sample.

A.3 Survey Performance Rates

Response rate information is useful for assessing the quality of survey field operations and for assessing nonresponse bias. The term "response rate" can be used for several different performance rates, each important from a survey operational perspective or from a statistical perspective. In the simplest of cases, the response rate can be calculated as the number of individuals in the population of inferential interest (i.e., those to whom you wish to generalize results) for whom information was obtained, divided by the total number of individuals in the population.

For Total Force, we computed three performance rates—a contact rate (82.4%), an eligibility rate (99.9%), and a response rate among contacted eligible sample members (38.0%). Data used to calculate for the rates and the estimates are shown in Table A2. The data are provided for six Service and Reserve/Guard categories and overall; the six categories correspond to the Service and Reserve/Guard levels used in the sampling design strata.

A.3.1 Contact Rate

The contact rate is the percentage of sample members who received a questionnaire through the mail. It is our assumption that those questionnaires not returned with "Addresses Unknown" status were received by the intended individuals. We were unable to contact those with incorrect address information on the sampling frame and, for example, those who were transferred to another military base. The nonresponse of available individuals added another component to the total missing data or nonresponse bias potential. As shown in Table A2, the contact rate across the Total Force sample was 82.4%. The rate was lowest for the Active-Duty Army (67.2%) and highest for the Air Force Reserve and Air National Guard (93.5%).

A.3.2 Eligibility Rate Among Contacted Sample Members

The eligibility rate is the percentage of contacted sample members who were eligible for the study upon receipt of the mail questionnaire. Ineligible individuals were those person no longer in the Military (e.g., retired, deceased). The sampling frame was believed to be purged of all ineligible personnel. Time delays and errors on the frame can result in the eligibility status of a person to either change or to be incorrectly specified, thereby introducing ineligibles into the sample. The eligibility rate can be an important determinant of statistical efficiency because sampling variances are high when eligibility rates are low. If the eligibility status is not known for every case as with our study, some potential

for bias due to missing data is introduced. As shown in Table A2, the eligibility rate across the Total Force sample was 99.9%. Thirty-one sample members were identified as ineligible.

A.3.3 Response Rate Among Contacted, Eligible Sample Members

The response rate is the percentage of eligible sample members who were contacted and returned a completed questionnaire. A questionnaire was considered to be complete if at least 50% of the pertinent questions were answered (excludes logically skipped questions and female health questions for males) and at least two of the design variable questions were answered. As shown in Table A2, the response rate across the Total Force sample was 38.0%. The rate was lowest for the Marine Corps Reserve (27.1%) and highest for the Naval Reserve (47.7%).

Reference for Appendix A

Mason, R.E., Wheeless, S.C., George, B.J., Dever, J.A., Riemer, R.A., & Elig, T.W. (1995). Sample allocation for the status of the Armed Forces surveys. In Proceedings of the Section on Survey Research Methods (Vol. II, pp. 769-774). Washington, DC: American Statistical Association.

Table A2 Survey Response Data and Performance Rates

Item	Active-Duty Service or Reserve/Guard Component						Total
	Active Army	Active Air Force	Army Res/NG	Naval Reserve	MC Reserve	Air Res/NG	
Response Data							
1. Total sample	12,929	6,779	12,974	4,675	3,841	6,776	47,974
2. Number of delivered questionnaires[a]	8,693	5,508	11,358	4,228	3,426	6,337	39,550
3. Number of eligible persons identified[b]	8,684	5,503	11,349	4,224	3,424	6,335	39,519
4. Number of usable questionnaires	3,363	2,300	3,873	2,015	927	2,547	15,025
Performance Rates (%)							
5. Contact rate (= Item 2/Item1)	67.2%	81.3%	87.5%	90.4%	89.2%	93.5%	82.4%
6. Eligibility rate (= Item 3/Item 2)	99.9%	99.9%	99.9%	99.9%	99.9%	100.0%	99.9%
7. Response rate (= Item 4/Item 3)	38.7%	41.8%	34.1%	47.7%	27.1%	40.2%	38.0%

Note: Response data are frequencies; performance rates are percentages.

[a]If the questionnaires were not returned by the post office, the mailings were assumed to be delivered to the appropriate person.
[b]Sample members (n = 31) contacted us and were classified as ineligible. This count includes eligibles nonrespondents and nonrespondents (presumed eligible).

Source: Health Status of Military Women and Men in the Total Force, 1998.

APPENDIX B

SAMPLE WEIGHTING AND ESTIMATION PROCEDURES

APPENDIX B

SAMPLE WEIGHTING AND ESTIMATION PROCEDURES

In this appendix, we describe the procedures used to construct the study weights (both sampling weights and analysis weights) and the study estimates provided in the final report. A discussion of missing data issues and compensation methods also has been included.

We make a distinction between sampling weights and analysis weights. The former are derived from the probability structure used to select the sample. The latter are modifications made to the sampling weights to compensate for such factors as missing data (e.g., nonresponse). The following section discusses the procedures used to calculate the sampling and analysis weights for the 1998 Total Force Health Assessment.

B.1 Nonresponse

Questionnaires were considered to be complete if (1) at least 50% of the relevant questions had a valid answer, and (2) either Service (i.e., Reserve/Guard component or Active-Duty Service) or pay grade and one additional stratification variable question had valid answers. Missing values for the sex, Service, pay grade, and race/ethnicity variables were imputed using an unweighted hot-deck procedure. Imputation classes were formed using variables that were statistically related to the item response patterns of the four variables. Incomplete information for other questions in the questionnaire remained missing.

The questionnaire was adapted from the 1995 Perceptions of Wellness and Readiness (POWR) questionnaire. Information pertaining to the person's sex, Service, pay grade, and race/ethnicity was obtained from questions in the questionnaire. However, a question to identify the person's location (within the continental United States [CONUS] or outside the continental United States [OCONUS]) was not included in the POWR questionnaire and was not added to the Total Force questionnaire. Thus, this information is not included as an analysis variable on the final dataset.

B.2 Sampling Weights

Military and civilian surveys have seen a decline in the response rates below their traditional 50% to 60%. It was believed that excluding sample member identification numbers (IDs) from the Total Force questionnaires would maintain anonymity of the respondents and would result in a higher than expected response rate. However, with the exclusion of the sample IDs, we were unable to match the completed questionnaires to the sample file to obtain their location information and their exact sampling weight.

We estimated the sampling weights by matching the completed records to the sampling frame using the questionnaire information. Because location data were not available, we had to collapse the original 162 sampling strata across the location values and create 96 new sampling strata. Using the four remaining stratification variables (sex, Service, pay grade group, and race/ethnicity), we matched the completed questionnaires to the sampling frame.

The sampling weights were calculated as the inverse of the probability of selection into the sample. For the 1998 Total Force study, the sampling weights are the values

$$w_{h,i} = \frac{N_h}{n_h} \quad ,$$

where

h = 1, ..., 96 (number of collapsed sampling strata),
i = 1, ..., N_h,
N_h = number of individuals in the h^{th} stratum on the sampling frame, and
n_h = number of individuals in the h^{th} stratum selected for the study.

B.3 Analysis Weights

We used source information from May 1999 to simultaneously adjust the sampling weights for the nonresponding sample members and the disproportionate allocation of the sampling design. The analysis weights were created by multiplying the sampling weights by this adjustment factor:

$$w^{*}_{h,i} = w_{h,i} \times \frac{T_h}{w_{h,i} \times \delta_i} \quad ,$$

where

$w_{h,i}$ = sampling weight for i^{th} person in the h^{th} stratum,
T_h = source information counts from May 1999 data for the h^{th} stratum, and
δ_i = indicator for returned usable questionnaire (1=yes, 0=no).

Weights were adjusted to the May 1999 counts for both the Total Force data and the POWR data.

B.4 Estimation Procedures and Analysis Software

The majority of the estimates presented in this report were calculated using the SUrvey DAta ANalysis (SUDAAN) software with the fully adjusted analysis weights described above. SUDAAN is a proprietary software package developed at the Research Triangle Institute (RTI) for the specific purpose of analyzing data from complex surveys (Shah, Barnwell, & Bieler, 1997). The primary types of estimates produced for this report are percentages, such as the percent of the total Reserve/Guard personnel who currently smoke, and the corresponding standard errors. We also identified the percentages that differed statistically across sex. Standard errors were calculated using the first-order

Taylor series approximation of the deviation of the estimates from their expected values (Woodruff, 1971). The estimates in this report were produced using the SUDAAN procedures DESCRIPT and CROSSTAB.

Exhibits B1 and B2 provide example SUDAAN programs using the DESCRIPT and CROSSTAB procedures, respectively. The variables in the NEST statement are the first-stage stratum identifier (STRATUM3) and the installation identifier (XFSU). The fully adjusted analysis weight (AWEIGHT) is specified in the WEIGHT statement. The data are subsetted to the appropriate group of records (e.g., Active-Duty military personnel) by specifying the subsetted criteria in the SUBPOPN statement.

Total Force and POWR data were collected under different sampling designs for different populations. Total Force data were collected using a single-stage stratified design from a total of eight Active-Duty Services and Reserve/Guard components (see Exhibit B1). However, POWR data (from two Active-Duty Services) were collected using a two-stage design where installations were selected within strata in the first stage and personnel were selected within the installations in the second stage. Only Active-Duty military personnel were selected from Navy and Marine Corps installations for the POWR study. Data from the two studies were combined to give estimates for the overall Military and are presented in this report. For purposes of calculating the correct variance estimates for the total Military, Total Force respondents were treated as if they were installations selected in the first stage as in the POWR study. Therefore, the "pseudo second-stage" sampling rates would be equal to 1.0.

References for Appendix B

Shah, B.V., Barnwell, B.G., & Bieler, G.S. (1997). SUDAAN user's manual: Release 7.5. Research Triangle Park, NC: Research Triangle Institute.

Woodruff, R.S. (1971). Simple method for approximating variances of a complicated estimate. Journal of the American Statistical Association, 66, 411-414.

Exhibit B1 Example SUDAAN Program Using the DESCRIPT Procedure on the 1998 Health Status of Military Women and Men in the Total Force

```
PROC DESCRIPT DATA=TAB6B FILETYPE=SAS DESIGN=WR;
  NEST STRATUM3 XFSU;
  WEIGHT AWEIGHT;
  SUBPOPN KEEP_FLG=1;
  SUBGROUP SERVICE GENDER;
  LEVELS   8       2;
  TABLES SERVICE*GENDER;
  VAR      CERV_CA BR_CA SKIN_CA OTH_CA;
  CATLEVEL 1       1     1       1;
  RFORMAT SERVICE  srv_.;
  RFORMAT GENDER   gen_.;
  PRINT NSUM WSUM PERCENT SEPERCENT;
  OUTPUT NSUM WSUM PERCENT SEPERCENT
     / FILENAME=OUT_T6B;
```

Exhibit B2 Example SUDAAN Program Using the CROSSTAB Procedure on the 1998 Health Status of Military Women and Men in the Total Force

```
PROC CROSSTAB DATA=TAB11A FILETYPE=SAS DESIGN=WR;
  NEST STRATUM3 XFSU;
  WEIGHT AWEIGHT;
  SUBPOPN KEEP_FLG=1;
  SUBGROUP SERVICE GENDER MEDCNT MDCNTFLG;
  LEVELS   8       2      7      2;
  TABLES SERVICE*GENDER*MEDCNT
         SERVICE*GENDER*MDCNTFLG;
  RFORMAT SERVICE  srv_.;
  RFORMAT GENDER   gen_.;
  PRINT NSUM WSUM COLPER SECOL ROWPER SEROW;
  OUTPUT NSUM WSUM COLPER SECOL ROWPER SEROW
     / FILENAME=OUT_T11A;
```

APPENDIX C

ESTIMATED SAMPLING ERRORS

APPENDIX C

ESTIMATED SAMPLING ERRORS

The procedures and methodology used for the 1998 Total Force Health Assessment survey are described in this appendix to help the reader use the estimates of sampling errors that were calculated and printed for various percentages in this report. "Sampling errors" is the general term we use to describe all the sources of difference between an estimate based on a sample and the true value for the population. The difference arises because, as with most surveys other than a census, we observed only a sample rather than every member of the population. At the time of data collection for the Total Force survey, over 1.6 million personnel were in the Military and eligible for our study worldwide. A sample of 47,990 such military personnel provided close, but less than perfect, estimates of the responses that we would have obtained had we asked all of the eligible personnel to complete the survey.

C.1 Confidence Intervals and Significant Differences

For any particular percentage resulting from a sampling survey, it is not possible to know the exact amount of error that has resulted from sampling. It is possible, however, to establish estimated "confidence intervals" (i.e., ranges very likely to include the true population value). For example, Table 3A shows that 26.0% of the total Reserve/Guard military personnel in the 1998 sample reported that they perceived themselves to be in excellent health with a standard error of 1.0%. It is possible to set up a 95% confidence interval, which means that 95% of the time a computed interval can be expected to include the true (population) percentage. As a general rule, the 95% confidence interval is formed by (a) doubling the standard error (multiplying by 1.96 is the precise value to use), (b) adding this result to the estimate to form the upper bound, and (c) subtracting it from the estimate to form the lower bound. In this case, the lower and upper limits of the 95% interval are 24.0% and 28.0%. A somewhat wider set of limits can be set up to indicate the 99% confidence interval.

Several of the tables in this report show instances where estimates for females and males differ significantly. These tests of significance were guided by the following hypotheses:

$$H_O : D_O = 0$$
$$H_A : D_O \neq 0$$

We used the following large-sample z test for independent samples to test the sex differences:

$$Z = \frac{(P_F - P_M) - D_O}{\sqrt{SE_F^2 + SE_M^2}}$$

where

P_F = Total Force estimate for females,
P_M = Total Force estimate for males,
D_O = 0,
$SE^2{}_F$ = SUDAAN variance of Total Force estimate for females (Shah, Barnwell, & Bieler, 1997), and
$SE^2{}_M$ = SUDAAN variance of Total Force estimate for males.

The null hypothesis (H_O: D_O=0) is rejected if |Z| is greater than 1.96 for a Type 1 error rate of 0.05. Those estimates that differ significantly for the male-female comparisons at the 0.05 level are identified by a single asterisk attached to female and male estimates.

C.2 Factors Influencing the Size of Confidence Intervals in This Report

From a statistical standpoint, the most straightforward types of samples are simple random samples. In such samples, the confidence limits for a percentage are simple functions of the percentage value and the size of the sample or subgroup on which it is based. For example, the 95% confidence interval for a proportion (p) can be approximated by

$$p \pm 1.96\sqrt{\frac{p(1-p)}{N}}$$

In this section, we discuss all of the factors, beginning with the basic ones and proceeding to those that are more complex.

C.2.1 Number of Cases (N)

When other things are equal, the larger a sample or subgroup, the more precise an estimate will be based on that sample or subgroup. Given a more precise estimate, the confidence levels will be more narrow. One of the factors is $1/\sqrt{N}$, the reciprocal of the square root of the size of the sample or the subgroup. Thus, a sample of 400 will, all things being equal, have a confidence interval just half as wide as that for a sample of 100, because $1/\sqrt{400}$ is just about half of $1/\sqrt{100}$.

C.2.2 Percentage Size

Other things again being equal, percentage values around 50% have the largest confidence intervals because $\sqrt{p(1-p)}$ (where p is a proportion between 0.0 and 100.0) also is a factor affecting the size of the confidence interval. This factor will be only three-fifths as large for p=10% or p=90% in comparison with p=50% because $\sqrt{.1 \times .9}$ is $3/5 \times \sqrt{.5 \times .5}$.

C.3 Design Effects in Complex Samples

Under simple random sampling (SRS), a confidence interval can be determined from the two factors we just described plus the appropriate constant for the confidence level desired (e.g., 1.96 for 95%). Where stratification and differential weighting of responses are involved, as in this survey, all of these also influence sampling error. Stratification tends to increase precision, but the effects of weighting reduce it. The result is usually lower precision than would be obtained by the use of a simple random sample of the same size. Accordingly, using the simple formula generally underestimates the sampling error involved.

There are methods to correct for this underestimation, however. Kish (1965, p. 258) defined a correction term known as the design effect (*DEFF*), where

$$DEFF = \frac{Actual\ sampling\ variance}{SRS\ variance},$$

If, therefore, the actual sampling variance for a proportion p is four times the value computed for a simple random sample of the same size N, the *DEFF* is 4.0. Because a confidence interval is based on the square root of the variance, any confidence interval would have to be twice as wide as the corresponding interval from a simple random sample of the same size.

A simple way of using a *DEFF* value is to divide the actual sample or domain size by the value and obtain the "effective N," the size of a simple random sample that would have resulted with the same degree of precision. For example, with a *DEFF* of 4.0 and an actual sample size of 4,000, the "effective N" is 1,000. The value of the "effective N" can be used in the simple formula $\sqrt{p(1-p)/N}$ to compute standard errors of estimates and confidence interval limits for proportions. It is therefore possible to use formulas and tables appropriate for simple random samples, regardless of the actual type of sample, by converting the sample size to the "effective N."

Actually, every statistic derived from a complex sample has its own design effect, different from all of the others. In practice, however, *DEFF* values are generally computed only for a cross-section of the statistics, and averages are computed and applied to those of the same types. Often, a single average *DEFF* is used for all percentages.

C.4 Suppression Rule for Estimates

In this report, we suppressed unreliable estimates. That is, we suppressed proportions and means that could not be reported with confidence because they were based on small sample sizes or had large sampling errors. The sample size restriction we used was to suppress an estimate when the number of observations on which it was based was fewer than 30 cases.

For estimates expressed as proportions (e.g., the proportion of heavy drinkers), we used a suppression rule based on the *RSE* of

the natural log of the estimated proportion (p). Specifically, we suppressed estimates in tables when

$$RSE\,[-ln(p)] > 0.225 \text{ for } p \leq 0.5, \text{ and}$$

$$RSE\,[-ln(1-p)] > 0.225 \text{ for } p > 0.5.$$

Note that $RSE\,[-ln(p)] = RSE(p)/(-ln(p)) = SE(p)/(-p\ ln(p))$, where $SE(p)$ denotes the standard error of p, the estimated proportion.

We chose to use this rule based on the natural log of the *RSE* rather than on the *RSE* itself because the latter has been observed to have some undesirable properties for proportions. Specifically, a rule based on the *RSE* of the estimate imposes a very stringent suppression requirement on small proportions but a very lax requirement on large proportions. That is, small proportions must have relatively large effective sample sizes to avoid being suppressed, whereas large proportions require much smaller sample sizes.

The rule based on the natural log of the *RSE* of the estimate is more liberal in allowing small proportions to avoid being suppressed but more stringent with regard to suppression of large proportions. For example, under the rule based on the $RSE[-ln(p)]$, percentages of about 1% would be suppressed unless they were based on an effective sample size of about 100 or more respondents, and percentages of 20% would be suppressed unless they were based on an effective sample size of about 30 respondents. Using a rule for proportions based on $RSE(p) > 0.50$ would require an effective sample size of 400 respondents for percentages of about 1% and an effective sample size of only 16 respondents for percentage estimates of about 20%.

Very small estimates (i.e., < 0.05%) that were not suppressed under these rules, but that rounded to zero, also were suppressed and are shown as two asterisks (**) in the tables.

References for Appendix C

Kish, L. (1965). Survey sampling. New York: John Wiley & Sons.

Shah, B.V., Barnwell, B.G., & Bieler, G.S. (1997). SUDAAN user's manual: Release 7.5. Research Triangle Park, NC: Research Triangle Institute.

APPENDIX D

STANDARD ERROR TABLES

Table 2ASE Standard Errors for Table 2A: Sociodemographic Characteristics Among Reserve Personnel

Characteristic	Army Reserve			Naval Reserve			Marine Corps Reserve			Air Force Reserve			Total Reserve Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	2.2	2.3	1.9	1.1	0.7	0.6	3.6	0.6	0.6	3.7	2.5	2.1	1.5	1.2	1.0
Black – not Hispanic	2.2	2.1	1.7	1.0	0.7	0.6	3.1	0.4	0.4	3.7	2.4	2.1	1.5	1.1	0.9
Hispanic	0.4	0.6	0.4	0.6	0.4	0.3	2.2	0.7	0.7	0.5	0.5	0.4	0.3	0.3	0.3
American Indian/Alaskan Native	0.2	0.1	0.1	0.3	0.1	0.1	**	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1
Asian/Filipino/Pacific Islander	0.4	0.4	0.3	0.5	0.4	0.3	1.6	0.6	0.6	0.7	0.4	0.4	0.3	0.2	0.2
Other	0.1	0.2	0.1	0.2	0.1	0.1	1.4	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.1
Education															
High school or less	2.7	2.4	2.0	1.8	1.8	1.5	3.1	1.8	1.8	3.5	3.1	2.6	1.8	1.4	1.2
Some college	3.2	2.7	2.2	2.7	2.1	1.8	3.6	2.1	2.0	4.7	3.9	3.2	2.2	1.6	1.3
College degree or beyond	2.6	2.3	1.8	2.5	1.8	1.5	2.9	1.4	1.4	4.3	3.2	2.7	1.8	1.3	1.1
Age															
20 or younger	3.0	2.4	1.9	0.6	0.2	0.2	3.0	2.0	1.9	1.4	NA	0.3	1.9	1.2	1.0
21 to 25 years old	2.5	1.7	1.4	1.2	1.3	1.0	3.3	2.0	1.9	3.1	1.4	1.3	1.6	0.9	0.8
26 to 34 years old	2.6	2.5	2.0	2.6	2.0	1.7	3.1	1.7	1.6	4.4	3.6	3.0	1.9	1.4	1.2
35 or older	2.8	2.8	2.2	2.6	2.0	1.7	2.0	0.8	0.8	4.7	3.7	3.1	2.0	1.5	1.3
Marital Status															
Not married	2.7	2.8	2.2	2.9	2.2	1.8	3.3	1.7	1.6	4.6	3.3	2.8	2.0	1.6	1.3
Married	2.7	2.8	2.2	2.9	2.2	1.8	3.3	1.7	1.6	4.6	3.3	2.8	2.0	1.6	1.3
Pay Grade															
E1-E3	3.3	2.6	2.1	1.5	1.6	1.3	3.3	2.0	1.9	1.4	0.1	0.3	2.1	1.3	1.1
E4-E6	3.2	2.7	2.2	1.6	1.7	1.4	3.3	1.9	1.8	4.1	3.1	2.6	2.1	1.5	1.3
E7-E9	1.6	1.6	1.2	0.7	0.8	0.7	1.1	0.6	0.6	3.2	2.5	2.1	1.1	0.9	0.7
W1-W5	0.3	0.5	0.4	0.1	0.1	0.1	0.7	0.2	0.2	NA	NA	NA	0.2	0.2	0.2
O1-O3	0.8	1.2	0.9	0.6	0.3	0.3	0.6	0.2	0.2	1.4	0.8	0.7	0.5	0.6	0.5
O4-O10	0.5	1.2	0.9	0.6	0.3	0.3	1.1	0.1	0.1	1.3	1.1	0.9	0.4	0.6	0.5
Total Reserve	1.2	1.2	NA	0.4	0.4	NA	0.1	0.1	NA	1.7	1.7	NA	0.7	0.7	NA

Note: Table entries are percentages.

**Low precision.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 2BSE Standard Errors for Table 2B: Sociodemographic Characteristics Among Guard Personnel

Characteristic	Army National Guard			Air National Guard			Total Guard Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity									
White – not Hispanic	3.5	1.8	1.7	1.9	1.1	0.9	2.4	1.4	1.3
Black – not Hispanic	3.4	1.7	1.6	1.9	1.1	0.9	2.4	1.3	1.2
Hispanic	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3
American Indian/Alaskan Native	0.3	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.1
Asian/Filipino/Pacific Islander	0.3	0.2	0.2	0.5	0.3	0.3	0.3	0.2	0.2
Other	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.1
Education									
High school or less	4.0	2.5	2.3	2.7	1.6	1.4	2.9	2.0	1.8
Some college	4.7	2.5	2.3	3.7	2.3	2.0	3.4	2.0	1.8
College degree or beyond	3.7	1.5	1.4	3.5	1.9	1.7	2.8	1.3	1.2
Age									
20 or younger	4.2	2.2	2.0	0.8	0.3	0.3	2.9	1.7	1.5
21 to 25 years old	3.9	1.6	1.5	2.5	1.7	1.5	2.8	1.3	1.2
26 to 34 years old	4.1	2.3	2.1	3.7	2.1	1.8	3.0	1.9	1.7
35 or older	4.4	2.5	2.3	3.3	2.2	1.9	3.2	2.0	1.8
Marital Status									
Not married	4.4	2.6	2.3	3.7	2.3	2.0	3.2	2.1	1.9
Married	4.4	2.6	2.3	3.7	2.3	2.0	3.2	2.1	1.9
Pay Grade									
E1-E3	4.9	2.3	2.2	1.3	1.5	1.3	3.5	1.9	1.7
E4-E6	4.8	2.4	2.2	2.8	2.1	1.8	3.5	1.9	1.8
E7-E9	2.1	1.2	1.1	2.2	1.6	1.3	1.6	1.0	0.9
W1-W5	0.3	0.5	0.5	NA	NA	NA	0.2	0.4	0.4
O1-O3	0.7	0.7	0.6	0.8	0.4	0.4	0.6	0.5	0.5
O4-O10	1.0	0.4	0.4	0.5	0.5	0.4	0.7	0.4	0.3
Total Guard	0.8	0.8	NA	0.7	0.7	NA	0.7	0.7	NA

Note: Table entries are percentages.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 2CSE Standard Errors for Table 1C: Sociodemographic Characteristics Among Active-Duty Personnel

Characteristic	Army			Navy			Marine Corps			Air Force			Total Active-Duty Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total	Females	Males	Total
Race/Ethnicity															
White – not Hispanic	0.9	1.1	1.0	1.5	1.9	1.8	1.5	2.7	2.6	1.1	0.7	0.6	0.7	0.8	0.7
Black – not Hispanic	1.1	1.1	1.0	1.0	1.3	1.2	1.6	0.8	0.7	0.9	0.7	0.6	0.7	0.6	0.5
Hispanic	0.3	0.2	0.2	0.8	1.1	1.0	1.4	2.0	1.9	0.3	0.2	0.2	0.3	0.5	0.4
American Indian/Alaskan Native	0.2	0.1	0.1	0.1	0.3	0.3	0.7	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Asian/Filipino/Pacific Islander	0.3	0.2	0.2	0.5	1.0	0.9	0.6	0.7	0.6	0.3	0.2	0.2	0.2	0.3	0.3
Other	0.1	0.1	0.1	0.2	0.3	0.3	0.3	1.0	1.0	0.1	0.1	0.1	0.1	0.2	0.2
Education															
High school or less	2.5	2.2	1.9	2.1	2.5	2.3	3.3	4.0	3.8	3.2	2.3	1.9	1.6	1.6	1.5
Some college	2.7	2.1	1.8	1.4	1.9	1.7	3.5	3.0	2.8	3.2	2.3	2.0	1.5	1.3	1.2
College degree or beyond	1.6	1.1	1.0	2.4	2.2	2.2	2.0	1.9	1.8	1.9	1.4	1.2	1.1	0.9	0.9
Age															
20 or younger	2.4	2.0	1.8	1.3	2.1	1.8	2.2	3.5	3.4	2.9	2.1	1.8	1.4	1.2	1.1
21 to 25 years old	2.5	2.0	1.8	1.9	2.1	1.8	2.0	3.2	3.1	3.3	2.1	1.8	1.5	1.3	1.1
26 to 34 years old	2.6	2.0	1.7	1.7	1.9	1.7	1.9	3.3	3.2	3.1	2.2	1.9	1.5	1.2	1.1
35 or older	1.5	1.3	1.1	1.7	1.7	1.6	1.1	1.8	1.8	1.9	1.6	1.4	1.0	1.0	0.9
Marital Status															
Not married	2.7	2.2	1.9	1.3	2.0	1.8	2.0	3.6	3.4	3.4	2.5	2.1	1.5	1.4	1.2
Married	2.7	2.2	1.9	1.3	2.0	1.8	2.0	3.6	3.4	3.4	2.5	2.1	1.5	1.4	1.2
Pay Grade															
E1-E3	2.9	2.5	2.2	3.2	3.0	2.9	2.7	6.1	5.8	3.7	2.6	2.2	1.9	1.8	1.6
E4-E6	2.7	2.1	1.9	2.4	2.5	2.4	2.0	5.0	4.8	3.3	2.3	2.0	1.6	1.4	1.3
E7-E9	0.8	0.8	0.7	0.5	0.7	0.7	0.7	0.8	0.8	0.7	0.9	0.8	0.4	0.4	0.4
W1-W5	0.3	0.4	0.3	0.1	0.1	0.1	0.4	0.2	0.2	NA	NA	NA	0.1	0.1	0.1
O1-O3	0.4	0.4	0.4	1.7	1.6	1.6	1.2	0.8	0.8	0.3	0.2	0.2	0.5	0.5	0.5
O4-O10	0.2	0.1	0.1	1.1	1.1	1.0	0.5	0.8	0.7	0.4	0.2	0.2	0.3	0.3	0.3
Total Active Duty	0.4	0.4	NA	0.6	0.6	NA	0.5	0.5	NA	0.5	0.5	NA	0.4	0.4	NA

Note: Table entries are percentages.

NA: Not applicable.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 3ASE Standard Errors for Table 3A: Perceived Health Status Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
General Health							
Females							
Excellent	2.4	3.8	2.3	3.4	3.8	3.3	1.5
Very good	3.2	4.7	2.9	3.7	4.8	3.7	1.9
Good	3.2	3.9	2.6	3.1	4.5	3.1	1.7
Fair	1.7	0.2	1.3	1.1	1.4	1.5	0.7
Poor	1.2	0.8	0.1	0.4	0.1	0.6	0.5
Males							
Excellent	2.3	2.3	1.9	2.1	3.1	2.0	1.2
Very good	2.7	2.5	2.1	2.2	3.9	2.5	1.3
Good	2.5	2.3	1.9	1.6	3.2	2.1	1.2
Fair	1.1	0.9	0.3	0.5	1.2	0.6	0.5
Poor	0.3	0.4	0.1	0.3	1.0	0.3	0.2
Total							
Excellent	1.9	2.1	1.6	2.1	2.6	1.8	1.0
Very good	2.2	2.3	1.8	2.1	3.2	2.1	1.2
Good	2.0	2.1	1.6	1.5	2.7	1.8	1.1
Fair	0.9	0.8	0.4	0.5	1.0	0.5	0.4
Poor	0.4	0.3	0.1	0.3	0.8	0.3	0.2
Vitality[a]							
Females							
High	2.9	4.6	2.8	3.4	4.4	3.6	1.8
Medium	3.1	4.6	2.4	3.5	4.2	3.5	1.8
Low	3.3	4.5	2.9	3.7	4.9	3.6	1.9
Males							
High	2.7	2.4	2.1	2.1	3.8	2.4	1.3
Medium	2.8	2.5	2.1	2.2	3.7	2.3	1.3
Low	2.3	2.4	1.9	2.0	3.5	2.3	1.3
Total							
High	2.2	2.2	1.8	2.0	3.2	2.1	1.1
Medium	2.2	2.3	1.8	2.1	3.1	2.0	1.2
Low	1.9	2.2	1.6	1.9	3.0	2.0	1.1

Note: Table entries are percentages.

[a]Vitality is a summary measure of energy and fatigue.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 3BSE Standard Errors for Table 3B: Perceived Heal[illegible]s Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
General Health					
Females					
Excellent	1.9	1.5	2.3	2.7	1.2
Very good	2.9	0.9	2.5	3.4	1.6
Good	2.6	1.4	2.6	3.3	1.5
Fair	1.2	0.5	1.1	1.9	0.8
Poor	0.6	0.2	0.8	0.2	0.2
Males					
Excellent	1.9	1.6	2.4	2.0	1.0
Very good	2.2	1.5	2.0	2.5	1.1
Good	1.9	1.3	2.1	2.2	1.0
Fair	1.3	0.3	1.4	0.7	0.5
Poor	0.2	0.1	0.7	**	0.1
Total					
Excellent	1.7	1.5	2.3	1.7	0.9
Very good	1.9	1.3	1.9	2.1	1.0
Good	1.7	1.2	2.0	1.9	0.9
Fair	1.1	0.3	1.3	0.7	0.5
Poor	0.2	0.1	0.7	**	0.1
Vitality[a]					
Females					
High	2.2	1.1	2.0	2.8	1.3
Medium	2.5	0.8	1.5	3.4	1.5
Low	2.8	1.3	2.9	3.4	1.6
Males					
High	2.0	0.9	2.6	2.2	1.0
Medium	2.1	1.1	2.8	2.4	1.0
Low	2.2	1.2	4.5	2.4	1.2
Total					
High	1.7	0.8	2.5	1.9	0.9
Medium	1.8	1.0	2.6	2.0	0.9
Low	2.0	1.1	4.2	2.1	1.1

Note: Table entries are percentages.

**Low precision.

[a]Vitality is a summary measure of energy and fatigue.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 4ASE Standard Errors for Table 4A: Perceived Role Limitations Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Role Limitations Due to Physical Health Problems							
Females							
High	3.2	3.8	2.4	3.3	3.3	2.7	1.7
Low	3.2	3.8	2.4	3.3	3.3	2.7	1.7
Males							
High	1.8	1.9	1.5	1.5	2.8	1.6	1.0
Low	1.8	1.9	1.5	1.5	2.8	1.6	1.0
Total							
High	1.6	1.8	1.3	1.4	2.3	1.4	0.9
Low	1.6	1.8	1.3	1.4	2.3	1.4	0.9
Role Limitations Due to Emotional Health Problems							
Females							
High	2.7	3.6	1.9	3.1	3.5	3.0	1.5
Low	2.7	3.6	1.9	3.1	3.5	3.0	1.5
Males							
High	1.8	1.9	1.5	1.6	2.5	1.3	1.0
Low	1.8	1.9	1.5	1.6	2.5	1.3	1.0
Total							
High	1.5	1.8	1.2	1.5	2.1	1.2	0.9
Low	1.5	1.8	1.2	1.5	2.1	1.2	0.9

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 4BSE Standard Errors for Table 4B: Perceived Role Limitations Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Role Limitations Due to Physical Health Problems					
Females					
High	2.7	0.9	2.0	2.7	1.4
Low	2.7	0.9	2.0	2.7	1.4
Males					
High	2.0	0.9	2.0	1.6	0.9
Low	2.0	0.9	2.0	1.6	0.9
Total					
High	1.7	0.8	1.9	1.4	0.8
Low	1.7	0.8	1.9	1.4	0.8
Role Limitations Due to Emotional Health Problems					
Females					
High	2.7	1.0	1.8	2.8	1.4
Low	2.7	1.0	1.8	2.8	1.4
Males					
High	1.9	0.8	2.2	1.8	0.9
Low	1.9	0.8	2.2	1.8	0.9
Total					
High	1.7	0.7	2.1	1.6	0.8
Low	1.7	0.7	2.1	1.6	0.8

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 5ASE Standard Errors for Table 5A: Lifetime Prevalence of Respiratory or Skeletal Conditions and Allergic or Infectious Diseases Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Asthma							
Females	2.2	3.3	1.4	1.9	2.0	1.8	1.3
Males	1.1	1.1	1.1	1.1	1.8	1.3	0.6
Total	1.0	1.1	1.0	1.0	1.5	1.1	0.6
Chronic Bronchitis							
Females	2.5	3.0	1.7	2.1	3.3	2.5	1.3
Males	1.2	1.0	1.1	0.9	0.8	1.1	0.5
Total	1.1	0.9	1.0	0.9	1.0	1.0	0.5
Arthritis							
Females	2.2	2.5	1.7	1.4	2.6	2.3	1.1
Males	1.4	1.4	1.0	0.8	2.3	1.1	0.7
Total	1.2	1.3	0.8	0.7	1.9	1.0	0.6
Chronic Rhinitis or Hay Fever							
Females	2.5	2.7	1.9	2.1	4.1	2.7	1.3
Males	1.5	1.3	1.4	1.0	3.1	1.5	0.8
Total	1.3	1.2	1.2	1.0	2.6	1.3	0.7
Other Allergies							
Females	3.0	4.2	2.7	3.0	4.8	3.6	1.8
Males	2.2	2.0	1.8	1.6	3.3	2.1	1.1
Total	1.9	1.9	1.5	1.6	2.8	1.9	1.0
Positive Test for Tuberculosis							
Females	2.0	0.8	1.5	1.7	3.1	1.5	0.9
Males	1.3	0.6	0.9	0.9	1.9	0.8	0.4
Total	1.1	0.6	0.8	0.9	1.6	0.7	0.4
Hepatitis							
Females	0.8	1.2	1.0	0.7	0.9	1.3	0.5
Males	0.9	0.7	0.5	0.6	0.2	0.9	0.4
Total	0.7	0.6	0.4	0.5	0.3	0.8	0.3

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 5BSE Standard Errors for Table 5B: Lifetime Prevalence of ›ry or Skeletal Conditions and Allergic or Infectious Diseases Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	ırine ›rps	Air Force	Total Active-Duty Personnel
Asthma					
Females	1.7	0.6	).8	1.2	0.7
Males	1.1	0.5	'.4	0.9	0.5
Total	1.0	0.4	'.3	0.8	0.4
Chronic Bronchitis					
Females	1.9	0.5	.2	0.7	0.7
Males	1.3	0.6	.5	0.9	0.5
Total	1.1	0.5	.4	0.7	0.5
Arthritis					
Females	1.6	0.4	).7	1.0	0.7
Males	0.9	0.4	0.7	1.2	0.5
Total	0.8	0.4	0.6	1.0	0.4
Chronic Rhinitis or Hay Fever					
Females	1.6	0.7	0.8	2.3	1.0
Males	1.1	0.9	1.1	1.2	0.6
Total	1.0	0.9	1.0	1.1	0.5
Other Allergies					
Females	2.3	0.9	1.3	3.2	1.4
Males	1.6	0.8	2.2	1.9	0.8
Total	1.4	0.7	2.0	1.6	0.7
Positive Test for Tuberculosis					
Females	1.5	0.5	0.7	1.7	0.8
Males	0.9	0.7	0.8	0.9	0.5
Total	0.8	0.6	0.7	0.8	0.4
Hepatitis					
Females	1.0	0.2	0.5	0.7	0.4
Males	0.4	0.3	0.6	0.5	0.2
Total	0.4	0.3	0.6	0.4	0.2

Note: Table entries are percentages.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 6ASE Standard Errors for Table 6A: Lifetime Prevalence of Cancer Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cervical Cancer							
Females	0.7	2.1	1.3	1.1	0.4	0.2	0.7
Breast Cancer							
Females	0.8	1.0	0.1	**	0.2	0.4	0.4
Skin Cancer							
Females	0.6	1.0	0.3	0.7	0.9	0.4	0.4
Males	0.3	0.6	0.6	0.2	1.4	0.7	0.3
Total	0.3	0.6	0.5	0.2	1.1	0.6	0.3
Other Cancer							
Females	0.8	**	0.3	**	0.4	0.1	0.3
Males	0.2	0.4	0.1	0.3	0.5	0.4	0.2
Total	0.3	0.3	0.1	0.3	0.4	0.3	0.2

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 6BSE Standard Errors for Table 6B: Lifetime Prevalence of Cancer Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cervical Cancer					
Females	1.1	0.3	1.0	0.6	0.5
Breast Cancer					
Females	0.4	0.1	0.1	0.2	0.1
Skin Cancer					
Females	0.2	0.1	0.3	0.2	0.1
Males	0.6	0.1	0.1	0.4	0.2
Total	0.5	0.1	0.1	0.3	0.2
Other Cancer					
Females	0.3	0.1	0.1	0.1	0.1
Males	0.6	0.1	0.6	0.8	0.3
Total	0.5	0.1	0.5	0.6	0.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 7ASE Standard Errors for Table 7A: Lifetime Prevalence of Cardiovascular and Endocrine Conditions Among Reserve/Guard Personnel

System/Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cardiovascular							
Heart Disease or Angina							
Females	0.6	1.1	1.3	0.6	0.2	0.9	0.4
Males	0.3	0.8	0.3	0.2	0.5	0.3	0.4
Total	0.3	0.7	0.3	0.2	0.4	0.3	0.3
High Blood Pressure							
Females	2.1	2.7	1.7	1.6	2.8	1.5	1.1
Males	1.8	1.6	1.4	0.9	2.5	1.4	0.9
Total	1.4	1.5	1.2	0.8	2.1	1.2	0.8
High Cholesterol							
Females	2.0	3.5	2.4	1.9	3.3	2.7	1.3
Males	1.8	1.8	1.7	0.8	3.3	1.8	1.0
Total	1.4	1.6	1.4	0.8	2.7	1.6	0.8
Endocrine							
Thyroid Disease							
Females	1.4	0.2	0.9	1.1	1.6	1.3	0.6
Males	0.5	0.3	0.3	0.1	0.5	0.4	0.2
Total	0.5	0.2	0.3	0.1	0.5	0.4	0.2
Diabetes							
Females	0.6	0.2	0.5	1.5	0.3	1.0	0.3
Males	0.6	0.4	0.4	**	0.5	0.1	0.2
Total	0.5	0.4	0.4	0.1	0.4	0.2	0.2

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 7BSE Standard Errors for Table 7B: Lifetime Prevalence of Cardiovascular and Endocrine Conditions Among Active-Duty Personnel

System/Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cardiovascular					
Heart Disease or Angina					
Females	0.6	0.1	**	0.5	0.3
Males	0.4	0.1	**	0.8	0.2
Total	0.4	0.1	**	0.6	0.2
High Blood Pressure					
Females	1.7	0.5	0.5	1.4	0.8
Males	1.3	0.9	0.8	1.4	0.7
Total	1.1	0.8	0.7	1.2	0.6
High Cholesterol					
Females	1.7	0.5	1.0	2.1	1.0
Males	1.2	0.8	0.8	1.5	0.7
Total	1.1	0.7	0.7	1.3	0.6
Endocrine					
Thyroid Disease					
Females	0.7	0.3	0.3	0.8	0.4
Males	0.2	0.1	0.6	0.6	0.2
Total	0.2	0.1	0.6	0.5	0.2
Diabetes					
Females	0.6	0.2	0.5	1.1	0.4
Males	0.2	0.1	**	0.1	0.1
Total	0.2	0.1	**	0.2	0.1

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 8ASE Standard Errors for Table 8A: Lifetime Prevalence of Gastrointestinal and Gallbladder Disorders Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Hernia or Rupture							
Females	1.0	1.9	1.0	1.2	0.3	1.2	0.7
Males	1.8	1.8	1.3	1.3	2.4	1.7	0.9
Total	1.4	1.6	1.1	1.2	1.9	1.4	0.8
Hemorrhoids							
Females	2.1	3.8	2.4	2.3	4.3	3.2	1.5
Males	1.9	1.6	1.4	0.9	2.8	1.7	0.9
Total	1.6	1.5	1.2	0.9	2.4	1.6	0.8
Ulcer							
Females	1.7	2.6	1.6	1.3	2.6	2.4	1.1
Males	1.2	1.3	1.0	0.8	2.5	1.1	0.7
Total	1.0	1.2	0.8	0.8	2.0	1.0	0.6
Bowel or Intestinal Trouble							
Females	1.2	1.9	1.5	1.5	3.6	2.7	0.9
Males	0.8	1.2	0.5	0.7	2.0	1.1	0.6
Total	0.7	1.1	0.5	0.7	1.7	1.0	0.5
Gallstones							
Females	1.2	1.1	1.3	0.6	2.0	1.7	0.6
Males	0.3	0.6	0.1	0.1	1.0	0.5	0.3
Total	0.4	0.6	0.3	0.1	0.9	0.5	0.3

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 8BSE Standard Errors for Table 8B: Lifetime Prevalence of Ga testinal and Gallbladder Disorders Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Hernia or Rupture					
Females	1.0	0.3	0.6	2.0	0.8
Males	1.0	0.7	1.1	1.7	0.6
Total	0.9	0.6	1.0	1.4	0.5
Hemorrhoids					
Females	1.9	0.6	1.0	2.4	1.1
Males	1.2	0.5	1.1	1.5	0.6
Total	1.0	0.5	1.0	1.3	0.5
Ulcer					
Females	1.4	0.4	0.5	0.9	0.6
Males	0.7	0.5	0.7	1.2	0.4
Total	0.6	0.4	0.7	1.0	0.4
Bowel or Intestinal Trouble					
Females	1.5	0.4	1.5	2.2	0.9
Males	0.6	0.5	0.4	0.9	0.3
Total	0.5	0.4	0.4	0.8	0.3
Gallstones					
Females	0.9	0.3	0.3	1.5	0.6
Males	0.2	0.1	0.1	0.1	0.1
Total	0.2	0.1	0.1	0.3	0.1

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 9ASE Standard Errors for Table 9A: Lifetime Prevalence of Urinary Tract Conditions Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Urinary Tract Infection							
Females	3.3	4.6	2.8	3.6	4.9	3.7	1.9
Males	1.4	1.4	1.3	0.7	2.5	1.4	0.8
Total	1.4	1.4	1.2	0.7	2.3	1.4	0.7
Repeated Kidney Infections							
Females	1.7	2.2	1.4	1.1	2.1	1.3	0.9
Males	0.2	0.5	0.7	0.2	0.1	0.2	0.2
Total	0.5	0.5	0.6	0.2	0.5	0.3	0.2
Kidney Stones							
Females	0.8	0.2	1.2	0.6	0.4	1.5	0.4
Males	1.2	0.9	0.6	0.5	2.3	1.0	0.5
Total	0.9	0.8	0.5	0.5	1.8	0.8	0.5

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 9BSE Standard Errors for Table 9B: Lifetime Prevalence of Urinary Tract Conditions Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Urinary Tract Infection					
Females	2.9	1.1	3.6	3.4	1.6
Males	1.1	0.5	1.1	1.1	0.5
Total	1.0	0.6	0.9	1.1	0.5
Repeated Kidney Infections					
Females	0.9	0.3	1.0	1.1	0.5
Males	0.4	0.1	0.4	0.2	0.2
Total	0.4	0.1	0.3	0.3	0.2
Kidney Stones					
Females	1.2	0.2	0.2	1.4	0.6
Males	0.7	0.4	0.8	0.5	0.3
Total	0.6	0.4	0.7	0.5	0.3

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 10ASE Standard Errors for Table 10A: Lifetime Prevalence of Reproductive System Disorders Among Reserve/Guard Personnel

Medical Condition/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Herpes or Genital Warts							
Females	1.8	3.0	1.9	2.2	3.8	2.3	1.2
Males	1.1	0.9	1.1	0.7	1.9	1.0	0.5
Total	1.0	0.9	0.9	0.7	1.7	0.9	0.5
Other Sexually Transmitted Diseases							
Females	2.7	3.2	1.5	2.3	3.6	1.8	1.4
Males	1.5	1.0	1.2	0.8	1.9	1.3	0.6
Total	1.3	1.0	1.0	0.8	1.7	1.2	0.6
Pelvic Inflammatory Disease							
Females	2.1	1.9	1.7	1.1	2.2	1.8	1.0
Sterility/Infertility							
Females	0.9	1.1	1.5	1.3	1.0	1.3	0.5
Males	0.6	0.6	0.5	0.2	1.1	0.5	0.3
Total	0.5	0.5	0.5	0.2	0.9	0.5	0.3

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 10BSE Standard Errors for Table 10B: Lifetime Prevalence of Reproductive System Disorders Among Active-Duty Personnel

Medical Condition/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Herpes or Genital Warts					
Females	2.0	0.6	1.3	2.6	1.2
Males	0.6	0.5	0.8	1.0	0.4
Total	0.6	0.5	0.8	0.9	0.4
Other Sexually Transmitted Diseases					
Females	2.4	1.1	1.5	1.9	1.1
Males	1.4	0.7	1.0	1.1	0.6
Total	1.2	0.7	0.9	1.0	0.6
Pelvic Inflammatory Disease					
Females	1.3	0.6	1.1	1.8	0.8
Sterility/Infertility					
Females	0.6	0.2	0.5	0.7	0.3
Males	0.3	0.2	0.5	0.5	0.2
Total	0.3	0.2	0.4	0.4	0.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 11ASE Standard Errors for Table 11A: Number of Self-Reported Lifetime Medical Conditions Among Reserve/Guard Personnel

	Number of Self-Reported Lifetime Medical Conditions							
Service/Sex	0	1	2	3	4	5	6 or More	Any (1 or More)
Army Reserve								
Females	2.8	2.6	2.3	2.3	2.2	2.0	1.7	2.8
Males	2.7	2.4	2.0	1.8	0.9	1.1	0.5	2.7
Total	2.2	1.9	1.6	1.5	0.9	1.0	0.6	2.2
Army National Guard								
Females	3.9	4.3	3.8	2.5	2.6	2.6	2.1	3.9
Males	2.5	2.2	1.9	1.5	1.1	0.7	0.8	2.5
Total	2.3	2.0	1.8	1.3	1.0	0.7	0.7	2.3
Naval Reserve								
Females	2.2	2.2	2.4	2.0	1.9	1.4	1.6	2.2
Males	2.0	1.9	1.5	1.4	1.0	0.8	0.7	2.0
Total	1.7	1.6	1.3	1.2	0.9	0.7	0.7	1.7
Marine Corps Reserve								
Females	3.5	2.9	2.9	2.7	1.8	1.2	1.2	3.5
Males	2.2	1.9	1.5	0.8	0.6	0.4	0.3	2.2
Total	2.1	1.8	1.5	0.7	0.6	0.4	0.3	2.1
Air Force Reserve								
Females	3.6	3.6	4.0	2.4	3.5	2.0	3.6	3.6
Males	3.4	3.6	3.0	2.5	1.8	1.3	1.8	3.4
Total	2.8	3.0	2.5	2.0	1.6	1.1	1.6	2.8
Air National Guard								
Females	3.1	2.5	3.2	2.7	2.0	1.9	2.2	3.1
Males	2.1	2.3	1.9	1.6	1.0	0.6	0.9	2.1
Total	1.9	2.0	1.7	1.4	0.9	0.6	0.8	1.9
Total Reserve/Guard Personnel								
Females	1.6	1.6	1.5	1.2	1.2	1.1	1.0	1.6
Males	1.3	1.2	1.0	0.8	0.6	0.4	0.4	1.3
Total	1.2	1.0	0.9	0.7	0.5	0.4	0.4	1.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 11BSE Standard Errors for Table 11B: Number of Self-Reported Lifetime Medical Conditions Among Active-Duty Personnel

Service/Sex	Number of Self-Reported Lifetime Medical Conditions							
	0	1	2	3	4	5	6 or More	Any (1 or More)
Army								
Females	2.0	2.6	2.2	2.3	1.6	0.8	1.4	2.0
Males	2.2	2.0	1.4	1.2	0.8	0.5	0.5	2.2
Total	1.9	1.8	1.3	1.1	0.7	0.4	0.5	1.9
Navy								
Females	1.1	0.9	0.7	0.6	0.5	0.5	0.3	1.1
Males	1.5	0.9	0.9	0.6	0.5	0.3	0.2	1.5
Total	1.4	0.8	0.8	0.5	0.5	0.3	0.2	1.4
Marine Corps								
Females	1.7	1.3	1.8	1.0	1.1	0.8	0.5	1.7
Males	2.3	1.8	1.8	1.5	0.6	0.4	0.3	2.3
Total	2.1	1.8	1.7	1.4	0.6	0.4	0.2	2.1
Air Force								
Females	2.4	3.4	2.7	2.2	2.0	1.6	1.0	2.4
Males	2.4	2.3	1.8	1.1	1.0	0.6	0.5	2.4
Total	2.1	2.0	1.5	1.0	0.9	0.6	0.4	2.1
Total Active-Duty Personnel								
Females	1.2	1.5	1.2	1.1	0.9	0.6	0.6	1.2
Males	1.2	1.0	0.8	0.6	0.4	0.2	0.2	1.2
Total	1.1	0.9	0.7	0.5	0.4	0.2	0.2	1.1

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 12ASE Standard Errors for Table 12A: Reasons for Visiting Military Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Reason/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Treatment of an Illness or Injury							
Females	5.0	7.1	4.5	4.7	6.8	5.7	2.9
Males	4.5	4.2	3.1	3.1	6.1	3.7	2.2
Total	3.5	3.8	2.7	3.0	4.7	3.2	1.9
Follow-Up Visit for an Illness or Injury							
Females	5.0	7.1	3.9	4.8	6.4	5.2	2.9
Males	3.3	4.0	2.7	2.7	5.5	2.8	2.0
Total	2.8	3.6	2.3	2.6	4.3	2.5	1.7
General Physical Exam							
Females	5.0	7.2	4.5	4.5	6.8	5.8	2.9
Males	4.6	4.0	3.1	3.3	5.9	4.1	2.2
Total	3.6	3.7	2.7	3.1	4.7	3.6	1.9
Prescription Refill Only							
Females	4.7	6.6	4.0	4.2	5.3	5.4	2.7
Males	2.7	2.4	1.8	1.9	3.9	2.1	1.3
Total	2.5	2.3	1.7	1.8	3.2	2.0	1.2
Eye Exam Only							
Females	3.4	6.8	3.2	4.6	4.7	5.3	2.5
Males	3.5	3.4	2.4	2.7	5.9	3.1	1.8
Total	2.7	3.1	2.0	2.6	4.5	2.8	1.5
Prenatal Care							
Females	1.3	3.5	1.6	2.8	3.0	2.8	1.2
Same Day Surgery							
Females	2.9	3.9	1.2	2.5	4.0	1.6	1.6
Males	1.4	2.1	1.0	1.3	0.6	1.2	1.0
Total	1.3	1.9	0.9	1.3	1.3	1.1	0.9
Mental Health Care							
Females	2.1	**	1.5	0.9	0.7	2.3	0.9
Males	0.1	1.6	0.8	0.4	0.1	1.0	0.7
Total	0.7	1.4	0.7	0.4	0.2	0.9	0.6
Emergency Care							
Females	3.5	5.1	3.1	3.5	4.1	3.7	2.0
Males	2.2	2.4	1.8	1.6	4.0	1.7	1.2
Total	1.9	2.2	1.6	1.6	3.1	1.6	1.0

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 12BSE Standard Errors for Table 12B: Reasons [illegible]iting Military Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Reason/Sex	Army	[illegible]vy	Marine Corps	Air Force	Total Active-Duty Personnel
Treatment of an Illness or Injury					
Females	2.2		1.3	3.1	1.3
Males	1.9		3.7	2.5	1.1
Total	1.6		3.5	2.1	1.0
Follow-Up Visit for an Illness or Injury					
Females	2.7	.0	2.5	3.6	1.6
Males	2.4	1.5	3.4	2.6	1.2
Total	2.1	1.3	3.3	2.2	1.0
General Physical Exam					
Females	2.9	1.5	1.9	3.5	1.6
Males	2.4	1.6	4.4	2.6	1.3
Total	2.1	1.4	4.2	2.2	1.2
Prescription Refill Only					
Females	2.9	1.3	1.9	3.6	1.6
Males	2.1	1.2	2.5	2.2	1.0
Total	1.8	1.2	2.4	1.9	0.9
Eye Exam Only					
Females	2.9	1.5	1.6	3.5	1.6
Males	2.4	1.3	3.0	2.5	1.2
Total	2.1	1.2	2.8	2.1	1.1
Prenatal Care					
Females	2.2	1.2	1.7	2.6	1.2
Same Day Surgery					
Females	1.9	0.8	1.9	2.5	1.1
Males	1.6	0.7	1.5	1.8	0.7
Total	1.4	0.6	1.5	1.5	0.6
Mental Health Care					
Females	1.3	0.5	1.4	2.4	0.9
Males	1.3	0.5	1.2	1.1	0.5
Total	1.1	0.4	1.1	1.0	0.5
Emergency Care					
Females	2.7	1.4	2.2	3.1	1.5
Males	1.9	1.4	2.6	1.7	0.9
Total	1.7	1.2	2.5	1.5	0.8

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 13ASE Standard Errors for Table 13A: Number of Visits to a Military Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Visits/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
No Visits							
Females	4.2	4.1	3.0	2.8	5.8	4.1	2.2
Males	3.9	3.8	2.7	3.0	4.9	3.8	2.0
Total	3.0	3.4	2.3	2.8	3.8	3.3	1.7
One Visit							
Females	3.7	5.7	3.9	3.6	6.0	4.8	2.3
Males	3.9	3.3	3.0	2.6	5.7	3.8	1.8
Total	2.9	3.0	2.5	2.4	4.4	3.2	1.5
Two Visits							
Females	2.5	4.6	3.2	3.0	2.0	3.4	1.7
Males	2.6	2.9	1.8	2.3	4.1	2.4	1.5
Total	2.0	2.6	1.6	2.2	3.0	2.1	1.2
Three Visits							
Females	2.6	3.6	2.4	2.8	2.9	3.4	1.5
Males	3.1	2.7	1.9	1.6	4.8	2.9	1.4
Total	2.3	2.4	1.6	1.5	3.6	2.4	1.2
Four or More Visits							
Females	4.9	7.1	4.2	4.7	6.6	5.7	2.9
Males	4.2	3.5	2.9	3.0	5.3	2.5	1.9
Total	3.3	3.2	2.5	2.8	4.3	2.4	1.6
At Least One Visit							
Females	4.2	4.1	3.0	2.8	5.8	4.1	2.2
Males	3.9	3.8	2.7	3.0	4.9	3.8	2.0
Total	3.0	3.4	2.3	2.8	3.8	3.3	1.7

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 13BSE Standard Errors for Table 13B: Number of Visits to a Military Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Visits/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
No Visits					
Females	0.6	0.3	0.7	0.7	0.3
Males	0.8	1.1	1.9	0.7	0.6
Total	0.7	1.0	1.8	0.6	0.6
One Visit					
Females	0.6	0.5	0.8	0.3	0.3
Males	1.2	0.9	1.3	1.4	0.6
Total	1.0	0.8	1.2	1.1	0.6
Two Visits					
Females	1.5	0.3	1.0	1.4	0.7
Males	1.4	0.8	2.0	1.6	0.7
Total	1.2	0.7	1.9	1.3	0.6
Three Visits					
Females	0.9	0.5	0.9	1.9	0.7
Males	1.9	0.8	1.5	1.7	0.8
Total	1.6	0.7	1.4	1.4	0.7
Four or More Visits					
Females	1.9	0.9	2.2	2.4	1.1
Males	2.3	1.4	3.4	2.4	1.3
Total	2.0	1.3	3.3	2.0	1.1
At Least One Visit					
Females	0.6	0.3	0.7	0.7	0.3
Males	0.8	1.1	1.9	0.7	0.6
Total	0.7	1.0	1.8	0.6	0.6

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 14ASE Standard Errors for Table 14A: Reasons for Visiting a Civilian Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Reason/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Treatment of an Illness or Injury							
Females	3.6	4.9	2.9	4.1	5.0	3.8	2.0
Males	3.0	3.0	2.3	2.6	4.2	2.6	1.5
Total	2.4	2.7	1.9	2.4	3.5	2.3	1.3
Follow-Up Visit for an Illness or Injury							
Females	3.6	5.2	3.0	4.0	5.2	4.1	2.1
Males	3.1	2.9	2.4	2.4	4.4	2.8	1.5
Total	2.5	2.6	2.0	2.3	3.6	2.4	1.3
General Physical Exam							
Females	3.5	5.1	3.0	4.2	5.2	4.0	2.1
Males	2.9	2.9	2.4	2.4	4.1	2.7	1.5
Total	2.4	2.6	2.0	2.2	3.4	2.3	1.3
Prescription Refill Only							
Females	3.6	4.9	3.1	3.9	5.2	3.9	2.1
Males	2.8	2.4	2.2	2.0	4.3	2.6	1.3
Total	2.3	2.2	1.9	1.9	3.5	2.3	1.2
Eye Exam Only							
Females	3.6	5.1	3.1	4.1	5.3	4.1	2.1
Males	3.0	2.7	2.4	2.3	4.1	2.7	1.4
Total	2.4	2.5	2.0	2.2	3.4	2.4	1.3
Prenatal Care							
Females	2.0	3.2	1.6	2.8	2.0	1.9	1.2
Same Day Surgery							
Females	2.1	3.7	2.1	1.4	3.5	2.7	1.4
Males	1.4	1.9	1.3	1.3	3.3	1.8	1.0
Total	1.2	1.7	1.1	1.3	2.7	1.5	0.8
Mental Health Care							
Females	1.6	1.2	1.5	2.2	2.5	2.2	0.8
Males	0.9	1.0	0.8	0.8	1.7	1.1	0.5
Total	0.8	0.9	0.7	0.8	1.4	1.0	0.5
Emergency Care							
Females	3.1	4.4	2.4	2.9	3.8	3.3	1.8
Males	2.2	2.1	1.8	1.9	2.8	2.1	1.1
Total	1.8	1.9	1.5	1.8	2.4	1.8	0.9

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 14BSE Standard Errors for Table 14B: Reasons for Visiting a Civilian Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Reason/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Treatment of an Illness or Injury					
Females	3.5	0.9	1.3	3.6	1.3
Males	2.9	0.8	1.9	3.6	1.1
Total	2.5	0.8	1.8	3.0	1.0
Follow-Up Visit for an Illness or Injury					
Females	2.3	0.5	0.6	2.1	0.8
Males	1.9	0.7	1.7	1.4	0.7
Total	1.6	0.6	1.6	1.2	0.6
General Physical Exam					
Females	1.9	0.4	1.3	2.7	0.8
Males	2.4	0.3	0.8	0.4	0.5
Total	2.0	0.3	0.7	0.7	0.5
Prescription Refill Only					
Females	2.3	0.5	0.9	2.6	0.9
Males	1.3	0.2	0.7	0.9	0.4
Total	1.1	0.2	0.7	0.9	0.3
Eye Exam Only					
Females	2.8	0.8	1.5	4.9	1.3
Males	2.7	0.7	1.3	2.2	0.7
Total	2.3	0.6	1.2	2.0	0.7
Prenatal Care					
Females	3.3	0.8	2.7	2.5	1.2
Same Day Surgery					
Females	1.2	0.3	0.7	0.8	0.4
Males	1.8	0.2	0.7	0.6	0.4
Total	1.5	0.2	0.6	0.5	0.4
Mental Health Care					
Females	1.1	0.3	0.3	1.8	0.5
Males	1.5	0.3	0.7	0.5	0.4
Total	1.3	0.3	0.7	0.6	0.3
Emergency Care					
Females	3.1	0.6	0.8	2.6	1.1
Males	1.7	0.8	0.8	1.9	0.6
Total	1.5	0.7	0.8	1.6	0.5

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 15ASE Standard Errors for Table 15A: Number of Visits to a Civilian Health Care Provider Among Reserve/Guard Personnel in the Past 12 Months

Visits/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
No Visits							
Females	1.1	2.9	1.0	2.2	2.7	1.6	1.0
Males	1.7	2.1	1.2	1.6	1.8	0.9	1.0
Total	1.3	1.9	1.0	1.5	1.5	0.8	0.9
One Visit							
Females	1.7	2.7	1.5	2.8	2.9	1.7	1.0
Males	2.2	1.9	1.7	2.0	2.3	2.2	1.0
Total	1.7	1.7	1.4	1.9	1.9	1.8	0.9
Two Visits							
Females	2.3	2.4	2.0	2.2	3.2	1.9	1.2
Males	2.3	2.0	1.6	1.9	2.9	2.0	1.1
Total	1.8	1.8	1.4	1.8	2.3	1.7	0.9
Three Visits							
Females	2.0	2.8	1.7	2.3	3.3	3.0	1.2
Males	1.7	2.1	1.5	1.7	3.1	1.8	1.0
Total	1.4	1.9	1.2	1.6	2.5	1.6	0.9
Four or More Visits							
Females	3.3	4.7	2.8	4.0	5.1	3.8	1.9
Males	3.1	2.9	2.3	2.5	4.2	2.7	1.5
Total	2.4	2.6	1.9	2.4	3.5	2.4	1.3
At Least One Visit							
Females	1.1	2.9	1.0	2.2	2.7	1.6	1.0
Males	1.7	2.1	1.2	1.6	1.8	0.9	1.0
Total	1.3	1.9	1.0	1.5	1.5	0.8	0.9

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 15BSE Standard Errors for Table 15B: Number of Visits to a Civilian Health Care Provider Among Active-Duty Personnel in the Past 12 Months

Visits/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
No Visits					
Females	4.1	1.5	3.3	5.6	2.1
Males	3.8	1.4	2.5	4.0	1.5
Total	3.2	1.3	2.3	3.4	1.5
One Visit					
Females	3.2	0.5	1.0	5.9	1.6
Males	2.7	0.9	1.9	3.5	0.9
Total	2.3	0.8	1.8	3.0	0.9
Two Visits					
Females	2.9	0.6	1.2	2.6	1.0
Males	2.9	0.3	0.5	1.9	0.7
Total	2.4	0.3	0.5	1.6	0.7
Three Visits					
Females	1.7	0.4	0.8	0.6	0.5
Males	1.6	0.2	0.4	1.2	0.4
Total	1.4	0.2	0.4	0.9	0.4
Four or More Visits					
Females	3.0	1.0	2.7	3.6	1.3
Males	2.3	0.7	1.2	1.8	0.7
Total	2.0	0.7	1.2	1.6	0.7
At Least One Visit					
Females	4.1	1.5	3.3	5.6	2.1
Males	3.8	1.4	2.5	4.0	1.5
Total	3.2	1.3	2.3	3.4	1.5

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 16ASE Standard Errors for Table 16A: Perceived Physical Fitness Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
Excellent	2.1	2.3	0.8	2.0	2.4	1.8	1.0
Very good	2.4	4.1	2.7	3.1	4.2	3.4	1.6
Good	3.3	4.8	2.8	3.7	4.8	3.6	1.9
Fair	2.8	3.2	2.5	3.1	4.1	3.1	1.5
Poor	1.0	1.7	0.9	1.8	2.1	1.0	0.7
Males							
Excellent	0.9	0.8	0.7	0.7	1.0	0.8	0.4
Very good	2.2	1.9	1.6	1.5	2.9	1.8	1.0
Good	2.8	2.5	2.1	2.1	3.9	2.4	1.4
Fair	2.4	2.3	1.8	2.1	3.4	2.3	1.2
Poor	1.4	1.2	1.3	1.6	2.1	1.3	0.7
Total							
Excellent	0.9	0.7	0.6	0.6	0.9	0.7	0.4
Very good	1.7	1.7	1.4	1.5	2.4	1.6	0.9
Good	2.2	2.3	1.8	2.0	3.2	2.1	1.2
Fair	1.9	2.1	1.6	2.0	2.8	2.0	1.1
Poor	1.1	1.1	1.1	1.5	1.7	1.1	0.6

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 16BSE Standard Errors for Table 16B: Perc...d Physical Fi...Among Active-Duty Personnel

Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
Excellent	1.1	0.5	1.3	1.3	0.6
Very good	2.2	1.1	1.5	3.1	1.4
Good	2.8	1.3	2.3	3.5	1.6
Fair	2.6	1.0	2.3	2.6	1.3
Poor	1.4	0.6	1.6	1.2	0.7
Males					
Excellent	0.5	0.5	0.8	0.6	0.3
Very good	1.6	1.3	1.6	1.8	0.8
Good	2.1	1.3	2.1	2.5	1.1
Fair	2.2	1.3	2.0	2.3	1.0
Poor	1.3	0.9	1.7	1.2	0.7
Total					
Excellent	0.4	0.4	0.8	0.6	0.3
Very good	1.4	1.1	1.4	1.6	0.7
Good	1.9	1.2	2.0	2.1	0.9
Fair	1.9	1.2	1.9	1.9	0.9
Poor	1.1	0.8	1.6	1.0	0.6

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 17ASE Standard Errors for Table 17A: Selected Eating Behaviors in the Past Week Among Reserve/Guard Personnel

Behavior/Days/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Days Ate Breakfast							
0 to 2 days							
Females	3.3	4.7	2.8	3.6	4.6	3.6	1.9
Males	2.6	2.5	2.1	2.1	3.5	2.2	1.3
Total	2.1	2.3	1.8	2.0	3.0	2.0	1.1
3 to 5 days							
Females	3.0	4.5	2.6	3.4	4.1	3.6	1.8
Males	2.6	2.4	2.0	2.1	3.5	2.2	1.3
Total	2.1	2.2	1.7	2.0	2.9	1.9	1.1
6 to 7 days							
Females	3.1	4.2	2.6	3.3	4.7	3.4	1.8
Males	2.6	2.4	2.0	2.0	3.8	2.4	1.3
Total	2.1	2.2	1.7	2.0	3.2	2.1	1.1
Number of Days Ate Snacks Between Meals							
0 to 2 days							
Females	2.8	4.6	2.8	3.3	4.8	3.3	1.8
Males	2.5	2.5	2.0	1.9	3.6	2.2	1.3
Total	2.0	2.3	1.7	1.8	3.0	2.0	1.1
3 to 5 days							
Females	3.2	4.5	2.8	3.6	4.3	3.6	1.8
Males	2.7	2.4	2.0	2.2	3.9	2.4	1.3
Total	2.2	2.2	1.7	2.1	3.2	2.1	1.1
6 to 7 days							
Females	3.3	4.4	2.5	3.6	4.6	3.7	1.9
Males	2.5	2.4	2.0	2.1	3.5	2.3	1.3
Total	2.1	2.2	1.7	2.0	3.0	2.0	1.1
Number of Days Overate							
0 to 2 days							
Females	2.6	3.7	2.2	3.0	3.5	2.7	1.5
Males	2.2	2.0	1.7	1.8	3.3	2.0	1.1
Total	1.8	1.8	1.5	1.7	2.7	1.7	0.9
3 to 5 days							
Females	1.9	3.3	2.0	2.6	3.2	2.3	1.3
Males	2.0	1.7	1.5	1.6	2.9	1.9	0.9
Total	1.6	1.6	1.3	1.5	2.4	1.6	0.8
6 to 7 days							
Females	2.0	2.0	1.1	1.7	1.7	1.5	1.0
Males	1.0	1.2	0.9	1.0	1.8	0.8	0.6
Total	0.9	1.1	0.8	1.0	1.5	0.7	0.5

(continued)

See notes at end of table.

Table 17ASE (continued)

Behavior/Days/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Days Did Not Eat Enough							
0 to 2 days							
Females	3.1	4.7	2.5	3.5	3.8	3.4	1.8
Males	2.1	2.2	1.7	2.0	3.0	1.7	1.1
Total	1.7	2.0	1.5	1.9	2.5	1.6	1.0
3 to 5 days							
Females	2.6	4.4	2.1	3.3	3.1	3.0	1.7
Males	1.9	2.1	1.6	1.8	2.9	1.5	1.1
Total	1.5	1.9	1.4	1.7	2.4	1.4	0.9
6 to 7 days							
Females	2.2	2.7	1.7	1.9	2.4	2.2	1.2
Males	1.0	1.0	0.7	1.3	1.0	0.9	0.5
Total	0.9	0.9	0.7	1.2	0.9	0.9	0.5
Number of Days Took Vitamins							
0 to 2 days							
Females	3.1	4.6	2.9	3.5	4.9	3.8	1.9
Males	2.7	2.3	2.1	2.0	3.7	2.4	1.3
Total	2.2	2.1	1.8	1.9	3.1	2.1	1.1
3 to 5 days							
Females	2.4	2.3	1.9	2.4	3.0	3.1	1.2
Males	1.9	1.4	1.5	1.3	2.1	1.6	0.8
Total	1.5	1.3	1.3	1.2	1.8	1.5	0.7
6 to 7 days							
Females	2.7	4.4	2.8	3.1	4.8	3.5	1.8
Males	2.4	2.0	1.8	1.7	3.4	2.2	1.1
Total	1.9	1.9	1.6	1.7	2.9	1.9	1.0

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 17BSE Standard Errors for Table 17B: Selected Eating Behaviors in the Past Week Among Active-Duty Personnel

Behavior/Days/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Days Ate Breakfast					
0 to 2 days					
Females	2.7	1.1	2.1	3.4	1.6
Males	2.0	1.4	3.6	2.4	1.2
Total	1.7	1.2	3.4	2.1	1.1
3 to 5 days					
Females	2.7	0.9	1.6	3.0	1.4
Males	2.2	1.3	2.5	2.3	1.1
Total	1.9	1.2	2.3	2.0	1.0
6 to 7 days					
Females	2.6	1.3	2.0	3.3	1.5
Males	2.0	1.3	1.9	2.2	1.1
Total	1.8	1.2	1.8	1.9	1.0
Number of Days Ate Snacks Between Meals					
0 to 2 days					
Females	2.5	0.9	2.5	2.9	1.4
Males	2.1	1.4	3.5	2.2	1.1
Total	1.8	1.3	3.3	1.9	1.0
3 to 5 days					
Females	2.8	1.0	2.2	3.5	1.6
Males	2.1	1.1	1.7	2.4	1.0
Total	1.9	0.9	1.6	2.1	0.9
6 to 7 days					
Females	2.8	0.7	2.6	3.0	1.5
Males	2.1	1.4	3.4	2.3	1.1
Total	1.8	1.2	3.2	2.0	1.0
Number of Days Overate					
0 to 2 days					
Females	2.0	0.7	1.7	2.3	1.1
Males	1.7	1.3	3.2	2.1	0.9
Total	1.4	1.2	3.0	1.7	0.8
3 to 5 days					
Females	1.7	0.6	1.1	1.9	0.9
Males	1.5	0.9	3.6	1.9	0.9
Total	1.3	0.8	3.4	1.6	0.8
6 to 7 days					
Females	1.2	0.5	0.9	1.4	0.6
Males	0.9	0.6	1.7	1.0	0.5
Total	0.8	0.5	1.6	0.8	0.4

See notes at end of table.

(continued)

Table 17BSE (continued)

Behavior/Days/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Days Did Not Eat Enough					
0 to 2 days					
Females	2.6	1.2	2.4	3.0	1.4
Males	2.0	1.6	1.9	1.7	1.0
Total	1.7	1.4	1.7	1.5	0.9
3 to 5 days					
Females	2.4	0.9	2.3	2.8	1.3
Males	1.5	1.4	1.7	1.5	0.8
Total	1.4	1.3	1.6	1.3	0.7
6 to 7 days					
Females	1.4	0.5	1.1	1.4	0.7
Males	1.5	0.6	1.1	0.9	0.6
Total	1.3	0.5	1.0	0.8	0.5
Number of Days Took Vitamins					
0 to 2 days					
Females	2.8	1.0	1.8	3.4	1.5
Males	2.0	1.1	2.8	2.3	1.1
Total	1.8	1.0	2.7	1.9	1.0
3 to 5 days					
Females	1.7	0.6	0.9	2.6	1.1
Males	1.3	0.8	1.5	1.5	0.6
Total	1.1	0.7	1.4	1.3	0.6
6 to 7 days					
Females	2.6	0.9	2.1	2.8	1.4
Males	1.8	0.8	2.1	1.9	0.9
Total	1.6	0.7	2.0	1.7	0.8

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 18ASE Standard Errors for Table 18A: Dietary Behaviors and Attitudes Among Reserve/Guard Personnel

Behaviors and Attitudes/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Have Tried to Lose Weight in Past Year							
Females	3.3	4.5	2.8	3.4	4.7	3.4	1.9
Males	2.8	2.5	2.1	2.1	3.9	2.4	1.4
Total	2.3	2.3	1.8	2.0	3.2	2.1	1.2
Have Changed Diet Because of Medical Conditions							
Females	2.4	2.7	2.0	2.3	3.3	2.9	1.3
Males	1.6	1.5	1.2	0.9	2.2	1.5	0.8
Total	1.3	1.4	1.0	0.9	1.9	1.3	0.7
Satisfied with Eating Patterns							
Females	3.3	4.8	2.8	3.7	4.9	3.8	2.0
Males	2.6	2.3	2.1	2.2	3.7	2.4	1.3
Total	2.1	2.1	1.8	2.1	3.1	2.1	1.1
Eat in Secret							
Females	2.0	2.5	1.5	2.5	2.4	1.9	1.1
Males	1.1	1.0	1.1	0.5	1.5	0.7	0.5
Total	1.0	1.0	0.9	0.5	1.3	0.6	0.5
Feel Diet or Food Choices Are Important in Terms of Health							
Females	3.1	4.7	2.7	3.3	4.2	3.0	1.9
Males	2.6	2.5	1.9	2.0	3.4	2.3	1.3
Total	2.1	2.3	1.7	1.9	2.8	2.0	1.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 18BSE Standard Errors for Table 18B: Dietary Behaviors and Attitudes Among Active-Duty Personnel

Behaviors and Attitudes/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Have Tried to Lose Weight in Past Year					
Females	2.7	0.8	1.4	2.9	1.4
Males	2.1	1.6	3.3	2.5	1.2
Total	1.9	1.4	3.1	2.1	1.1
Have Changed Diet Because of Medical Conditions					
Females	2.4	0.9	1.5	1.9	1.1
Males	1.2	0.9	1.2	0.9	0.6
Total	1.1	0.8	1.1	0.8	0.5
Satisfied with Eating Patterns					
Females	2.8	0.7	2.0	3.5	1.6
Males	2.2	1.4	2.8	2.4	1.1
Total	1.9	1.2	2.7	2.1	1.0
Eat in Secret					
Females	1.7	0.4	1.1	1.9	0.9
Males	0.8	0.4	1.9	0.8	0.5
Total	0.7	0.4	1.8	0.7	0.4
Feel Diet or Food Choices Are Important in Terms of Health					
Females	2.7	0.7	1.9	3.3	2.5
Males	2.3	1.2	2.2	2.4	2.0
Total	2.0	1.0	2.1	2.1	2.0

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 19ASE Standard Errors for Table 19A: Factors Considered Important in Purchasing Food Among Reserve/Guard Personnel

Factors/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Health Benefits/ Nutritional Value							
Females	3.2	4.7	2.9	3.7	4.8	3.8	1.9
Males	2.7	2.4	2.1	2.1	3.9	2.4	1.3
Total	2.2	2.2	1.8	2.0	3.3	2.1	1.2
Price, Cost							
Females	3.3	4.8	2.6	3.6	4.9	3.8	1.9
Males	2.8	2.5	2.2	2.1	3.9	2.4	1.4
Total	2.2	2.3	1.8	2.0	3.3	2.1	1.2
Taste/Likes or Dislikes, Eating Enjoyment							
Females	2.2	3.4	2.1	3.2	2.9	2.7	1.3
Males	2.3	2.2	1.7	1.7	3.5	2.0	1.1
Total	1.8	2.0	1.5	1.6	2.8	1.8	1.0
Convenience, Ease of Preparation							
Females	3.3	4.8	2.9	3.7	4.8	3.7	1.9
Males	2.7	2.6	2.1	2.2	3.9	2.4	1.4
Total	2.2	2.3	1.8	2.1	3.2	2.1	1.2
Calories							
Females	3.1	4.2	2.8	3.6	4.6	3.7	1.8
Males	2.3	2.1	1.8	1.6	3.3	1.7	1.1
Total	1.9	1.9	1.5	1.5	2.8	1.6	1.0

Note: Table entries are percentages. Important is defined as "very important" or "extremely important" when purchasing foods.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 19BSE Standard Errors for Table 19B: Factors Con· ·ed Important in Purchasing Food Among Active-Duty Personnel

Factors/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Health Benefits/ Nutritional Value					
Females	2.8	1.5	1.4	3.5	1.6
Males	1.9	1.5	3.2	2.3	1.1
Total	1.7	1.4	3.1	2.0	0.9
Price, Cost					
Females	2.6	1.4	2.1	3.4	1.5
Males	2.2	1.7	2.8	2.5	1.2
Total	1.9	1.6	2.7	2.1	1.1
Taste/Likes or Dislikes, Eating Enjoyment					
Females	2.1	0.8	1.5	2.7	1.2
Males	1.8	1.0	2.3	1.7	0.9
Total	1.6	0.9	2.2	1.5	0.8
Convenience, Ease of Preparation					
Females	2.8	1.2	2.3	3.5	1.6
Males	2.2	1.2	1.6	2.5	1.1
Total	1.9	1.1	1.5	2.1	0.9
Calories					
Females	2.7	1.1	2.1	3.2	1.5
Males	1.6	1.1	3.2	1.9	0.9
Total	1.4	1.0	3.1	1.7	0.8

Note: Table entries are percentages. Important is defined as "very important" or "extremely important" when purchasing foods.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 20ASE Standard Errors for Table 20A: Hours of Sleep on an Average Night Among Reserve/Guard Personnel

Hours/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Less Than 5 Hours							
Females	1.7	1.8	1.4	0.5	3.0	2.3	0.9
Males	1.4	0.8	1.0	1.1	1.6	0.8	0.5
Total	1.2	0.7	0.8	1.0	1.4	0.7	0.4
5 to 6 Hours							
Females	3.3	4.7	2.8	3.7	4.9	3.7	1.9
Males	2.8	2.5	2.1	2.2	3.9	2.5	1.4
Total	2.2	2.3	1.8	2.1	3.2	2.1	1.2
7 to 8 Hours							
Females	3.3	4.8	2.7	3.7	4.5	3.8	1.9
Males	2.7	2.5	2.1	2.1	3.9	2.5	1.4
Total	2.2	2.3	1.8	2.0	3.2	2.1	1.2
9 Hours or More							
Females	1.2	1.5	0.9	1.6	2.4	0.8	0.7
Males	1.0	1.3	0.5	1.1	1.4	0.7	0.6
Total	0.8	1.1	0.4	1.1	1.2	0.6	0.5

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 20BSE Standard Errors for Table 20B: Hours of Sleep on an Aver[illegible]ight Among Active-Duty Personnel

Hours/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Less Than 5 Hours					
Females	2.0	0.4	1.0	2.0	1.0
Males	1.4	0.8	1.3	0.9	0.6
Total	1.2	0.7	1.2	0.8	0.5
5 to 6 Hours					
Females	2.8	1.1	2.0	3.4	1.6
Males	2.2	1.6	2.5	2.5	1.1
Total	1.9	1.4	2.4	2.1	1.0
7 to 8 Hours					
Females	2.7	1.2	2.0	3.4	1.6
Males	2.0	1.7	2.4	2.5	1.1
Total	1.8	1.5	2.3	2.1	1.0
9 Hours or More					
Females	1.2	0.5	0.8	1.8	0.7
Males	0.8	0.3	1.2	0.9	0.4
Total	0.7	0.3	1.1	0.8	0.4

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 21ASE Standard Errors for Table 21A: Alcohol Use Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Days Drank Alcohol in Past 30 Days							
Females							
28 to 30 days	0.9	1.1	0.7	0.6	0.8	0.9	0.5
20 to 27 days	1.1	1.5	0.4	1.2	1.6	1.8	0.6
11 to 19 days	1.6	2.2	1.4	2.1	2.2	1.6	0.9
4 to 10 days	2.0	3.1	1.9	2.8	3.7	3.0	1.3
1 to 3 days	3.3	4.7	2.8	3.7	4.5	3.7	1.9
0 days	3.0	4.6	2.8	3.2	4.7	3.4	1.8
Males							
28 to 30 days	0.9	0.9	1.0	0.9	1.9	1.0	0.5
20 to 27 days	0.9	1.0	0.8	1.0	1.7	1.1	0.5
11 to 19 days	1.8	1.4	1.4	1.3	2.8	1.6	0.8
4 to 10 days	2.1	1.8	1.8	1.9	2.9	2.1	1.0
1 to 3 days	2.6	2.4	2.0	2.1	3.6	2.3	1.3
0 days	2.6	2.4	1.8	1.6	3.4	2.0	1.3
Total							
28 to 30 days	0.7	0.8	0.8	0.8	1.5	0.8	0.4
20 to 27 days	0.7	0.9	0.7	1.0	1.4	1.0	0.4
11 to 19 days	1.4	1.3	1.2	1.3	2.2	1.4	0.7
4 to 10 days	1.6	1.7	1.5	1.8	2.4	1.8	0.9
1 to 3 days	2.1	2.2	1.7	2.0	3.0	2.0	1.1
0 days	2.1	2.2	1.6	1.6	2.9	1.7	1.1

See notes at end of table.

(continued)

Table 21ASE (continued)

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Number of Drinks on a Typical Day[a]							
Females							
5 drinks or more	1.5	2.3	1.3	1.9	1.1	1.3	0.9
4 drinks	1.8	2.1	0.9	1.9	2.6	1.6	0.9
3 drinks	2.2	2.8	1.4	2.5	2.2	2.2	1.2
2 drinks	2.7	3.7	2.4	3.3	3.5	3.2	1.5
1 drink	2.6	4.1	2.4	2.9	4.3	3.4	1.6
0 drinks	3.1	4.5	2.8	3.3	4.7	3.4	1.8
Males							
5 drinks or more	1.7	1.9	1.4	2.0	2.1	1.5	1.0
4 drinks	1.2	1.5	1.2	1.3	2.5	1.5	0.8
3 drinks	1.7	1.8	1.2	1.5	2.5	1.7	0.9
2 drinks	2.1	1.8	1.9	1.7	3.2	2.2	1.0
1 drink	2.3	1.6	1.7	1.4	3.1	1.8	1.0
0 drinks	2.6	2.4	1.9	1.7	3.5	2.0	1.3
Total							
5 drinks or more	1.4	1.7	1.1	1.9	1.7	1.3	0.8
4 drinks	1.0	1.3	1.0	1.3	2.0	1.3	0.7
3 drinks	1.4	1.6	1.0	1.4	2.0	1.5	0.8
2 drinks	1.7	1.7	1.6	1.6	2.6	1.9	0.9
1 drink	1.9	1.5	1.5	1.4	2.6	1.6	0.9
0 drinks	2.1	2.2	1.6	1.6	2.9	1.8	1.1

Note: Table entries are percentages.

[a]The 1995 POWR Assessment asked, "During the past 30 days, how much alcohol did you drink on a typical day?" and the 1998 Total Force Assessment asked, "Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a typical day?"

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 21BSE Standard Errors for Table 21B: Alcohol Use Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Days Drank Alcohol in Past 30 Days					
Females					
28 to 30 days	0.1	0.2	0.2	1.3	0.4
20 to 27 days	0.8	0.3	0.2	0.6	0.3
11 to 19 days	0.9	0.4	0.8	2.0	0.8
4 to 10 days	2.3	0.7	1.4	3.1	1.4
1 to 3 days	2.7	0.9	1.6	3.2	1.5
0 days	2.8	1.4	1.9	3.1	1.5
Males					
28 to 30 days	1.1	0.2	0.7	0.6	0.4
20 to 27 days	1.0	0.4	1.1	0.7	0.4
11 to 19 days	1.3	0.7	1.8	1.5	0.7
4 to 10 days	2.0	1.0	2.9	2.0	1.0
1 to 3 days	2.0	1.1	2.4	2.4	1.0
0 days	1.9	1.1	1.5	2.2	1.0
Total					
28 to 30 days	0.9	0.2	0.7	0.6	0.4
20 to 27 days	0.9	0.4	1.1	0.6	0.4
11 to 19 days	1.1	0.6	1.6	1.3	0.6
4 to 10 days	1.7	0.8	2.7	1.8	0.9
1 to 3 days	1.7	1.0	2.2	2.0	0.9
0 days	1.6	1.0	1.4	1.9	0.9

See notes at end of table.

(continued)

Table 21BSE (continued)

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Number of Drinks on a Typical Day					
Females					
5 drinks or more	1.8	0.6	0.9	2.5	1.1
4 drinks	1.4	0.3	0.8	2.0	0.8
3 drinks	1.4	0.6	1.0	2.2	0.9
2 drinks	2.0	0.6	2.2	2.9	1.2
1 drink	2.2	1.0	2.1	2.3	1.2
0 drinks	2.8	1.3	2.1	3.2	1.5
Males					
5 drinks or more	1.7	1.1	2.9	1.9	1.0
4 drinks	1.2	0.6	1.4	1.0	0.5
3 drinks	1.6	0.8	1.9	1.7	0.8
2 drinks	1.7	0.8	1.5	1.8	0.8
1 drink	1.6	1.3	2.5	2.0	0.9
0 drinks	1.9	0.9	1.7	2.2	1.0
Total					
5 drinks or more	1.5	1.0	2.7	1.6	0.9
4 drinks	1.1	0.5	1.3	0.9	0.5
3 drinks	1.4	0.7	1.8	1.5	0.7
2 drinks	1.5	0.6	1.5	1.6	0.8
1 drink	1.4	1.2	2.5	1.7	0.8
0 drinks	1.7	0.9	1.7	1.9	0.9

Note: Table entries are percentages.

[a]The 1995 POWR Assessment asked, "During the past 30 days, how much alcohol did you drink on a typical day?" and the 1998 Total Force Assessment asked, "Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a typical day?"

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 22ASE Standard Errors for Table 22A: Cigarette Use and Exposure to Tobacco Smoke Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Cigarette Use							
Females							
Current smoker[a]	3.1	4.0	2.7	3.0	3.5	3.3	1.7
Heavy smoker[b]	1.8	3.5	1.5	1.1	2.7	2.3	1.2
Males							
Current smoker[a]	2.3	2.5	1.9	2.0	3.3	2.1	1.3
Heavy smoker[b]	1.6	1.9	1.3	1.5	2.3	1.5	1.0
Total							
Current smoker[a]	1.9	2.2	1.6	1.9	2.7	1.9	1.1
Heavy smoker[b]	1.3	1.8	1.1	1.4	1.9	1.3	0.8
Exposure to Tobacco Smoke Among Nonsmokers							
Females							
Exposed at work	2.9	4.8	2.4	3.1	4.7	3.1	1.8
Exposed at home	3.2	4.4	1.7	3.0	3.7	1.8	1.7
Exposed at work and at home	3.6	5.4	2.7	3.7	5.1	3.3	2.1
Males							
Exposed at work	2.9	2.8	1.9	2.1	3.1	2.0	1.4
Exposed at home	1.9	2.1	1.1	1.8	1.5	1.2	1.0
Exposed at work and at home	3.0	2.9	2.0	2.4	3.3	2.1	1.5
Total							
Exposed at work	2.4	2.5	1.6	2.0	2.7	1.8	1.2
Exposed at home	1.7	2.0	0.9	1.7	1.4	1.0	0.9
Exposed at work and at home	2.5	2.7	1.7	2.2	2.8	1.9	1.3
Exposure to Tobacco Smoke Among Smokers							
Females							
Exposed at work	6.9	**	6.2	**	**	7.8	4.0
Exposed at home	6.5	**	6.1	**	**	7.7	3.9
Exposed at work and at home	6.1	**	5.8	7.7	**	7.4	3.8
Males							
Exposed at work	6.2	4.7	5.2	4.4	**	5.5	2.9
Exposed at home	6.3	4.7	5.1	4.5	**	5.5	2.9
Exposed at work and at home	5.1	4.3	4.7	4.0	**	5.2	2.7
Total							
Exposed at work	4.9	4.4	4.3	4.3	8.0	4.8	2.5
Exposed at home	4.8	4.4	4.2	4.4	7.8	4.8	2.6
Exposed at work and at home	4.0	4.1	3.9	3.8	7.8	4.5	2.3

Note: Table entries are percentages.

**Low precision.

[a]Current smoker is defined as smoking at least 100 cigarettes during one's lifetime and smoking in the past 30 days.
[b]Heavy smoker is defined as current smokers who smoke one or more packs of cigarettes per day.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 22BSE Standard Errors for Table 22B: Cigarette Use and Exposure to Tobacco Smoke Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Cigarette Use					
Females					
Current smoker[a]	2.4	1.1	2.2	3.2	1.4
Heavy smoker[b]	1.3	0.6	1.2	2.0	0.9
Males					
Current smoker[a]	2.1	1.7	4.3	2.3	1.2
Heavy smoker[b]	1.8	1.0	2.5	1.4	0.8
Total					
Current smoker[a]	1.9	1.5	4.1	2.0	1.1
Heavy smoker[b]	1.5	0.9	2.4	1.2	0.7
Exposure to Tobacco Smoke Among Nonsmokers					
Females					
Exposed at work	2.7	1.3	3.3	1.8	1.2
Exposed at home	2.2	0.8	1.9	2.5	1.2
Exposed at work and at home	3.1	1.3	3.5	2.9	1.5
Males					
Exposed at work	2.5	1.3	2.9	2.1	1.2
Exposed at home	1.7	1.4	2.9	1.7	0.9
Exposed at work and at home	2.6	1.8	3.1	2.3	1.3
Total					
Exposed at work	2.1	1.2	2.7	1.7	1.0
Exposed at home	1.5	1.2	2.7	1.4	0.8
Exposed at work and at home	2.2	1.6	2.9	2.0	1.1
Exposure to Tobacco Smoke Among Smokers					
Females					
Exposed at work	6.1	2.2	4.1	**	3.7
Exposed at home	5.2	1.4	5.7	7.2	3.1
Exposed at work and at home	4.6	1.3	4.8	7.0	2.9
Males					
Exposed at work	4.5	3.8	6.5	5.7	2.5
Exposed at home	3.9	2.0	5.6	6.0	2.2
Exposed at work and at home	3.0	2.4	3.8	5.9	1.9
Total					
Exposed at work	4.1	3.3	6.3	4.9	2.3
Exposed at home	3.5	1.8	5.3	5.1	1.9
Exposed at work and at home	2.7	2.1	3.6	5.0	1.7

Note: Table entries are percentages.

**Low precision.

[a]Current smoker is defined as smoking at least 100 cigarettes during one's lifetime and smoking in the past 30 days.
[b]Heavy smoker is defined as current smokers who smoke one or more packs of cigarettes per day.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 23ASE Standard Errors for Table 23A: Availability and Use of Protective Gear in Current Military Job Among Reserve/Guard Personnel

Availability and Use/Sex/Frequency	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Availability of Protective Gear							
Females							
Always[a]	3.9	5.4	3.4	4.9	5.6	3.5	2.2
Sometimes[a]	3.7	5.2	3.1	4.7	5.6	3.4	2.1
Never[a]	1.8	2.4	2.0	2.8	1.3	1.1	1.0
Don't need to use protective gear[b]	3.2	3.9	2.6	3.7	4.6	3.1	1.8
Males							
Always[a]	3.3	2.7	2.4	2.4	3.2	2.1	1.4
Sometimes[a]	3.2	2.6	2.4	2.4	3.2	2.0	1.4
Never[a]	1.8	0.9	0.6	0.8	0.2	0.9	0.6
Don't need to use protective gear[b]	2.3	1.8	1.6	1.7	2.4	1.3	1.0
Total							
Always[a]	2.7	2.5	2.1	2.4	2.8	1.9	1.3
Sometimes[a]	2.6	2.4	2.1	2.4	2.8	1.8	1.3
Never[a]	1.4	0.9	0.6	0.7	0.3	0.8	0.5
Don't need to use protective gear[b]	1.9	1.6	1.4	1.6	2.2	1.2	0.9
Use of Protective Gear							
Females							
Always[a]	4.0	5.6	3.1	5.0	5.2	3.5	2.2
Sometimes[a]	3.6	5.6	2.7	4.7	5.1	3.4	2.1
Never[a]	2.5	1.2	1.8	2.9	1.8	1.1	1.0
Don't need to use protective gear[b]	3.2	4.5	2.8	3.7	4.5	3.4	1.9
Males							
Always[a]	3.4	2.8	2.3	2.4	4.3	2.5	1.5
Sometimes[a]	3.4	2.8	2.2	2.5	4.3	2.4	1.5
Never[a]	1.7	1.1	0.5	1.1	1.3	0.6	0.6
Don't need to use protective gear[b]	2.5	1.8	1.6	1.7	2.9	1.6	1.0
Total							
Always[a]	2.8	2.6	2.0	2.4	3.7	2.2	1.4
Sometimes[a]	2.8	2.6	1.9	2.4	3.6	2.2	1.4
Never[a]	1.4	1.0	0.5	1.1	1.1	0.5	0.6
Don't need to use protective gear[b]	2.0	1.7	1.4	1.6	2.5	1.4	0.9

Note: Table entries are percentages.

[a]This category excludes those who do not need to use protective gear.
[b]This category is the percentage of personnel who report they do not need to use protective gear.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 23BSE Standard Errors for Table 23B: Availability and Use of Protective Gear in Current Military Job Among Active-Duty Personnel

Availability and Use/Sex/Frequency	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Availability of Protective Gear					
Females					
Always[a]	3.4	1.3	2.3	3.6	1.9
Sometimes[a]	3.4	1.0	2.4	3.2	1.8
Never[a]	1.9	1.1	1.6	1.8	1.0
Don't need to use protective gear[b]	2.6	2.2	3.4	3.5	1.7
Males					
Always[a]	2.5	1.3	1.7	2.4	1.4
Sometimes[a]	2.5	1.3	1.9	2.3	1.4
Never[a]	1.2	0.9	1.4	0.8	0.6
Don't need to use protective gear[b]	1.4	2.4	2.8	1.9	1.0
Total					
Always[a]	2.2	1.2	1.6	2.1	1.3
Sometimes[a]	2.2	1.2	1.8	2.0	1.3
Never[a]	1.1	0.9	1.4	0.7	0.5
Don't need to use protective gear[b]	1.2	2.4	2.8	1.7	1.0
Use of Protective Gear					
Females					
Always[a]	3.4	1.4	2.5	4.4	2.0
Sometimes[a]	3.4	1.3	2.9	4.4	1.9
Never[a]	1.5	0.6	1.0	1.5	0.8
Don't need to use protective gear[b]	2.7	2.1	3.3	3.5	1.6
Males					
Always[a]	2.3	1.3	2.6	2.7	1.3
Sometimes[a]	2.4	1.2	2.4	2.7	1.3
Never[a]	1.4	0.7	1.0	0.8	0.6
Don't need to use protective gear[b]	1.5	1.9	2.2	1.9	0.9
Total					
Always[a]	2.1	1.3	2.5	2.4	1.2
Sometimes[a]	2.2	1.2	2.3	2.4	1.2
Never[a]	1.2	0.6	1.0	0.7	0.5
Don't need to use protective gear[b]	1.3	1.9	2.2	1.7	0.9

Note: Table entries are percentages.

[a]This category excludes those who do not need to use protective gear.
[b]This category is the percentage of personnel who report they do not need to use protective gear.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 24ASE Standard Errors for Table 24A: Exposure to Disaster and Violence Among Reserve Personnel

	Army Reserve			Naval Reserve			Marine Corps Reserve			Air Force Reserve			Total Reserve Personnel		
Exposure/Type	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**
Exposed to a Natural Disaster Involving Injuries/Fatalities															
Witness	2.7	2.6	2.1	2.4	1.8	1.5	3.0	1.8	1.8	3.4	3.9	3.2	1.8	1.5	1.3
Survivor or victim	2.5	2.0	1.6	2.3	1.4	1.2	2.5	1.5	1.4	3.7	3.7	3.0	1.7	1.2	1.0
Involved in relief efforts[a]	2.5	2.5	2.0	2.4	1.9	1.6	2.3	1.7	1.6	3.9	3.8	3.1	1.7	1.4	1.2
Exposed to Combat or Violence Involving Injuries/Fatalities															
Witness	2.0	2.4	1.9	1.8	1.6	1.4	2.1	2.0	1.9	2.6	3.6	2.9	1.4	1.4	1.1
Survivor or victim	1.3	2.0	1.5	1.7	1.3	1.1	1.5	1.4	1.3	1.4	2.6	2.0	0.9	1.1	0.9
Involved in relief efforts[a]	1.9	2.3	1.8	1.6	1.6	1.3	1.7	1.5	1.4	3.0	3.7	3.0	1.3	1.3	1.1
Used deadly force	1.2	1.6	1.3	0.5	1.1	0.9	0.6	1.0	0.9	0.4	2.5	2.0	0.7	0.9	0.8
Exposed to a Major Accident Involving Injuries/Fatalities															
Witness	3.2	2.7	2.2	2.5	2.2	1.8	3.5	2.2	2.1	4.2	4.0	3.3	2.1	1.6	1.3
Survivor or victim	2.3	2.1	1.7	1.9	1.4	1.2	2.6	1.5	1.5	3.4	2.9	2.4	1.5	1.2	1.0
Involved in relief efforts[a]	2.2	2.4	1.9	2.0	1.9	1.5	2.1	1.9	1.8	3.8	3.8	3.1	1.6	1.4	1.2

Note: Table entries are percentages.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 24BSE Standard Errors for Table 24B: Exposure to Disaster and Violence Among Guard Personnel

Exposure/Type	Army National Guard			Air National Guard			Total Guard Personnel		
	Females	Males	Total	Females	Males	Total	Females	Males	Total
Exposed to a Natural Disaster Involving Injuries/Fatalities									
Witness	4.0	2.2	2.0	2.5	2.2	1.9	2.8	1.8	1.6
Survivor or victim	3.1	1.6	1.5	2.4	1.7	1.5	2.2	1.3	1.2
Involved in relief efforts[a]	4.1	2.6	2.3	3.0	2.3	2.0	3.0	2.1	1.9
Exposed to Combat or Violence Involving Injuries/Fatalities									
Witness	2.9	2.1	1.9	1.5	2.1	1.8	2.1	1.7	1.5
Survivor or victim	2.2	1.6	1.5	1.0	1.5	1.3	1.6	1.3	1.2
Involved in relief efforts[a]	2.3	2.2	2.0	1.9	2.1	1.8	1.7	1.8	1.6
Used deadly force	1.5	1.5	1.3	0.2	1.0	0.8	1.0	1.2	1.0
Exposed to a Major Accident Involving Injuries/Fatalities									
Witness	4.4	2.5	2.3	3.2	2.4	2.1	3.2	2.0	1.8
Survivor or victim	1.7	2.0	1.8	2.1	1.8	1.6	1.3	1.6	1.4
Involved in relief efforts[a]	3.8	2.4	2.2	3.1	2.3	2.0	2.8	1.9	1.7

Note: Table entries are percentages.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 24CSE Standard Errors for Table 24C: Exposure to Disaster and Violence Among Active-Duty Personnel

	Army			Navy			Marine Corps			Air Force			Total Active-Duty Personnel		
Exposure/Type	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**	**Females**	**Males**	**Total**
Exposed to a Natural Disaster Involving Injuries/Fatalities															
Witness	2.4	2.1	1.8	0.9	1.3	1.1	1.4	2.7	2.5	3.3	2.1	1.8	1.5	1.1	0.9
Survivor or victim	2.0	1.5	1.3	1.0	1.2	1.1	1.1	2.2	2.0	2.6	1.9	1.6	1.2	0.9	0.8
Involved in relief efforts[a]	2.3	2.1	1.8	1.1	1.4	1.3	1.0	2.6	2.4	3.1	2.2	1.9	1.5	1.1	1.0
Exposed to Combat or Violence Involving Injuries/Fatalities															
Witness	1.9	2.1	1.8	0.7	1.5	1.4	1.0	2.0	1.9	2.1	2.0	1.7	1.0	1.0	0.9
Survivor or victim	1.3	1.6	1.3	0.4	0.9	0.8	0.7	1.7	1.6	0.3	1.3	1.1	0.5	0.8	0.6
Involved in relief efforts[a]	1.5	1.9	1.6	0.5	1.2	1.1	0.7	2.1	1.9	1.3	1.7	1.4	0.7	0.9	0.8
Used deadly force	0.5	1.4	1.2	0.1	0.7	0.6	0.1	1.9	1.7	0.5	0.5	0.4	0.3	0.6	0.5
Exposed to a Major Accident Involving Injuries/Fatalities															
Witness	2.3	2.2	1.9	0.9	1.3	1.1	1.4	3.0	2.8	3.1	2.4	2.1	1.4	1.2	1.0
Survivor or victim	2.0	1.5	1.3	0.7	1.7	1.4	1.7	3.6	3.3	1.8	1.4	1.2	1.0	1.0	0.9
Involved in relief efforts[a]	1.5	1.8	1.6	0.9	1.6	1.5	1.5	3.3	3.1	2.1	2.2	1.9	1.0	1.1	0.9

Note: Table entries are percentages.

[a]This item includes the following: participation in cleanup, rescue, investigation, or aid (remote or on-site).

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 25ASE Standard Errors for Table 25A: Job Stress Among Reserve/Guard Personnel

Measure/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Job Stress Due to Responsibility							
Females							
High	2.6	3.2	2.2	3.0	4.7	3.3	1.5
Medium	3.0	4.3	2.7	2.9	4.1	3.1	1.7
Low	3.4	4.8	2.9	3.6	4.9	3.8	2.0
Males							
High	2.6	2.4	2.0	1.8	3.7	2.3	1.3
Medium	2.5	2.3	1.9	2.1	3.7	2.2	1.2
Low	2.8	2.6	2.1	2.2	3.8	2.4	1.4
Total							
High	2.0	2.2	1.7	1.7	3.1	2.0	1.1
Medium	2.0	2.1	1.6	2.0	3.0	1.9	1.1
Low	2.3	2.4	1.8	2.1	3.2	2.1	1.2
Job Stress Due to Concerns About Quality							
Females							
High	2.7	3.7	2.5	2.8	4.4	3.4	1.6
Medium	3.1	4.1	2.5	3.3	4.4	3.3	1.7
Low	3.4	4.8	2.9	3.7	5.0	3.8	2.0
Males							
High	2.5	2.3	1.8	1.9	3.4	2.3	1.2
Medium	2.5	2.3	2.0	2.0	3.7	2.2	1.2
Low	2.8	2.6	2.2	2.2	3.7	2.4	1.4
Total							
High	2.0	2.1	1.5	1.8	2.9	2.0	1.1
Medium	2.1	2.1	1.7	1.9	3.1	2.0	1.1
Low	2.3	2.4	1.8	2.1	3.1	2.1	1.2
Job Stress Due to Role Conflict							
Females							
High	2.7	3.9	2.5	2.8	4.0	3.4	1.6
Medium	3.4	4.7	2.6	3.8	4.8	3.7	1.9
Low	3.4	4.9	2.9	3.7	5.0	3.7	2.0
Males							
High	2.4	2.1	1.7	1.7	3.5	2.0	1.1
Medium	2.8	2.5	2.1	2.2	3.9	2.5	1.4
Low	2.7	2.6	2.1	2.2	3.2	2.3	1.3
Total							
High	1.9	1.9	1.5	1.6	2.9	1.8	1.0
Medium	2.3	2.3	1.8	2.1	3.3	2.1	1.2
Low	2.2	2.4	1.8	2.1	2.8	2.0	1.2

See notes at end of table.

(continued)

Table 25ASE (continued)

Measure/Sex	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Job Stress Due to Job Versus Nonjob Conflict							
Females							
High	2.6	3.6	2.1	3.0	4.0	2.8	1.5
Medium	3.4	4.7	2.9	3.8	4.7	3.8	1.9
Low	3.3	4.9	2.9	3.7	4.9	3.8	2.0
Males							
High	2.3	2.0	1.7	1.9	2.9	2.0	1.1
Medium	2.7	2.5	2.1	2.1	4.0	2.5	1.3
Low	2.8	2.6	2.2	2.2	3.7	2.3	1.4
Total							
High	1.9	1.9	1.4	1.9	2.4	1.7	1.0
Medium	2.2	2.3	1.8	2.0	3.3	2.2	1.2
Low	2.3	2.4	1.8	2.1	3.1	2.1	1.2
Overall Job Stress							
Females							
High	2.6	3.8	2.4	2.8	4.3	3.3	1.6
Medium	3.3	4.1	2.7	3.6	4.5	3.6	1.8
Low	3.4	4.8	2.9	3.8	4.9	3.7	2.0
Males							
High	2.5	2.3	1.8	1.9	3.4	2.2	1.2
Medium	2.6	2.4	2.1	2.1	3.9	2.3	1.3
Low	2.8	2.6	2.1	2.2	3.5	2.3	1.4
Total							
High	2.0	2.1	1.5	1.8	2.8	1.9	1.1
Medium	2.1	2.2	1.8	2.0	3.2	2.1	1.1
Low	2.3	2.4	1.8	2.1	3.0	2.0	1.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 25BSE Standard Errors for Table 25B: Job Stress Among Active-Duty Personnel

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Job Stress Due to Responsibility					
Females					
High	2.9	1.0	1.4	3.4	1.6
Medium	2.5	1.2	1.7	3.3	1.5
Low	2.7	1.3	2.5	3.2	1.5
Males					
High	2.3	1.7	2.5	2.5	1.2
Medium	2.0	1.3	2.2	2.2	1.0
Low	1.9	1.1	2.0	2.4	1.0
Total					
High	2.0	1.5	2.3	2.1	1.1
Medium	1.7	1.1	2.1	1.9	0.9
Low	1.7	1.0	1.9	2.0	0.9
Job Stress Due to Concerns About Quality					
Females					
High	2.9	0.8	2.0	3.2	1.5
Medium	2.5	0.9	1.8	3.3	1.5
Low	2.7	1.0	1.6	3.2	1.5
Males					
High	2.2	1.5	3.9	2.4	1.2
Medium	2.1	1.0	3.5	2.3	1.1
Low	1.9	1.3	2.8	2.4	1.0
Total					
High	2.0	1.3	3.7	2.1	1.0
Medium	1.8	0.8	3.2	1.9	0.9
Low	1.7	1.1	2.7	2.0	0.9
Job Stress Due to Role Conflict					
Females					
High	2.8	0.9	3.0	3.4	1.5
Medium	2.8	1.1	1.8	3.4	1.5
Low	2.7	1.1	2.6	3.0	1.5
Males					
High	2.2	1.3	2.2	2.4	1.1
Medium	2.2	1.3	2.0	2.4	1.1
Low	1.8	1.0	2.5	2.3	1.0
Total					
High	1.9	1.1	2.1	2.0	1.0
Medium	1.9	1.1	1.8	2.1	0.9
Low	1.6	0.9	2.4	1.9	0.9

See notes at end of table.

(continued)

Table 25BSE (continued)

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Job Stress Due to Job Versus Nonjob Conflict					
Females					
High	2.9	1.4	2.9	3.3	1.6
Medium	2.7	1.1	1.4	3.5	1.5
Low	2.3	0.9	2.9	3.0	1.3
Males					
High	2.2	1.4	3.4	2.5	1.2
Medium	2.0	1.2	3.2	2.4	1.1
Low	1.7	1.0	1.9	2.1	0.9
Total					
High	2.0	1.3	3.3	2.1	1.1
Medium	1.8	1.1	3.0	2.1	1.0
Low	1.5	0.8	1.7	1.8	0.8
Overall Job Stress					
Females					
High	2.9	1.1	2.4	3.4	1.6
Medium	2.6	1.0	1.0	3.4	1.5
Low	2.5	1.1	2.7	2.9	1.4
Males					
High	2.2	1.2	4.9	2.5	1.3
Medium	2.0	1.2	4.2	2.4	1.1
Low	1.7	1.1	2.6	2.3	0.9
Total					
High	2.0	1.1	4.7	2.1	1.1
Medium	1.7	1.0	4.0	2.0	1.0
Low	1.5	1.0	2.5	1.9	0.8

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 26ASE Standard Errors for Table 26A: Life Satisfaction Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
Pleased/delighted[a]	2.6	3.5	2.4	3.2	4.2	3.3	1.5
Mostly satisfied	3.3	4.8	2.9	3.8	4.9	3.7	2.0
Mixed	3.0	4.0	2.6	3.3	3.9	2.6	1.7
Mostly dissatisfied	2.0	1.3	1.0	2.2	2.7	0.2	0.9
Terrible/unhappy	0.6	1.7	0.1	0.5	0.1	1.2	0.5
Males							
Pleased/delighted[a]	2.3	2.1	1.8	1.9	3.5	2.2	1.1
Mostly satisfied	2.8	2.6	2.1	2.2	3.9	2.5	1.4
Mixed	1.9	2.2	1.8	1.9	2.8	1.9	1.1
Mostly dissatisfied	1.1	0.5	0.8	0.8	0.7	0.6	0.3
Terrible/unhappy	0.8	0.9	0.1	**	0.2	**	0.4
Total							
Pleased/delighted[a]	1.9	1.9	1.5	1.9	2.9	1.9	1.0
Mostly satisfied	2.2	2.4	1.8	2.1	3.2	2.2	1.2
Mixed	1.6	2.0	1.5	1.8	2.4	1.7	1.0
Mostly dissatisfied	1.0	0.5	0.7	0.8	0.8	0.5	0.3
Terrible/unhappy	0.6	0.8	0.1	**	0.1	0.2	0.4

Note: Table entries are percentages.

**Low precision.

[a]The 1998 Total Force Health Assessment used the response option "pleased," while the 1995 POWR Assessment used the response option "delighted."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 26BSE Standard Errors for Table 26B: Life Satisfaction Among Active-Duty Personnel

Measure/Sex	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
Pleased/delighted[a]	2.4	0.8	2.0	3.0	1.3
Mostly satisfied	2.9	0.9	1.9	3.5	1.6
Mixed	2.5	0.7	1.7	2.9	1.3
Mostly dissatisfied	1.4	0.3	0.7	0.8	0.6
Terrible/unhappy	0.4	0.2	0.8	0.5	0.2
Males					
Pleased/delighted[a]	1.9	1.1	2.2	2.1	1.0
Mostly satisfied	2.2	1.3	1.5	2.5	1.1
Mixed	2.0	1.2	2.1	2.1	1.0
Mostly dissatisfied	0.9	0.5	1.4	1.2	0.5
Terrible/unhappy	0.6	0.1	0.6	0.1	0.2
Total					
Pleased/delighted[a]	1.7	0.9	2.1	1.8	0.8
Mostly satisfied	1.9	1.2	1.5	2.1	0.9
Mixed	1.8	1.1	2.0	1.8	0.9
Mostly dissatisfied	0.8	0.4	1.3	1.0	0.4
Terrible/unhappy	0.5	0.1	0.5	0.1	0.2

Note: Table entries are percentages.

[a]The 1998 Total Force Health Assessment used the response option "pleased," while the 1995 POWR Assessment used the response option "delighted."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 27ASE Standard Errors for Table 27A: Negative and Positive Life Ev[illegible] in the Past Year Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Negative Events							
Females							
Many/several[a]	2.8	3.7	2.1	2.3	3.1	2.5	1.5
Some	3.0	3.8	2.5	3.0	4.5	3.1	1.7
Few	3.2	4.7	2.9	3.7	4.8	3.7	1.9
None	2.3	3.9	2.3	3.0	2.4	2.9	1.5
Males							
Many/several[a]	1.5	1.5	1.4	1.3	1.9	1.1	0.8
Some	2.2	2.1	1.7	1.8	3.2	1.9	1.1
Few	2.7	2.5	2.1	2.2	3.8	2.4	1.3
None	2.6	2.2	2.0	1.9	3.7	2.3	1.2
Total							
Many/several[a]	1.3	1.4	1.2	1.2	1.6	1.0	0.7
Some	1.8	2.0	1.4	1.7	2.7	1.7	1.0
Few	2.2	2.3	1.8	2.1	3.2	2.1	1.2
None	2.1	2.0	1.7	1.8	3.0	1.9	1.1
Positive Events							
Females							
Often	1.7	3.1	1.5	2.1	2.8	1.9	1.1
Sometimes	3.0	4.6	2.7	3.7	4.9	3.6	1.9
Rarely/seldom[b] (but at least once)	3.3	4.4	2.8	3.5	4.7	3.6	1.9
Never	2.0	3.5	2.5	2.1	2.5	3.0	1.3
Males							
Often	1.2	1.3	0.9	1.2	1.4	1.0	0.7
Sometimes	2.8	2.5	2.1	2.1	3.9	2.4	1.3
Rarely/seldom[b] (but at least once)	2.7	2.5	2.1	2.1	3.9	2.4	1.3
Never	1.9	1.8	1.7	1.4	2.3	1.9	1.0
Total							
Often	1.0	1.2	0.8	1.1	1.3	0.9	0.6
Sometimes	2.2	2.3	1.8	2.0	3.2	2.1	1.2
Rarely/seldom[b] (but at least once)	2.2	2.3	1.8	2.1	3.2	2.1	1.2
Never	1.5	1.7	1.4	1.3	1.9	1.7	0.8

Note: Table entries are percentages.

[a]The 1998 Total Force Health Assessment used the response option "many," while the 1995 POWR Assessment used the response option "several."
[b]The 1998 Total Force Health Assessment used the response option "rarely," while the 1995 POWR Assessment used the response option "seldom."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 27BSE Standard Errors for Table 27B: Negative and Positive Life Events in the Past Year Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Negative Events					
Females					
Many/several[a]	1.7	0.5	1.7	2.4	1.0
Some	2.0	0.7	1.1	3.0	1.3
Few	2.9	0.8	2.0	3.5	1.6
None	2.5	0.8	1.4	2.8	1.4
Males					
Many/several[a]	1.6	0.8	1.6	1.4	0.7
Some	1.6	1.0	2.4	2.0	0.9
Few	2.2	1.0	2.6	2.5	1.1
None	1.8	1.3	3.0	2.2	1.0
Total					
Many/several[a]	1.4	0.7	1.5	1.2	0.6
Some	1.4	0.9	2.3	1.7	0.8
Few	1.9	0.8	2.4	2.1	0.9
None	1.6	1.1	2.8	1.9	0.9
Positive Events					
Females					
Often	1.8	0.5	0.7	1.7	0.9
Sometimes	2.7	1.1	1.9	3.3	1.5
Rarely/seldom[b] (but at least once)	2.7	0.8	2.5	3.5	1.6
Never	2.3	0.9	1.3	2.1	1.1
Males					
Often	1.4	0.8	1.8	0.9	0.6
Sometimes	2.0	1.2	2.2	2.5	1.1
Rarely/seldom[b] (but at least once)	2.2	1.1	2.2	2.4	1.1
Never	1.4	1.3	1.8	1.8	0.8
Total					
Often	1.2	0.7	1.7	0.8	0.5
Sometimes	1.7	1.1	2.1	2.1	1.0
Rarely/seldom[b] (but at least once)	1.9	0.9	2.1	2.0	0.9
Never	1.2	1.1	1.7	1.6	0.7

Note: Table entries are percentages.

[a]The 1998 Total Force Health Assessment used the response option "many," while the 1995 POWR Assessment used the response option "several."
[b]The 1998 Total Force Health Assessment used the response option "rarely," while the 1995 POWR Assessment used the response option "seldom."

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 28ASE Standard Errors for Table 28A: Prevalence of Abuse and Treatment for Abuse Among Reserve/Guard Personnel

Measure/Sex/Prevalence	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Abused Prior to Entering Military[a]							
Females							
Emotional abuse	2.8	4.2	2.6	2.3	3.5	2.8	1.6
Sexual abuse	2.9	4.2	2.5	3.1	4.5	3.2	1.7
Physical abuse	3.2	4.6	2.9	3.3	4.2	3.3	1.9
Males							
Emotional abuse	1.3	1.0	1.1	1.1	1.9	0.9	0.6
Sexual abuse	0.7	0.8	0.8	0.6	1.4	0.9	0.4
Physical abuse	1.7	1.3	1.4	1.5	2.8	1.5	0.8
Total							
Emotional abuse	1.2	1.0	1.0	1.1	1.6	0.9	0.6
Sexual abuse	0.9	0.8	0.8	0.6	1.5	0.9	0.5
Physical abuse	1.5	1.3	1.2	1.5	2.4	1.4	0.7
Abused Since Entering Military[a]							
Females							
Emotional abuse	2.3	2.9	2.1	2.0	3.1	2.5	1.3
Sexual abuse	2.4	2.7	1.7	2.5	3.5	2.8	1.3
Physical abuse	3.1	4.3	2.7	3.3	4.2	3.6	1.8
Males							
Emotional abuse	1.1	0.9	0.7	0.7	1.0	0.6	0.5
Sexual abuse	**	0.3	0.1	0.1	**	0.3	0.1
Physical abuse	1.9	1.6	1.3	1.3	2.5	1.5	0.9
Total							
Emotional abuse	1.0	0.8	0.7	0.7	1.0	0.6	0.4
Sexual abuse	0.6	0.4	0.3	0.2	0.8	0.5	0.2
Physical abuse	1.6	1.5	1.2	1.2	2.2	1.4	0.8
Ever Received Treatment/ Counseling for Abuse[b]							
Females							
Yes	4.4	6.4	4.0	4.3	6.2	5.0	2.6
No	4.4	6.4	4.0	4.3	6.2	5.0	2.6
Males							
Yes	5.0	4.2	4.1	3.5	6.9	3.8	2.3
No	5.0	4.2	4.1	3.5	6.9	3.8	2.3
Total							
Yes	3.4	3.6	3.0	3.1	4.9	3.1	1.8
No	3.4	3.6	3.0	3.1	4.9	3.1	1.8

Note: Table entries are percentages.

**Low precision.

[a]Individual respondents may have reported more than one type of abuse.
[b]This item only includes personnel who reported emotional, sexual, or physical abuse at any time.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 28BSE Standard Errors for Table 28B: Prevalence of Abuse and Treatment for Abuse Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Abused Prior to Entering Military[a]					
Females					
Emotional abuse	2.2	0.7	1.8	2.8	1.3
Sexual abuse	2.5	0.9	1.7	3.4	1.5
Physical abuse	2.7	1.1	1.6	3.0	1.5
Males					
Emotional abuse	1.4	0.9	1.1	0.6	0.6
Sexual abuse	1.0	0.3	1.2	1.2	0.5
Physical abuse	1.7	0.8	0.9	1.7	0.8
Total					
Emotional abuse	1.2	0.8	1.0	0.7	0.5
Sexual abuse	1.0	0.3	1.1	1.1	0.5
Physical abuse	1.5	0.7	0.9	1.5	0.7
Abused Since Entering Military[a]					
Females					
Emotional abuse	1.5	0.5	1.1	1.8	0.8
Sexual abuse	1.6	0.5	1.2	2.3	1.0
Physical abuse	2.6	0.9	1.8	3.0	1.4
Males					
Emotional abuse	1.1	0.4	0.7	0.6	0.4
Sexual abuse	0.2	0.1	0.6	0.1	0.1
Physical abuse	1.7	1.1	1.0	1.8	0.8
Total					
Emotional abuse	1.0	0.4	0.7	0.6	0.4
Sexual abuse	0.3	0.1	0.6	0.4	0.2
Physical abuse	1.5	0.9	0.9	1.6	0.7
Ever Received Treatment/ Counseling for Abuse[b]					
Females					
Yes	3.8	1.4	2.9	4.6	2.2
No	3.8	1.4	2.9	4.6	2.2
Males					
Yes	4.2	1.8	2.9	4.1	2.0
No	4.2	1.8	2.9	4.1	2.0
Total					
Yes	3.2	1.5	2.5	3.2	1.6
No	3.2	1.5	2.5	3.2	1.6

Note: Table entries are percentages.

[a]Individual respondents may have reported more than one type of abuse.
[b]This item only includes personnel who reported emotional, sexual, or physical abuse at any time.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 29ASE Standard Errors for Table 29A: Selected Mental Health Measures Among Reserve/Guard Personnel

Measure/Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Depression[a]							
Females							
Depressed	3.3	4.7	2.3	3.7	3.9	3.5	1.9
Not depressed	3.3	4.7	2.3	3.7	3.9	3.5	1.9
Males							
Depressed	2.3	2.3	1.6	2.0	3.5	1.9	1.2
Not depressed	2.3	2.3	1.6	2.0	3.5	1.9	1.2
Total							
Depressed	1.9	2.1	1.4	1.9	2.9	1.7	1.0
Not depressed	1.9	2.1	1.4	1.9	2.9	1.7	1.0
Personnel Who Seriously Considered Suicide							
Females							
Within past 2 months	1.6	1.7	0.8	2.0	1.4	0.8	0.8
3 to 12 months ago	1.1	0.1	0.1	0.9	1.7	1.0	0.5
13 to 24 months ago	1.4	1.5	0.5	0.6	0.1	0.9	0.6
Males							
Within past 2 months	0.3	0.8	0.2	0.3	0.1	0.5	0.4
3 to 12 months ago	0.9	0.7	0.5	0.8	0.1	0.5	0.4
13 to 24 months ago	0.2	1.2	0.4	0.9	1.0	0.8	0.6
Total							
Within past 2 months	0.5	0.8	0.2	0.3	0.3	0.4	0.3
3 to 12 months ago	0.8	0.6	0.4	0.7	0.4	0.4	0.3
13 to 24 months ago	0.4	1.1	0.4	0.9	0.8	0.7	0.5

Note: Table entries are percentages.

[a]Personnel are categorized as "depressed" or "not depressed" based on their scores on the CES-D (Center for Epidemiologic Studies—Depression), which is only an indicator of depression, not a clinical diagnosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 29BSE Standard Errors for Table 29B: Selected Mental Health Measures Among Active-Duty Personnel

Measure/Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Depression[a]					
Females					
Depressed	2.9	1.5	2.5	3.3	1.6
Not depressed	2.9	1.5	2.5	3.3	1.6
Males					
Depressed	2.2	1.1	3.1	2.1	1.1
Not depressed	2.2	1.1	3.1	2.1	1.1
Total					
Depressed	1.9	0.9	2.9	1.8	1.0
Not depressed	1.9	0.9	2.9	1.8	1.0
Personnel Who Seriously Considered Suicide					
Females					
Within past 2 months	0.9	0.3	0.3	0.9	0.4
3 to 12 months ago	1.3	0.3	0.6	0.4	0.5
13 to 24 months ago	2.1	0.4	1.0	0.6	0.8
Males					
Within past 2 months	1.0	0.1	0.7	0.6	0.4
3 to 12 months ago	1.1	0.3	1.0	0.8	0.4
13 to 24 months ago	0.9	0.4	1.2	0.6	0.4
Total					
Within past 2 months	0.8	0.1	0.6	0.5	0.3
3 to 12 months ago	0.9	0.3	0.9	0.6	0.4
13 to 24 months ago	0.8	0.4	1.1	0.5	0.4

Note: Table entries are percentages.

[a]Personnel are categorized as "depressed" or "not depressed" based on their scores on the CES-D (Center for Epidemiologic Studies—Depression), which is only an indicator of depression, not a clinical diagnosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 30ASE Standard Errors for Table 30A: Social Support Among Reserve/Guard Personnel

Sex/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Females							
High	3.1	4.1	3.0	3.2	4.6	3.8	1.8
Medium	3.5	4.7	3.0	4.0	5.3	3.8	2.0
Low	3.6	5.2	3.0	3.9	4.5	4.0	2.1
Males							
High	2.9	2.8	2.4	1.8	4.3	2.6	1.5
Medium	2.9	2.6	2.3	2.2	3.6	2.3	1.4
Low	2.9	2.5	2.2	2.3	3.8	2.3	1.4
Total							
High	2.3	2.5	2.0	1.7	3.5	2.3	1.3
Medium	2.4	2.4	1.9	2.1	3.1	2.0	1.2
Low	2.4	2.3	1.9	2.2	3.1	2.0	1.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 30BSE Standard Errors for Table 30B: Social Support Among Active-Duty Personnel

Sex/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Females					
High	2.5	1.1	1.6	2.6	1.2
Medium	3.4	1.1	1.8	4.1	1.8
Low	3.5	1.2	2.1	4.1	1.8
Males					
High	2.1	1.4	3.2	2.8	1.3
Medium	2.5	1.7	3.2	2.7	1.2
Low	2.7	1.2	3.5	2.8	1.4
Total					
High	1.9	1.2	3.0	2.3	1.1
Medium	2.2	1.5	3.0	2.3	1.1
Low	2.4	1.1	3.3	2.4	1.2

Note: Table entries are percentages.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 31ASE Standard Errors for Table 31A: Gynecological History Among Reserve/Guard Personnel

History	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Age of First Menstruation							
9 or younger	1.0	1.0	0.8	1.2	0.4	1.0	0.5
10 to 12 years old	3.3	4.8	2.9	3.7	4.8	3.7	2.0
13 to 15 years old	3.3	4.8	2.8	3.6	4.8	3.7	1.9
16 years or older	2.1	1.3	1.8	2.2	1.7	1.6	0.9
Don't know	0.8	0.8	1.0	0.5	0.2	0.6	0.4
Age at First Live Birth							
12 or younger	0.1	0.1	1.1	**	**	0.2	0.2
13 to 16 years old	1.2	2.5	2.3	2.8	2.3	1.5	0.9
17 to 20 years old	3.9	6.5	3.3	4.3	5.9	4.2	2.4
21 to 30 years old	4.2	6.4	3.5	5.3	6.1	4.6	2.4
31 to 40 years old	2.3	2.6	1.4	3.9	4.1	2.7	1.2
Over 40 years old	**	**	**	**	**	**	**
Total Number of Years Taking Birth Control Pills							
0 years	2.9	4.6	2.1	3.7	3.4	2.9	1.8
1 to 4 years	3.3	4.7	2.9	3.5	4.9	3.5	1.9
5 to 8 years	2.4	3.1	2.1	2.8	4.0	3.4	1.4
9 or more years	2.4	3.4	2.6	1.8	4.0	3.3	1.5
Taken Replacement Estrogens in the Past 30 Days							
Yes	1.3	1.9	1.8	0.6	2.7	1.9	0.8
No	1.3	1.9	1.8	0.6	2.7	1.9	0.8

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 31BSE Standard Errors for Table 31B: Gynecological History Among Active-Duty Personnel

History	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Age of First Menstruation					
9 or younger	1.0	0.4	0.5	0.2	0.4
10 to 12 years old	2.7	0.9	2.9	3.4	1.6
13 to 15 years old	2.9	0.9	3.1	3.5	1.6
16 years or older	1.5	0.5	0.6	1.7	0.8
Don't know	0.2	0.2	0.2	0.7	0.3
Age at First Live Birth					
12 years old or younger	**	**	**	**	**
13 to 16 years old	1.7	0.4	0.6	0.5	0.7
17 to 20 years old	4.0	1.4	4.8	4.0	2.0
21 to 30 years old	4.1	1.5	4.4	4.3	2.1
31 to 40 years old	1.6	1.0	1.4	2.1	0.9
Over 40 years old	0.1	0.1	0.1	**	0.1
Total Number of Years Taking Birth Control Pills					
0 years	2.5	0.8	1.9	3.0	1.4
1 to 4 years	2.8	1.2	2.1	3.2	1.5
5 to 8 years	2.0	0.8	1.4	3.0	1.3
9 or more years	1.9	0.9	1.0	2.7	1.2
Taken Replacement Estrogens in the Past 30 Days					
Yes	0.9	0.3	0.5	1.2	0.5
No	0.9	0.3	0.5	1.2	0.5

Note: Table entries are percentages.

**Low precision.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 32ASE Standard Errors for Table 32A: Pregnancy Status and Childbirth History Among Reserve/Guard Females

Status or History	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Been Pregnant Since Joining the Service							
Yes	3.0	5.5	3.5	2.8	4.8	3.4	2.0
No	3.0	5.5	3.5	2.8	4.8	3.4	2.0
Currently Pregnant							
Yes	1.0	0.6	1.4	2.7	1.0	1.4	0.5
No	1.0	0.6	1.4	2.7	1.1	1.4	0.5
Not sure	0.3	**	0.1	**	0.4	0.2	0.1
Number of Live Births							
0 births	3.2	3.9	1.8	4.0	3.8	1.4	1.6
1 birth	4.0	5.7	3.1	4.9	5.8	4.6	2.3
2 births	4.0	5.5	3.5	4.1	5.1	4.5	2.2
3 births	2.4	4.8	2.2	3.3	4.9	4.0	1.7
4 births	0.9	3.7	1.5	0.7	2.8	2.3	1.2
5 or more births	0.7	2.3	1.0	1.9	0.1	1.0	0.7
Ever Had a Premature Baby or a Baby Weighing Less Than 5 Pounds[a]							
Yes	2.4	4.6	2.5	2.9	3.2	2.4	1.6
No	2.4	4.6	2.5	2.9	3.2	2.4	1.6

Note: Table entries are percentages.

**Low precision.

[a]Among females who have been pregnant.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 32BSE Standard Errors for Table 32B: Pregnancy Status and Childbirth History Among Active-Duty Females

Status/History	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Been Pregnant Since Joining the Service					
Yes	2.6	0.8	1.6	3.4	1.5
No	2.6	0.8	1.6	3.4	1.5
Currently Pregnant					
Yes	2.9	0.7	2.5	2.8	1.5
No	3.0	0.9	2.6	2.8	1.5
Not sure	0.6	0.4	1.0	**	0.3
Number of Live Births					
0 births	2.7	0.5	2.0	4.2	1.8
1 births	3.7	2.1	3.3	4.5	2.2
2 births	3.7	1.6	3.0	3.8	2.0
3 births	1.6	0.8	1.6	2.4	1.0
4 births	1.0	0.3	0.9	0.8	0.5
5 or more births	0.1	0.2	0.2	0.4	0.2
Given Enough Time Off Military Job to See an OB/GYN When Pregnant[a]					
Yes	3.0	1.2	2.4	4.1	1.9
No	3.0	1.2	2.4	4.1	1.9
Ever Had a Premature Baby or a Baby Weighing Less than 5 Pounds[a]					
Yes	2.7	1.1	1.9	2.7	1.4
No	2.7	1.1	1.9	2.7	1.4

Note: Table entries are percentages.

**Low precision.

[a]Among females who have been pregnant.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 33ASE Standard Errors for Table 33A: Menstrual Conditions Among Reserve/Guard Females in the Past 3 Months

Condition	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Premenstrual Symptoms or Pain (PMS)	3.2	4.4	2.9	3.5	4.6	3.8	1.9
Cramps or Pain During Menstruation That Required Medication or Time off Work	3.4	4.6	2.8	3.1	4.8	3.5	1.9
Heavy Periods	3.4	5.0	3.0	3.7	5.2	3.9	2.0
Light Periods	3.4	5.1	2.7	3.7	4.6	3.7	2.0
One Missed Period	3.0	3.6	2.1	2.7	2.7	2.4	1.6
No Menstrual Period for 2 Months	2.6	3.9	1.9	2.7	2.5	2.8	1.5
Menstrual Period That Lasts More than 1 Week	2.8	3.5	1.7	2.7	3.9	3.0	1.5
Too Many Periods (Short Time Between Periods)	2.3	2.8	1.4	2.3	2.1	2.2	1.2
Bleeding Between Periods	2.5	3.6	1.4	2.3	2.4	2.5	1.4
Problems with Uterus[a]	0.8	1.6	1.3	0.9	2.1	1.2	0.6

Note: Table entries are percentages of all females except those who have had hysterectomies.

[a]Other than endometriosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 33BSE Standard Errors for Table 33B: Menstrual Conditions Among Active-Duty Females in the Past 3 Months

Condition	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Premenstrual Symptoms or Pain (PMS)	2.8	0.8	2.4	3.1	1.5
Cramps or Pain During Menstruation That Required Medication or Time Off Work	2.6	1.0	1.7	2.9	1.4
Heavy Periods	3.0	0.8	2.3	3.7	1.7
Light Periods	2.9	0.8	1.4	3.8	1.9
One Missed Period	2.3	1.0	1.4	2.9	1.3
No Menstrual Period for 2 Months	2.6	0.8	2.1	2.7	1.3
Menstrual Period That Lasts More Than 1 Week	2.7	0.7	2.0	3.0	1.4
Too Many Periods (Short Time Between Periods)	2.3	0.7	1.6	2.0	1.1
Bleeding Between Periods	2.6	0.8	2.6	2.3	1.2
Problems with Uterus[a]	1.6	0.3	1.1	0.4	0.6

Note: Table entries are percentages of all females except those who have had hysterectomies.

[a]Other than endometriosis.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 34ASE Standard Errors for Table 34A: Gynecological Conditions Among Reserve/Guard Females in the Past 3 Months

Condition	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Abdominal Pain from Known Cysts	1.6	2.1	1.2	1.8	2.4	1.6	0.9
Abdominal Pain from Unknown Causes	3.1	4.4	2.2	2.8	3.4	3.2	1.7
Yeast or Vaginal Infection	2.7	4.3	2.4	3.3	4.3	2.7	1.7
Vaginal Rash, Discharge, or Other Disorder[a]	2.2	3.4	1.9	2.2	2.4	2.0	1.3

Note: Table entries are percentages.

[a]Excludes yeast infection and sexually transmitted disease.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 34BSE Standard Errors for Table 34B: Gynecological Conditions Among Active-Duty Females in the Past 3 Months

Condition	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Abdominal Pain from Known Cysts	1.2	0.5	1.6	1.2	0.6
Abdominal Pain from Unknown Causes	2.8	0.8	3.0	2.9	1.5
Yeast or Vaginal Infection	2.7	1.0	2.9	2.9	1.4
Vaginal Rash, Discharge, or Other Disorder[a]	2.1	0.6	1.3	1.5	0.9

Note: Table entries are percentages.

[a]Excludes yeast infection and sexually transmitted disease.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 35ASE Standard Errors for Table 35A: Cervical Health and Cancer Screening Among Reserve/Guard Females

Screening	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Personnel
Time Since Last Pap Smear[a]							
Less than 1 year ago	3.3	4.6	2.7	3.4	4.6	3.1	1.9
More than 1 year ago, but within the past 3 years	3.0	4.0	2.6	3.2	4.4	3.0	1.7
3 years or more	1.4	1.4	1.1	1.3	1.6	0.8	0.7
Never	1.5	2.8	0.1	1.1	**	0.8	1.0
Ever Had an Abnormal Pap Smear[b]							
Yes	1.0	1.5	0.8	1.0	0.2	0.1	0.6
No	3.1	4.6	2.9	3.5	4.0	3.7	1.8
Don't know	3.1	4.5	2.9	3.5	4.0	3.7	1.8

Note: Table entries are percentages.

**Low precision.

[a]Percentages are based on all females except those who have had hysterectomies.
[b]Percentages are based on all females.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 35BSE Standard Errors for Table 35B: Cervical Health and Cancer Screening Among Active-Duty Females

Screening	Army	Navy	Marine Corps	Air Force	Total Reserve/Guard Personnel
Time Since Last Pap Smear[a]					
Less than 1 year ago	2.4	1.1	1.9	2.8	1.3
More than 1 year ago, but within the past 3 years	2.0	1.0	1.6	2.5	1.2
3 years or more	1.4	0.3	0.4	1.3	0.7
Never	0.8	**	0.4	0.6	0.3
Ever Had an Abnormal Pap Smear[b]					
Yes	0.3	0.2	0.4	0.7	0.3
No	2.8	0.9	2.7	3.3	1.5
Don't know	2.8	0.9	2.4	3.2	1.5

Note: Table entries are percentages.

**Low precision.

[a]Percentages are based on all females except those who have had hysterectomies.
[b]Percentages are based on all females.

Sources: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 36ASE Standard Errors for Table 36A: Breast Health, Breast Cancer Screening, and Other Early Detection Behavior Among Reserve/Guard Females

Measure/Level	Army Reserve	Army National Guard	Naval Reserve	Marine Corps Reserve	Air Force Reserve	Air National Guard	Total Reserve/Guard Females
Time Since Last Breast Exam by a Medical Provider							
Less than 1 year ago	3.1	4.5	2.7	3.4	4.1	3.3	1.8
More than 1 year ago, but within the past 3 years	2.7	4.1	2.4	3.0	4.0	3.1	1.6
3 years or more	1.7	1.8	1.5	1.1	1.4	1.4	0.8
Never	1.6	2.0	0.2	2.0	0.1	0.1	0.8
Ever Received Training from a Medical Provider on How to Perform a Breast Self-Exam							
Yes	1.6	3.7	1.5	2.7	2.5	1.8	1.3
No	1.6	3.7	1.5	2.7	2.5	1.8	1.3
Frequency of Breast Self-Exam							
Monthly	3.3	4.3	2.9	3.4	4.5	3.8	1.9
Once every few months	2.9	4.8	2.6	3.5	4.8	3.7	1.9
Rarely or never	3.1	4.4	2.5	3.5	3.9	3.2	1.8
Discharge from Breast in Past 3 Months							
Yes	1.6	2.2	0.9	0.9	1.7	1.1	0.9
No	1.6	2.2	0.9	0.9	1.7	1.1	0.9
Breast Lump in Past 3 Months							
Yes	1.8	2.3	0.9	1.9	3.2	1.5	1.0
No	1.8	2.3	0.9	1.9	3.2	1.5	1.0
Ever Had an Operation to Remove a Breast Lump That Was Found to Be Non-Cancerous							
Yes	1.2	2.3	1.5	1.0	2.0	1.6	0.9
No	1.2	2.3	1.5	1.0	2.0	1.6	0.9

Note: Table entries are percentages.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

Table 36BSE Standard Errors for Table 36B: Breast Health, Breast Cancer Screening, and Other Early Detection Behavior Among Active-Duty Females

Measure/Level	Army	Navy	Marine Corps	Air Force	Total Active-Duty Personnel
Time Since Last Breast Exam by a Medical Provider					
Less than 1 year ago	2.6	0.9	2.4	2.7	1.3
More than 1 year ago, but within the past 3 years	2.3	0.8	2.2	2.4	1.2
3 years or more	1.1	0.2	0.9	1.5	0.7
Never	1.2	0.3	0.6	0.5	0.5
Ever Received Training from a Medical Provider on How to Perform a Breast Self-Exam					
Yes	2.0	0.7	1.4	2.2	1.0
No	2.0	0.7	1.4	2.2	1.0
Frequency of Breast Self-Exam					
Monthly	2.8	1.3	1.6	3.4	1.6
Once every few months	2.6	1.1	2.0	3.3	1.5
Rarely or never	2.6	0.8	2.1	3.1	1.4
Discharge from Breast in Past 3 Months					
Yes	1.6	0.4	1.3	1.7	0.8
No	1.6	0.4	1.3	1.7	0.8
Breast Lump in Past 3 Months					
Yes	1.5	0.5	0.6	1.3	0.7
No	1.5	0.5	0.6	1.3	0.7
Ever Had an Operation to Remove a Breast Lump That Was Found to Be Non-Cancerous					
Yes	1.0	0.4	0.7	1.3	0.6
No	1.0	0.4	0.7	1.3	0.6

Note: Table entries are percentages.

Source: 1998 Total Force Health Assessment and 1995 POWR Assessment: Perceptions of Wellness and Readiness.

APPENDIX E

ADVISORY PANEL MEMBERS FOR THE TOTAL FORCE STUDY

APPENDIX E

ADVISORY PANEL MEMBERS FOR THE TOTAL FORCE STUDY

- U.S. Army Center for Health Promotion and Preventive Medicine: LTC Sandra Goins, LTC Joan Eitzen, LTC Mike Chisick, Major Kate Wiltsie, Ms. Beth Ann Cameron.
- U.S. Army Medical Research and Materiel Command: Dr. Patricia Modrow.
- U.S. Army National Guard Readiness Center: CPT Lorena Darnell, COL Stephen Lloyd.
- Office of the Chief of the Army Reserve: LTC Jane Meyer, LTC Mary Adams.
- Office of the Secretary of Defense, Reserve Affairs: LTC Patricia Hamill, CAPT Mary Jo Majors, CAPT Sheila Brackett.
- U.S. Naval Reserve Health Care Programs Branch: CDR Tom Buffington, CDR June Rogers.
- U.S. Navy Bureau of Medicine and Surgery: CDR Susan Herrold.
- Headquarters, U.S. Marine Corps: CAPT Gary Reams, CAPT Jerry Rose.
- Headquarters, Air Force Medical Operations Agency, Office of the Surgeon General: Lt Col Meade Pimsler.
- Air Force Office for Prevention and Health Services Assessment: Major Karen Foster, Lt Col John Meyer, Lt Col Jim Fraser.
- Office of the Chief, Air Force Reserve: Col. Mary Martin, Col. Patricia Chamings.
- Air National Guard Representative, Department of Veterans Affairs: BG Irene Trowell-Harris.
- Office of the Assistant Secretary of Defense, Health Affairs: Col. Margaret Knapp.

APPENDIX F

1998 TOTAL FORCE HEALTH ASSESSMENT

1998 Total Force Health Assessment

Survey Approval Authority: U.S. Army Research Institute for the Behavioral and Social Sciences
Survey Control Number: TAPC-ARI-AO-98-3
RCS: MILPC-3

Introduction

What is this study about? This study is mainly about your health with questions on illness, stress, smoking, and sexual behavior, for example.

How will your answers be used? Your answers will be combined with those from other military personnel to prepare a final report. The information in the report will be used to improve the quality of military life.

Who is overseeing the study? Research Triangle Institute, a not-for-profit research company, is under contract to the Department of Defense to oversee this study.

How were you selected? You were randomly selected to participate in this important survey.

Must you participate? Your participation in this survey is voluntary, but the survey's success depends on your willingness to take part. You represent thousands of other personnel, and we can't substitute anyone for you. Therefore, we encourage you to answer all of the questions honestly, but you are not required to answer any question to which you object.

Who will see your answers? Only civilian researchers will see your answers. No military personnel will ever see your individual answers. This questionnaire is confidential. DO NOT WRITE YOUR NAME OR SOCIAL SECURITY NUMBER ANYWHERE ON THIS BOOKLET.

Instructions for Completing the Questionnaire

- In responding to this questionnaire, you may find questions that you feel are repetitious. Please realize that it is important for us to ask questions about different aspects of the same issue to better understand it. In addition, we ask you NOT to skip questions—even if you don't think they apply to you—unless you are instructed to do so or you object to answering them. An important part of questionnaire design is making sure the questions follow the same patterns used in other questionnaires so we can compare information. Our comparisons may not be valid if you skip questions when you are not asked to skip them.
- Most questions provide a set of answers. Read all of the printed answers before marking your choice. If none of the printed answers exactly applies to you, mark the circle for the one answer that best fits your situation.
- Use only a soft-lead pencil (such as a #2) to complete this questionnaire.
- Make heavy black marks that fill the circle of your answer.



- Completely erase any answers you change.
- Do not make any stray marks anywhere in this booklet.
- For many questions, you should mark only one circle for your answer in the column below the question, as shown:

EXAMPLE: **In general, would you say your health is:**

- ○ Excellent
- ● Very good
- ○ Good
- ○ Fair
- ○ Poor

- Sometimes you will be asked to "Darken one circle on each line." For these questions, record an answer to each part of the question, as shown:

EXAMPLE:

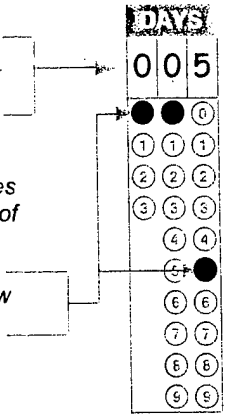
Has a health care provider ever told you that you had any of the following?	If yes, what was the result?		
	No, Never	Yes, But No Longer a Problem	Yes, Still a Problem
a. Asthma	○	●	○
b. Chronic bronchitis	○	○	●
c. Chronic rhinitis or hay fever	●	○	○

- If you are asked to give numbers for your answer, please complete the grid as shown below:

EXAMPLE:

Think about your illnesses you may have had in the past 12 months. How many days were you unable to perform your military job because of an illness in the past 12 months?

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *Always write the last number in the right-hand box. Fill in any unused boxes with zeroes. For example, an answer of "5 days" would be written as "005."*
- *Then, darken the matching circle below each box.*



Now, please turn the page and begin with question 1. →

1. **In which component of the Military do you currently serve?***
   - ◯ Active Army (USA)
   - ◯ Army National Guard (ARNG)
   - ◯ Army Reserve (USAR)
   - ◯ Naval Reserve (USNR)
   - ◯ Active Air Force (USAF)
   - ◯ Air National Guard (ANG)
   - ◯ Air Force Reserve (USAFR)
   - ◯ Marine Corps Reserve (USMCR)

2. **In all, how many years have you served on active duty?** Do not include Reserve/Guard years.
   (Choose the one answer that best applies)
   - ◯ Never served on active duty
   - ◯ Less than 6 months
   - ◯ At least 6 months, but less than 1 year
   - ◯ At least 1 year, but less than 2 years
   - ◯ At least 2 years, but less than 3 years
   - ◯ At least 3 years, but less than 4 years
   - ◯ At least 4 years, but less than 5 years
   - ◯ At least 5 years, but less than 10 years
   - ◯ At least 10 years, but less than 20 years
   - ◯ 20 or more years

3. **In all, how many years have you served in the Guard or Reserve?** Do not include active-duty years.
   (Choose the one answer that best applies)
   - ◯ Never served in the Guard or Reserve
   - ◯ Less than 6 months
   - ◯ At least 6 months, but less than 1 year
   - ◯ At least 1 year, but less than 2 years
   - ◯ At least 2 years, but less than 3 years
   - ◯ At least 3 years, but less than 4 years
   - ◯ At least 4 years, but less than 5 years
   - ◯ At least 5 years, but less than 10 years
   - ◯ At least 10 years, but less than 20 years
   - ◯ 20 or more years

4. **In the past 12 months, what is the total number of actual days you spent performing your military duty in the Guard or Reserves?** Do not include days spent in annual training.
   (Choose the one answer that best applies)
   - ◯ Active-duty military [Go to question 5]
   - ◯ Less than 21 days
   - ◯ At least 21 days, but less than 28 days
   - ◯ At least 28 days, but less than 35 days
   - ◯ At least 35 days, but less than 60 days
   - ◯ At least 60 days, but less than 90 days
   - ◯ More than 90 days

5. **Are you male or female?**
   - ◯ Male
   - ◯ Female

* Active Marine Corps (USMC) and Active Navy (USN) are not included in this list because they were already surveyed.

6. **What is your highest level of education now?**
   (Choose the one answer that best applies)
   - ◯ Did not graduate from high school
   - ◯ GED or ABE certificate
   - ◯ High school graduate
   - ◯ Trade or technical school graduate
   - ◯ Some college but not a 4-year degree
   - ◯ 4-year college degree (BA, BS, or equivalent)
   - ◯ Graduate or professional study but no graduate degree
   - ◯ Graduate or professional degree

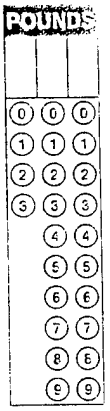
7. **About how tall are you without shoes on?**

◯ 4 feet, 7 inches	◯ 5 feet, 0 inches	◯ 6 feet, 0 inches
◯ 4 feet, 8 inches	◯ 5 feet, 1 inch	◯ 6 feet, 1 inch
◯ 4 feet, 9 inches	◯ 5 feet, 2 inches	◯ 6 feet, 2 inches
◯ 4 feet, 10 inches	◯ 5 feet, 3 inches	◯ 6 feet, 3 inches
◯ 4 feet, 11 inches	◯ 5 feet, 4 inches	◯ 6 feet, 4 inches
	◯ 5 feet, 5 inches	◯ 6 feet, 5 inches
	◯ 5 feet, 6 inches	◯ 6 feet, 6 inches
	◯ 5 feet, 7 inches	◯ 6 feet, 7 inches
	◯ 5 feet, 8 inches	◯ 6 feet, 8 inches
	◯ 5 feet, 9 inches	◯ 6 feet, 9 inches
	◯ 5 feet, 10 inches	◯ 6 feet, 10 inches
	◯ 5 feet, 11 inches	◯ 6 feet, 11 inches

8. **About how much do you weigh without shoes on?**
   (WOMEN: If you are currently pregnant, please enter your usual weight before you became pregnant.)

   • *First, enter your weight in the boxes. Use all three boxes. Write ONE number in each box.*

   • *Then, darken the matching circle below each box.*



9. How old were you on your last birthday?

- *First, enter your age in the boxes. Use both boxes. Write ONE number in each box.*
- *Then, darken the matching circle below each box.*



10. **What is your current marital status?**

- ◯ Not married, but living as married
- ◯ Married
- ◯ Separated and not living as married
- ◯ Divorced and not living as married
- ◯ Widowed and not living as married
- ◯ Single, never married, and not living as married

11. **Are you of Spanish or Hispanic origin or descent?**

- ◯ No (not Spanish or Hispanic)
- ◯ Yes, Puerto Rican
- ◯ Yes, Mexican or Mexican-American or Chicano
- ◯ Yes, Cuban
- ◯ Yes, Central or South American
- ◯ Yes, other Spanish or Hispanic origin

12. **Which of these categories best describes you?**

- ◯ American Indian/Eskimo/Aleut
- ◯ Black/African-American
- ◯ Asian/Chinese/Japanese/Korean/Filipino/Asian Indian/Pacific Islander
- ◯ White/Caucasian
- ◯ Other

13. **Which of the following best describes your employment situation?**
(Choose the one answer that best applies)

- ◯ Active-duty military
- ◯ Employed as a civilian in a military job
- ◯ Employed as a civilian in a non-military job
- ◯ Self-employed
- ◯ Unemployed
- ◯ Homemaker
- ◯ Student
- ◯ Retired
- ◯ Unable to work

14. **What is your pay grade?**

ENLISTED		OFFICER	
◯ E-1	◯ E-6	◯ Trainee	◯ O-4
◯ E-2	◯ E-7	◯ W1-W5	◯ O-5
◯ E-3	◯ E-8	◯ O-1 or O-1E	◯ O-6
◯ E-4	◯ E-9	◯ O-2 or O-2E	◯ O-7 to O-10
◯ E-5		◯ O-3 or O-3E	

15. **Which of the following categories best describes your military responsibilities?** If you need to, please refer to the handout that came with this survey for examples of different job categories.
(Choose the one answer that best applies)

ENLISTED

- ◯ Infantry, Gun Crew, Air Crew, or Seamanship Specialist
- ◯ Electronic Equipment Repair Specialist
- ◯ Communications or Intelligence Specialist
- ◯ Health Care Specialist/Technician
- ◯ Other Technical or Allied Specialist
- ◯ Functional Support and Administration
- ◯ Electrical or Mechanical Equipment Repair Specialist
- ◯ Craftsman
- ◯ Service and Supply Handler
- ◯ Other (e.g., officer candidates, students, special duties)

OFFICER

- ◯ General Officer, Executive Officer, or Commanding Officer
- ◯ Tactical Operations Officer
- ◯ Intelligence Officer
- ◯ Engineering or Maintenance Officer
- ◯ Scientist, Professional, or Staff Support (not involved in health care)
- ◯ Health Care Provider
- ◯ Administrator or Operational Support
- ◯ Supply, Procurement, or Allied Officer
- ◯ Other (e.g., students, trainees, billet designators)

16. **What was your annual household income from ALL sources last year?** Please estimate your annual household income before taxes were taken out. As with all information you provide on this survey, your answer to this question will be kept confidential.

- ◯ Less than $15,000
- ◯ $15,000 to $19,999
- ◯ $20,000 to $24,999
- ◯ $25,000 to $34,999
- ◯ $35,000 to $44,999
- ◯ $45,000 to $49,999
- ◯ $50,000 to $74,999
- ◯ $75,000 or more

17. In general, would you say your health is:

- ◯ Excellent
- ◯ Very good
- ◯ Good
- ◯ Fair
- ◯ Poor

18. During the past 30 days, have you had any of the following problems with your work or other regular daily activities as a result of your physical health? *(Darken one circle on each line)*

Because of my physical health during the past 30 days, I:	Yes	No
a. Cut down the amount of time I spent on work or other activities	◯	◯
b. Accomplished less than I would have liked	◯	◯
c. Was limited in the kind of work or other activities I could do	◯	◯
d. Had difficulty performing the work or other activities (took extra effort)	◯	◯

19. During the past 30 days, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)? *(Darken one circle on each line)*

Because of emotional problems during the past 30 days, I:	Yes	No
a. Cut down on the amount of time I spent on work or other activities	◯	◯
b. Accomplished less than I would have liked	◯	◯
c. Didn't do work or other activities as carefully as usual	◯	◯

20. During the past 30 days, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- ◯ Not at all
- ◯ Slightly
- ◯ Moderately
- ◯ Quite a bit
- ◯ Extremely

21. How much of the time during the past 30 days:

	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
a. Did you feel full of pep?	◯	◯	◯	◯	◯	◯
b. Did you have a lot of energy?	◯	◯	◯	◯	◯	◯
c. Did you feel worn out?	◯	◯	◯	◯	◯	◯
d. Did you feel tired?	◯	◯	◯	◯	◯	◯

22. How true or false is each of the following statements for you?

	Definitely false	Mostly false	Don't know	Mostly true	Definitely true
a. I seem to get sick a little easier than other people I know	◯	◯	◯	◯	◯
b. I am as healthy as anybody I know	◯	◯	◯	◯	◯
c. I expect my health to get worse	◯	◯	◯	◯	◯
d. My health is excellent	◯	◯	◯	◯	◯

23. During the past 30 days, how much of the time have your physical or emotional problems interfered with your normal social activities (like visiting with friends, relatives, etc.)?

- ◯ All of the time
- ◯ Most of the time
- ◯ Some of the time
- ◯ A little of the time
- ◯ None of the time

24. During the past 30 days, on the average, how many hours of sleep did you get per night?

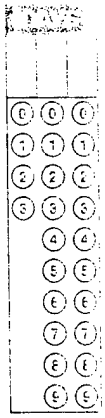
⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

25. Has a health care provider ever told you that you had any of the following?

		No, Never	If yes, what was the result? Yes, But No Longer a Problem	Yes, Still a Problem
a.	Asthma	○	○	○
b.	Chronic bronchitis	○	○	○
c.	Chronic rhinitis or hay fever	○	○	○
d.	Other allergies	○	○	○
e.	Positive skin test for tuberculosis	○	○	○
f.	Cervical cancer	○	○	○
g.	Breast cancer	○	○	○
h.	Skin cancer	○	○	○
i.	Other cancer	○	○	○
j.	Heart disease or angina	○	○	○
k.	High blood pressure (hypertension)	○	○	○
l.	High cholesterol	○	○	○
m.	Anemia (low blood iron)	○	○	○
n.	Varicose veins	○	○	○
	Has a health care provider ever told you that you had:			
o.	Hernia or rupture	○	○	○
p.	Hemorrhoids	○	○	○
q.	Ulcer	○	○	○
r.	Bowel or intestinal trouble (e.g., colitis)	○	○	○
s.	Gallstones	○	○	○
t.	Thyroid disease	○	○	○
u.	Diabetes	○	○	○
v.	Hepatitis	○	○	○
w.	Urinary tract infection	○	○	○
x.	Repeated kidney infections	○	○	○
y.	Kidney stones	○	○	○
z.	Other kidney disease	○	○	○
	Has a health care provider ever told you that you had:			
aa.	Pelvic inflammatory disease (PID)	○	○	○
bb.	Herpes or genital warts	○	○	○
cc.	Other sexually transmitted diseases (e.g., gonorrhea, syphilis)	○	○	○
dd.	Positive test for the HIV/AIDS virus	○	○	○
ee.	Sterility/infertility	○	○	○
ff.	Arthritis	○	○	○
gg.	Other bone, muscle, or joint problems	○	○	○
hh.	Chronic back problems (e.g., sciatica)	○	○	○
ii.	Nerve pain (neuralgia)	○	○	○
jj.	Migraines	○	○	○
kk.	Head injury (involving stitches or unconsciousness)	○	○	○
ll.	Depression	○	○	○
mm.	Hearing loss or problems	○	○	○
nn.	Vision impairment or problems	○	○	○
oo.	Gum disease	○	○	○

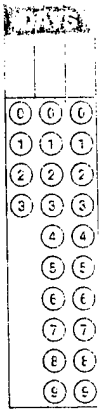
26. Think about any illnesses you may have had in the past 12 months. How many days were you unable to perform your military job because of an illness in the past 12 months? (WOMEN: Do NOT count illnesses that occurred during pregnancy or maternity leave as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an illness in the past 12 months, please enter 000.*
- *If you had any illnesses in the past 12 months but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



27. Think about any injuries you may have had in the past 12 months. How many days were you unable to perform your military job because of an injury in the past 12 months? (WOMEN: Do NOT count injuries that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an injury in the past 12 months, please enter 000.*
- *If you had any injuries in the past 12 months but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



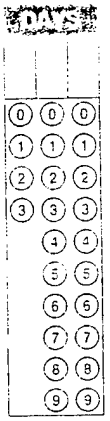
If you are Reserve/Guard personnel, please go to question 28 at the top of the first column on the next page.

If you are active-duty personnel, please go to question 30 at the top of the second column on the next page.

If you are in the Guard or Reserve, **"usual job"** refers to your civilian job. If you are a student or homemaker, your work falls into the category of usual job.

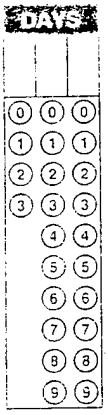
28. Think about any illnesses you may have had in the past 12 months. How many days were you unable to perform your usual job because of an illness in the past 12 months? (WOMEN: Do NOT count illnesses that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an illness in the past 12 months, please enter 000.*
- *If you had any illnesses in the past 12 months but none of them made you unable to perform your usual job, please enter 000.*
- *Then, darken the matching circle below each box.*



29. Think about any injuries you may have had in the past 12 months. How many days were you unable to perform your usual job because of an injury in the past 12 months? (WOMEN: Do NOT count injuries that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an injury in the past 12 months, please enter 000.*
- *If you had any injuries in the past 12 months but none of them made you unable to perform your usual job, please enter 000.*
- *Then, darken the matching circle below each box.*



Preventive Care

30. A fecal occult blood test is a test of a bowel movement to determine whether it contains blood. When did you have your most recent fecal occult blood test?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never
- ◯ Don't know

31. About how long has it been since you had your blood pressure taken by a doctor, nurse, or other health care professional?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never
- ◯ Don't know

32. About how long has it been since you had your cholesterol checked?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never
- ◯ Don't know

33. How long has it been since you last visited a dentist or dental health professional for a routine checkup or cleaning?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never
- ◯ Don't know

Health Care

34. In the past 12 months, what has been the main (or primary) source of payment for your medical or doctor's bills?
(Choose the one answer that best applies)

- ○ Active-duty medical benefits
- ○ Reserve or Guard medical benefits
- ○ Veterans Administration medical benefits
- ○ Other government-sponsored medical insurance (such as Federal employee insurance, or Medicaid)
- ○ Health insurance from a civilian employer (including insurance you receive through your spouse's employment)
- ○ Other private insurance coverage
- ○ Your own money
- ○ Money received or borrowed from family or friends

35. In the past 12 months, what has been the main (or primary) source of payment for your dental bills?
(Choose the one answer that best applies)

- ○ Active-duty medical/dental benefits
- ○ Reserve or Guard medical/dental benefits
- ○ Veterans Administration medical/dental benefits
- ○ Other government-sponsored medical insurance (such as Federal employee insurance, or Medicaid)
- ○ Health insurance from a civilian employer (including insurance you receive through your spouse's employment)
- ○ Other private insurance coverage
- ○ Your own money
- ○ Money received or borrowed from family or friends

36. In the past 12 months, did cost keep you from getting any of the following?
(Darken one circle on each line)

Cost kept me from getting:	Yes	No
a. Health insurance coverage	○	○
b. Treatment of an illness or injury	○	○
c. Follow-up visit for an illness or injury	○	○
d. General physical exam	○	○
e. Prescription medication	○	○
f. Eye care	○	○
g. Prenatal care	○	○
h. Any type of surgery	○	○
i. Mental health care	○	○
j. Emergency care	○	○
k. Dental care	○	○
l. Counseling for an alcohol or other drug problem	○	○

37. In the past 12 months, were you unable to get any of the kinds of care described in question 36 because you could not meet your deductible or co-payments?

- ○ Yes
- ○ No

38. Please indicate how many times you went to a military health care provider for your own health care during the past 12 months. Care from a Veterans Administration facility is not included here—Go to question 39.

- ○ Did not receive care from a military provider in past 12 months [Go to question 39]

I went to a military provider for: (Darken one circle on each line)	Number of times 0	1	2	3	4 or more
a. Treatment of an illness or injury	○	○	○	○	○
b. Follow-up visit for an illness or injury	○	○	○	○	○
c. General physical exam	○	○	○	○	○
d. Prescription refill only	○	○	○	○	○
e. Eye exam only	○	○	○	○	○
f. Prenatal care	○	○	○	○	○
g. Same day surgery	○	○	○	○	○
h. Surgery that required an overnight hospital stay	○	○	○	○	○
i. Overnight hospital stay (other than for surgery)	○	○	○	○	○
j. Mental health care	○	○	○	○	○
k. Emergency care	○	○	○	○	○
l. Dental care	○	○	○	○	○
m. Counseling for an alcohol or other drug problem	○	○	○	○	○
n. Other type of care	○	○	○	○	○

39. Please indicate how many times you went to a civilian health care provider for your own health care during the past 12 months. Include care from a Veterans Administration facility here.

- ○ Did not receive care from a civilian provider in past 12 months [Go to question 40 at the top of the next page]

I went to a civilian provider for: (Darken one circle on each line)	Number of times 0	1	2	3	4 or more
a. Treatment of an illness or injury	○	○	○	○	○
b. Follow-up visit for an illness or injury	○	○	○	○	○
c. General physical exam	○	○	○	○	○
d. Prescription refill only	○	○	○	○	○
e. Eye exam only	○	○	○	○	○
f. Prenatal care	○	○	○	○	○
g. Same day surgery	○	○	○	○	○
h. Surgery that required an overnight hospital stay	○	○	○	○	○
i. Overnight hospital stay (other than for surgery)	○	○	○	○	○
j. Mental health care	○	○	○	○	○
k. Emergency care	○	○	○	○	○
l. Dental care	○	○	○	○	○
m. Counseling for an alcohol or other drug problem	○	○	○	○	○
n. Other type of care	○	○	○	○	○

Stress

40. When you feel pressured, stressed, or anxious, how often do you engage in <u>each</u> of the following activities?

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. Talk to a friend or family member	○	○	○	○	○
b. Light up a cigarette	○	○	○	○	○
c. Have a drink	○	○	○	○	○
d. Exercise or play sports	○	○	○	○	○
e. Get something to eat	○	○	○	○	○
f. Smoke marijuana or use other illegal drugs	○	○	○	○	○
g. Think of a plan to solve the problem	○	○	○	○	○
h. Think about hurting yourself or killing yourself	○	○	○	○	○

41. During the <u>past 12 months</u>, how much stress did you experience <u>in your usual job</u>?

- ○ A great deal
- ○ A fairly large amount
- ○ Some
- ○ A little
- ○ None at all
- ○ I don't have a usual or regular job

42. During the <u>past 12 months</u>, how much stress did you experience <u>in your personal life</u>?

- ○ A great deal
- ○ A fairly large amount
- ○ Some
- ○ A little
- ○ None at all

43. During the <u>past 12 months</u>, how much did stress <u>in your usual job</u> interfere with your ability to perform your military responsibilities?

- ○ A lot
- ○ Some
- ○ A little
- ○ Not at all
- ○ Had no stress in my usual job in the past 12 months
- ○ I don't have a usual or regular job

44. During the <u>past 12 months</u>, how much did stress <u>in your personal life</u> interfere with your ability to perform your military responsibilities?

- ○ A lot
- ○ Some
- ○ A little
- ○ Not at all
- ○ Had no stress in my personal life in the past 12 months

Emotions

45. Below is a list of ways you might have felt or behaved. Please indicate how often you have felt this way during the <u>past 7 days</u>.

	Most or all of the time (5-7 days)	Occasionally or a moderate amount of time (3-4 days)	Some or a little of the time (1-2 days)	Rarely or none of the time (less than 1 day)
In the <u>past 7 days</u>:				
a. My sleep was restless	○	○	○	○
b. I felt lonely	○	○	○	○
c. I felt I could not shake off the blues even with help from my family or friends	○	○	○	○
d. I felt sad	○	○	○	○
e. I could not get "going"	○	○	○	○
f. I had trouble keeping my mind on what I was doing	○	○	○	○
g. I felt that everything I did was an effort	○	○	○	○

46. How do you feel about your life as a whole?

- ○ Pleased/delighted
- ○ Mostly satisfied
- ○ Mixed
- ○ Mostly dissatisfied
- ○ Terrible/unhappy

47. During the <u>past 12 months</u>, when you have gotten angry, how often have you:

	Very often	Fairly often	Sometimes	Almost never	Never
a. Sworn and cursed	○	○	○	○	○
b. Gotten into an argument	○	○	○	○	○
c. Hid your anger/tried not to show it	○	○	○	○	○
d. Yelled or shouted	○	○	○	○	○
e. Tried to calmly explain your feelings or opinions	○	○	○	○	○
f. Just stopped talking, avoided arguing, and started to do something else	○	○	○	○	○
g. Made a fist and shown an angry expression on your face	○	○	○	○	○
h. Taken out your anger by kicking things (like a chair), giving a door a good slam, punching the wall, or looking for something to throw or smash	○	○	○	○	○

Weight Management and Nutrition

48. During the past 12 months, have you tried to lose weight?

- ○ Yes
- ○ No

49. How easy or difficult has it been for you to meet military weight standards?

- ○ Very easy
- ○ Somewhat easy
- ○ Somewhat difficult
- ○ Very difficult

50. During the past 12 months, have you changed your eating habits because of any medical condition?

- ○ Yes
- ○ No

51. Are you satisfied with your eating patterns?

- ○ Yes
- ○ No

52. Do you ever eat in secret (intentionally hide your eating)?

- ○ Yes
- ○ No

53. During the past 7 days, on about how many days did you:
(Darken one circle on each line)

	Number of Days							
	0	1	2	3	4	5	6	7
a. Eat breakfast	○	○	○	○	○	○	○	○
b. Eat snacks between meals	○	○	○	○	○	○	○	○
c. Overeat	○	○	○	○	○	○	○	○
d. Not eat enough	○	○	○	○	○	○	○	○
e. Take vitamin pills	○	○	○	○	○	○	○	○
f. Take calcium supplements	○	○	○	○	○	○	○	○

54. During the past 7 days, about how many times did you:

	More than 7 times	4-6 times	1-3 times	Never
a. Eat high-fat meats or dairy products (e.g., hamburger, hot dogs, steak, bacon, whole milk, cheese, ice cream)	○	○	○	○
b. Eat fried foods (e.g., french fries, fried chicken, fried eggs)	○	○	○	○
c. Eat sweets (e.g., cakes, pies, cookies, candies)	○	○	○	○
d. Eat low-fat meats or dairy products (e.g., chicken or turkey without skin, low-fat milk, yogurt)	○	○	○	○
e. Eat "leafy" vegetables (e.g., broccoli, cabbage, greens, spinach)	○	○	○	○
f. Eat "starchy" vegetables (e.g., beans, peas, corn, potatoes)	○	○	○	○
g. Eat fruits (e.g., apples, fruit juice, raisins, dried fruit, melons, bananas)	○	○	○	○
h. Eat high-fiber foods (whole grain breads, cereals, bran)	○	○	○	○

55. How important do you feel that food choices are in terms of your health?

- ○ Probably the most important factor
- ○ Very important, but not the most important factor
- ○ Important
- ○ Not very important
- ○ Of little or no consequence

56. Think about times when you've bought food—that could include groceries, food from restaurants, or food from snack bars. How important to you are the following considerations when you buy food?

When you buy food, how important are a food's:	Extremely important	Very important	Moderately important	Somewhat important	Not at all important
a. Health benefits, nutritional value	○	○	○	○	○
b. Price, cost	○	○	○	○	○
c. Taste, eating enjoyment	○	○	○	○	○
d. Convenience, ease of preparation	○	○	○	○	○
e. Calories	○	○	○	○	○

Exercise

57. During the past 30 days, how often did you do each of the following?

	About every day	5-6 days a week	3-4 days a week	1-2 days a week	1-3 days in past 30 days	Never in past 30 days
In the past 30 days, I:						
a. Engaged in strenuous physical activity for 20 minutes or more (such as running, jogging, or walking)	○	○	○	○	○	○
b. Engaged in activities that improve muscle strength (such as pushups, situps, weight lifting, or resistance training)	○	○	○	○	○	○
c. Engaged in mild physical activity (such as baseball, bowling, or volleyball) more for the recreation than for the exercise	○	○	○	○	○	○

58. **If you indicated that you engaged in strenuous activity in question 57, how long have you been doing that (as often as you said in question 57)?**
- ○ Didn't do any strenuous activity in the past 30 days
- ○ Less than 1 month
- ○ At least 1 month, but less than 4 months
- ○ At least 4 months, but less than 1 year
- ○ At least 1 year, but less than 3 years
- ○ At least 3 years, but less than 5 years
- ○ 5 years or more

59. **How would you rate your current physical fitness?**
- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

60. **In the past 12 months, how easy or difficult was it for you to pass your service's Physical Training (PT) test?**
- ○ Very easy
- ○ Somewhat easy
- ○ Somewhat difficult
- ○ Very difficult
- ○ I have taken a PT test, but not in the past 12 months
- ○ I have never taken a PT test

Alcohol Use

Please answer ALL of the following alcohol use questions even if you don't drink or you're not a regular drinker.

61. **During the past 30 days, on how many days did you drink one or more drinks of alcoholic beverages?** Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; or a shot of liquor or a mixed drink or cocktail.
- ○ 28-30 days (about every day)
- ○ 20-27 days (5-6 days a week, average)
- ○ 11-19 days (3-4 days a week, average)
- ○ 4-10 days (1-2 days a week, average)
- ○ 2-3 days in the past 30 days
- ○ Once in the past 30 days
- ○ None in the past 30 days
- ○ Never drank alcoholic beverages in my life

62. **Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a TYPICAL day?** Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; or a shot of liquor or a mixed drink or cocktail.
- ○ 9 drinks or more
- ○ 8 drinks
- ○ 7 drinks
- ○ 6 drinks
- ○ 5 drinks
- ○ 4 drinks
- ○ 3 drinks
- ○ 2 drinks
- ○ 1 drink
- ○ None in the past 30 days
- ○ Never drank alcoholic beverages in my life

63. **During the past 30 days, on how many days did you have 5 or more drinks on the same occasion?** By "occasion," we mean at the same time or within a couple of hours of each other.
- ○ 28-30 days (about every day)
- ○ 20-27 days (5-6 days a week, average)
- ○ 11-19 days (3-4 days a week, average)
- ○ 4-10 days (1-2 days a week, average)
- ○ 2-3 days in the past 30 days
- ○ Once in the past 30 days
- ○ Drank during the past 30 days, but never had 5 or more drinks on the same occasion
- ○ None in the past 30 days
- ○ Never drank alcoholic beverages in my life

Tobacco Use

Please answer ALL of the following tobacco use questions even if you don't use tobacco products or you're not a regular user.

64. When was the last time you smoked a cigarette?

- ◯ Today
- ◯ During the past 30 days
- ◯ 5-8 weeks ago
- ◯ 2-3 months ago
- ◯ 4-6 months ago
- ◯ 7-12 months ago
- ◯ 1-3 years ago
- ◯ More than 3 years ago
- ◯ Never smoked cigarettes in my life

65. Think about the <u>past 30 days</u>. How many cigarettes did you <u>usually</u> smoke on a <u>TYPICAL day</u>?

- ◯ About 3 or more packs a day (more than 55 cigarettes)
- ◯ About 2½ packs a day (46-55 cigarettes)
- ◯ About 2 packs a day (36-45 cigarettes)
- ◯ About 1½ packs a day (26-35 cigarettes)
- ◯ About 1 pack a day (16-25 cigarettes)
- ◯ About ½ pack a day (6-15 cigarettes)
- ◯ 1-5 cigarettes a day
- ◯ Less than 1 cigarette a day, on the average
- ◯ Did not smoke any cigarettes in the past 30 days
- ◯ Never smoked cigarettes in my life

66. Have you smoked at least 100 cigarettes in your entire life? (That would be 5 packs or more in your entire life.)

- ◯ Yes
- ◯ No

67. During the <u>past 12 months</u>, have you made a serious attempt to stop smoking cigarettes; that is, did you go for at least a week without smoking?

- ◯ Yes
- ◯ No
- ◯ Didn't smoke cigarettes in the past 12 months
- ◯ Never smoked cigarettes in my life

68. When was the last time you used chewing tobacco or snuff or other smokeless tobacco?

- ◯ During the past 30 days
- ◯ More than 1 month ago but within the past 6 months
- ◯ More than 6 months ago but within the past year
- ◯ More than 1 year ago but within the past 2 years
- ◯ More than 2 years ago
- ◯ Never used smokeless tobacco in my life

69. During the <u>past 12 months</u>, how often on the average have you used chewing tobacco or snuff or other smokeless tobacco?

- ◯ About every day
- ◯ 5-6 days a week
- ◯ 3-4 days a week
- ◯ 1-2 days a week
- ◯ 2-3 days a month
- ◯ About once a month
- ◯ 7-11 days in the past 12 months
- ◯ 3-6 days in the past 12 months
- ◯ Once or twice in the past 12 months
- ◯ Not once in the past 12 months
- ◯ Never used smokeless tobacco in my life

70. Have you used chewing tobacco or snuff or other smokeless tobacco at least 20 times in your entire life?

- ◯ Yes
- ◯ No

71. During the <u>past 12 months</u>, how often on the average have you smoked cigars or a pipe?

- ◯ About every day
- ◯ 5-6 days a week
- ◯ 3-4 days a week
- ◯ 1-2 days a week
- ◯ 2-3 days a month
- ◯ About once a month
- ◯ 7-11 days in the past 12 months
- ◯ 3-6 days in the past 12 months
- ◯ Once or twice in the past 12 months
- ◯ Not once in the past 12 months
- ◯ Never smoked cigars or pipes in my life

Sexual Behavior

72. How many sexual partners have you had in the <u>past 12 months</u>?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

73. <u>In the past 12 months</u>, how often did you or your partner(s) use a condom when you had sex?

- ◯ Did not have sex in the past 12 months
- ◯ Never
- ◯ Hardly any of the time
- ◯ Some of the time
- ◯ About half of the time
- ◯ Most of the time
- ◯ Every time

74. In the <u>past 12 months</u>, have you ever had sex with anyone who has been told that he or she has HIV, AIDS, or the AIDS virus?

- ◯ Yes
- ◯ No
- ◯ Don't know

75. In the <u>past 30 days</u>, which of the following methods did you and your partner(s) use to prevent pregnancy?

- ◯ Did not have sex in the past 30 days [Go to question 78 at the top of the next page]
- ◯ Did not use any method to prevent pregnancy in the past 30 days [Go to question 76]

To prevent pregnancy, we used: *(Darken one circle on each line)*	Yes	No
a. Birth control pills	◯	◯
b. Depo-provera	◯	◯
c. Norplant	◯	◯
d. Condom	◯	◯
e. Diaphragm or cervical cap	◯	◯
f. Spermicide (foam, jelly, cream, suppositories)	◯	◯
g. Sponge	◯	◯
h. IUD	◯	◯
i. Douche	◯	◯
j. Withdrawal	◯	◯
k. Rhythm	◯	◯
l. Abstinence (not having sex when you had the opportunity)	◯	◯
m. Some other method	◯	◯

76. In the following question, "partner" refers to the person you have sex with the most. Have you or your partner:

	Yes	No
a. Had a vasectomy	◯	◯
b. Had a tubal ligation (had "tubes tied")	◯	◯
c. Had a hysterectomy	◯	◯
d. Found out that one of you was infertile or sterile	◯	◯

[If you answered "yes" to <u>any</u> of these, go to question 78 at the top of the next page]

77. A list of reasons why people sometimes do not use birth control follows. Please indicate if each reason was a reason why you did not use birth control in the <u>past 30 days</u>:

- ◯ Used birth control in the past 30 days [Go to question 78 at the top of the next page]

I did NOT use birth control in the past 30 days because: *(Darken one circle on each line)*	Yes	No
a. Using birth control is against my religious or moral beliefs	◯	◯
b. My partner(s) didn't want us to use birth control	◯	◯
c. Using birth control is too much of a hassle	◯	◯
d. We wanted to have a baby (get pregnant)	◯	◯
e. Using birth control is too expensive	◯	◯
f. I was too embarrassed to ask for it	◯	◯
g. Some other reason	◯	◯

Life Changes

78. In the past 12 months, how many serious personal losses or difficult problems have you had to handle (such as a promotion passover, divorce or separation, legal or disciplinary action, bankruptcy, large bills or credit card debt, death of someone close, serious illness or injury of a loved one)?

- ◯ Many
- ◯ Some
- ◯ Few
- ◯ None

79. Have you seriously considered suicide?
(Darken one circle on each line)

I have seriously considered suicide within the:	Yes	No
a. Past 2 years	◯	◯
b. Past year	◯	◯
c. Past 2 months	◯	◯

If you answered "yes" to any of the items in question 79, please seek help. If you are in the US, contact Covenant House at 1-800-999-9999 (an anonymous, civilian hotline). They can also give you information about resources available in your area. If you are outside the US, please contact your unit's chaplain.

80. In the past 12 months, how often did you have any serious problems dealing with your spouse, parents, friends, co-workers, or with your children?

- ◯ Often
- ◯ Sometimes
- ◯ Rarely (but at least once)
- ◯ Never

81. In the past 12 months, how often did you experience a major pleasant change (such as a promotion, marriage, birth, award)?

- ◯ Often
- ◯ Sometimes
- ◯ Rarely (but at least once)
- ◯ Never

82. What causes the biggest problem in your life?
(Choose the one answer that best applies)

- ◯ Social life
- ◯ Family
- ◯ Supervisor
- ◯ Military job
- ◯ Civilian job
- ◯ Spouse's job
- ◯ Health
- ◯ Money
- ◯ Something else
- ◯ No problems

For this questionnaire, please use the following definitions for emotional, sexual, and physical abuse.
Physical abuse is forceful behavior (even once) that may result in physical injury.
Sexual abuse is taking advantage of another person by fondling, rape, or forcing that person to take part in other sex acts against that person's will.
Emotional abuse is the misuse of a person's feelings; as a result, one thinks less of oneself.

83. Were you abused before entering the Military?
(Darken one circle on each line)

Before entering the Military, I had been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

84. Since entering the Military, have you been abused by someone else in the Military?
(Darken one circle on each line)

Since entering the Military, I have been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

85. Since entering the Military, have you been abused by someone NOT in the Military?
(Darken one circle on each line)

Since entering the Military, I have been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

86. Have you ever received counseling to help you deal with abuse you've suffered?
(Darken one circle on each line)

I have received counseling for:	Yes	No	Never been abused in this way
a. Physical abuse	◯	◯	◯
b. Sexual abuse	◯	◯	◯
c. Emotional abuse	◯	◯	◯

Friends and Family

87. How many close friends do you have (people you feel at ease with, can talk to about private matters, and can call for help)?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

88. How many relatives do you have that you feel close to?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

89. How many of these friends or relatives do you see at least once a month?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

90. Are you a member of any social clubs or groups?

○ Yes
○ No

91. Are you an active member of a church, temple, or other religious organization?

○ Yes
○ No

92. In the past 12 months, how many children (natural, adopted, stepchildren, or grandchildren) under the age of 21 lived in your household?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

93. What are the ages of the children who lived in your household in the past 12 months?

○ No children lived in my household in the past 12 months [Go to question 94]

I have had children living in my household who are: *(Darken one circle on each line)*	Yes	No
a. Less than 6 months old	○	○
b. 6 months to under 1 year old	○	○
c. 12 to 23 months old	○	○
d. 24 to 35 months old	○	○
e. 3 to 5 years old	○	○
f. 6 to 9 years old	○	○
g. 10 to 12 years old	○	○
h. 13 to 15 years old	○	○
i. 16 to 20 years old	○	○

Disaster or Violence Exposure

Exposure to a disaster or violence can sometimes have long-term effects. The following questions will help to provide a history of exposure to disasters or violence that may help in studying their effects.

94. Have you ever been exposed to a natural disaster involving injuries or fatalities (such as earthquakes, fires, floods)?
(Darken one circle on each line)

I have been exposed to a natural disaster as:	Yes	No
a. a witness	○	○
b. a survivor or victim	○	○
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	○	○

95. Have you ever been exposed to combat or violence involving injuries or fatalities?
(Darken one circle on each line)

I have been exposed to combat or violence as:	Yes	No
a. a witness	○	○
b. a survivor or victim	○	○
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	○	○
d. someone who has used deadly force in combat	○	○

96. Have you ever witnessed or been exposed to a major accident involving injuries or fatalities?
(Darken one circle on each line)

I have been exposed to a major accident as:	Yes	No
a. a witness	○	○
b. a survivor or victim	○	○
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	○	○

Military Work

The following questions ask how you feel about your current military job.

97. How often are you bothered by each of the following in your military job? *(Darken one circle on each line)*

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. Not having enough help and equipment to get the job done well	○	○	○	○	○
b. Feeling you have too much responsibility for the work of others	○	○	○	○	○
c. Thinking that you'll not be able to meet the conflicting demands of various people you work with	○	○	○	○	○
d. Having to do or decide things where mistakes could be quite costly	○	○	○	○	○
e. Not knowing just what the people you work with expect from you	○	○	○	○	○
f. Thinking that the amount of work you have to do may interfere with how well it gets done	○	○	○	○	○
How often are you bothered by each of the following in your military job?					
g. Feeling that you have to do things on the job that are against your better judgment	○	○	○	○	○
h. Feeling that your job tends to interfere with your family life	○	○	○	○	○
i. Feeling unable to influence your immediate supervisor's decisions and his/her actions that affect you	○	○	○	○	○
j. Having to deal with or satisfy too many different people	○	○	○	○	○
k. Being asked to work overtime when you don't want to	○	○	○	○	○
l. Feeling trapped in a job you don't like but can't change and can't get out of	○	○	○	○	○

98. Overall, how satisfied would you say you are with your current military job?

- ○ Very dissatisfied
- ○ Somewhat dissatisfied
- ○ Somewhat satisfied
- ○ Very satisfied

99. Knowing what you know now, if you had to decide all over again whether to serve in your current military job, what would you decide?

- ○ Decide definitely not to serve in my current military job
- ○ Have some second thoughts about serving in my current military job
- ○ Decide without hesitation to serve in my current military job

100. In general, how well would you say that your current military job measures up to the sort of job you wanted when you took it?

- ○ Measures up very much
- ○ Measures up somewhat
- ○ Doesn't measure up

101. If a good friend told you that he or she was interested in working in a job like your current military job, what would you tell him or her?

- ○ Advise him/her against it
- ○ Recommend it with some doubts
- ○ Strongly recommend it

102. How sad or happy do you feel about your current military job?

Happy ① ② ③ ④ ⑤ ⑥ Sad

Deployment occurs when you are alerted, activated, and processed for movement in support of "real world" military operations. Deployment does not include scheduled trainings (such as annual training).

103. In the past 5 years, have you ever been prevented or deferred from deploying for any of the following reasons:

- ○ Never been deployed in the past 5 years [Go to question 112 at the top of the next page]
- ○ Never been prevented from deploying in the past 5 years [Go to question 104]

I was not deployed because of: *(Darken one circle on each line)*	Yes	No
a. A pregnancy	○	○
b. A family situation	○	○
c. An injury	○	○
d. Dental work or dental problems	○	○
e. An abnormal Pap smear	○	○
f. A chronic illness (e.g., asthma, diabetes)	○	○

104. Think about the last time you were deployed. Did you have orders to go someplace other than your usual duty location?

- ○ Yes
- ○ No
- ○ Never been deployed

105. The last time you were deployed, how long were you away from your home for 24 hours or more?

- ○ Less than 1 week
- ○ At least 1 week, but less than 2 weeks
- ○ At least 2 weeks, but less than 3 weeks
- ○ At least 3 weeks, but less than 4 weeks
- ○ At least 1 month, but less than 2 months
- ○ At least 2 months, but less than 5 months
- ○ At least 5 months, but less than 6 months
- ○ At least 6 months, but less than 12 months
- ○ At least 1 year, but less than 2 years
- ○ At least 2 years, but less than 4 years
- ○ More than 4 years
- ○ Never been deployed

106. Think about the last time you were deployed.

How satisfied were you with:

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Don't know
a. The number of toilet facilities provided	○	○	○	○	○
b. The number of hand washing facilities provided	○	○	○	○	○
c. The number of shower facilities provided	○	○	○	○	○
d. The amount of privacy available for personal hygiene	○	○	○	○	○
e. The availability of health care services	○	○	○	○	○

107. Did you serve with the Military in any of the following areas?

(Darken one circle on each line)

I served in:	Yes	No
a. The Persian Gulf—Operations Desert Shield or Desert Storm	○	○
b. Panama—Operation Just Cause	○	○
c. Somalia—Operation Restore Hope	○	○
d. Haiti—Operation Uphold Democracy	○	○
e. Bosnia—Operations Joint Endeavor or Joint Guard	○	○
f. Cuba—Operation Safe Haven	○	○
g. Other foreign areas	○	○

108. While deployed during the following operations, how much of the time were you on foreign soil (do not include time aboard a ship)?

I was on foreign soil during:

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. The Persian Gulf—Operations Desert Shield or Desert Storm	○	○	○	○	○
b. Panama—Operation Just Cause	○	○	○	○	○
c. Somalia—Operation Restore Hope	○	○	○	○	○
d. Haiti—Operation Uphold Democracy	○	○	○	○	○
e. Bosnia—Operations Joint Endeavor or Joint Guard	○	○	○	○	○
f. Cuba—Operation Safe Haven	○	○	○	○	○
g. Other foreign areas	○	○	○	○	○

If you are in the Guard or Reserve, **"usual job"** refers to your civilian job. If you are a student or homemaker, your work falls into the category of usual job.

109. The last time you were deployed, how much stress did you experience upon returning to your usual job?

- ○ A great deal
- ○ A fairly large amount
- ○ Some
- ○ A little
- ○ None at all
- ○ Never been deployed

110. The last time you were deployed, how much stress did you experience upon returning to your home?

- ○ A great deal
- ○ A fairly large amount
- ○ Some
- ○ A little
- ○ None at all
- ○ Did not leave home the last time I was deployed
- ○ Never been deployed

111. During the past 12 months, have you been away from your home as part of your military service for at least 30 days in a row?

- ○ Yes
- ○ No

Occupational Health

112. During the past 30 days, have you been exposed to tobacco smoke for an hour or more a day?

	Yes	No
a. At work	○	○
b. At home	○	○

113. In your military job, how often are you/have you been exposed to the hazards listed below?

Most of the time
A moderate amount of the time
Some of the time
Rarely
Never
Don't know

I've been exposed to:

a. Fibrous glass (fiberglass) . . . . . ○○○○○○
b. Asbestos . . . . . ○○○○○○
c. Coal dust or rock dust . . . . . ○○○○○○
d. Silica powder or sandblasting dust . . ○○○○○○
e. Other specific dusts (wood, talc, lime) . . . . . ○○○○○○
f. Respiratory or skin irritants . . . . . ○○○○○○
g. Chemicals (acids, alkalis, solvents) . ○○○○○○
h. Paint (oil-based thinner, scrapings, or sanding) . . . . . ○○○○○○
i. Metal fumes (from molten metal) . . . ○○○○○○
j. Metal scrapings/filings . . . . . ○○○○○○
k. Welding fumes . . . . . ○○○○○○
l. Coal tar, pitch, asphalt . . . . . ○○○○○○
m. Engine exhaust (gasoline, diesel, or jet) . . . . . ○○○○○○
n. Fuels or motor oil . . . . . ○○○○○○

I've been exposed to:

o. Loud noise (e.g., jets) . . . . . ○○○○○○
p. Heavy lifting (over 25 lb) . . . . . ○○○○○○
q. X-rays . . . . . ○○○○○○
r. Radioactive materials (e.g., nuclear fuel, nuclear medicines) . . . . . ○○○○○○
s. Vibration (vibrating tools, motors) . . . ○○○○○○
t. General shop dust . . . . . ○○○○○○
u. Pesticides, herbicides . . . . . ○○○○○○
v. Alcohol (industrial) . . . . . ○○○○○○
w. Medical waste (e.g., used hypodermic needles) . . . . . ○○○○○○
x. Adhesives . . . . . ○○○○○○
y. Explosives . . . . . ○○○○○○
z. Radar antenna or array (within 50 ft) . ○○○○○○
aa. Transmitting antennas (within 50 ft) . ○○○○○○
bb. Some other hazard . . . . . ○○○○○○

114. Is protective gear available for you to use in your current military job? Examples of protective gear are gloves, respirator, filter, mask, rubber boots, ear plugs, film badge, hazardous materials suit, and fire fighting suit.

○ Always
○ Sometimes, but not always
○ Never
○ Don't need to wear protective gear (no contact with harmful substances)

115. In your military job, when you have contact with substances that might be harmful, how often do you use protective gear?

○ Always
○ Sometimes, but not always
○ Never
○ Don't need to wear protective gear (no contact with harmful substances)

116. In your military job, when you have contact with substances that might be harmful, which reasons for NOT wearing protective gear are true for you?

○ Don't need to wear protective gear (No contact with harmful substances) [Read appropriate box at bottom of this page]

In my military job, I don't wear protective gear when:
(Darken one circle on each line)

	Yes	No
a. It doesn't work properly	○	○
b. It interferes with job performance	○	○
c. It is uncomfortable	○	○
d. I don't know how to use it	○	○

If you are **MALE**: *Please* STOP *here.*

Place the questionnaire in the enclosed postage-free envelope and mail it. Thank you for your time and cooperation.

If you are **FEMALE**: We would appreciate it if you would take a few extra minutes to answer some additional questions about women's health issues. Please continue to the next page.

Women's Health Issues

This section asks questions about women's health issues, including stress, health care, and medical conditions.

1. In the past 12 months, how much stress did you experience because you are a woman in the Military?

- ◯ None at all
- ◯ A little
- ◯ Some
- ◯ A fairly large amount
- ◯ A great deal

2. During the past 3 months, did you have any of these conditions? (Include times you have had these conditions even if you didn't seek medical care.)

◯ Have had a hysterectomy [Go to question 3]

In the past 3 months, I have had: *(Darken one circle on each line)*	**Yes**	**No**
a. Premenstrual symptoms or pain (PMS, premenstrual cramps)	◯	◯
b. Cramps or pain during menstrual period requiring medication or time off from work	◯	◯
c. Heavy periods (excessive menstrual flow)	◯	◯
d. Light periods (hardly any menstrual flow)	◯	◯
e. One missed period	◯	◯
f. No menstrual periods for 2 or more months	◯	◯
In the past 3 months, I have had:		
g. A period that lasted longer than a week	◯	◯
h. Too many periods (time between periods too short)	◯	◯
i. Bleeding between periods	◯	◯
j. Endometriosis	◯	◯
k. Problem with uterus (womb) other than endometriosis	◯	◯

3. During the past 3 months, did you have any of these conditions? (Include times you have had these conditions even if you didn't seek medical care.)

(Darken one circle on each line)

	Yes	**No**
a. Discharge from breast	◯	◯
b. Breast lump	◯	◯
c. Yeast or vaginal infection	◯	◯
d. Vaginal rash, discharge, or other disorder except yeast infection or sexually transmitted disease	◯	◯
e. Abdominal pain (from known cysts)	◯	◯
f. Abdominal pain (from unknown cause)	◯	◯

4. At what age did your menstrual cycles begin?

- ◯ Younger than 10 years old
- ◯ 10-12 years old
- ◯ 13-15 years old
- ◯ 16 years old or older
- ◯ Don't know

5. What is the total number of years you have taken birth control pills in your lifetime?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫+

6. A Pap smear is when a health care provider inserts a swab into your vagina to scrape cells from the cervix. How long has it been since you had a Pap smear?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never
- ◯ Don't know

7. Have you ever had a Pap smear where the result was NOT normal?

- ◯ Yes
- ◯ No
- ◯ Don't know

8. If you have had Pap smear results that were NOT normal, have you had any of the following?

(Darken one circle on each line)

Because of a Pap smear that was NOT normal, I have had:	**Yes**	**No**	**Never had an abnormal Pap**
a. Additional tests	◯	◯	◯
b. Surgery	◯	◯	◯
c. Other treatment	◯	◯	◯
d. More frequent Pap smears	◯	◯	◯

9. A mammogram is an X-ray taken of your breasts by a machine that presses each breast (one at a time) between two paddles. When did you have your most recent mammogram?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ 3 or more years ago
- ◯ Never
- ◯ Don't know

10. How often do you examine your breasts for lumps?

- ◯ Monthly
- ◯ Once every few months
- ◯ Rarely or never

11. About how long has it been since you had your breasts examined by a health care provider?

- ◯ Within the past year
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ 3 or more years ago
- ◯ Never had breasts examined
- ◯ Don't know

12. Have you received training from a medical provider on how to examine your own breasts?

- ◯ Yes
- ◯ No

13. Have you ever had an operation to remove a breast lump that was found to be noncancerous?

- ◯ Yes
- ◯ No

14. While stationed outside the continental United States, how easy or difficult has it been to receive the kind of OB/GYN care you would like?

- ◯ Very easy
- ◯ Somewhat easy
- ◯ Somewhat difficult
- ◯ Very difficult
- ◯ Never been stationed outside the continental United States

15. Have you had problems (such as infertility) getting pregnant?

- ◯ Yes
- ◯ No
- ◯ Never tried to get pregnant

16. When you are pregnant, do you feel you are given enough time off from your usual job to see an OB/GYN when necessary?

- ◯ Yes
- ◯ No
- ◯ Never been pregnant [Go to question 30, which is the last question on the next page]

17. If you have been pregnant in the <u>past 12 months</u>, did you know where to get information about risks to your pregnancy from your <u>usual job</u>?

- ◯ Yes
- ◯ No
- ◯ Have not been pregnant in the past 12 months

18. How many times have you been pregnant since joining the Military?

- ◯ 1 time
- ◯ 2 times
- ◯ 3 times
- ◯ 4 or more times
- ◯ Never been pregnant

19. Think about the times you've been pregnant since joining the Military. How many <u>planned</u> pregnancies have you had?

- ◯ 1 planned pregnancy
- ◯ 2 planned pregnancies
- ◯ 3 planned pregnancies
- ◯ 4 or more planned pregnancies
- ◯ Have had only <u>unplanned</u> pregnancies since joining the Military
- ◯ Have had no pregnancies since joining the Military

20. Have you ever had a pregnancy to avoid deployment or to get to return early from deployment?

- ◯ Yes
- ◯ No

21. How many live births have you had?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

22. How many premature babies have you had?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

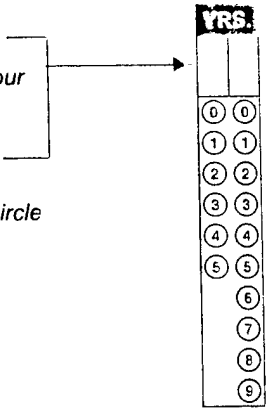
23. How many of the babies that you have had weighed less than 5 pounds at birth?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪+

24. How old were you the first time you gave birth?

◯ Never been pregnant

- *First, enter your age when your first child was born. Write <u>ONE</u> number in each box.*
- *Then, darken the matching circle below <u>each</u> box.*



25. To the best of your knowledge, when was the last time you were pregnant?

- ◯ Currently pregnant
- ◯ May be pregnant now, but don't know for certain
- ◯ Within the past year, but not now
- ◯ More than 1 year ago, but within the past 2 years
- ◯ More than 2 years ago, but within the past 3 years
- ◯ More than 3 years ago, but within the past 4 years
- ◯ More than 4 years ago, but within the past 5 years
- ◯ More than 5 years ago
- ◯ Never been pregnant

The next 4 questions refer to the last time you were pregnant. If you are currently pregnant, please answer for this pregnancy. "Pregnancy checkups" refer to checkups for weight, blood pressure, physical exams, procedures such as ultrasound, or other medical procedures related to pregnancy.

26. Think about your last pregnancy (or your current pregnancy). How long after you became pregnant did you have your first pregnancy checkup?

- ◯ Within the first 3 months after becoming pregnant
- ◯ 4-6 months after becoming pregnant
- ◯ More than 6 months after becoming pregnant
- ◯ Did not have any pregnancy checkups
- ◯ Have not had first checkup
- ◯ Never been pregnant

27. For your last pregnancy (or your current pregnancy), did you have any of the following?

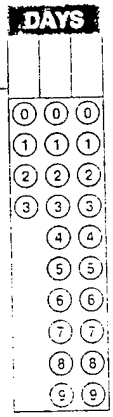
◯ Never been pregnant

During my last pregnancy (or current), I had: *(Darken one circle on each line)*	Yes	No
a. Pregnancy complications that restricted my normal activities (e.g., high blood pressure, severe swelling, spotting, premature labor, diabetes)	◯	◯
b. An ectopic or "tubal" pregnancy	◯	◯
c. Childbirth problems (e.g., hemorrhaging, Caesarean section, induced labor)	◯	◯
d. A miscarriage or spontaneous abortion	◯	◯
e. Complications after childbirth that restricted my normal activities (e.g., infection, depression)	◯	◯

28. How many days were you unable to perform your military job because of an illness during your last pregnancy (or your current pregnancy)?

◯ Never been pregnant

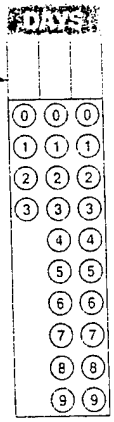
- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you did NOT have an illness during your last (or current) pregnancy, please enter 000.*
- *If you had any illnesses during your last (or current) pregnancy, but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



29. If you are in the Guard or Reserves, how many days were you unable to perform your usual job because of an illness during your last pregnancy (or your current pregnancy)?

◯ Active-duty personnel [Go to question 30]
◯ Never been pregnant [Go to question 30]

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you did NOT have an illness during your last (or current) pregnancy, please enter 000.*
- *If you had any illnesses during your last (or current) pregnancy, but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



30. During the past 30 days, have you taken replacement estrogens?

◯ Yes
◯ No

Thank you for the extra effort to complete these questions.

Place the questionnaire in the enclosed postage-free envelope and mail it.

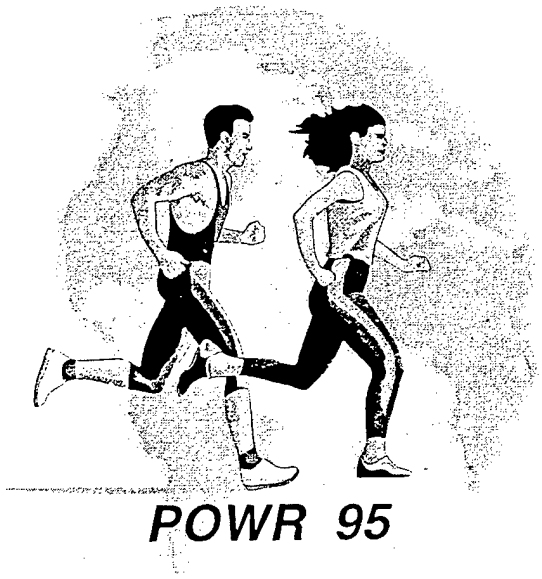
Thank you for your time and cooperation.

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APPENDIX G

1995 POWR ASSESSMENT: PERCEPTIONS OF WELLNESS AND READINESS

1995 *POWR* Assessment: Perceptions of Wellness and Readiness



DEPARTMENT OF THE NAVY
NAVAL HEALTH RESEARCH CENTER
SAN DIEGO, CA

PRIVACY ACT STATEMENT

1. Authority. 5 USC 301, 10 USC 1071. OPNAV 6000-15a-c, 11/30/95. 2. Purpose. Medical research information will be collected to enhance basic medical knowledge concerning medical care and health promotion. 3. Routine use. Medical research information will be used in statistical analyses by the Department of the Navy, Defense, and other U.S. Government agencies, provided this is compatible with the purpose for which information was collected. Use of the information may be granted to non-Government agencies by the Chief, Bureau of Medicine and Surgery, in accordance with the provisions of the Freedom of Information Act. 4. Voluntary disclosure. I understand that all information derived from the study will be retained at the Naval Health Research Center, San Diego, and that my anonymity will be maintained. I voluntarily agree to its disclosure to agencies or individuals identified in the preceding section, and I have been informed that failure to agree to such disclosure may negate the purposes of the study. I understand that my provision of information is voluntary, and that I am free to discontinue filling out the questionnaire and withdraw from the study at any time without prejudice or loss of medical treatment or privileges to which I would otherwise be entitled.

ABOUT THIS QUESTIONNAIRE

WHY ME?

You have been selected at random to be a part of the group of people who represent all active duty Navy and Marine Corps personnel. Enough people were selected to participate in this survey so that valid conclusions can be made about the health status of military personnel and the appropriateness of military health services.

WHY SHOULD I BOTHER? DO SURVEYS CHANGE ANYTHING?

In general, statistics from surveys provide valuable information to policymakers and planners about your health and health care services. Survey data help to identify parts of our health care system that work well and the parts that need to be improved. Changes to the system may take time, but filling out this survey will help ensure that we make changes as quickly as possible. Your response counts!

WILL MY SURVEY RESULTS BE KEPT PRIVATE?

Yes. Under no circumstances will any information about individuals be released to anyone. Any identifiable information will be used only by persons engaged in, and for the purposes of, the survey. A number will be given to each questionnaire and only that number will be used in analyses. Moreover, the results will be derived from pooled data and no individual's responses will be identifiable.

AREN'T SOME OF THE QUESTIONS VERY PERSONAL?

Yes. Although people will have different views on what is or is not personal, most people will consider at least some of the questions to be very personal. We are asking questions to evaluate the health of military members and the health care they receive. Good estimates can be made only if most people answer all the questions in the survey. However, you can choose not to answer particular items.

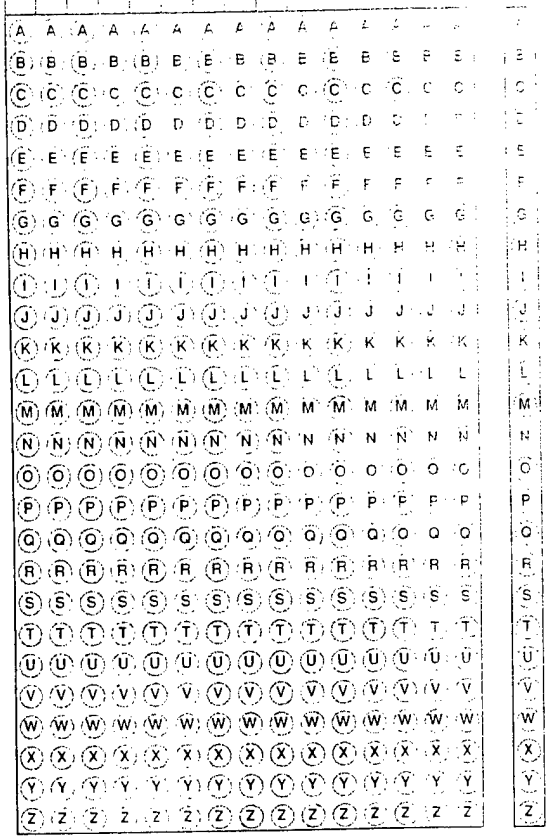
MARKING INSTRUCTIONS

- USE A NO. 2 PENCIL.
- MAKE HEAVY MARKS THAT FILL THE CIRCLE FOR YOUR ANSWER.
- ERASE CLEANLY ANY MARKS YOU WISH TO CHANGE.
- PLEASE DO NOT MAKE STRAY MARKS OF ANY KIND.

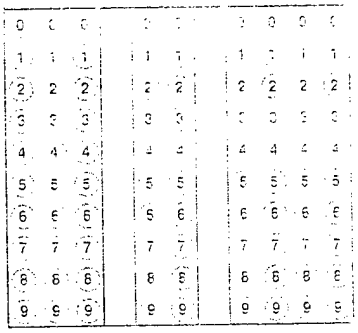
CORRECT MARK

INCORRECT MARKS

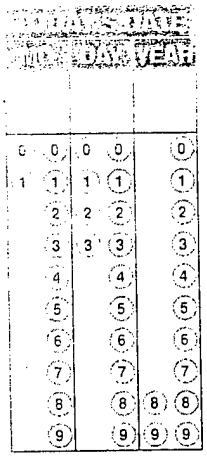
1.



2.



3.



4. **HEIGHT**

FT	IN
4	0
5	1
6	2
7	3
	4
	5
	6
	7
	8
	9
	10
	11

5. **WEIGHT**

POUNDS		
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
	5	5
	6	6
	7	7
	8	8
	9	9

6. What age were you on your last birthday?

AGE	
YRS	
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

7. **BIRTHDAY**

MO		DAY		YEAR		
0	0	0	0		0	
1	1	1	1	1	1	
	2	2	2	2	2	
	3	3	3	3	3	
	4		4	4	4	
	5		5	5	5	
	6		6	6	6	
	7		7	7	7	
	8		8	8	8	
	9		9	9	9	

8. **MARITAL STATUS**

- ◯ Married
- ◯ Living as married
- ◯ Separated and not living as married
- ◯ Divorced and not living as married
- ◯ Widowed and not living as married
- ◯ Single, never married and not living as married

9. **TOTAL TIME IN SERVICE**

YRS		MOS	
0	0	0	0
1	1	1	1
2	2		2
3	3		3
4	4		4
5	5		5
	6		6
	7		7
	8		8
	9		9

10. **SEX**

- ◯ Male
- ◯ Female

11. **HIGHEST LEVEL OF EDUCATION**

- ◯ 11 years or less
- ◯ GED or ABE certificate
- ◯ High school graduate
- ◯ Trade or technical school
- ◯ Some college
- ◯ 4-year college degree
- ◯ Graduate or professional study but no degree
- ◯ Graduate or professional degree

12. **RACE/ETHNIC GROUP**

- ◯ White - not Hispanic
- ◯ Black - not Hispanic
- ◯ Hispanic
- ◯ American Indian or Alaskan Native
- ◯ Asian
- ◯ Pacific Islander
- ◯ Filipino
- ◯ Other

13. **Is your spouse currently living with you at your present duty location?**

- ◯ Yes
- ◯ No
- ◯ Not applicable, I currently have no spouse or live-in partner

DEMOGRAPHIC DATA CONTINUED

14. **PAY GRADE / RANK**

◯ E-1	◯ O-1
◯ E-2	◯ O-2
◯ E-3	◯ O-3
◯ E-4	◯ O-4
◯ E-5	◯ O-5
◯ E-6	◯ O-6
◯ E-7	◯ O-7
◯ E-8	◯ O-8
◯ E-9	◯ O-9
◯ W-1	◯ O-10
◯ W-2	
◯ W-3	
◯ W-4	

If your rating abbreviation has two letters instead of three, use the first two columns, starting with the first box on the left.

15. **ENLISTED RATING**

◯ Not rated or designated striker

16. **NOBC or NEC if enlisted**

◯ I don't know

17. **Officer Designator Code**

◯ I don't know

18. **Officer Primary Subspecialty Code**

◯ I don't know

19. **Marine Corps MOS**

◯ I don't know

20. Member of which branch of service?

◯ Navy ◯ Marine Corps

21. To what type of command are you currently assigned?

◯ CONUS Shore
◯ CONUS Submarine
◯ CONUS Ship
◯ OCONUS Shore
◯ OCONUS Ship
◯ OCONUS Submarine
◯ Overseas FMF
◯ Overseas Non-FMF
◯ CONUS FMF
◯ CONUS Non-FMF

22. What is the approximate total time you have served aboard ship counting all time on all ships on which you have served?

Yrs. Mos.

23. What is the approximate total time you have been deployed counting all time on all ships on which you have served?

Yrs. Mos.

24. Did you serve with the military in any of the following areas? *(Mark all that apply)*

	No	Yes, Aboard ship	Yes, Ashor
a. Persian Gulf -- Operation Desert Shield	◯	◯	◯
b. Persian Gulf -- Operation Desert Storm	◯	◯	◯
c. Somalia -- Operation Restore Hope	◯	◯	◯
d. Bangladesh	◯	◯	◯
e. Haiti	◯	◯	◯
f. Other foreign areas	◯	◯	◯

25. Has a health care provider ever told you that you had any of the following? *(If yes, please answer question 26.)*	No, Never	Yes, Recovered	Yes, Still have	26. If yes, what was your age at first diagnosis? 0 - 16 Years	17 - 24 Years	25 - 34 Years	35 - 44 Years	45+ Years
a. Asthma	○	○	○	○	○	○	○	○
b. Chronic bronchitis	○	○	○	○	○	○	○	○
c. Emphysema	○	○	○	○	○	○	○	○
d. Chronic rhinitis or hay fever	○	○	○	○	○	○	○	○
e. Other allergies	○	○	○	○	○	○	○	○
f. Positive skin test for tuberculosis	○	○	○	○	○	○	○	○
g. Skin cancer	○	○	○	○	○	○	○	○
h. Breast cancer	○	○	○	○	○	○	○	○
i. Cervical cancer	○	○	○	○	○	○	○	○
j. Other cancer	○	○	○	○	○	○	○	○
k. Heart disease	○	○	○	○	○	○	○	○
l. Hypertension (high blood pressure)	○	○	○	○	○	○	○	○
m. High cholesterol	○	○	○	○	○	○	○	○
n. Heart murmur	○	○	○	○	○	○	○	○
o. Other heart problems	○	○	○	○	○	○	○	○
p. Anemia	○	○	○	○	○	○	○	○
q. Varicose veins	○	○	○	○	○	○	○	○
r. Scrotal varices (varicose vein in scrotum)	○	○	○	○	○	○	○	○
s. Hernia or rupture	○	○	○	○	○	○	○	○
t. Hemorrhoids	○	○	○	○	○	○	○	○
u. Other blood circulation problems	○	○	○	○	○	○	○	○
v. Ulcer	○	○	○	○	○	○	○	○
w. Bowel or intestinal trouble (e.g. colitis)	○	○	○	○	○	○	○	○
x. Gallstones	○	○	○	○	○	○	○	○
y. Thyroid disease	○	○	○	○	○	○	○	○
z. Diabetes	○	○	○	○	○	○	○	○
aa. Hepatitis (Jaundice)	○	○	○	○	○	○	○	○
bb. Other liver problem	○	○	○	○	○	○	○	○
cc. Urinary tract infection	○	○	○	○	○	○	○	○
dd. Repeated kidney infections	○	○	○	○	○	○	○	○
ee. Kidney stones	○	○	○	○	○	○	○	○
ff. Other bladder trouble	○	○	○	○	○	○	○	○
gg. Pelvic inflammatory disease (PID)	○	○	○	○	○	○	○	○
hh. Gonorrhea ("clap")	○	○	○	○	○	○	○	○
ii. Syphilis	○	○	○	○	○	○	○	○
jj. Chlamydia	○	○	○	○	○	○	○	○
kk. Herpes or genital warts	○	○	○	○	○	○	○	○
ll. Sterility/infertility	○	○	○	○	○	○	○	○
mm. Arthritis	○	○	○	○	○	○	○	○
nn. Neuralgia	○	○	○	○	○	○	○	○
oo. Anorexia or bulimia (eating disorder)	○	○	○	○	○	○	○	○
pp. Migraines	○	○	○	○	○	○	○	○
qq. Head injury (involving stitches or unconsciousness)	○	○	○	○	○	○	○	○
rr. Depression	○	○	○	○	○	○	○	○
ss. Other psychological condition	○	○	○	○	○	○	○	○
tt. Speech problems	○	○	○	○	○	○	○	○
uu. Hearing loss/problems	○	○	○	○	○	○	○	○
vv. Vision impairment/problems	○	○	○	○	○	○	○	○
ww. Peridontal disease (gum disease)	○	○	○	○	○	○	○	○
xx. Other (please specify) _____	○	○	○	○	○	○	○	○

CURRENT MEDICAL CONDITIONS

27. Have you experienced any of the conditions listed below any time in the past 30 days regardless of whether or not they resulted in a visit to sick call or a health care provider? (Please check NO or YES for every condition) *(If yes, please answer question 28.)*

28. If yes, what did you do?

	No	Yes	Nothing	Self Care	Seek Medical Care
a. Common cold symptoms	○	○	○	○	○
b. Dizziness	○	○	○	○	○
c. Chills	○	○	○	○	○
d. Cough	○	○	○	○	○
e. Sore throat	○	○	○	○	○
f. Fever	○	○	○	○	○
g. Flu	○	○	○	○	○
h. Diarrhea lasting at least 3 days	○	○	○	○	○
i. Stomach problems	○	○	○	○	○
j. Constipation	○	○	○	○	○
k. Indigestion	○	○	○	○	○
l. Nausea/vomiting	○	○	○	○	○
m. Sinus trouble	○	○	○	○	○
n. Hay fever	○	○	○	○	○
o. Shortness of breath	○	○	○	○	○
p. Hoarseness	○	○	○	○	○
q. Sleeping problems	○	○	○	○	○
r. Headaches	○	○	○	○	○
s. Skin problems	○	○	○	○	○
t. Muscle sprain or strain	○	○	○	○	○
u. Back problems	○	○	○	○	○
v. Ringing in the ears	○	○	○	○	○
w. Irritated eyes	○	○	○	○	○
x. Trouble seeing with one or both eyes even if wearing glasses	○	○	○	○	○
y. Teeth/gum/dental problems	○	○	○	○	○
z. Broken bones	○	○	○	○	○
aa. Other (please specify) _____	○	○	○	○	○

29. Was there any time when you used a fair amount of any of these medications? Include both prescribed and nonprescribed medications for the last 30 days and the last 12 months.

	In the last 30 days		In the last 12 months	
	Yes	No	Yes	No
a. Allergy pills	○	○	○	○
b. Aspirin or other pain killers	○	○	○	○
c. Diet pills	○	○	○	○
d. Laxatives	○	○	○	○
e. Sleeping pills	○	○	○	○
f. Stomach medicine	○	○	○	○
g. Tranquilizers (Valium, Librium)	○	○	○	○
h. Antibiotics	○	○	○	○
i. Antimalarial pills	○	○	○	○
j. Pyridostigmine (pills to protect you from a chemical weapon attack)	○	○	○	○
k. Other anti-CBW pills or agents	○	○	○	○
l. Prescribed medicine for psychological condition	○	○	○	○
m. Ciprofloxacin (Cipro or anti-anthrax pills)	○	○	○	○
n. Other medicine	○	○	○	○
o. Other vaccine	○	○	○	○

HEALTH PERCEPTIONS

30. **In general, would you say your health is:**

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

31. **During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?**

	Yes	No
a. Cut down the amount of time you spent on work or other activities	○	○
b. Accomplished less than you would have liked	○	○
c. Were limited in the kind of work or other activities you could do	○	○
d. Had difficulty performing the work or other activities (took extra effort)	○	○

32. During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	Yes	No
a. Cut down the amount of time you spent on work or other activities	○	○
b. Accomplished less than you would have liked	○	○
c. Didn't do work or other activities as carefully as usual	○	○

33. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

34. How much bodily pain have you had during the past 4 weeks?

- ○ None
- ○ Very mild
- ○ Mild
- ○ Moderate
- ○ Severe
- ○ Very Severe

35. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

- ○ Not at all
- ○ A little bit
- ○ Moderately
- ○ Quite a bit
- ○ Extremely

36. How much of the time during the past 4 weeks:

	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
a. Did you feel full of pep?	○	○	○	○	○	○
b. Did you have a lot of energy?	○	○	○	○	○	○
c. Did you feel worn out?	○	○	○	○	○	○
d. Did you feel tired?	○	○	○	○	○	○

37. During the past 4 weeks, how much of the time have your physical or emotional problems interfered with your social activities (like visiting with friends, relatives,etc.)?

- ○ All of the time
- ○ Most of the time
- ○ Some of the time
- ○ A little of the time
- ○ None of the time

38. How true or false is each of the following statements for you?

	Definitely false	Mostly false	Don't know	Mostly true	Definitely true
a. I seem to get sick a little easier than other people I know.	○	○	○	○	○
b. I am as healthy as anybody I know.	○	○	○	○	○
c. I expect my health to get worse.	○	○	○	○	○
d. My health is excellent.	○	○	○	○	○
e. I don't have the time to be ill.	○	○	○	○	○
f. I sometimes allow myself to be ill.	○	○	○	○	○
g. I don't have a choice about being ill.	○	○	○	○	○
h. I can will myself not to become ill.	○	○	○	○	○
i. I wait until the last minute to seek medical care.	○	○	○	○	○

39. Below is a list of ways you might have felt or behaved. Please indicate how often you have felt this way during the past 7 days.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1 - 2 days)	Occasionally or a moderate amt. of time (3 - 4 days)	Most or all of the time (5 - 7 days)
a. I was bothered by things that usually don't bother me.	○	○	○	○
b. I did not feel like eating; my appetite was poor.	○	○	○	○
c. I felt I could not shake off the blues even with help from my family or friends.	○	○	○	○
d. I felt that I was just as good as other people.	○	○	○	○
e. I had trouble keeping my mind on what I was doing.	○	○	○	○
f. I felt depressed.	○	○	○	○
g. I felt that everything I did was an effort.	○	○	○	○
h. I felt hopeful about the future.	○	○	○	○
i. I thought my life had been a failure.	○	○	○	○
j. I felt fearful.	○	○	○	○
k. My sleep was restless.	○	○	○	○
l. I was happy.	○	○	○	○
m. I talked less than usual.	○	○	○	○
n. I felt lonely.	○	○	○	○
o. People were unfriendly.	○	○	○	○
p. I enjoyed life.	○	○	○	○
q. I had crying spells.	○	○	○	○
r. I felt sad.	○	○	○	○
s. I felt that people disliked me.	○	○	○	○
t. I could not get "going".	○	○	○	○

40. **How have you felt during the past 7 days including today? Use the following scale to describe how distressing you have found the following things over this time.**

	Not at all	A little	Quite a bit	Extremely
a. Difficulty in speaking when you are excited	○	○	○	○
b. Trouble remembering things	○	○	○	○
c. Worried about sloppiness or carelessness	○	○	○	○
d. Blaming yourself for things	○	○	○	○
e. Pains in the lower part of your back	○	○	○	○
f. Feeling lonely	○	○	○	○
g. Feeling blue	○	○	○	○
h. Your feelings being easily hurt	○	○	○	○
i. Feeling others do not understand you or are unsympathetic	○	○	○	○
j. Feeling that people are unfriendly or dislike you	○	○	○	○
k. Having to do things very slowly in order to be sure you are doing them right	○	○	○	○
l. Feeling inferior to others	○	○	○	○
m. Soreness in your muscles	○	○	○	○
n. Having to check and double check what you do	○	○	○	○
o. Hot or cold spells	○	○	○	○
p. Your mind going blank	○	○	○	○
q. Numbness or tingling in parts of your body	○	○	○	○
r. A lump in your throat	○	○	○	○
s. Trouble concentrating	○	○	○	○
t. Weakness in parts of your body	○	○	○	○
u. Heavy feeling in your arms and legs	○	○	○	○

	Pleased/Delighted	Mostly satisfied	Mixed	Mostly dissatisfied	Terrible/Unhappy
41. How do you feel about your job?					
42. How do you feel about yourself?					
43. How do you feel about your own personal life?					
44. How do you feel about your life as a whole?					

STRESS

45. **Think about your life over the past 7 days. On the whole, how much stress do you think is in your life right now?**

- ◯ None at all
- ◯ A little bit
- ◯ Moderate amount
- ◯ Quite a bit
- ◯ Extreme amount

46. **Over the past 7 days, stress has affected *my personal life*:**

- ◯ Not at all
- ◯ A little bit
- ◯ Moderate amount
- ◯ Quite a bit
- ◯ Extreme amount

47. **Over the past 7 days, stress has affected *my performance* on the job:**

- ◯ Not at all
- ◯ A little bit
- ◯ Moderate amount
- ◯ Quite a bit
- ◯ Extreme amount

48. **Over the past 7 days, how well have you coped with stress?**

- ◯ Very poorly
- ◯ Somewhat poorly
- ◯ In-between (neutral)
- ◯ Somewhat well
- ◯ Very well

49. Please indicate how many times you went to a military medical facility for your own health care during the past 12 months. (Mark one response in each row)

	Number of times											11 or more
a. Illness or injury	0	1	2	3	4	5	6	7	8	9	10	11
b. Follow-up for illness or injury	0	1	2	3	4	5	6	7	8	9	10	11
c. General physical exam	0	1	2	3	4	5	6	7	8	9	10	11
d. Prescription refill only	0	1	2	3	4	5	6	7	8	9	10	11
e. Eye exam only	0	1	2	3	4	5	6	7	8	9	10	11
f. Prenatal care	0	1	2	3	4	5	6	7	8	9	10	11
g. Same day surgery	0	1	2	3	4	5	6	7	8	9	10	11
h. Mental health	0	1	2	3	4	5	6	7	8	9	10	11
i. Emergency care	0	1	2	3	4	5	6	7	8	9	10	11
j. Other type of care (please specify type of care) _____	0	1	2	3	4	5	6	7	8	9	10	11

50. **Please indicate how many times you went to a civilian doctor's office or outpatient clinic for your own health care during the past 12 months. (Mark one response in each row)**

	Number of times											11 or more
a. Illness or injury	0	1	2	3	4	5	6	7	8	9	10	11
b. Follow-up for illness or injury	0	1	2	3	4	5	6	7	8	9	10	11
c. General physical exam	0	1	2	3	4	5	6	7	8	9	10	11
d. Prescription refill only	0	1	2	3	4	5	6	7	8	9	10	11
e. Eye exam only	0	1	2	3	4	5	6	7	8	9	10	11
f. Prenatal care	0	1	2	3	4	5	6	7	8	9	10	11
g. Same day surgery	0	1	2	3	4	5	6	7	8	9	10	11
h. Mental health	0	1	2	3	4	5	6	7	8	9	10	11
i. Emergency care	0	1	2	3	4	5	6	7	8	9	10	11
j. Other type of care (please specify type of care) _____	0	1	2	3	4	5	6	7	8	9	10	11

51. Please take a moment to recall your visit(s) to a military medical facility. Then mark one response that describes the strength of your agreement or disagreement with the following statements.

	Not applicable	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. The doctor (or Corpsman, etc.) seemed warm and friendly to me.	○	○	○	○	○	○
b. The doctor (or Corpsman, etc.) seemed interested in me as a person.	○	○	○	○	○	○
c. I felt the doctor (or Corpsman, etc.) did not treat me with appropriate respect.	○	○	○	○	○	○
d. The doctor (or Corpsman, etc.) seemed to take my problem seriously.	○	○	○	○	○	○

52. **On your last non-OB/GYN visit to a military medical facility, how satisfied were you with each of the following?**

	Not applicable	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
a. The quality of medical services provided.	○	○	○	○	○	○
b. The amount of time it took you to get to the medical facility	○	○	○	○	○	○
c. The amount of time you waited at the facility to see a health care provider	○	○	○	○	○	○
d. The priority you were shown as an active-duty member	○	○	○	○	○	○
e. The priority you were shown when you had orders to deploy	○	○	○	○	○	○
f. The variety of medical services available to you	○	○	○	○	○	○
g. The type of medical professionals that you saw	○	○	○	○	○	○
h. The amount of privacy you had during the visit	○	○	○	○	○	○
i. The consideration and respect shown to you	○	○	○	○	○	○
j. The timeliness of the follow-up care	○	○	○	○	○	○

53. **When you go to a military medical facility, who is the primary person who treats you?**

- ○ Doctor
- ○ Physician's assistant
- ○ Corpsman
- ○ Nurse
- ○ Other

54. After you arrive at a military medical facility, how long do you typically have to wait to see a doctor or other health care professional?

- ○ Less than 5 minutes
- ○ At least 5 minutes, but less than 15 minutes
- ○ At least 15 minutes, but less than half an hour
- ○ At least half an hour, but less than an hour
- ○ At least one hour
- ○ Two or more hours

55. **Can you ask someone in the military medical system questions about a health concern on the telephone?**

- ○ Yes
- ○ No
- ○ Don't know

SELF CARE

56. **How often do you do a testicular self exam?**

- ○ Monthly
- ○ Once every few months
- ○ Rarely/Never
- ○ Not applicable

57. **About how long has it been since you had a rectal exam?**

- ○ Less than 1 year
- ○ 1 year
- ○ 2 years
- ○ 3 or more years
- ○ Never had exam

58. **How often do you examine your breasts for lumps?**

- ○ Monthly
- ○ Once every few months
- ○ Rarely or never
- ○ Not applicable

LIFESTYLE

59. **Do you consider yourself now to be:**

- ○ Overweight
- ○ Underweight
- ○ About the right weight

60. **Would you like to weigh:**

- ○ Less
- ○ More
- ○ Stay about the same

61. **During the past 12 months, have you tried to lose weight**

- ○ Yes
- ○ No

62. **During the past 12 months, have you changed what you eat because of any medical condition?**

- ○ Yes
- ○ No

63. Are you satisfied with your eating patterns?

- ◯ Yes
- ◯ No

64. Do you ever eat in secret?

- ◯ Yes
- ◯ No

65. During the past 7 days, approximately how many days did you:

	DAYS
a. Eat breakfast	0 1 2 3 4 5 6 7
b. Eat snacks between meals	0 1 2 3 4 5 6 7
c. Overeat	0 1 2 3 4 5 6 7
d. Not eat enough	0 1 2 3 4 5 6 7
e. Take vitamin pills	0 1 2 3 4 5 6 7
f. Take anti-oxidants	0 1 2 3 4 5 6 7

66. During the past 7 days, approximately how many times did you:

	More than 7 times per week	4 - 6 times per week	1 - 3 times per week	Never
a. Eat high-fat meats or dairy (e.g. hamburger, hot dogs, steak, bacon, whole milk, cheese, ice cream)	◯	◯	◯	◯
b. Eat fried foods (e.g. french fries, fried chicken, fried eggs)	◯	◯	◯	◯
c. Eat refined sugar products (e.g. cakes, pies, cookies, candies)	◯	◯	◯	◯
d. Eat low-fat meats or dairy (e.g. chicken or turkey without skin, low-fat milk, yogurt)	◯	◯	◯	◯
e. Eat 'leafy' vegetables (e.g. broccoli, cabbage, greens)	◯	◯	◯	◯
f. Eat 'starchy' vegetables (e.g. beans, peas, corn, potatoes)	◯	◯	◯	◯
g. Eat fruits (e.g. apples, oranges, raisins, dried fruit, melons, bananas)	◯	◯	◯	◯
h. Eat high fiber foods (whole grain breads, cereals, bran)	◯	◯	◯	◯

67. Are you interested in hearing/reading about nutrition?

- ◯ Yes, very much
- ◯ Yes, sometimes
- ◯ Don't really care
- ◯ No, not usually
- ◯ No, not at all

68. How important do you feel that diet is in terms of your health?

- ◯ Probably the most important factor
- ◯ Very important, but not the primary factor
- ◯ Important
- ◯ Not very important
- ◯ Of little or no consequence

69. How important to you are the following considerations when you purchase foods?

	Extremely important	Very important	Moderately important	Somewhat important	Not at all important
a. Health benefits, nutritional value	◯	◯	◯	◯	◯
b. Price, cost	◯	◯	◯	◯	◯
c. Likes or dislikes, eating enjoyment	◯	◯	◯	◯	◯
d. Convenience, easy to prepare	◯	◯	◯	◯	◯
e. Calories	◯	◯	◯	◯	◯

70. During the past 30 days, on the average, how many hours of sleep did you get per night?

1 2 3 4 5 6 7 8 9 10 or more

71. In an average 7 days, how many times do you engage in exercise or work that lasts at least 20 minutes without stopping and that is hard enough to make you breathe heavier and make your heart beat faster?

- ◯ Less than 1 time per week
- ◯ 1 or 2 times per week
- ◯ At least 3 times per week

72. How long have you been on the exercise or work schedule in question 71?

- ◯ Less than 1 month
- ◯ 1 - 3 months
- ◯ 4 - 11 months
- ◯ 1 - 2 years
- ◯ 3 - 4 years
- ◯ 5+ years

73. How would you rate your current physical fitness?

- ◯ Poor
- ◯ Fair
- ◯ Good
- ◯ Very good
- ◯ Excellent

74. Have you smoked at least 100 cigarettes in your entire life? (That would be 5 or more packs in your entire life.)

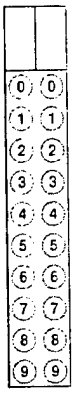
- ◯ Yes
- ◯ No

75. How would you describe your cigarette smoking habits?

- ◯ Never smoked
- ◯ Current smoker
- ◯ Former smoker

76. During the past 30 days, how many cigarettes did you usually smoke on a typical day?

◯ Did not smoke cigarettes in the last 30 days



77. How many times have you tried to quit smoking?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨+

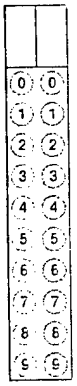
◯ Did not ever smoke

78. If you quit, was it because you had a health problem that was caused or made worse by smoking?

◯ Quit due to health problem
◯ Quit due to other reason
◯ Never quit
◯ Never smoked

79. If you quit, on average, how many cigarettes did you smoke a day when you last smoked every day?

◯ Did not smoke cigarettes in the last 30 days



80. How many years have you used *(or did you use)* any form of tobacco on a regular basis? Do not count any time when you quit using tobacco.

◯ Never used tobacco
◯ Less than one year
◯ 1 year
◯ 2 years
◯ 3 years
◯ 4 years
◯ 5 years
◯ 6 years
◯ 7 years
◯ 8 years
◯ 9 years
◯ 10 years
◯ 11 years
◯ 12 years
◯ 13 years
◯ 14 years
◯ 15+ years

81. How many cigars and/or pipes do you usually smoke per day?

NUMBER

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩+

82. How many times per day do you usually use smokeless tobacco? (Chewing tobacco, snuff, pouches, etc.)

NUMBER

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩+

83. During the past 7 days, on the average, how many caffeinated beverages did you have per day? (cola, coffee, tea)

NUMBER

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬+

84. During the past 30 days, how much alcohol did you drink on a typical day? (Consider a single shot, single mixed drink, glass of wine, or can of beer as one drink.)

◯ 18 or more drinks
◯ 15 - 17 drinks
◯ 12 - 14 drinks
◯ 9 - 11 drinks
◯ 8 drinks
◯ 7 drinks
◯ 6 drinks
◯ 5 drinks
◯ 4 drinks
◯ 3 drinks
◯ 2 drinks
◯ 1 drink
◯ Didn't drink any alcohol in the past 30 days

85. During the past 30 days, on how many days did you drink alcoholic beverages?

- ◯ 28 - 30 days (about every day)
- ◯ 20 - 27 days (5 - 6 days a week, average)
- ◯ 11 - 19 days (3 - 4 days a week, average)
- ◯ 4 - 10 days (1 - 2 days a week, average)
- ◯ 2 - 3 days in the past 30 days
- ◯ Once in the past 30 days
- ◯ Didn't drink any alcohol in the past 30 days

86. How many sexual partners have you had in the last six months?

0 1 2 3 4 5 6 7 8 9 10 or more

87. What birth control method(s) do you currently use? *(Mark all that apply)*

- a. ◯ Tubal ligation
- b. ◯ Vasectomy
- c. ◯ Norplant
- d. ◯ Depo-Provera
- e. ◯ Birth control pills
- f. ◯ IUD
- g. ◯ Diaphram
- h. ◯ Condom
- i. ◯ Spermicide (foam, jelly, cream, suppositories)
- j. ◯ Sponge
- k. ◯ Douche
- l. ◯ Withdrawal
- m. ◯ Rhythm
- n. ◯ Abstinence
- o. ◯ Other (please specify) _____
- p. ◯ None

88. If you do not use birth control, please indicate reason: *(Mark all that apply)*

- a. ◯ Religious/moral beliefs
- b. ◯ My partner's preference
- c. ◯ Inconvenient/interferes with spontaneity
- d. ◯ Want to get pregnant
- e. ◯ Other (please specify) _____
- f. ◯ Use birth control/abstinent

89. During the past 12 months, if I had needed it, counseling was readily available to me on:

	Do not know	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Quitting smoking	◯	◯	◯	◯	◯	◯
b. Alcohol abuse	◯	◯	◯	◯	◯	◯
c. Drug abuse	◯	◯	◯	◯	◯	◯
d. Birth control/family planning	◯	◯	◯	◯	◯	◯
e. Weight control	◯	◯	◯	◯	◯	◯
f. Stress management	◯	◯	◯	◯	◯	◯

FRIENDS AND FAMILY

90. How many close friends do you have (people that you feel at ease with, can talk to about private matters, and can call for help)?

0 1 2 3 4 5 6 7 8 9 10 or more

91. How many relatives do you have that you feel close to?

0 1 2 3 4 5 6 7 8 9 10 or more

92. How many of these friends or relatives do you see at least once a month?

0 1 2 3 4 5 6 7 8 9 10 or more

93. Are you a member of any social clubs or groups?

- ◯ Yes
- ◯ No

94. Are you an active member of a church, temple, or other religious organization?

- ◯ Yes
- ◯ No

95. How often have you asked the advice of relatives or friends about your marriage?

- ◯ Never
- ◯ Seldom
- ◯ Several times
- ◯ Often
- ◯ Very often
- ◯ Not married

96. How often have you gone to a doctor, counselor or clergyman for marriage problems?

- ◯ Never
- ◯ Seldom
- ◯ Several times
- ◯ Often
- ◯ Very often
- ◯ Not married

97. How much time do you spend thinking about marriage problems?

None		Some		A lot	Not Married
①	②	③	④	⑤	⑥

98. I am definitely satisfied with my marriage

- ◯ Strongly agree
- ◯ Agree
- ◯ Neutral (undecided)
- ◯ Disagree
- ◯ Strongly disagree
- ◯ Not married

99. How many children (natural, adopted, stepchildren, or grandchildren) under the age of 21 live in your household? *(Mark all that apply)*

	Children's age	None	1	2	3	4	5+
a.	Less than 6 weeks old	⓪	①	②	③	④	⑤
b.	6 weeks to under 1 year	⓪	①	②	③	④	⑤
c.	12 to 23 months	⓪	①	②	③	④	⑤
d.	24 to 35 months	⓪	①	②	③	④	⑤
e.	3 to 5 years	⓪	①	②	③	④	⑤
f.	6 to 9 years	⓪	①	②	③	④	⑤
g.	10 to 12 years	⓪	①	②	③	④	⑤
h.	13 to 15 years	⓪	①	②	③	④	⑤
i.	16 to 20 years	⓪	①	②	③	④	⑤

100. How old were you when your first child was born?

◯ No children

AGE

⓪	⓪
①	①
②	②
③	③
④	④
⑤	⑤
⑥	⑥
⑦	⑦
⑧	⑧
⑨	⑨

PSYCHOSOCIAL

101. In the last year, how many serious personal losses or difficult problems have you had to handle (e.g., promotion passover, divorce/separation, legal or disciplinary action, bankruptcy, death of someone close, serious illness/injury of a loved one, etc.)?

- ◯ Several
- ◯ Some
- ◯ Few
- ◯ None

102. Have you seriously considered suicide within the last 2 years?

- ◯ Yes
- ◯ Yes, within the last year
- ◯ Yes, within the last 2 months
- ◯ No

103. How often do you have any serious problems dealing with your husband or wife, parents, friends, or with your children?

- ◯ Often
- ◯ Sometimes
- ◯ Seldom
- ◯ Never

104. How often did you experience a major pleasant change in the last year (for example, promotion, marriage, birth, award, etc.)?

- ◯ Often
- ◯ Sometimes
- ◯ Seldom
- ◯ Never

105. What causes the biggest problem in your life? *(Darken only one circle)*

- ◯ Money
- ◯ Social life
- ◯ Family
- ◯ Supervisor
- ◯ Job
- ◯ Health
- ◯ No problem

106. Were you abused prior to entering the military?
(Mark all that apply)

a. ◯ Yes, emotionally abused
b. ◯ Yes, sexually abused
c. ◯ Yes, physically abused
d. ◯ No, not abused

107. Since entering the military, have you been abused?
(Mark all that apply)

a. ◯ Yes, emotionally abused
b. ◯ Yes, sexually abused
c. ◯ Yes, physically abused
d. ◯ No, not abused

108. If abused either prior to entering the military or after entering the military, have you ever received treatment?

◯ Yes
◯ No
◯ Not applicable

	Strongly disagree	Disagree	Agree	Strongly agree
109. I feel that I'm a person of worth at least on an equal basis with others.	◯	◯	◯	◯
110. I feel that I have a number of good qualities.	◯	◯	◯	◯
111. All in all, I'm inclined to feel that I am a failure.	◯	◯	◯	◯
112. I am able to do things as well as others.	◯	◯	◯	◯
113. I feel I do not have much to be proud of.	◯	◯	◯	◯
114. I take a positive attitude towards myself.	◯	◯	◯	◯
115. On the whole I am satisfied with myself.	◯	◯	◯	◯
116. I wish I could have more respect for myself.	◯	◯	◯	◯
117. I certainly feel useless at times.				
118. At times I think I'm no good at all.	◯	◯	◯	◯

A number of statements people use to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you generally feel.

	Almost always	Often	Sometimes	Almost never
119. I am quick-tempered.	◯	◯	◯	◯
120. I have a fiery temper.	◯	◯	◯	◯
121. I am a hotheaded person.	◯	◯	◯	◯
122. I get angry when I am slowed down by others' mistakes.	◯	◯	◯	◯
123. I feel annoyed when I am not given recognition for doing good work.	◯	◯	◯	◯
124. I fly off the handle.	◯	◯	◯	◯
125. When I get mad, I say nasty things.	◯	◯	◯	◯
126. It makes me furious when I am criticized in front of others.	◯	◯	◯	◯
127. When I get frustrated, I feel like hitting someone.	◯	◯	◯	◯
128. I feel infuriated when I do a good job and get a poor evaluation.	◯	◯	◯	◯
129. I feel irritated.	◯	◯	◯	◯
130. I feel angry.	◯	◯	◯	◯
131. People who think they are always right irritate me.	◯	◯	◯	◯
132. I get annoyed when I am singled out for correction.	◯	◯	◯	◯
133. My blood boils when I am pressured.	◯	◯	◯	◯
134. I feel pleasant.	◯	◯	◯	◯
135. I feel nervous and restless.	◯	◯	◯	◯
136. I feel satisfied with myself.	◯	◯	◯	◯
137. I wish I could be as happy as others seem to be.	◯	◯	◯	◯
138. I feel like a failure.	◯	◯	◯	◯
139. I feel rested.	◯	◯	◯	◯
140. I feel "calm, cool, and collected".	◯	◯	◯	◯
141. I feel that difficulties are piling up so much that I cannot overcome them.	◯	◯	◯	◯
142. I worry too much over something that really doesn't matter.	◯	◯	◯	◯
143. I am happy.	◯	◯	◯	◯
144. I have disturbing thoughts.	◯	◯	◯	◯
145. I lack self-confidence.	◯	◯	◯	◯
146. I feel secure.	◯	◯	◯	◯
147. I make decisions easily.	◯	◯	◯	◯
148. I feel inadequate.	◯	◯	◯	◯
149. I am content.	◯	◯	◯	◯
150. Some unimportant thought runs through my mind and bothers me.	◯	◯	◯	◯
151. I take disappointments so keenly that I can't put them out of my mind.	◯	◯	◯	◯
152. I am a steady person.	◯	◯	◯	◯
153. I get in a state of tension or turmoil as I think over my recent concerns and interests.	◯	◯	◯	◯

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WORK

154. How often are you bothered by each of the following in your work?

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. Not having enough help and equipment to get the job done well	○	○	○	○	○
b. Feeling you have too much responsibility for the work of others	○	○	○	○	○
c. Thinking that you'll not be able to meet the conflicting demands of various people you work with	○	○	○	○	○
d. Having to do or decide things where mistakes could be quite costly	○	○	○	○	○
e. Not knowing just what the people you work with expect from you	○	○	○	○	○
f. Thinking that the amount of work you have to do may interfere with how well it gets done	○	○	○	○	○
g. Feeling that you have to do things on the job that are against your better judgement	○	○	○	○	○
h. Feeling that your job tends to interfere with your family life	○	○	○	○	○
i. Feeling unable to influence your immediate supervisor's decisions and his/her actions that affect you	○	○	○	○	○
j. Having to deal with or satisfy too many different people	○	○	○	○	○
k. Being asked to work overtime when you don't want to	○	○	○	○	○
l. Feeling trapped in a job you don't like but can't change and can't get out of	○	○	○	○	○

The following ask you about how you feel about your present job overall.

155. **Overall, how satisfied would you say you are with your present job?**

- ○ Not at all satisfied
- ○ Not too satisfied
- ○ Somewhat satisfied
- ○ Very satisfied

156. **Knowing what you know now, if you had to decide all over again whether to join the military, what would you decide?**

- ○ Decide definitely not to join
- ○ Have some second thoughts
- ○ Decide without hesitation to join

157. **In general, how well would you say that your regular military job measures up to the sort of job you wanted when you took it?**

- ○ Very much like
- ○ Somewhat like
- ○ Not very much like

158. **If a good friend told you he/she was interested in working in a job like your regular military job, what would you tell him/her?**

- ○ Advise him/her against it
- ○ Have doubts about recommending it
- ○ Strongly recommend it

159. **How sad/happy do you feel about your job?**

Happy ① ② ③ ④ ⑤ ⑥ Sad

CASUALTY EVENTS

Exposure to a disaster or violence can sometimes have long-term effects. The following questions will help to provide a baseline history of exposure to disasters or violence that may help in studying these effects.

160. **Have you ever been exposed to a natural disaster involving injuries or fatalities? (e.g., earthquakes, fire, flood, etc.)**
(Mark all that apply)

- a. ○ Yes, witnessed
- b. ○ Yes, survivor/victim
- c. ○ Yes, participated in aid, clean-up, rescue, or investigation
- d. ○ No

161. **Have you even been exposed to combat or violence involving injuries or fatalities?** *(Mark all that apply)*

- a. ○ Yes, witnessed
- b. ○ Yes, survivor/victim
- c. ○ Yes, used deadly force as a part of my military job
- d. ○ Yes, participated in aid, clean-up, rescue, or investigation
- e. ○ No

162. **Have you ever witnessed or been involved in a major accident involving injuries or fatalities?**
(Mark all that apply)

- a. ○ Yes, witnessed
- b. ○ Yes, survivor/victim
- c. ○ Yes, participated in aid, clean-up, rescue, or investigation
- d. ○ No

163. Is protective gear available for your use in your current job? Examples of protective gear are gloves, respirator, filter, mask, boots, ear plugs, film badge, hazardous materials suit and fire fighting suit.

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Not applicable

164. When you have contact with substances that might be harmful, how often do you use protective gear?

- ○ Never
- ○ Some of the time
- ○ Most of the time
- ○ Always
- ○ Not applicable

165. Which reasons for not wearing protective gear are the most true for you? *(Mark all that apply)*

- a. ○ It doesn't work properly
- b. ○ It interferes with job performance
- c. ○ It is uncomfortable
- d. ○ I don't know how to use it
- e. ○ It is not needed
- f. ○ None, always wear protective gear
- g. ○ Not applicable

166. During the past 30 days, have you been exposed to tobacco smoke for an hour or more a day in your immediate work or living area?

- ○ Not exposed
- ○ Work area only
- ○ Living area only
- ○ Both work and living area

167. Are you currently in one or more of the following medical surveillance programs? *(Mark all that apply)*

- a. ○ Asbestos
- b. ○ Noise
- c. ○ Lead
- d. ○ Chromium
- e. ○ Cadmium
- f. ○ Non-ionizing radiation
- g. ○ Ionizing radiation
- h. ○ Other _____
- i. ○ None

168. For all jobs or hobbies you have had, indicate the known health hazards that are/were present and the number of years you have been/were exposed.

Exposure	5 years or more	3 - 4 years	1 - 2 years	Less than 1 year	Not exposed
a. Fibrous glass (fiberglass)	○	○	○	○	○
b. Asbestos	○	○	○	○	○
c. Coal dust or rock dust	○	○	○	○	○
d. Silica powder or sandblasting dust	○	○	○	○	○
e. Other specific dusts (woods, talc, lime)	○	○	○	○	○
f. Respiratory or skin irritants	○	○	○	○	○
g. Chemicals (acids, alkalis, solvents)	○	○	○	○	○
h. Metal fumes (from molten metal)	○	○	○	○	○
i. Welding fumes	○	○	○	○	○
j. Coal tar, pitch, asphalt's	○	○	○	○	○
k. Engine exhaust, grease, oils, fuel	○	○	○	○	○
l. Heat (severe)	○	○	○	○	○
m. Cold (severe)	○	○	○	○	○
n. Noise (loud)	○	○	○	○	○
o. Non-ionizing radiation	○	○	○	○	○
p. Ionizing radiation (X-rays, etc.)	○	○	○	○	○
q. Vibration (vibrating tools, motors)	○	○	○	○	○
r. General shop dust	○	○	○	○	○
s. Pesticides, herbicides	○	○	○	○	○
t. Acids	○	○	○	○	○
u. Alcohol's (industrial)	○	○	○	○	○
v. Other (please specify)	○	○	○	○	○

ENVIRONMENTAL/OCCUPATIONAL HEALTH continued →

169. Have you been exposed to any of the following in the past 12 months:

(If you answer "yes" to any question, please complete all items on that line.)

If yes, average:

		No	Yes	No. of MONTHS exposed (1 = 0-6, 2 = 7-12, 3 = 13-24, 4 = 25-36)	No. of DAYS exposed per month (1 = 1-2, 2 = 3-5, 3 = 6-14, 4 = 15+)	No. of HOURS exposed per day (1 = 0-2, 2 = 3-5, 3 = 6-8, 4 = 9-13, 5 = 14+)
a.	Adhesives or gluing compounds	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
b.	Asbestos (loose)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
c.	Carbon monoxide	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
d.	Diesel exhaust (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
e.	Diesel fuel (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
f.	Dry cleaning solvent	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
g.	Exhaust from gasoline engine	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
h.	Gasoline (liquid or vapor)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
i.	Guided missile fuel	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
j.	High temperature (above 95° F)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
k.	Hypodermic needles (used)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
l.	Insecticides	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
m.	Jet exhaust (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
n.	Jet fuel (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
o.	Loud noise (jets, etc)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
p.	Lifting 25 - 49 pounds	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
q.	Lifting 50 or more pounds	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
r.	Low temperature (below 32° F)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
s.	Metal scrapings or filings	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
t.	Microwave oven (within 3 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
u.	Paint, (oil based), or thinner	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
v.	Paint, unknown type	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
w.	Paint scrapings or paint sanding	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
x.	Radar antenna or array (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
y.	Solvent or degreaser	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
z.	Torpedo fuel	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
aa.	Transmitting antennas (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
bb.	Nuclear reactor (within 50 ft)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
cc.	Nuclear fuel	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
dd.	Nuclear ordnance	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
ee.	Nuclear medicines (radioisotopes)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
ff.	Video display terminal	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
gg.	Welding fumes	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
hh.	Dust particles	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
ii.	Explosives (non-nuclear)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
jj.	Nitrous oxide	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
kk.	Ethylene dibromide (EDB)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5
ll.	Perchlorethylene (PERC)	○	○	1 2 3 4	1 2 3 4	1 2 3 4 5

If you are MALE: Please STOP here. Please complete the special handout page. Place the completed handout and questionnaire in the enclosed postage-free envelope. Thank you for your time and cooperation.

If you are FEMALE: We would appreciate it if you would take a few extra minutes to answer some addtional questions about health issues for women.

This section is to report female-specific conditions that you had during the past 3 months, whether or not they resulted in a visit to sick call or a health care provider.

170. Did you have any of these conditions?

	Yes	No
a. Bleeding between periods	○	○
b. Cramps or pain during menstrual period requiring medication or time off of work	○	○
c. Excessive frequency of periods (time between periods too short)	○	○
d. Heavy periods (excessive menstrual flow)	○	○
e. Period lasting longer than a week	○	○
f. Missed period	○	○
g. No menstrual periods for 2 or more months	○	○
h. Scanty menstrual flow	○	○
i. Abdominal pain (from known cysts)	○	○
j. Abdominal pain (from other unknown cause)	○	○
k. Endometriosis	○	○
l. Discharge from breast	○	○
m. Breast lump	○	○
n. Premenstrual symptoms or pain (PMS, premenstrual cramps)	○	○
o. Vaginal rash, discharge, or other disorder except yeast infection or sexually transmitted diseases	○	○
p. Yeast or vaginal infection	○	○
q. Problem with uterus (womb)	○	○

171. **If you missed a period in the last 30 days, have you had a pregnancy test?**

- ○ Yes
- ○ No, not yet
- ○ No, hysterectomy
- ○ No, menopausal
- ○ No, other
- ○ Not applicable/Did not miss a period

172. **At what age did your menstrual cycles begin?**

- ○ Younger than 10 years old
- ○ 10 - 12 years old
- ○ 13 - 15 years old
- ○ 16+ years old
- ○ Don't know

173. **What is the total number of years you have taken birth control pills in your lifetime?**

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ or more

174. **Have you ever taken replacement** [illegible]

- ○ Yes, normal dose
- ○ Yes, hormone creams or other hormone preparation such as the skin patch
- ○ No

175. Have you had a mammogram in the past 5 years?

- ○ Yes
- ○ No

176. How long has it been since you had a Pap smear?

- ○ Less than 1 year
- ○ 1 year
- ○ 2 years
- ○ 3 years or more
- ○ Never had a Pap smear

177. **Have you ever had a Pap smear where the result was NOT normal?**

- ○ Yes
- ○ No
- ○ Don't know

178. **About how long has it been since you had your breasts examined by a physician or nurse?**

- ○ Less than 1 year
- ○ 1 year
- ○ 2 years
- ○ 3 years or more
- ○ Never had breasts examined

179. **Have you received training from a medical provider on breast self-exam (BSE)?**

- ○ Yes
- ○ No

180. **Have you ever had an operation to remove a lump from your breast that was found to be noncancerous?**

- ○ Yes
- ○ No

SUPPLEMENT FOR WOMEN continued ⟶

181. For your last OB/GYN visit in a military medical facility, how satisfied were you with each of the following?

	Not applicable	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
a. The quality of medical services provided	○	○	○	○	○	○
b. The amount of time it took you to get to the medical facility	○	○	○	○	○	○
c. The amount of time you waited at the facility to see a health care provider	○	○	○	○	○	○
d. The priority you were shown as an active-duty member	○	○	○	○	○	○
e. The priority you were shown when you had orders to deploy	○	○	○	○	○	○
f. The variety of medical services available to you	○	○	○	○	○	○
g. The type of medical professionals whom you saw	○	○	○	○	○	○
h. The amount of privacy you had during the visit	○	○	○	○	○	○
i. The consideration and respect shown to you	○	○	○	○	○	○
j. The timeliness of follow-up care	○	○	○	○	○	○

182. **Do you know where to get information about pregnancy and possible risks from your job and job environment?**

- ○ Yes
- ○ No
- ○ Not applicable

183. **When you are pregnant, do you feel there are enough OB/GYN trained personnel available to see you when necessary?**

- ○ Yes
- ○ No
- ○ Not applicable

184. **When you are pregnant, do you feel you are given enough time off from your job to be seen in OB/GYN when necessary?**

- ○ Yes
- ○ No
- ○ Not applicable

185. **While on OCONUS orders, has it been difficult to receive the kind of OB/GYN care you would like?**

- ○ Yes
- ○ No
- ○ Not applicable

PREGNANCY HISTORY

186. How many times have you been pregnant?

- ○ 0 Never
- ○ 1 time
- ○ 2 times
- ○ 3 times
- ○ 4 times
- ○ 5 times
- ○ 6 times
- ○ 7 times
- ○ 8 times
- ○ 9 or more times

187. **Have you been pregnant in the past <u>12 months</u>?**

- ○ Yes
- ○ No

188. **Have you become pregnant since coming on active duty?**

- ○ Yes
- ○ No

189. **Are you pregnant now?**

- ○ Yes
- ○ No
- ○ Not sure

190. **If yes, was this a planned pregnancy?**

- ○ Yes
- ○ No
- ○ Not applicable

191. In the past <u>12 months</u>, have you had:

	Yes	No	Not Applicable
a. Problems becoming pregnant?	○	○	○
b. Pregnancy complications?	○	○	○
c. A miscarriage/spontaneous abortion?	○	○	○
d. An elected abortion?	○	○	○
e. A stillbirth?	○	○	○
f. Childbirth problems? (e.g. hemorrhaging, Cesarean section, induced labor)	○	○	○
g. Post-partum complications	○	○	○

192. **How happy or unhappy would you be if you were to become pregnant in the next year?**

- ○ Extremely happy
- ○ Moderately happy
- ○ Neither happy nor unhappy
- ○ Moderately unhappy
- ○ Extremely unhappy

PREGNANCY HISTORY continued ——→

193. How convenient or inconvenient would it be for you to get pregnant in the next year?

- Extremely convenient
- Moderately convenient
- Neither convenient nor inconvenient
- Moderately inconvenient
- Extremely inconvenient

194. How many live births have you had?

0 1 2 3 4 5 6 7 8 9 or more

195. Were any of the babies born prematurely or under 5 pounds?

- Yes
- No
- Not applicable

196. Did any of the babies stay in the hospital after you came home?

- Yes
- No
- Not applicable

197. Did you breast feed at least one of your children?

- Yes
- No
- Not applicable

198. How healthy would you say your children are relative to other children their age?

- Less healthy
- Same
- More healthy
- Not applicable

Thank you for the extra effort to complete these questions. Please take a moment to complete the special handout page. Place the handout and questionnaire in the box as you leave the room. Thank you for your time and cooperation.

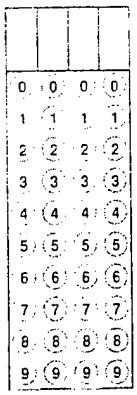
YOUR COMMENTS ON THIS SURVEY ARE WELCOME

We have attempted to be thorough in examining issues that are related to your health and the health care you receive. If you have comments that may help us to better understand your experience with the military health system, please write them in the space below.

If your comments concern a particular question, be sure to write the question and page number before your comment.

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Nucleus Installation: _____

Survey Phase

I ○ II ○

APPENDIX B

MANUSCRIPTS

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Trends in Overweight and Physical Activity among U.S. Military Personnel, 1995–1998[1]

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Background. **The purpose of this study was to determine whether changes in physical activity patterns account for the increasing prevalence of obesity, utilizing a large, representative sample of male and female U.S. military personnel.**

Methods. **Data from the 1995 and 1998 waves of the Department of Defense Survey of Health Related Behaviors among Military Personnel were utilized. Overweight was defined as body mass index ≥25. Respondents were classified as physically active if they reported ≥3 days/week of vigorous activity. Three sequential multivariate logistic regression models were analyzed separately for males and females with overweight regressed on year of study (1995 or 1998), demographic characteristics, and physical activity.**

Results. **Some 50% of military personnel in 1995 and 54% in 1998 were classified as overweight, representing a significant increase in overweight over the 3-year period for both males and females. Overweight military personnel were more likely to be male, older, African American or Hispanic, married, and enlisted personnel. Physical activity levels were high, with around 67% of the sample engaging in regular, vigorous physical activity. Although physical activity levels increased among male personnel between 1995 and 1998, there was not an independent association between physical activity and overweight, and changing physical activity patterns did not account for the increase in overweight from 1995 to 1998.**

Conclusions. **The U.S. military is experiencing a trend toward increasing overweight that mirrors the pattern among the general population. The results of this study suggest that the rise in overweight among the military is not explained by a decrease in physical activity.** © 2000 American Health Foundation and Academic Press

Key Words: **exercise; body mass index; military personnel.**

INTRODUCTION

A well-documented increase in the prevalence of overweight and obesity is occurring in the United States, and this trend is evident among nearly every geographic and demographic segment of the population [*1*]. From 1976 to 1991, the prevalence of obesity in the U.S. adult population increased from about 25% in the 1970s to 33% in 1988–1991, representing an increase of 31% [*2,3*]. This rise appears even more pronounced from 1991 to 1998, with a recent report identifying a 52% increase among men and a 47% increase among women over the 8-year period [*1*]. Although different classification schemes are used to define overweight and obesity, one of the more stringent definitions currently classifies 54% of U.S. adults as being overweight (body mass index [BMI] ≥25) and 22% as being obese (BMI ≥30) [*4*]. Although the health effects associated with obesity have been recognized for years [*5–7*], it is now evident that overweight (using rather inclusive definitions) also is associated with elevated blood cholesterol, high blood pressure, risk of type 2 diabetes, gallbladder disease, and osteoarthritis [*8*].

The cause of obesity is a combination of metabolic factors, diet, and physical inactivity, with genetic factors influencing each construct [*9*]. However, the rise in obesity is somewhat difficult to explain because changes in metabolic factors have not been identified, physical activity patterns have not been well documented until recent decades, and dietary patterns do not appear to have changed in a manner adverse to body weight. For example, the U.S. Department of Agriculture's Nationwide Food Consumption Survey data

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identified decreases in both total energy intake and percentage of total energy intake from dietary fat (41 to 37%) between 1977 and 1988 [*10*], the same time period that the prevalence of obesity increased. Although trends toward decreasing physical activity have not been identified, and the link between increasing obesity and decreasing physical activity has not been established, the rise in overweight and obesity is often attributed to decreasing levels of physical activity [*2,11,12*]. This decrease may be partially due to a modern lifestyle that is less demanding of physical exertion, with both leisure-time and work activities being sedentary in nature [*9,11,13,14*].

Prior studies exploring trends in physical activity and overweight have been conducted on the general population (including civilian, noninstitutionalized respondents). However, given that most U.S. adults are employed in sedentary occupations and engage in very little leisure-time physical activity (with 1991 Behavioral Risk Factor Surveillance System data indicating that 58% of U.S. adults reported no leisure-time physical activity or irregular physical activity [*15*]), an association between trends toward declining physical activity and rising overweight may be difficult to establish among such populations. The use of a study population with relatively high levels of physical activity and fitness is likely to inform the debate on temporal patterns of physical activity and overweight. Given that the U.S. military participates in a rigorous conditioning program and engages in high levels of leisure-time and work activity, it is a desirable population with which to explore the relationship between physical activity and overweight. Few studies have provided a strong test of the relationship between overweight and physical activity, with the majority of previous studies in this area utilizing largely sedentary populations. Because of its strong emphasis on physical fitness (to ensure readiness to defend and protect the nation), the military is an appropriate population with which to examine the relationship of physical activity and overweight. Using a large, representative sample of male and female military personnel, we explored changes in the prevalence of overweight from 1995 to 1998 and the relationship between trends in physical activity and overweight during this period.

METHODS

Sample and Study Design

Data for the current study were drawn from the 1995 and 1998 waves of the Department of Defense (DoD) Survey of Health Related Behaviors among Military Personnel [*16,17*]. Each was part of a cross-sectional survey series that has assessed the prevalence and trends in substance use and a variety of other health behaviors since 1980. Data from the survey series have been used by the DoD to help monitor progress toward meeting health objectives.

The sampling designs and data collection methods for the 1995 and 1998 surveys were similar and are described in detail by Bray *et al.* [*17*]. For each survey, the eligible survey population consisted of all active-duty military personnel except recruits, service academy students, persons absent without official leave, and persons who had a permanent change of station at the time of data collection. Participants were selected to represent men and women in all pay grades of the active force throughout the world using stratified cluster sampling of military installations and then stratified sampling of personnel within clusters (installations).

More specifically, the first stage of sampling involved selecting major military installations stratified by service (Army, Navy, Marine Corps, Air Force) and world region (continental United States or outside the continental United States). Within the selected installations, the second stage of sampling involved selection of military personnel stratified by military pay grade groups, including three enlisted pay grade groups (E1–E3, E4–E6, E7–E9) and three officer pay grade groups (warrant officers in grades W1–W5 and commissioned officers in grades O1–O3 and O4–O10). Officers and women were oversampled because of their smaller numbers.

Both of the surveys were approved by the Defense Manpower Data Center and the Institutional Review Board at Research Triangle Institute. Respondents participated voluntarily and were fully informed about the purpose of the research. During data collection, respondents anonymously completed self-administered questionnaires (designed for optical-mark reader scanning) that took 50 to 55 min on average to answer. Most respondents (e.g., 88% in 1995) attended group sessions at approximately 60 installations where questionnaires were administered by civilian data collection teams. Eligible personnel who did not attend group sessions were mailed a questionnaire along with an explanation of the purpose and anonymity of the survey and instructions for completing and returning it. The survey items elicited information regarding drug and alcohol use, military experiences, cardiovascular risk factors, health care utilization, and participation in other health behaviors (e.g., smoking, physical activity, sexual behavior). The wording of all items included in the present analyses was identical to that used in the 1995 and 1998 questionnaires.

The sampling and data collection procedures resulted in large sample sizes for each of the surveys: 16,193 in 1995 and 17,264 in 1998 for a combined sample size of 33,457 across the two surveys. Response rates were 70% in 1995 and 59% in 1998. In both surveys, the response rates varied significantly with respect to gender (females higher than males), rank (officers higher than enlisted), and service (Air Force higher than other

branches). As a result, the respondent distribution was composed of too many females, officers, and members of the Air Force when compared to the original sample distribution. These differential response-rate patterns combined with differential answer patterns to the questionnaire represent a potential for nonresponse bias. For example, an estimate of the prevalence of overweight among junior enlisted persons would be biased if females responded at a higher rate and reported lower levels of overweight than males. To avoid this, the data for each survey were weighted to represent the population of eligible active-duty personnel, and adjustments were made for the potential biasing effects of differential nonresponse.

Poststratification methods were used to develop the nonresponse adjustment factors. Updated counts of military personnel were obtained and observed eligibility rates were applied to these new personnel counts for the 96 sampling strata defined by the intersection of service, region, gender, and pay grade groups. (Some strata were collapsed due to small sample sizes.) Adjustment factors were then calculated and applied to the weights to correct for differences in the proportion responding in the sample relative to the proportion in the population. The datasets for the 1995 and 1998 surveys were combined, and the adjusted sampling weights were used in the statistical analyses.

Measurement of Variables

Overweight. Overweight was determined by self-reported height and weight. Respondents were asked to record their height (in feet and inches) and weight (in pounds) without shoes on. Although there is some overall tendency for individuals to overestimate height and for overweight individuals to underestimate weight [*18,19*], the use of self-reported height and weight is practical among large, geographically dispersed samples; this methodology has been used in several large population-based surveys (e.g., National Health Interview Survey, Behavioral Risk Factor Surveillance System). Each respondent's BMI (weight in kilograms divided by squared height in meters) was calculated, and subjects were classified as "overweight" or "non-overweight" using a cutoff value of BMI $\geq$25.0. This classification is consistent with guidelines adopted by the National Heart, Lung and Blood Institute (of the National Institutes of Health) [*20*] and the World Health Organization [*4*]. The proportion of subjects classified as obese (BMI $\geq$30.0) also was calculated, although overweight and obese subjects were combined for use in the analyses. Although these civilian-developed cutoffs are not the criteria used by the DoD to determine overweight or obesity, they were used for the current analysis in order to be consistent with standard practice in obesity research.

Physical activity. To assess physical activity, subjects were asked two questions: (a) "During the past 30 days, how often did you run, jog, bicycle, or briskly walk or hike for 20 minutes or more?" (b) "During the past 30 days, how often did you engage for 20 minutes or more in other strenuous physical activity (e.g., handball, soccer, racquet sports, swimming laps)?" Possible responses were "never in past month," "1–3 days in past month," "1–2 days a week," "3–4 days a week," "5–6 days a week," and "about every day." These items were patterned after those used in the study of physical health status of adults in Alameda County, California [*21,22*]. The responses from these two items were combined, with the highest level of activity used for each subject. In addition, for use in the multivariate analyses, a dichotomous variable indicating whether or not the respondent engaged in 3 or more days per week of either type of activity was created. The use of 3 or more days per week is based on the *Healthy People 2000* guidelines for vigorous activity [*23*], which recommend 3 or more days per week of vigorous exercise for at least 20 min per occasion.

Demographic variables. Demographic characteristics potentially associated with either overweight or physical activity were included in the analyses. These characteristics include gender, age (measured in years), race/ethnicity (Caucasian, African American, Hispanic, and other), educational attainment (high school degree or less, some college, and college degree), marital status (married vs nonmarried), pay group (enlisted vs officers), and service branch (Army, Navy, Marine Corps, and Air Force). A series of dummy variables was created for the nonbinary categorical variables for use in the multivariate analyses, including ethnicity (Caucasians were the reference group), education (personnel with a college degree were the reference category), and service branch (with Air Force as the reference group).

Statistical Analyses

The data were analyzed using SUDAAN (SUrvey DAta ANalysis) software, which was selected to take account of the complex sampling design of the surveys [*24*]. The analyses conducted in this study were both descriptive and multivariate. First, to determine whether significant differences existed in the demographic composition of the military in 1995 and 1998, chi-square analyses were conducted (due to the categorical nature of all variables). Chi-square analyses were also used to compare the distribution of physical activity responses and the proportion of personnel classified as overweight in 1995 and 1998. These analyses were conducted separately for males and females.

Next, to determine whether there was a significant increase in the prevalence of overweight from 1995 to

1998, and to determine the relationship between physical activity patterns and overweight, three sequential multivariate logistic regression models were conducted for males and females. The multivariate analyses were conducted separately by gender due to gender differences in both the distribution of BMI and the prevalence of overweight. The results of the logistic regression analyses were expressed as odds ratios (i.e., the odds of a particular category being overweight relative to the odds for the reference group), and statistical significance was assessed with 95% confidence intervals.

In Model 1, overweight was regressed on "year" (dummy coded so that 1995 was the reference category). A significant, positive odds ratio for year would indicate that a greater proportion of military personnel was overweight in 1998 than in 1995. To rule out the possibility that any changes in overweight from 1995 to 1998 could be explained by concomitant changes in the demographic profile of the military (e.g., greater proportions of older or minority personnel), Model 2 introduced demographic variables (age, race/ethnicity, education, marital status, pay group, and service branch) into the equation, along with year. Thus, the results of Model 2 enabled the identification of significant demographic predictors of overweight, in addition to determining the association between overweight and year while potential demographic confounders were controlled. Model 3 included physical activity, as well as the preceding Model 2 variables. If changes in physical activity patterns (e.g., a reduction in physical activity from 1995 to 1998) were associated with any potential changes in the prevalence of overweight between 1995 and 1998, controlling for physical activity in the analyses would reduce the significance of year. Model 3 also enabled the direct association between physical activity and overweight to be identified.

TABLE 1

Sociodemographic Characteristics of the Military Population, 1995 and 1998

Characteristics	1995 (n = 16,193)	1998 (n = 17,264)	Significance level
Age (years)			0.11
≤20	11.8 (0.5)	10.2 (0.6)	
21–25	32.0 (1.2)	28.4 (1.0)	
26–34	33.2 (0.6)	34.4 (0.7)	
≥35	23.1 (1.1)	27.0 (1.0)	
Gender			0.29
Male	87.6 (1.0)	86.3 (0.7)	
Female	12.4 (1.0)	13.7 (0.7)	
Race/ethnicity			
Caucasian	67.7 (1.1)	64.5 (1.0)	0.01
African American	17.2 (0.9)	17.6 (0.9)	
Hispanic	8.5 (0.4)	10.8 (0.5)	
Other	6.6 (0.4)	7.1 (0.4)	
Education			0.06
High school	36.8 (1.8)	31.3 (1.4)	
Some college	43.9 (1.2)	46.3 (1.0)	
College graduate	19.3 (1.6)	22.5 (1.4)	
Marital status			0.88
Married	60.3 (1.0)	60.1 (0.8)	
Not married	39.7 (1.0)	39.9 (0.8)	
Pay group			0.29
Enlisted	84.4 (1.5)	82.2 (1.3)	
Officer	15.6 (1.5)	17.8 (1.3)	
Service			0.95
Army	31.9 (3.5)	34.0 (4.1)	
Navy	28.8 (4.9)	25.8 (3.6)	
Marine Corps	11.0 (1.6)	12.2 (1.8)	
Air Force	28.3 (3.6)	28.0 (3.6)	

Note. Estimates are percentages (with standard errors in parentheses).

RESULTS

Descriptive Statistics

Descriptive information about the 1995 and 1998 military populations is presented in Table 1. In both 1995 and 1998, the majority of military personnel were between the ages of 21 and 34, male, Caucasian, at least partially college educated, and married. The only significant difference in the demographic composition of the military was race/ethnicity, with more Hispanic and fewer Caucasian personnel in 1998. A slight trend toward a more educated military population in 1998 also was evident, although it was not statistically significant.

The distribution of physical activity levels and the proportion of military personnel classified as overweight in 1995 and 1998 are presented for males and females (Table 2). As evident in the table, both male and female personnel were highly active, with around two-thirds reporting at least 3 days of physical activity per week. Levels of physical activity showed a significant increase for males between 1995 and 1998 (P = 0.01), but no change for females.

Based on our classification scheme for overweight (BMI ≥25.0), some 50% of the military population in 1995 and 54% in 1998 were classified as overweight. Although the data are not shown, very few participants (4.9% in 1995 and 6.2% in 1998) met the civilian-based criteria [*4,20*] for obesity (BMI ≥30.0). When examining the prevalence of overweight for males and females, a notable gender difference was evident, with male personnel having a prevalence of overweight over twice as high as that for female personnel both in 1995 and 1998. For both genders, we observed a significant increase in the prevalence of overweight from 1995 to 1998 ($P <$ 0.001 for males and $<$ 0.01 for females). As indicated in Table 2, 54% of males were classified as overweight in 1995 and nearly 59% were classified as overweight in 1998—representing an increase of 8%. For females, the prevalence of overweight, although much lower than that observed for males, increased by 21% from 1995 to 1998.

TABLE 2

Physical Activity and Overweight among Male and Female Military Personnel, 1995 and 1998

Characteristics	1995	1998	Significance level
Males	n = 13,219	n = 13,296	
Physical activity			0.01
Never in past month	6.2 (0.5)	5.1 (0.3)	
1–3 days in past month	10.9 (0.8)	9.4 (0.6)	
1–2 days a week	17.3 (0.7)	17.5 (0.9)	
3–4 days a week	35.1 (0.8)	32.9 (0.9)	
5–6 days a week	13.6 (0.8)	16.0 (0.8)	
About every day	16.8 (0.8)	19.0 (1.2)	
Overweight			0.000
Yes	54.1 (0.6)	58.6 (0.6)	
No	45.9 (0.6)	41.4 (0.6)	
Females	n = 2,974	n = 3,968	
Physical activity			0.26
Never in past month	8.1 (0.8)	7.3 (0.6)	
1–3 days in past month	13.2 (0.8)	12.1 (0.8)	
1–2 days a week	17.2 (1.0)	18.0 (1.0)	
3–4 days a week	36.6 (1.5)	33.6 (1.1)	
5–6 days a week	13.6 (0.9)	15.0 (1.0)	
About every day	11.3 (0.9)	14.2 (1.2)	
Overweight			0.003
Yes	21.6 (1.0)	26.1 (1.2)	
No	78.4 (1.0)	73.9 (1.2)	

Note. Estimates are percentages (with standard errors in parentheses).

The distribution of BMI among males and females in 1998 is shown in Fig. 1. Although the distribution of the values is normal, greater variability in BMI was evident among males. Also of note is that the majority of BMI values classified as overweight are close to the lower end of the range (i.e., values clustered around 25.0). The mean BMI value for males in 1998 was 24.8 (SE = 0.1), and the mean BMI for females was 22.5 (SE = 0.1). Although the data are not shown, a similar BMI distribution was observed in 1995 (the mean BMI value for males in 1995 was 24.5 [SE = 0.1] and the value for females was 22.3 [SE = 0.15].

Multivariate Analyses

The results of the logistic regression analyses are shown for males in Table 3 and for females in Table 4. Model 1 considered only the relationship between the survey year and the percentage of personnel classified as overweight. As shown, the odds of being classified as overweight were significantly higher for military personnel in 1998 than in 1995 for both males and females, indicating a pattern toward increasing overweight. This pattern remained significant in Model 2, suggesting that even when potentially confounding demographic characteristics were controlled, the prevalence of overweight remained higher in 1998 than in 1995. In addition to a significant effect for year, several demographic predictors of overweight were identified in Model 2. More specifically, male and female personnel classified as overweight had greater odds of being older, African American or Hispanic, married, and enlisted personnel. In addition, the odds of being overweight were significantly higher among the Navy compared to the Air Force. Although each effect was statistically significant, all of these effects were relatively small.

In Model 3, physical activity was included in the

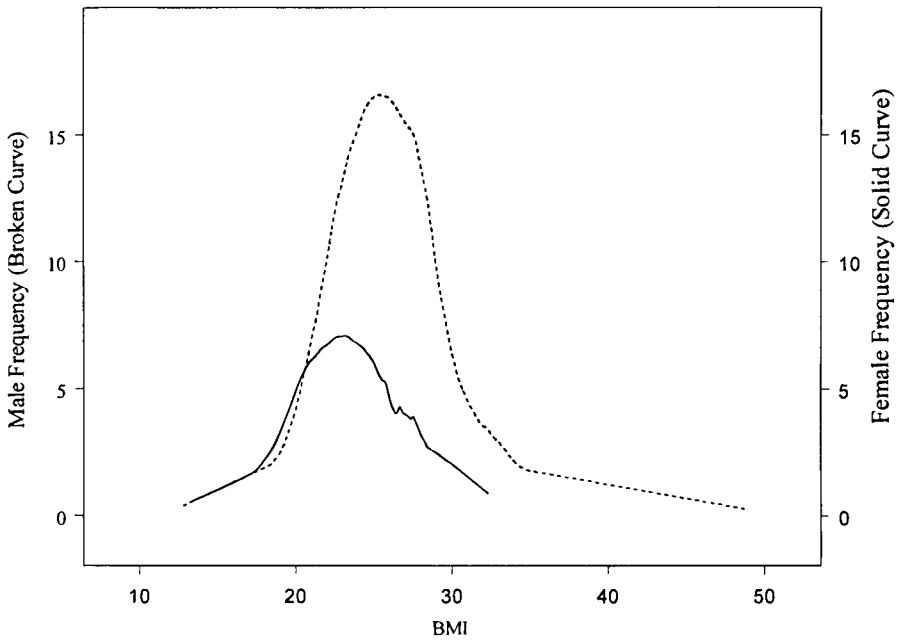


FIG. 1. BMI distribution for male and female military personnel in 1998.

TABLE 3

Predictors of Overweight among Male Military Personnel Using Sequential Logistic Regression Models

Predictors	Model 1 adjusted odds ratio (95% confidence interval)		Model 2 adjusted odds ratio (95% confidence interval)		Model 3 adjusted odds ratio (95% confidence interval)	
Year						
1995	1.00	NA	1.00	NA	1.00	NA
1998	1.20	(1.11, 1.30)	1.16	(1.08, 1.24)	1.15	(1.07, 1.23)
Age (years)	—	—	1.06	(1.05, 1.06)	1.06	(1.05, 1.06)
Race/ethnicity						
Caucasian	—	—	1.00	NA	1.00	NA
African American	—	—	1.27	(1.17, 1.38)	1.27	(1.17, 1.38)
Hispanic	—	—	1.14	(1.01, 1.29)	1.14	(1.00, 1.29)
Other	—	—	0.80	(0.71, 0.90)	0.80	(0.71, 0.89)
Education						
High school	—	—	0.97	(0.83, 1.14)	0.97	(0.82, 1.14)
Some college	—	—	1.12	(0.98, 1.29)	1.12	(0.98, 1.28)
College graduate	—	—	1.00	NA	1.00	NA
Marital status						
Married	—	—	1.25	(1.17, 1.33)	1.25	(1.17, 1.33)
Not married	—	—	1.00	NA	1.00	NA
Pay group						
Enlisted	—	—	1.38	(1.22, 1.57)	1.39	(1.27, 1.58)
Officer	—	—	1.00	NA	1.00	NA
Service						
Army	—	—	1.01	(0.94, 1.08)	1.00	(0.92, 1.09)
Navy	—	—	1.18	(1.09, 1.27)	1.18	(1.09, 1.28)
Marine Corps	—	—	1.03	(0.94, 1.12)	1.02	(0.93, 1.11)
Air Force	—	—	1.00	NA	1.00	NA
Physical activity						
Yes	—	—	—	—	1.03	(0.96, 1.10)
No	—	—	—	—	1.00	NA

Note. Sample size was 25,960.

equation to determine (a) whether the significance of year was reduced when levels of physical activity were controlled and (b) whether there was a relationship between physical activity and overweight. Results showed that the prevalence of overweight remained significantly higher in 1998 than in 1995 for both males and females, even when adjusted for physical activity. They also showed that there was *not* an independent association between physical activity and overweight. Contrary to our expectations, military personnel who met the *Healthy People 2000* guidelines for physical activity did not have a lower prevalence of overweight.

Although the data are not presented, the same three models also were run (for males and females combined) with BMI as a continuous dependent variable using multiple linear regression to explore the linear relationship between overweight, year of survey, and physical activity. For the most part, the findings were similar: Year was positively associated with BMI in all three models ($P < 0.001$), with the β for year in Model 3 being 0.25. In addition, the same demographic predictors (gender, age, race/ethnicity, marital status, pay group, and service branch) were significantly associated with BMI. However, in Model 3, physical activity was positively associated with BMI ($\beta = 0.10, P = 0.04$), indicating that military personnel who engaged in vigorous physical activity at least 3 days a week had significantly *higher* BMIs than their less active counterparts.

DISCUSSION

The results of the current analyses show that military personnel experienced an increase in overweight over a 3-year period similar to the pattern evident in the civilian population. In all models considered, a significant effect of time was identified, such that even after controlling for changes in the demographic composition of the military over the period of study, significantly more personnel were overweight in 1998 than in 1995. Although a slight but significant increase in physical activity was identified among male personnel, no changes were observed among females, and physical activity was not associated with lower levels of overweight for either gender. In fact, when considering BMI as a continuous variable, a positive relationship between physical activity and BMI was identified. These results suggest the possibility that factors other than physical activity, such as dietary intake and other

TABLE 4

Predictors of Overweight among Female Military Personnel Using Sequential Logistic Regression Models

Predictors	Model 1 adjusted odds ratio (95% confidence interval)		Model 2 adjusted odds ratio (95% confidence interval)		Model 3 adjusted odds ratio (95% confidence interval)	
Year						
1995	1.00	NA	1.00	NA	1.00	NA
1998	1.28	(1.09, 1.51)	1.30	(1.12, 1.51)	1.30	(1.13, 1.50)
Age (years)	—	—	1.06	(1.05, 1.07)	1.06	(1.05, 1.07)
Race/ethnicity						
Caucasian	—	—	1.00	NA	1.00	NA
African American	—	—	2.04	(1.70, 2.45)	2.03	(1.69, 2.44)
Hispanic	—	—	1.40	(1.10, 1.78)	1.38	(1.08, 1.76)
Other	—	—	0.92	(0.71, 1.20)	0.93	(0.71, 1.21)
Education						
High school	—	—	1.53	(1.15, 2.02)	1.58	(1.19, 2.10)
Some college	—	—	1.36	(1.04, 1.78)	1.38	(1.06, 1.81)
College graduate	—	—	1.00	NA	1.00	NA
Marital status						
Married	—	—	1.18	(1.02, 1.37)	1.17	(1.01, 1.36)
Not married	—	—	1.00	NA	1.00	NA
Pay group						
Enlisted	—	—	1.51	(1.15, 1.98)	1.48	(1.12, 1.96)
Officer	—	—	1.00	NA	1.00	NA
Service						
Army	—	—	1.30	(1.08, 1.56)	1.26	(1.05, 1.53)
Navy	—	—	2.00	(1.71, 2.33)	1.98	(1.69, 2.32)
Marine Corps	—	—	0.42	(0.32, 0.57)	0.42	(0.31, 0.56)
Air Force	—	—	1.00	NA	1.00	NA
Physical activity						
Yes	—	—	—		1.11	(0.95, 1.30)
No	—	—	—	—	1.00	NA

Note. Sample size was 6,691.

health behaviors related to energy balance, may have been more influential in the observed increase in overweight from 1995 to 1998.

The unexpected association between physical activity and BMI raised the possibility that the increasing prevalence of overweight in 1998 may have been due to higher levels of physical activity in the later wave of the study. However, because the regression models revealed a significant effect of year while controlling for physical activity (regardless of the direction of the relationship between physical activity and BMI), this possibility is unlikely.

Clearly, when one considers that (a) physical activity levels were high in both 1995 and 1998 and that an increase in physical activity was observed among males and (b) physical activity was not associated with the prevalence of overweight and was positively associated with BMI (as a continuous variable), it is not surprising that physical activity did not appear to account for the increasing prevalence of overweight across the study period. Similar results were found among the general U.S. population in a recent paper exploring trends in obesity and physical inactivity from 1991 to 1998 using the Behavioral Risk Factor Surveillance System data: Although the prevalence of obesity among civilians increased by around 50% over the study period, concomitant changes in physical inactivity were not observed [*1*].

Despite the similarity of trends occurring in military and nonmilitary populations, military personnel are unique in several ways that are likely to influence the relationship between physical activity and overweight. First, the military population had very high rates of physical activity, as evident in both the 1995 and 1998 surveys. More than 67% of military personnel met the *Healthy People 2000* goal of engaging in regular, vigorous physical activity for 3 or more days per week. Although methodological differences between the military and civilian surveys make direct comparisons problematic, the proportion of the military that engages in regular, vigorous physical activity is substantially higher than the 15% of civilian adults that do so [*14*]. Similarly, although the increases in overweight over the 3-year period of our study were highly significant ($P < 0.001$), BMIs generally clustered around the lower limits of the overweight range (25.0 to 29.9). It is possible that the limited variability in both physical activity and BMI among the military population may have limited the

statistical association between them. Indeed, it has been suggested previously that BMI may be relatively homogeneous among populations engaging in high levels of physical activity [25].

An additional factor to consider when interpreting the results of the present study concerns the validity of BMI as an indicator of overweight. Although BMI does not directly measure body fat, correlations between BMI and body fat are high among the general population, ranging from around 0.70 to 0.80 [26]. However, the inability of BMI to distinguish between weight due to muscle and weight due to fat may overestimate the prevalence of overweight among military personnel, who are disproportionately young, healthy, lean, and physically active. The possibility that among the military population BMI actually measures "excess" muscle for height may partially explain the positive association observed in the current study between BMI and physical activity, in that regular exercise is likely to increase lean mass. As mentioned previously, the weight standards used by the military differ from the current cutoffs commonly used by obesity researchers. Military weight standards are based on weight-for-height and body fat assessment (conducted only if weight exceeds the maximum for height). The guidelines vary by branch of service, age, and gender (with upper limits of 26% body fat for men and 35% for women) and generally result in a smaller proportion of personnel classified as overweight [27]. The influence of lean mass on BMI among highly active military populations is an important question for future research. In a recent paper by Rasmussen *et al.* [28], in which trends in overweight among 18-year-old male military conscripts in Sweden were explored, an increase in BMI from 1971 to 1995 was observed, along with a concomitant increase in muscle power. Interestingly, this study found that overweight individuals had higher mean muscle power and higher maximal working capacity than normal-weight individuals [28], supporting the hypothesis that BMI may be more reflective of muscle mass among highly active populations.

Previous studies related to physical activity and overweight conducted among subsamples of the military have reported results somewhat inconsistent with the current study. For example, among male military personnel, inverse relationships between body fat and physical activity [29] and physical fitness [30] have been identified. Troumbley *et al.* found that compared to normal-weight U.S. Army personnel, overweight soldiers (enrolled in the Army's Weight Control Program due to failure to meet percentage body fat standards based on height–weight tables and circumference measurements) had lower levels of physical fitness [31]. Finally, among seriously overweight and obese Canadian military personnel, BMI was significantly correlated with aerobic capacity [32]. Although our findings differ from these studies, much of the discrepancy is likely to be due to differences in measures, study design, and sample characteristics. Previous studies have employed relatively small, unrepresentative samples of soldiers. In contrast, our study examined the relationship between physical activity and overweight among the active force utilizing a large, representative probability sample of all branches and demographic groups within the U.S. military.

The current study makes several important contributions to existing research on physical activity and overweight. Our research demonstrates that unique patterns regarding physical activity and overweight may be evident among highly active populations. For example, among military personnel, vigorous physical activity was not associated with overweight and was positively associated with BMI. Several methodological and analytical strengths of our study, such as the large sample size and use of sophisticated sampling techniques ensuring a representative cross section of military personnel, increase the validity and generalizability of the findings. Furthermore, although the data are cross-sectional, the ability to assess trends in physical activity and overweight through the use of multiple waves of data is a substantial contribution, allowing temporal changes in overweight and physical activity to be explored. Finally, the inclusion of both males and females in our surveys (and conducting analyses separately by gender) enabled us to explore gender differences in the relationship between physical activity and overweight.

Limitations of our research also should be considered when interpreting the study results. Most important, the use of self-reported measures for height, weight, and physical activity may have yielded somewhat conservative responses (perhaps resulting in a lower percentage classified as overweight). However, such measures are commonly used in large, epidemiological surveys and are likely to yield valid population-based estimates. In addition, steps were taken to ensure accurate interpretations of the questions (i.e., pretesting), and confidentiality was provided to survey respondents.

CONCLUSIONS

The U.S. military is experiencing an increasing prevalence of overweight that mirrors the trend occurring among the general population. Using widely accepted definitions of overweight, around 59% of male and 26% of female military personnel serving on active duty in 1998 were overweight, with significant increases in overweight identified for both genders over only a 3-year period of study. Contrary to our expectations, the rise in overweight does not appear to be explained by reduced physical activity, suggesting that other factors, such as dietary intake, may be influential. Although the explanation for rising levels of overweight and obesity

is undoubtedly complex, involving interactive effects among environmental, social, and individual-level factors, the speed with which this trend is occurring and the magnitude of the societal costs justify widespread efforts toward prevention.

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Trends in Substance Use among US Military Personnel: The Impact of Changing Demographic Composition

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ABSTRACT

This paper examines the impact of the military population's changing demographic composition on observed changes in substance use by military personnel. Cross-sectional data are drawn from the six Department of Defense Worldwide Surveys of Substance Abuse and Health Behaviors Among Military Personnel conducted in 1980, 1982, 1985, 1988, 1992, and 1995. Using the method of direct standardization to adjust for changes in demographic composition, trends in substance use are examined. Changes in heavy alcohol use were more affected by demographic changes in the military population than were changes in illicit drug use or cigarette use. Findings indicate that changes in demographic composition may need to be controlled when assessing trends from cross-sectional surveys. [Translations are provided in the International Abstracts Section of this issue.]

Key words. Trends; Substance use; Military; Demographics

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INTRODUCTION

Trends in the use of illicit drugs, alcohol, and cigarettes are generally monitored by means of repeated surveys of cross-sections or segments of the population. Well-known examples are the (a) National Household Surveys on Drug Abuse (NHSDAs) that have been conducted since 1972 (Substance Abuse and Mental Health Services Administration [SAMHSA], 1998); (b) the Monitoring the Future Survey series that has interviewed high school seniors since 1975, 8th and 10th graders since 1991, and college students and young adults since 1980 (Johnston et al., 1997); and (c) the Worldwide Surveys of Substance Use and Health Related Behaviors Among Military Personnel that have interviewed active-duty military personnel since 1980 (Bray et al., 1983, 1986, 1988, 1992, 1995b, 1999; Burt et al., 1980). Monitoring systems also use data other than surveys. Examples are the Drug Abuse Warning Network (DAWN), which presents drug and alcohol involvement in emergency room visits and medical examiners' reports (SAMHSA, 1997), and such data collections as the Vital Statistics and Uniform Crime Reports that contain information about drug use and its effects (Hser et al., 1992; Larson et al., 1995; Winick, 1997).

A variety of methodological issues affect the ability to monitor changes across surveys effectively. The major cross-sectional surveys of substance use noted above allow the examination of overall or net changes in use. However, because the cross-sectional studies survey different people each time, reasons for change or patterns in change cannot be fully assessed. Conversely, panel or longitudinal studies which do survey the same individuals over time provide a strong design for assessing the nature of the changes, but are less appropriate for providing estimates of net changes in substance use in the overall population (Firebaugh, 1997:2-3). Problems of attrition and changes due to births and deaths in the population result in less accurate population estimates than those from cross-sectional data. However, examination of net changes in use may also be affected by a variety of substantive and methodological factors, and monitoring of change requires that the circumstances of the surveys that are repeated over time remain essentially the same. For example, historical events occurring during the survey series, the effects of maturation or testing, and biases in the selection of respondents may affect the assessment of the magnitude and direction of change (Campbell and Stanley, 1966; Cook and Campbell, 1979; Runkel and McGrath, 1972).

Similarly, changes in survey methodology, such as the questions being asked, methods of administering the surveys, and the groups covered in the survey, may affect the assessment of change and should remain the same wherever possible. In addition, increases in the numbers of nonrespondents

may raise questions about potential biases in the survey data (Groves and Couper, 1998). Bias may be introduced when nonrespondents' behavior (and hence answers to questionnaires) differ from those of respondents.

Fortunately, although each survey series has some limitations, the three major survey series that have been used to monitor changes in drug and alcohol use have taken a variety of steps to minimize important sources of survey errors due to inadequate coverage of the population, sampling variation, nonresponse of sampled persons, and measurement problems (e.g., see discussions of survey errors by Dillman, 1991; Salant and Dillman, 1994). First, they have used inclusive population definitions and sophisticated probability sampling methods to achieve maximum coverage and minimize sampling errors and have obtained relatively large representative samples. Second, they have used rigorous field procedures to guard against nonresponse error and have employed a variety of strategies (e.g., lead letters, multiple contacts, appeal to authority of sponsoring organization) to obtain and maintain respectable response rates across the survey series. And third, they have been sensitive to issues of measurement error in assessing respondents' knowledge and behavior, have retained comparable questions from wave to wave of the surveys, and, for the NHSDA, have conducted a variety of methodological studies to assess the accuracy of survey measurement of drug use (Turner et al., 1992). Furthermore, all three survey series have continued to monitor the use patterns of the same populations: the household population, school populations or young adults, and the military population.

Although the composition of the adult household population and the youth population have been fairly stable, the military population has undergone a number of changes in the past two decades. The abolition of the draft and a resulting career-oriented force, military downsizing, and the attempt to attract a better educated military work force are all contributing factors to change in the demographic composition of the military population. The result is that the military population is now older, better educated, more likely to be married, and more likely to be female than it was in the early 1980s (Bray et al., 1995a). These changes in the military population may themselves result in differing rates of alcohol use, illicit drug use, and cigarette use because use is related to such demographic factors as age, gender, and education. Thus, changes in the demographic composition of a population under investigation may affect the accuracy of monitoring of trends in substance use in that population, even when the survey methodology remains constant.

This paper examines the impact of the changing demographic composition of the United States military population on observed changes in heavy alcohol use, illicit drug use, and cigarette use among United States military personnel. Heavy alcohol use is defined as consuming five or more drinks

per typical drinking occasion at least once a week, while illicit drug use includes use of illegal drugs, such as marijuana or cocaine, as well as nonmedical use of prescribed drugs. In contrast to civilian populations whose composition has remained fairly constant, monitoring trends in substance use in the military population may be affected by notable changes in the demographic composition of the population.

METHODS

DoD Worldwide Survey Series

A systematic effort to obtain data to guide and evaluate military health and substance abuse programs and policies began in 1980 under the direction of the Department of Defense (DoD). The Office of the Assistant Secretary of Defense (Health Affairs) initiated a series of recurring surveys (a) to improve understanding of the nature, causes, and consequences of substance use and health in the military; (b) to determine the appropriateness of the emphasis placed on program elements; and (c) to examine the impact of current and future program policies. To date, the series has included seven surveys conducted in 1980, 1982, 1985, 1988, 1992, 1995, and 1998. The 1980 survey was conducted by Burt Associates, Incorporated, of Bethesda, Maryland (Burt et al., 1980), and the 1982, 1985, 1988, 1992, 1995, and 1998 surveys have been conducted by Research Triangle Institute of Research Triangle Park, North Carolina (Bray et al., 1983, 1986, 1988, 1992, 1995b, 1999).

All of the surveys investigated the prevalence of alcohol use, illicit drug use, and tobacco use, as well as negative consequences associated with substance use in a similar set of questions. The 1985 through 1992 surveys also covered an expanded set of health behaviors and related issues. In 1995 and 1998, health behavior questions were revised and items were added to assess selected Healthy People 2000 objectives, which are a product of work disseminated by the US Public Health Service (1991). In addition, questions were added to examine the mental health of the active force and specific health concerns of military women.*

Sampling Design and Data Collection

The sampling designs and data collection methods have been similar throughout the survey series and are described in detail in Bray et al

* At the time this paper was written, data for the 1998 survey were not available, so the focus here is on pre-1998 findings.

(1995b). For each survey the eligible survey population consisted of all active-duty military personnel except recruits, service academy students, persons absent without official leave, and persons who had a permanent change of station at the time of data collection. Military personnel were selected to represent men and women in all pay grades of the active force throughout the world using a probability design that first sampled installations and then selected personnel within installations.

More specifically, the first stage of sampling involved selection of major military installations stratified by service (Army, Navy, Marine Corps, Air Force) and world region (Continental United States [CONUS], Europe, Pacific, Other, 1980; Americas, North Pacific, Other Pacific, Europe, 1982 to 1992; CONUS, other than CONUS [OCONUS], 1995). Within the selected installations, the second stage of sampling involved selection of military personnel stratified by military pay grade, including three enlisted grades (E1–E3, E4–E6, E7–E9) and three officer grades (warrant officers in grades W1–W5 and commissioned officers in grades O1–O3 and O4–O10). Officers and women were oversampled because of their smaller numbers.

Two-person civilian teams visited from 59 to 80 military installations around the world to obtain the data and were assisted by military liaison officers who were appointed at each installation to coordinate survey logistics. Liaison officers notified commanders about the survey and requested their support, arranged suitable rooms and times for the group administration of the survey questionnaire, notified sampled personnel that they had been selected to complete the survey, and scheduled them to attend one of the survey sessions.

At the group sessions, field teams described the purpose of the study, assured the respondents of anonymity, informed participants of the voluntary nature of the survey, answered questions, and showed the correct procedures for marking the questionnaire. Then team members distributed optical-mark questionnaires to participants who completed them. Persons who did not want to take part in the study either left the room prior to completing the questionnaire or did not attend a survey session. On average, the questionnaire took from 50 to 55 minutes to complete.

Eligible persons who did not attend group sessions were mailed a questionnaire along with an explanation of the purpose and anonymity of the survey and instructions for completing and returning it. Because the questionnaire was anonymous, there was no opportunity for further follow-up of nonrespondents. Most of the data (88% in 1995) were obtained from the group sessions.

These procedures produced large sample sizes and respectable response rates for each of the surveys. The sample sizes were (a) 15,268 in 1980, (b) 21,936 in 1982, (c) 17,328 in 1985, (d) 18,673 in 1988, (e) 16,395 in 1992, and

(f) 16,193 in 1995. Response rates among eligible personnel ranged from 70 to 84% over the survey series. Data for each survey were weighted to represent all active-duty personnel, and adjustments were made for the potential effects of nonresponse.

Description of Measures

Core sets of comparable items on alcohol use, illicit drug use, and tobacco use have been used throughout the survey series. The analyses in this paper focus on three of these measures that examine substance use during the past 30 days prior to the survey: heavy drinking, use of any illicit drugs, and cigarette smoking. In assessing these substances, it is recognized that an individual's use patterns vary based on a variety of complex factors, including preferred places and times of use, the legality of the substances, meanings associated with their use, and other conditions and normative factors that serve to facilitate or prevent use.

Heavy drinking was defined as consuming five or more drinks per typical drinking occasion at least once a week and was based on a widely used drinking-level classification scheme adapted from Mulford and Miller (1960). Any illicit drug use was defined as any use during the past 30 days of marijuana or hashish, phencyclidine (PCP), lysergic acid diethylamide (LSD) or other hallucinogens, cocaine, amphetamines or other stimulants, tranquilizers or other depressants, barbiturates or other sedatives, heroin or other opiates, analgesics or other narcotics, inhalants, or "designer drugs." Cigarette smokers were defined as those who smoked at least 100 cigarettes during their lifetime and who smoked one or more cigarettes during the past 30 days.

Standardization

Standardized comparisons using the method of direct standardization (Kalton, 1968) were conducted to control for changes in the demographic composition of the military across the survey years. The 1995, 1992, 1988, 1985, and 1982 DoD survey data were standardized to the 1980 population distribution of service, age, education, and marital status. Gender and race/ethnicity were not included in this standardization. Although the proportion of women in the military increased from approximately 9% in 1980 to 12% in 1995 (Table 1), these increases were not large ones, and the military population in the early to mid-1990s continued to be predominantly male. Similarly, 19% of the military population in 1980 was Black compared with 17% in 1995 (Table 1). These data suggest that the inclusion or exclusion of these variables would have had little effect on the standardized estimate.

For each substance use measure (heavy drinking, illicit drug use, cigarette smoking), the estimate of use was calculated for each of the standardizing cells formed by the cross-tabulation of service, age, education, and marital status. These elements were then weighted by the estimated proportion of the 1980 military population that fell into each cell. Hence, the data were standardized to the joint population distribution in 1980 of the standardizing variables; the standardized estimate was an estimate of what heavy drinking, illicit drug use, and smoking might be, say in 1995, if the 1995 military population were younger, less educated, and less likely to be married, as in 1980.

Analysis Procedures

Population prevalence estimates and associated standard errors were computed from weighted survey data using the SUrvey DAta ANalysis software (SUDAAN) package (Shah et al., 1996). The direct standardization method was used to adjust prevalence estimates since 1980 to reflect demographic changes in the military over time. Pairwise *t* tests were conducted to test for significant differences between the prevalence estimates described in this paper. For each measure, tests of significance were conducted between consecutive survey years (e.g., 1982 and 1985) and between the first and last survey years (i.e., 1980 and 1995).

RESULTS

Table 1 presents estimates of the distribution of demographic characteristics among military personnel from 1980 to 1995 using data from the DoD Worldwide Survey series. These estimates are based on data from the sample respondents who were weighted and poststratified to represent the eligible respondent population. Because the eligible respondent population omitted some personnel (i.e., recruits, service academy students, those who were absent without official leave, and those who were undergoing a transfer to another duty location), their characteristics may differ somewhat from the characteristics of the total active force, although any fluctuations are expected to be relatively small.

As shown in Table 1, the military population from 1980 to 1995 was predominantly male and of White race/ethnicity. Nearly all had at least a high school education, and the majority had some college or a college degree. The population on average was fairly young with about 4 out of 10 persons (in 1995) being under age 25. The majority of personnel were married and in the enlisted ranks.

Table 1

Selected Demographic Characteristics of the Total Active Military, 1980–1995[a]

Characteristic	Year of survey					
	1980 (N = 15,268)	1982 (N = 21,936)	1985 (N = 17,328)	1988 (N = 18,673)	1992 (N = 16,395)	1995 (N = 16,193)
Gender:						
Male	91.2	90.6	91.0	88.8	85.0	87.6
Female	8.8	9.4	9.0	11.2	15.0	12.4
Race/ethnicity:						
White	70.7	71.2	72.3	69.4	66.9	67.7
Black	18.8	16.7	16.9	18.5	19.9	17.2
Hispanic	4.6	6.9	6.7	8.0	8.0	8.5
Other	5.8	5.2	4.1	4.1	5.2	6.6
Education:						
High school or less	54.0	51.1	48.8	42.9	39.0	36.8
Some college	43.9	30.4	33.6	34.7	37.7	41.9
College degree or beyond	15.7	15.3	16.4	19.4	19.1	19.3
Age:						
20 or younger	21.3	22.9	17.3	13.8	9.9	11.8
21–25	35.2	35.6	35.3	30.4	29.2	32.0
26–34	27.8	27.9	30.4	34.4	37.2	33.2
35 or older	15.6	13.6	17.0	21.4	23.6	23.1

Marital status:						
Not married	47.2	48.8	44.0	39.5	37.4	39.7
Married	52.8	51.2	56.0	60.5	62.6	60.3
Pay grade:						
E1–E3	27.2	32.4	28.3	21.0	18.1	21.7
E4–E6	50.2	47.2	48.6	51.9	55.7	52.2
E7–E9	8.2	7.4	8.7	10.4	10.4	10.4
W1–W4	1.1	1.0	0.9	1.0	1.0	1.0
O1–O3	8.3	8.1	8.7	9.6	8.9	8.7
O4–O10	5.0	3.9	4.8	6.1	5.9	5.9

[a] Entries are expressed as percentages. For race/ethnicity, White was defined as those who were White but not of Hispanic origin; Black as those who were Black but not of Hispanic origin; Hispanic as anyone of Hispanic origin whether racially Black, White, or other; and "other" as all others (e.g., American Indian, Oriental, Asian, Filipino). Source: DoD Surveys of Substance Use and Health Behaviors Among Military Personnel, 1980 to 1995.

Table 1 also shows that there have been notable shifts in the demographic composition of the military from 1980 to 1995. Compared with the military population in 1980, the population in 1995 was more likely to be female, better educated, older, and more likely to be married. The percentage of women in the survey sample increased from 8.8% in 1980 to 12.4% in 1995, while the percentage of military personnel with a high school education decreased from about half in 1980 to slightly more than one-third in 1995. Corresponding decreases in the percentage of military personnel aged 20 or younger were found—from 21% in 1980 to about 12% in 1995. The percentage of military personnel who were married also increased from 53% in 1980 to 60% in 1995. At the same time, the percentage of military personnel who were Hispanic increased slightly, and the percentage who were White decreased slightly. Percentage distributions by pay grade remained similar over the survey series, with more than 80% being in the enlisted pay grades E1 to E9.

These changes have most likely resulted from the system that relies on a volunteer force to staff the military and one that requires reasonably high education standards for its members and offers increasing opportunities to minority groups and women. The data also suggest that people may be staying in the military for longer periods and consequently are becoming older and more likely to get married.

Regardless of the reasons for the demographic shifts in the military population, these changes may have important implications for the monitoring and assessment of change in substance use among military personnel because substance use has been shown to be strongly related to certain demographic characteristics (Dawson et al., 1995; Kandel, 1991; SAMHSA, 1998). Rates of use of alcohol and other drugs are highest among young adults, the age group that constitutes a high proportion of military personnel. Similarly, rates of alcohol and other drug use are substantially higher among men than women except among youths where differences between males and females are less pronounced, and higher among unmarried persons than among married persons (SAMHSA, 1998). Indeed, rates of heavy drinking in the household population are about four times as great among males compared to females (8.9 to 1.9%). Like use of alcohol and other drugs, cigarette use also is highest among 18- to 25-year-old young adults and consistently higher among men than women, although over time the gap has been getting smaller (SAMHSA, 1998).

The high concentration of these groups with high rates of alcohol use, other drug use, and cigarette use among military personnel suggests that, all other things being equal, rates of substance use are likely to be high among military personnel. Trends in past 30-day substance use among military personnel between 1980 and 1995 are presented in Fig. 1. As shown, rates

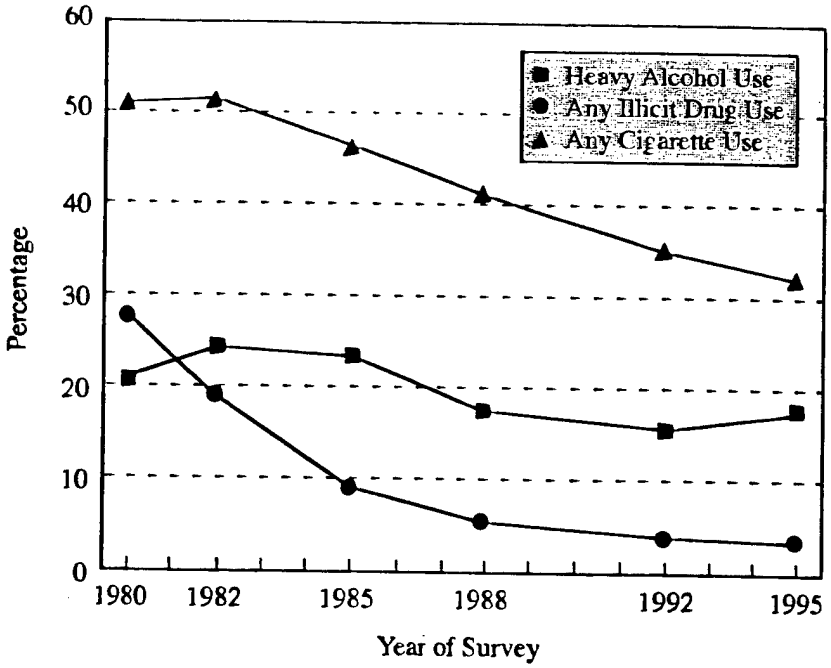


Fig. 1. Trends in past 30-day substance use among US military personnel, 1980–1995. Source: DoD Surveys of Substance Use and Health Behaviors Among Military Personnel, 1980 to 1995.

of illicit drug use and cigarette use during the past 30 days were high in 1980, but they have shown dramatic declines over the 15-year period. Heavy alcohol use rates were more stable. Illicit drug use among military personnel decreased from almost 28% in 1980 to about 3% in 1995; the decreases were statistically significant between each of the surveys between 1980 and 1992, but stable between 1992 and 1995. Any cigarette smoking decreased from 51% in 1980 to 32% in 1995. Smoking rates were similar between 1980 and 1982, but decreased significantly between each of the later survey years. The percentage of military personnel who were heavy drinkers decreased from about 21 to 17% between 1980 and 1995. Heavy drinking was relatively stable between 1980 and 1985, decreased significantly between 1985 and 1988, and remained about the same between 1988 and 1995.

Although the observed declines in substance use are encouraging, the reasons for the declines are not readily apparent. One plausible explanation for the declines is that effective military policies since 1980 (DoD, 1980a, 1980b, 1985a, 1985b, 1986a, 1986b, 1994), along with general societal or military norms against substance use, have contributed to lower rates of use. Indeed, civilian rates of substance use have generally decreased since the late

1970s (SAMHSA, 1998). If military policy had been particularly effective, we would expect to see differences between military and civilian rates of substance use. That is, military rates of use ought to be lower than comparable civilian rates. Standardized comparisons of military personnel and civilians, using the 1985 Worldwide Survey data, showed that military personnel were significantly higher than civilians on heavy drinking (21 vs 11%) and cigarette smoking (44 vs 39%) but significantly lower on illicit drug use (8 vs 24%) (Bray et al., 1991). Similar patterns also have been found for the 1995 Worldwide Survey data, although differences in cigarette use were only apparent for 18 to 25 year olds (Bray et al., 1995b). The lower rates of drug use in the military suggest that stringent military policies against illicit drug use adopted in the early 1980s have been effective (DoD, 1980a, 1980b). On the other hand, the higher rates of alcohol use and smoking in the military suggest that certain aspects of military life may encourage use or that military policy has been less effective in decreasing rates of heavy drinking or smoking.

Of central interest to this paper is the notion that declines in rates of use also may be a function of changing demographic patterns of the force. As the proportion of groups who are at lower risk of substance use increases, such as older persons, those with more education, and married persons, rates of substance use should decline, all other things being equal. To examine the impact of the changing demographic composition of the military population on rates of use of alcohol, illicit drugs, and cigarettes, rates of use in each of the survey years were standardized to the demographic composition of the military population in 1980 by service, age, education, and marital status. This procedure allows examination of the rates of use that would have occurred if the demographic composition of the military had remained the same as in 1980 according to these characteristics.

Table 2 presents the unadjusted and adjusted rates of use for heavy drinking, illicit drug use, and cigarette use. As shown, rates of use would have been somewhat higher in 1985 and later years if the demographic composition of the military had remained the same as in 1980. Although *unadjusted* rates of heavy drinking, illicit drug use, and cigarette smoking were significantly lower in 1995 than in 1980, the *adjusted* rates were significantly different only for illicit drug use and cigarette use. Indeed, rates of heavy drinking were about the same for unadjusted and adjusted rates in 1995, indicating that rates of heavy drinking would have been higher than the observed rates if the demographic composition of the military had not changed. Thus, changes in the demographic composition of the military accounted for much of the decrease in heavy drinking.

These findings indicate that changes in the demographic composition of the military population between 1980 and 1995 resulted in somewhat lower

Table 2

Trends in Substance Use, Past 30 Days, Unadjusted and Adjusted by Sociodemographic Characteristics for Total DoD[a]

Substance/type of estimate	Year of survey					
	1980 (N = 15,268)	1982 (N = 21,936)	1985 (N = 17,328)	1988 (N = 18,673)	1992 (N = 16,395)	1995 (N = 16,193)
Heavy drinking:						
Unadjusted	20.8 (1.1)	24.1 (1.0)[b]	22.9 (1.1)	17.0 (0.9)[b]	15.2 (0.7)	17.1 (0.8)[c]
Adjusted[d]	20.8 (1.1)	23.6 (0.9)[b]	24.0 (0.8)	19.3 (0.9)[b]	18.9 (0.9)	20.1 (0.8)
Any illicit drug use:						
Unadjusted	27.6 (1.5)	19.0 (1.0)[b]	8.9 (0.8)[b]	4.8 (0.3)[b]	3.4 (0.4)[b]	3.0 (0.3)[c]
Adjusted[d]	27.6 (1.5)	18.2 (0.7)[b]	9.7 (0.6)[b]	5.6 (0.4)[b]	4.3 (0.6)	3.6 (0.4)[c]
Cigarette use:						
Unadjusted	51.0 (0.8)	51.4 (0.8)	46.2 (1.0)[b]	40.9 (0.8)[b]	35.0 (1.0)[b]	31.9 (0.9)[c]
Adjusted[d]	51.0 (0.8)	52.0 (0.6)	47.5 (0.9)[b]	42.9 (0.7)[b]	37.2 (0.8)[b]	34.3 (0.6)[c]

[a] Estimates are percentages (with standard errors in parentheses). Significance tests were done between consecutive survey years and between 1980 and 1995. Source: DoD Surveys of Substance Use and Health Behaviors Among Military Personnel, 1980 to 1995.

[b] $p < .05$ for comparisons between this survey and the preceding survey.

[c] $p < .05$ for comparisons between 1980 and 1995.

[d] Adjusted estimates have been standardized to the 1980 distribution by age, education, and marital status.

rates of use than would have occurred if the demographic composition had remained the same. However, these demographic changes had more of an impact for heavy drinking than for illicit drug use or cigarette smoking. The declines in heavy drinking that were found to be statistically significant for observed or unadjusted rates were no longer significant for the adjusted rates.

DISCUSSION

Over the past two decades the military population has changed dramatically in response to changing demands for the military work force and in response to changes in the civilian work force. Not only has the active military become smaller in response to a planned drawdown, decreasing from about 2.1 million in the mid-1980s (Bray et al., 1986) to about 1.49 million in 1995 (Bray et al., 1995b), the demographic composition of the military population has changed as well (see Table 1). With declining interest in military service among young men in the past several years, military policymakers have encouraged recruitment of larger numbers of women and have provided women with options to serve in a broader variety of military occupations. The military population has also become older, better education, and more likely to be married as a result of the attempt to recruit a more stable, higher performing work force (Bray et al., 1995a). Indeed, military personnel are staying in service longer, many more making the military a career, getting married, and growing older in military service.

The changing face of the military population is an important factor that must be considered when tracking military substance use trends over time. Indeed, a key finding of this study is that the changing demographic composition of the military from 1980 to 1995 had important implications for substance use rates of military personnel. Although illicit drug use and cigarette smoking among military personnel decreased dramatically and heavy alcohol use more moderately over a 15-year period, findings showed that, all other things being equal, rates of use would have been higher if the demographic composition of military personnel had remained as it was in 1980. Of particular interest is the finding that although concerted military policy has been directed toward decreasing substance use, demographic changes in the military population appear to have accounted for part of the decline. In particular, decreases in heavy drinking were largely accounted for by changes in the demographic composition of the military.

Even though adjustments for demographic changes had the effect of increasing the observed estimates of heavy drinking, illicit drugs, and cigarette smoking, these adjustments were relatively small, on the order of 1 to 3

percentage points (Table 2). Despite the small magnitude, it was large enough to negate the significant decline for heavy alcohol use, but not large enough to negate the significant declines for illicit drug use or cigarette smoking. This was the case because the unadjusted decline across the years was relatively small for heavy alcohol use but very large for illicit drug use and cigarette smoking.

The findings of the present study might be considered a special case of a more general phenomenon in which changes in some aspect of the research population mediate observed relationships between predictor and outcome variables (e.g., Baron and Kenny, 1986; Holmbeck, 1997). The question then arises as to how large the changes must be among mediating variables (e.g., demographic characteristics) relative to the changes in the outcome variables (e.g., substance use rates) before they begin to have a negative effect or to be of concern.

The general answer is that the magnitude of the changes in the mediating variables must be large enough to produce adjusted effects in the outcome variables that are of the same or greater magnitude as the unadjusted changes in the outcome variables (e.g., substance use rates) across survey years. In the case of the present findings, the adjustment of 3 percentage points for heavy drinking was about the same as the overall decline in unadjusted heavy drinking rates from 1980 to 1995. However, this adjustment of 3 percentage points for cigarette smoking and illicit drug use was not nearly large enough to offset the decline of nearly 20 percentage points for cigarette use and approximately 25 percentage points for illicit drug use during this same period.

The extent to which changes in mediating variables are likely to modify unadjusted findings will be a function of (a) the correlation between mediating variables (e.g., demographic characteristics) and the outcome variables (e.g., substance use rates), (b) the magnitude of the changes in the mediating variables, and (c) the magnitude of the changes in the outcome or criterion variables. Assuming a moderate to strong relationship between the mediating and outcome variables, relatively large changes in mediating variables and relatively small changes in the outcome variables should result in the mediating variables accounting for the observed changes in the unadjusted rates. These are the findings we observed with changes in heavy drinking over the survey years. In contrast, when there are small changes in mediating variables and relative large changes over time in outcome variables, the latter will dominate the findings and the mediating variables will make only small differences, but not negate or explain away the main patterns in the data. These are the findings we observed for the changes in illicit drug use and cigarette smoking across the survey years. The challenge to researchers, then, is being aware of possible mediating variables in cross-

sectional surveys and taking steps in analyses to ensure that possible changes in such variables are taken into account when interpreting the data and assessing their implications.

Findings from this study illustrate how changes in the population under consideration can affect the assessment of change in substance use rates. Although in our analyses the impact of changes over time in the demographic composition of the population was examined, changes in the nature of the population being studied also may arise from other phenomena, such as declining response rates or changes in the inclusion or exclusion of specific subgroups in cross-sectional surveys. In recent years, surveys as a whole have been marked by declining response rates, and this raises concerns about the potential for bias in the findings (Groves and Couper, 1998). One comparison of respondents and a small sample of nonrespondents to the NHSDA, however, indicated few differences in demographic characteristics or substance use between respondents and nonrespondents, although nonrespondents were more likely to have used illicit drugs in their lifetime or to be lifetime or current cocaine users (Caspar, 1992). Although this finding is encouraging, one cannot assume that parallel results will necessarily occur within any given survey or across a survey series; this suggests that other steps need to be taken to guard against potential bias.

Similarly, changes in the sample under study also may contribute to the assessment of change. For Monitoring the Future surveys, analyses have shown that school absentees and dropouts report higher rates of substance use than in-class students, and that these groups influence estimates for the overall survey population (Johnston and O'Malley, 1985; Johnston et al., 1997). For example, a combined estimate of drug use computed by weighting information from absentees and other students proportional to their representation in the population showed that including absentees increased the rates of drug use as much as 2.7 percentage points depending on the drug examined, but only 1.4 percentage points on average across all drugs. Estimates of drug use for dropouts indicated that their use was approximately 1.5 times higher than that of absentees. Interestingly, the slopes of the illicit drug use trend lines when absentees and dropouts were included were nearly identical to the slopes of the trend lines that omitted absentees and dropouts. Estimates of trends that included absentees and dropouts did, however, show systematic higher prevalence estimates each year, although the adjusted and unadjusted differences were not large and probably would not have serious policy implications.

The monitoring of change via repeated surveys also is dependent on consistency in survey methodology over time. Although all three of the major surveys noted here (NHSDA, Monitoring the Future, DoD Worldwide Surveys), have employed remarkably similar instruments and

data collection methods over the survey series, some changes in survey questions have occurred that may necessitate breaks in trend lines. For example, a new version of the NHSDA questionnaire was fielded in 1994, necessitating adjustments to data from prior years for comparability (SAMHSA, 1998). Similarly, changes in the size of beverage containers for beer have affected the algorithm for calculating drinking levels for the DoD Worldwide Surveys (Bray et al., 1995b). Fortunately, sponsors and research teams for these large-scale surveys have been alert to the importance of making these adjustments to account for the effects of methodological changes on assessments of substance use trends.

Overall, our findings suggest some caution in interpreting results from repeated surveys used to monitor change. Although in many cases changes in the studied population or minor changes in survey methodology or in the questionnaire may have a negligible effect on the assessment of change, in other cases such changes may alter research conclusions and policy determinations. Thus, the magnitude and potential impact of these sources of error need to be investigated in studies that monitor change. Additional studies should examine, for example, the correspondence between survey samples and the underlying populations, effects of nonresponse on survey findings, the prevalence of behaviors in question among groups that are underrepresented in survey samples, and the impact of changes in survey questionnaire items on trend data.

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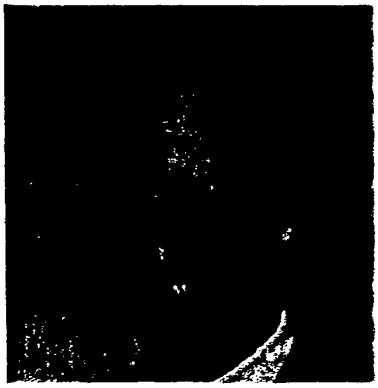
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DRAFT

Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel

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Psychosocial and Health Correlates of Types of Traumatic Event Exposures Among U.S. Military Personnel

The prevalence of lifetime exposure to combat or violence, natural disaster, or major accident involving injuries or fatalities was examined in two population-based samples of active-duty U. S. military personnel. The psychosocial and health effects of types of exposure (witness only, victim/survivor, relief worker), gender differences, and social support were also evaluated. The lifetime exposure to one or more traumatic events was 65%; the most prevalent trauma for men was witnessing a major accident, and for women, witnessing a natural disaster. In multivariate analyses, victims of any traumatic event were at twice the risk of having two or more physical and mental health problems than nonexposed controls; male witnesses had the highest risk for current smoking and heavier drinking.

KEY WORDS: traumatic events, prevalence, psychosocial, health, military

Reviews of epidemiologic studies of trauma show that exposure to traumatic events is highly prevalent in the United States (Kessler, 2000; Solomon & Davidson, 1997). It has been estimated that 37-87% of women and 43-92% of men have experienced at least one traumatic event in their lifetime, depending on how the exposure is measured (Breslau, 1998). In a study of over 1,000 21-30 year old health maintenance organization members in Detroit, more than one third had already experienced at least one traumatic event (Breslau, Davis & Andreski, 1991). Men are more likely to report experiencing combat or threat with a weapon, life-threatening accident, and natural disaster, and women are more likely to report sexual assault and rape (Kessler, 2000).

The most frequently studied psychological effect of trauma exposure is posttraumatic stress disorder (PTSD), which in general population surveys, has an estimated lifetime prevalence rate from 1% to 12% (Solomon & Davidson, 1997). Despite men's higher rate of exposure to trauma, women are at higher risk for PTSD (Breslau, Davis, Andreski, Peterson, & Schultz, 1997; Breslau, Kessler, Chilcoat, Schultz, Davis, Andreski, 1998). In a population-based study of active-duty Navy and Marine Corps personnel, the lifetime and current prevalence rates of PTSD (i.e., 12% and 6%, respectively) were found to be 4 times higher among women than men (Hourani & Yuan, 1999).

Individuals exposed to traumatic events often have psychiatric disorders other than PTSD, including general psychological distress (McDonnell et al, 1995) or emotional/behavioral disturbances (e.g., Ollendick & Hoffman, 1982; Penick, Powell & Sieck, 1976). They also may experience marital, social, occupational, financial, and health problems (Solomon & Davidson, 1997). Few epidemiologic investigations have examined these more general and potentially more prevalent psychosocial and health-related correlates of exposure to traumatic events. A

study by Carr and colleagues (1996) that addressed some aspects of this issue found that whereas 18% of the adult population that was highly exposed to the 1989 Newcastle (Australia) earthquake were estimated to have PTSD, 25-28% experienced moderate to severe psychological distress. Such studies show that trauma exposure can lead to many other symptoms and not necessarily to PTSD. Whether women may also have higher levels of other psychosocial and health consequences of trauma exposure, and how such consequences may vary by type of trauma, is unknown.

Since the risk of PTSD among trauma victims appears to vary depending on the type of trauma exposure (i.e., the risk is greater after exposures involving violence than after other forms of trauma) (Kessler, 2000), type of trauma should be taken into account also when examining psychosocial and health effects. For example, increases in self-reported physical symptoms and poorer ratings of global health have been reported in clinical populations exposed to traumatic stressors, including female Vietnam War veterans (Wolfe, Schnurr, Brown & Furey, 1994), and victims of criminal violence (Koss, Koss & Woodruff, 1991), even when physical injuries from the event are taken into account (Kimerling & Calhourn, 1994). Populations exposed to industrial accidents or human-induced disasters have been associated with higher levels of stress and psychological distress than those not so exposed (Davidson, Fleming, & Baum, 1987; Koscheyev, Leon, Gourine, & Gourine, 1997; Rehner, Kolbo, Trump, Smith, & Reis, 2000). Oklahomans reported higher rates of alcohol use, smoking, stress, psychological distress, and higher rates of seeking help for their stress than a control population more than 1 year after the 1995 bombing of the federal building. Smoking has also been associated with exposure to lifetime trauma (Ganz, 2000). Negative biological, psychological and social outcomes, primarily reduced life quality, have been found in victims of accidental injuries three years post

hospitalization (Malt, Blikra, & Hoivik, 1989). No study has systematically compared such varied effects across types of traumatic event exposures.

Also, little is known about the influence of the type of exposure to a particular trauma on the relationship between traumatic events and psychosocial and health outcomes. In one of the few studies that attempted to quantify the type or degree of exposure experience, it was found that among several groups exposed to the 1989 Newcastle earthquake (e.g., the injured, the displaced, owners of damaged businesses, helpers), only the injured and the displaced had higher levels of psychological morbidity than those in the other groups (Carr et al, 1997). In a study of the effects of Mt. St. Helen's volcanic eruption, bereaved subjects, but not subjects who lost their homes, reported lower levels of mental health; neither reported poorer physical health than controls (Murphy, 1984). These findings suggest that the type of exposure should also be considered when examining psychosocial consequences of traumatic events.

Military personnel may be considered high-risk for occupational exposure to traumatic events, especially through combat or other operational mission experience. However, very little is known about the prevalence of trauma exposure in this population or its consequences. This is the first epidemiologic study of trauma exposure and its health and psychosocial consequences in a large population-based sample of healthy, active-duty military personnel. This study focused on five questions: 1) What is the prevalence of exposure to traumatic events in this population? 2) How do military men and women vary with regard to their exposure and its effects? 3) What are the effects of trauma exposure on mental and physical health? 4) Do different types of trauma exposure produce different levels and types of psychological and physical health consequences? and 5) To what extent are the psychological and physical consequences of trauma exposure influenced by the type of exposure experienced by the individual?

Figure 1 presents the conceptual model used to integrate some of the above research findings and guide the present study. It was hypothesized that psychosocial and health effects will vary (a) by type of trauma (combat and violence traumas being associated with poorer perceived health and psychosocial functioning than natural disasters or major accidents) and (b) by type of exposure (survivors/victims having poorer perceived health and psychosocial functioning than witnesses or relief workers). This model also suggests that relief workers will have better psychological outcomes than witnesses only and that social support will mediate the relationships between types of exposure and health/psychosocial outcomes.

Method

Data Source and Procedures

This study draws on a combined dataset from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment (Vincus et al., 1999) and (b) the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment (Hourani, Yuan, Bray & Wheeless, 1998). The Total Force Health Assessment surveyed all segments of the Military, except active-duty Navy and Marine Corps personnel, who were studied using the POWR Assessment. In combination, these two surveys provide one of the first sets of health status results for personnel from all segments of the Military. Participants were selected to represent females and males in all paygrades of all segments of the U.S. military throughout the world. Subjects included in the present study were active-duty members of all branches of military service stratified by service, sex, paygrade group, race/ethnicity, and location. The majority of responses were from mailed questionnaires and a small proportion of the Navy and Marine Corps responses were from a subsample of group worksite questionnaire administrations. A total of 3,363 Army, 2,300 Air Force, 7,755 Navy, and

1,742 Marine Corps personnel responded to the surveys representing a population of 1,350,882 active-duty personnel. The overall response rate was 38.0% for Total Force and 39.6% for POWR. Details of the probability sampling design and survey methodology have been reported elsewhere (Hourani, Graham, Sorenson, & Yuan, 1996; Vincus et. al., 1999). To properly compute sampling weights, only those with complete data on strata variables were included in the present analyses.

Measures

Exposure to traumatic events was assessed by three items specifically developed for this study. Respondents were asked whether they had ever been exposed to a natural disaster, combat or violence, and a major accident involving injuries or fatalities and if so, as a witness, survivor/victim, or participant in aid, cleanup, rescue, or investigation (i.e., relief worker) (see appendix). Three exposure groups are examined: those with a lifetime exposure to *combat or violence* only, those with a lifetime exposure to a *natural disaster or major accident only*, and a combined group of those with a lifetime exposure to any *combat or violence, natural disaster, or major accident* involving injuries or fatalities. Due to the volume of data, only that from the latter group are presented herein (data from bivariate analyses of the other two exposure groups are available from the authors). The small number of respondents who reported exposure to combat/violence by using deadly force as part of their job in the military were not analyzed separately.

Outcome variables. The medical history portion of the questionnaire consisted of 28 medical conditions that were adapted from the National Health and Nutrition Examination Survey and excluded conditions primarily associated with the elderly, such as stroke and osteoporosis (NCHS, 1993). Respondents indicated whether a health care provider had ever told

them they had any of these conditions. A summary variable of the total number of *current medical conditions* was created based on the number of positive responses to questionnaire items inquiring if the respondent still had the condition.

Health care use was assessed with 3 items asking about the number of times personnel went to a military medical facility for their own health care during the past 12 months and by 3 items asking about the number of times personnel went to a civilian doctor's office or outpatient clinic. These items were adapted from the 1994-1995 Health Care Survey of DoD Beneficiaries (DMDC, 1994). The number of civilian and military facility *visits for illness or injury* or follow-up for illness or injury were combined into one measure and visits for civilian and military facility *mental health visits* were combined into a second measure.

Perceived physical health status was assessed with three of the scales from the Rand 36-Item Health Survey (Version 1.0) adapted from the Medical Outcomes Study (MOS) (Ware & Sherbourne, 1992). The first scale consisted of five items and tapped general health perceptions. The second scale consisted of four items and assessed *role limitations due to physical health.* The third scale consisted of three items assessing *role limitations due to emotional problems.* These scales have been found to have good reliability and are scored from 0 to 100, with 100 representing optimal health status (Stewart, Hayes, & Ware, 1988).

Depressive symptomatology was assessed with a shortened version of the Center for Epidemiologic Studies - Depression Scale (CES-D). The 4-point (0 - 3) scale ranges from rarely or none of the time (less than 1 day) to most or all of the time (5-7 days) and inquires about how often respondents "have felt this way during the past 7 days" (Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). Seven items are scored such that the higher the score, the more depressive symptomatology indicated by the respondent. This index correlates

0.92 with the full CES-D and has a reliability of alpha =.83 (Mirowsky & Ross, 1992). A cutoff of 5 was used as an indicator of depression.

Perceived quality of life was assessed with a single item inquiring how respondents felt about their "*life as a whole*" adapted from Andrews and Withey (1976). Response options ranged from terrible/unhappy (0) to pleased/delighted (4).

Positive and negative life events were assessed with 2 items taken from the U.S. Army's Fit to Win Health Risk Appraisal (HRA) (DA Form 5676). One item asked about the number of serious personal losses or *difficult problems* personnel had to handle in the last year. A 4-point response scale ranged from none (0) to several (3). One item inquired how often they experienced a *major pleasant change* in the past year. Four response options ranged from never (0) to often (3).

Suicidal ideation was also assessed with an item taken from the Army's Health Risk Assessment that inquired whether the respondent had seriously considered suicide within the last 2 years. Recency of suicidal ideation was assessed by affirmative responses indicating that this had occurred within the last year and within the last 2 months.

Perceived job stress was assessed with the 12-item Job Pressures Scale (House, 1980). Respondents were asked to indicate how often they were "bothered" by the pressure or stresses of their job on a 5-point scale ranging from not at all (0) to nearly all the time (4). An overall score was obtained by summing and averaging the raw subscale scores (House, Wells, Landerman, McMichael, & Kaplan, 1979).

Cigarette use was assessed by items concerned with amount and frequency of smoking tobacco and adapted from items used in the 1992 Worldwide Survey of Substance Abuse and Health Behaviors Among Military Personnel (Bray et al, 1992). Military personnel defined as

"current" smokers reported having smoked at least 100 cigarettes in their lifetime and having smoked in the past 30 days.

Measures of alcohol use included the *number of days that alcohol was consumed* in the past 30 days and the *number of alcoholic drinks consumed* on a typical day in the past 30 days. These items were also adapted from the 1992 Worldwide Survey of Substance Abuse and Health Behaviors Among Military Personnel (Bray et al., 1992).

Due to the large number of categorical outcome variables, three summary outcome measures guided by principal component analysis were constructed . Based on loading weights of the 15 variables above, intercorrelated measures were summed (positive = 1) within each factor to yield the number of positive factor items. These factors were: 1) mental health (including depression, mental health visit, role limitation due to emotional problems, suicidal ideation, feelings about life as a whole, positive and negative life events, high job stress), 2) substance use (including current smoker, frequency and amount of alcohol use), and 3) physical health (including perceived health status, illness/injury visit, role limitations due to health problems, current medical condition). Inter-item reliability coefficients of the three summary measures were alpha = .57, .24, .46, respectively.

Control variables included sociodemographic measures of sex, age, race/ethnicity, highest education level, marital status, paygrade, total time in service, and branch of service, and a measure of social support. *Social support* was assessed with a modified version of the Social Network Index (Berkman & Syme, 1979). In accordance with scale developers, the standard scoring protocol for the index was followed in which a sociability score was obtained from three items inquiring about the respondent's number of close friends and relatives and was combined with marital status to form the index of intimate ties. Scores from the index of intimate ties were

then combined with an organizational membership score and a church membership score to form the Social Network Index (Strawbridge, 1995).

Analyses

Due to the complex sampling design, the Survey Data Analysis (SUDAAN) system, developed by Research Triangle Institute (Shah, Barnwell, & Nieler, 1996) was used for statistical analysis of the survey data. The CROSSTAB procedure in SUDAAN was used to calculate weighted estimates of percentages and frequencies and estimates of their standard errors. Chi-square tests and significant p values were employed to evaluate the gender differences in exposure to trauma events and outcome variables, demographic differences in types of exposures, and associations between outcome variables and exposures. The MULTILOG procedure was utilized to fit multivariate Polytomous Logistics Regression models to examine the relationships between each of the three summary outcome variables and types of exposure to any traumatic event controlling for demographic and social support variables. This modeling procedure was used because each of our three summary variables were categorized into three groups consisting of (1) none of the positive factor items, (2) only one positive factor and (3) combined positive factors or at least two positive factors. The odd ratios and 95% confidence intervals were estimated using each generalized logit equation in comparison with the reference category logit (none of the positive factor items).

Results

Table 1 shows the lifetime prevalence of exposure to traumatic events among active-duty women and men. Sixty-five percent of the personnel were exposed to at least one traumatic event in their lifetime, with significantly more men than women reporting both any exposure, and a greater number of exposures. The main types of exposures were witnessing a major accident

involving injuries or fatalities and participating in relief efforts in a natural disaster. Men were significantly more likely than women to report participation in relief efforts, witnessing only, and surviving combat, violence, or a major accident. Men and women were equally likely to report being a witness or a survivor of a natural disaster.

As shown in Table 2, 30% of the men and 23% of the women had been a victim or survivor of a traumatic event. Relief workers tended to be older, Caucasian, and married; witnesses only were younger and single; victims/survivors were more likely to be in the lowest paygrades.

Table 3 shows that all original outcome variables were significantly associated with any exposure to combat/violence, natural disaster, or major accident with the exception of mental health visits, suicidal ideation, current smoking, and number of drinks in the past month. Paired comparisons showed victims had a higher depression score, more negative and less positive life events in the past year, were more dissatisfied with their life as a whole, and were more likely to be a past smoker than nonexposed respondents. Witnesses only were much more likely to be current smokers, and heavier drinkers. An examination of gender differences showed men more likely to report poorer perceived health, more depression symptoms, worse feelings about life as a whole, fewer positive life events, less social support, and were more likely to have been smokers than nonexposed controls. Women were more likely to report suicidal ideation and role limitations due to emotional problems than controls.

Multivariate analyses

Table 4 shows the results of a series of multivariate logistic regression analyses in which types of exposure to any traumatic event were evaluated for their independent contribution to each psychosocial and health outcome summary or factor variable, controlling for demographic

and social support variables. One-versus-no-positive-factor-item and two-or-more-versus-no positive-factor-item models were compared. Results were similar across these 2 levels of severity and are therefore presented for the two-or-more-versus-no-positive-factor-item level only. In the first model, exposure type predicted having at least two mental health problems (positive factor items). Victims had the greatest risk, and male witnesses and female relief workers had similar, but less risk compared to those with no exposure. Enlisted men were at significantly greater risk than officers, as were both men and women with lower levels of social support. Younger age and Hispanic ethnicity were protective of mental health problems among men exposed to traumatic events.

In the second model, types of exposures significantly predicted current smoking and alcohol use with witnessing men being 2.5 times more likely than nonexposed men to be smokers and heavier drinkers. The high-risk profile among men included being white, single, enlisted, and having low social support. Unlike men, women were at higher risk of smoking and heavier drinking if they had been victims or relief workers, rather than witnesses only. Junior enlisted women had over 6 times the risk of smoking and/or heavier drinking than female officers and almost twice the risk of enlisted men. Being white and having low social support were also significant predictors of current smoking and heavier drinking among trauma-exposed women.

In the final model, types of exposures significantly predicted having 2 or more physical health problems among men, with victims having the highest risk, followed by relief workers and finally witnesses. Younger age groups, nonwhite ethnic/racial groups, and officers were at lowest risk for multiple health problems among men. Among women, relief workers and victims had the

highest risk for 2 or more physical health problems. Social support did not have an observable effect on the physical health outcome factor for either sex.

To examine whether social support had a moderating effect on any of the three summary outcomes, exposure by social support interaction terms were entered into each model. None of these interaction terms were significant.

Discussion

This study has shown that among active-duty U.S. military personnel, the lifetime exposure to one or more traumatic event was 65%. The prevalence rates of exposure varied by type of trauma (combat/violence, natural disaster/major accident), type of exposure (relief worker, witness, survivor/victim), and gender; the most prevalent trauma for men was witnessing a major accident and for women, witnessing a natural disaster. Numerous psychosocial and health correlates of traumatic event exposures were identified and these also varied with type of trauma, exposure and gender. In multivariate analyses, whereas male victims/survivors of any traumatic event had over twice the risk of two or more physical health problems, female victims/survivors had over twice the risk of two or more mental health problems, relative to nonexposed controls. Among trauma-exposed men, those who reported only witnessing one or more traumatic event were at twice the risk for current smoking and heavier drinking, whereas among women, victims and relief workers were at highest risk, after controlling for demographic and social support variables.

Partial support was obtained for the hypothesis that exposure to combat and violence would be associated with poorer perceived health and psychosocial functioning than exposure to natural disaster or major accident. Combat/violence, but not natural disaster/major accident exposure, was associated with fewer positive life events and heavier drinking at the bivariate

level. Exposure to natural disaster/major accident, but not combat/violence, was associated with role limitations due to emotional problems and current smoking (data not shown). In multivariate analyses, support was found for the hypothesis that survivors/victims would have poorer outcomes than witnesses or relief workers but was specific to mental health outcomes among women and physical health outcomes among men. Contrary to the conceptual model, relief workers were at greater risk for mental, physical, and substance use problems than nonexposed personnel, suggesting that taking an active, helpful role in a traumatic event did not have a protective effect in this population. The only exception was the group of male relief workers who did not differ in their mental health from nonexposed personnel and that may be more desensitized than other groups.

Of interest was the role social support may play in this study. Several investigators have noted the importance of examining the effect of social support on responses to traumatic events (Landsman et. al., 1990; Amir & Sol, 1999). In the present study, low social support was associated with at least one mental health problem and with substance use, but not with physical health problems, after controlling for demographic variables, and there was no evidence of a moderating effect. This suggests the social support had a direct effect and is at variance with the findings by Murphy (1987) who noted no significant main effects for social support on mental health among natural disaster victims.

The 65% lifetime prevalence rate of trauma exposure falls in the midrange of other studies that have estimated the prevalence of exposure to trauma (Breslau, 1998). It also compares with the 67% found among a student sample in Israel (Amir & Sol, 10999). Consistent with studies of civilian populations, male respondents had a higher prevalence of trauma exposure than females. Remarkably, the rates for active-duty men and women in the present

study varied little from those for civilians reported by the National Comorbidity Survey (NCS) (67.2% vs. 60.7% for men; 52.8% vs. 51.2% for women, respectively) despite differences in measures of traumatic event exposure (Kessler, 2000; Kessler, Sonnega, Bromet, 1995). Also consistent with the NCS, and unlike community studies that have not specifically examined effects of witnessing a traumatic event, women's highest trauma exposure rates were for witnessing natural disasters and major accidents.

At variance with some of the previous trauma literature is the relatively weak mental health effects shown in the present study. Neither mental health provider visits nor suicidal ideation was significantly associated with the major trauma categories, and only depression was associated with the combined exposure to any traumatic event category. The finding, however, of trauma exposure associations with negative life events and feelings about life as a whole, role limitations due to emotional problems, and high levels of reported job stress, suggest that respondents exposed to traumatic events may be more willing to acknowledge or endorse symptoms of an apparent milder emotional distress, rather than the more specific mental health questionnaire items. This may be due, at least in part, to the nature of the military population for which there may be greater expectations to cope with traumatic events, greater stigma associated with mental disorder, and may have multiple types of exposures. As found in a study of Israeli university students, being exposed to multiple types of traumatic events was associated with lowering of distress (Amir & Sol, 1999). In the present study, 23.8% of the men were exposed to 2 types of traumatic events, compared to 14.5% of the men in the NCS (Kessler, 2000). It is possible that a military population becomes more desensitized to trauma and less reactive with multiple exposures. A low rate of psychiatric disorder was also found among St. Louis disaster victims and suggested that disasters were not responsible for the development of new psychiatric

disorders or symptoms (Smith, Robins, Przybeck, Goldring, & Solomon, 1986). On the other hand, multiple-exposures to interpersonal traumas have been associated with greater psychological distress symptoms among college women, for which investigators suggested there may be a threshold effect for coping with repeated events (Green et al., 2000). Certainly, further research in this area is warranted to better understand potential protective effects.

One of the most unique findings of this study was the higher risk for current smoking and heavier drinking among the male witnesses of traumatic events and the nonsignificant effect for female witnesses. This finding was consistent across types of traumatic event exposures, and as shown in the multivariate analyses, was not accounted for by younger age. Although one previous study found that indirect exposures to a disaster had higher, but not statistically significant different, rates of mental disorder than nonexposed (Smith et al., 1986) and another found smoking was related to exposure to abuse and violence (Ganz, 2000), the present study is the first to find that male witnesses to a traumatic event were significantly more likely to be current smokers and heavy drinkers than victims/survivors. Supporting the hypothesized model that guided these analyses, it may be that such substance use serves as a defense mechanism to cope with guilt feelings associated with not being more directly involved in the event, i.e., being neither a victim nor a helper. It is also consistent with previous work that found exposure to harmful physical situations to be the main psychosocial predictor of nicotine dependence among naval service personnel (Hourani, Yuan, Bray, & Vincus, 1999).

Limitations of this study include a less than optimal response rate, but a rate typical for military surveys, the retrospective reporting of traumatic exposures that may be influenced by current state of health and/or by recall errors, and the use of an unstandardized measure of trauma exposure which limits the comparability of results from this to other studies. Despite

these cautionary factors, this study's large, employed population-based sample, its comparison of multiple types of traumatic events, and multiple type of exposures, and the numerous potential outcomes from many standardized instruments, confer advantages over other epidemiologic investigations of disaster effects.

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Table 1. Lifetime Exposure to Disaster and Violence Among Military Women and Men

	Women		Men		Total	
	Sample N	Weighted %	N	Weighted %	N	Weighted %
I. Aggregate						
Any Exposure	3296	52.8*	5633	67.2*	8929	65.2
Number of Exposure						
0	3496	47.2*	2543	32.8*	6039	34.8
1	1882	31.9*	2157	25.4*	4039	26.3
2	967	14.4*	1872	23.8*	2839	22.5
3	447	6.5*	1604	18.0*	2051	16.4
II. Specific Exposure						
Nature Disaster	2112	33.8*	3560	40.3*	5672	39.4
Witness	1138	22.1	2070	24.5	3208	24.2
Victim	868	14.3	1312	15.4	2180	15.3
Involved in relief Efforts	1031	19.7*	2210	25.4*	3241	24.6
Combat/Violence	961	14.5*	2994	35.4*	3955	32.4
Witness	506	9.3*	1880	24.0*	2386	21.9
Victim	205	3.2*	686	9.3*	891	8.5
Involved in relief Efforts	511	7.5*	1624	18.5*	2135	17.0
Used deadly force	42	0.8*	553	6.9*	595	6.1
Major accident	2101	32.0*	4214	51.4*	6315	48.7
Witness	1124	19.6*	2736	34.8*	3860	32.7
Victim	700	9.5*	1194	14.5*	1894	13.8
Involved in relief Efforts	791	11.4*	1982	24.2*	2773	22.4

*Chi-square test of gender differences, $p<.05$

Table 2. Percent demographic distribution of types of exposure to any combat/violence, natural disaster, or major accident involving injuries or fatalities

Demographic variable	Total sample N	None	Relief worker	Witness	Victim	Test statistic
Gender						
Male	8219	33.05	23.21	13.98	29.76	$X^2_3 = 57.35$, $p = .0000$
Female	6804	46.99	15.32	14.38	23.31	
Age						
20 or less	895	36.73	13.32	19.64	30.31	$X^2_9 = 39.84$, $p = .0000$
21-25	3252	41.80	16.49	15.22	26.50	
26-34	5432	31.68	25.35	13.05	29.91	
35 or >	5336	31.80	27.26	11.92	29.02	
Race						
White, Non Hispanic	7720	32.65	25.52	13.46	28.38	$X^2_9 = 54.52$, $p = .0000$
Black, Non Hispanic	2018	40.63	13.88	16.13	29.36	
Hispanic	2997	38.49	18.49	13.00	30.02	
Other	2288	38.07	16.06	14.83	31.04	
Paygrade						
E1-E5	6797	37.30	17.42	14.71	30.57	$X^2_6 = 46.30$, $p = .0006$
E6-E9	4663	31.07	28.39	12.59	27.94	
Officer	3563	33.20	28.58	14.00	24.21	
Marital status						
Not married	5606	37.86	17.43	15.77	28.94	$X^2_3 = 22.14$, $p = .0001$
Married	9347	33.11	25.09	12.92	28.88	

Table 3. Correlates of exposure to any natural disaster, combat/violence or major accident involving injuries/fatalities

Original outcome variable	Total	None	Relief worker	Witness	Victim	Test statistic
Current medical conditions						
2 or more	16.80	12.92	20.53	13.15	20.47	$X^2_6 = 37.82$, p = .0000
1	22.70	21.46	20.56	21.81	26.34	
None	60.50	65.62	58.91	65.04	53.19	
Illness or injury visit in past year						
4+	38.42	33.27	40.16	36.83	44.09	$X^2_6 = 21.94$, p = .0013
1-3	32.76	34.94	31.59	32.68	31.05	
No visit	28.82	31.79	28.25	30.49	24.86	
Mental health visit in past year						
≥ 1	4.43	3.73	3.41	3.25	6.64	$X^2_3 = 6.38$, p = .0947
No visit	95.57	96.27	96.59	96.75	93.36	
Self-perceived state of health						
Fair/poor	4.65	3.88	3.74	5.50	5.88	$X^2_6 = 15.52$, p = .0166
Very good/Good	67.48	66.16	66.22	65.91	70.79	
Excellent	27.87	29.96	30.05	28.59	23.33	
Role limits due to emotional problems						
High	17.54	15.68	15.77	17.07	21.40	$X^2_3 = 8.98$, p = .0296
Low	82.46	84.32	84.23	82.93	78.60	
Role limits due to health problems						
High	22.14	16.83	22.75	25.21	26.65	$X^2_3 = 28.72$, p = .0000
Low	77.86	83.17	77.25	74.79	73.35	
Depression indicator						
Yes	27.30	26.82	23.06	26.14	31.75	$X^2_3 = 11.03$, p = .0116
No	72.70	73.18	76.94	73.86	68.25	
Considered suicide within past 2 years						
Yes	6.53	5.39	5.26	6.93	8.71	$X^2_3 = 5.55$, p = .1360
No	93.47	94.61	94.74	93.07	91.29	
Feelings about life as a whole						
Dissatisfied	4.46	4.69	3.55	1.86	6.11	$X^2_6 = 23.08$, p = .0008
Mixed	18.92	18.52	15.60	21.09	20.93	
Satisfied	76.62	76.79	80.85	77.04	72.96	

Table 3. (Cont'd) Correlates of exposure to any natural disaster, combat/violence or major accident involving injuries/fatalities

Outcome variable	Total	None	Relief worker	Witness	Victim	Test statistic
No. difficult problems last year						
Many/several	10.65	7.77	9.42	8.05	16.34	$X^2_9 = 50.40$, p = .0000
Some	17.63	14.86	20.91	15.81	19.40	
Few	42.98	42.73	40.26	46.50	43.62	
None	28.74	34.64	29.40	29.64	20.64	
Experienced pleasant change past year						
Never	16.15	19.60	13.57	15.42	14.29	$X^2_9 = 22.93$, p = .0064
Rarely/seldom	41.59	38.87	39.89	43.46	45.27	
Sometimes	34.54	32.43	39.59	34.72	33.18	
Often	7.71	9.09	6.94	6.40	7.27	
Social support indicator						
Low	32.44	36.36	24.87	32.92	33.26	$X^2_6 = 28.09$, p = .0001
Medium	41.68	41.34	44.87	43.14	38.93	
High	25.88	22.30	30.26	23.94	27.81	
Overall job stress						
High	44.87	37.76	42.68	46.87	54.36	$X^2_6 = 47.98$, p = .0000
Medium	31.00	34.38	34.80	27.11	25.78	
Low	24.13	27.86	22.52	26.02	19.86	
Smoked at least 100 cigarettes in life						
Yes	44.97	40.50	45.14	46.30	49.62	$X^2_3 = 11.61$, p = .0089
No	55.03	59.50	54.86	53.70	50.38	
Current smoker						
Yes	28.95	26.31	26.77	34.20	31.30	$X^2_3 = 7.32$, p = .0625
No	71.05	73.69	73.23	65.80	68.70	
Days drank alcohol in past month						
11+	15.54	11.47	15.91	21.06	17.50	$X^2_9 = 29.05$, p = .0006
4-10 days	24.38	22.90	23.60	26.63	25.66	
Once	34.57	36.45	36.25	31.55	32.48	
None	25.51	29.18	24.25	20.76	24.36	
No. alcohol drinks in past month						
5+	15.27	13.71	14.55	18.26	16.28	$X^2_9 = 16.02$, p = .0666
2-4	35.07	33.68	34.84	37.24	35.88	
1	22.41	21.56	24.69	22.11	21.84	
None	27.24	31.05	25.92	22.38	26.00	

Table 4. Multinomial logistic regression analysis of psychosocial and health factors on types of exposures to any traumatic event, controlling for demographic and social support variables.

# Positive Factor Items / Exposure & Control variables	Mental health[a]		Drinking & Smoking[b]		Physical health[c]	
	Male	Female	Male	Female	Male	Female
	O.R. (95%C.I.)	O.R. (95%C.I.)	O.R. (95%C.I.)	O.R. (95%C.I.)	O.R. (95%C.I.)	O.R. (95%C.I.)
Exposure to any trauma						
Relief worker	1.31(.97,1.76)	1.86(1.13,3.06)*	1.73(1.06,2.82)*	2.40(1.06,5.43)*	1.99(1.40,2.83)*	1.90(1.14,3.15)*
Witness	1.44(1.01,2.03)*	.99(.57,1.73)	2.53(1.45,4.40)*	2.05(.96,4.37)	1.69 (1.09, 2.61)*	1.67 (.91, 3.07)
Victim	1.95(1.45,2.63)*	2.87(1.93,4.26)*	1.86(1.20,2.89)*	2.34(1.18,4.66)*	2.70(1.92,3.79)*	1.79(1.18,2.73)*
None						
Age						
<=20	.64(.37,1.10)	1.25(.62,2.53)	.60(.29,1.26)	.48(.13,1.83)	.47(.24,.94)*	.99(.44,2.25)
21-25	.72(.49,1.07)	1.28(.74,2.19)	1.39(.82,2.36)	.70(.28,1.74)	.51(.32,.82)*	.65(.37,1.15)
26-34	.67(.52,.87)*	.88(.59,1.31)	.81(.54,1.21)	.55(.25,1.23)	.58(.44,.76)*	.52(.34,.80)
35+						
Race/Ethnicity						
White						
Black	1.10(.79,1.53)	1.15(.77,1.73)	.51(.30,.86)*	.25(.13,.47)*	.53(.37,.75)*	.83(.55,1.26)
Hispanic	.74(.57,.98)*	.91(.66,1.26)	.70(.44,1.10)	.33(.19,.57)*	.71(.52,.96)*	.98(.70,1.38)
Other	.92(.69,1.22)	1.18(.87,1.61)	.77(.53,1.11)	.41(.23,.70)*	.85(.62,1.17)	.81(.58,1.12)
Paygrade (rank)						
E1-E5 (junior enlisted)	2.16(1.62,2.87)*	.94(.62,1.45)	3.97(2.48,6.35)*	6.14(2.76,13.67)*	1.87(1.36,2.57)*	1.27(.82,1.97)
E6-E9 (senior enlisted)	1.68(1.31,2.14)*	1.32(.86,2.03)	2.88(1.83,4.54)*	3.83(1.73,8.46)*	2.36(1.79,3.10)*	1.12(.74,1.72)
Officer						
Marital Status						
Not Married	1.04(.76,1.42)	.84(.58,1.20)	1.51(1.05,2.16)*	1.15(.58,2.31)	.93(.67,1.30)	1.20(.80,1.81)
Married						
Social Support Index						
Low	3.38(2.32,4.90)*	3.81(2.35,6.16)*	2.54(1.55,4.15)*	3.38(1.47,7.77)*	1.22(.86,1.75)	1.18(.71,1.99)
Medium	1.52(1.16,2.00)*	1.98(1.31,3.00)*	1.63(1.06,2.51)*	1.37(.66,2.85)	1.21(.91,1.63)	1.31(.86,1.98)
High						

Note: O.R. = odds ratio, C.I. = confidence interval

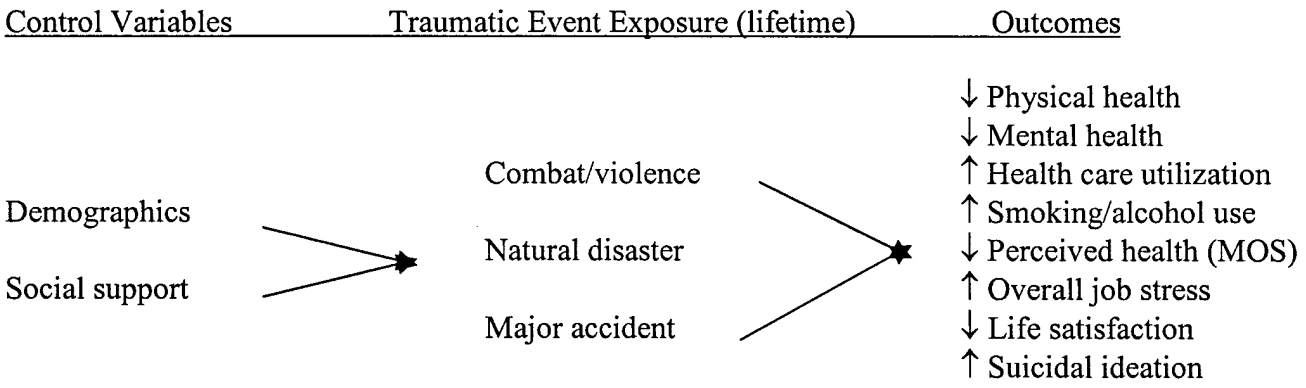
[a] Factor coded as 1 for each of the following: depression symptoms >=5, at least 1 mental health visit in past year, high score on role limitations due to emotional problems, ever considered suicide in past 2 years, dissatisfied with feelings about life as a whole, many/ several/some difficult problems in past year, never experienced a please change in past year.

[b] Factor coded as 1 for each of the following: current smoker, drank on 11 or more days in past month (at least 3-4 days a week, average) or drank 5 or more drinks on a type day.

[c] Factor coded as 1 for each of the following: fair or poor perception of health, 5 or more visits for illness or injury, high score o role limitations due to health problems, and 2 or more current medical conditions.

Figure 1. Conceptual model of health and psychosocial impact of types of exposures to traumatic events

I. Model of Victim/Survivor



II. Model of Relief worker (no victims) – outcomes opposite of above

III. Model of Witness only – same direction of outcomes as victim but less severe/not significant

IV. No exposure – reference

Appendix: Brief Traumatic Event Exposure Inventory

Exposure to a disaster or violence can sometimes have long-term effects. The following questions will help to provide a history of exposure to disaster or violence that may help in studying their effects.

1. Have you ever been exposed to a natural disaster involving injuries or fatalities (such as earthquakes, fires, floods)? (Darken one circle on each line)

   I have been exposed to a natural disaster as:

a. a witness	Yes/No
b. a survivor or victim	Yes/No
c. a participant in cleanup, rescue, investigation, or aid (remote or non-site)	Yes/No

2. Have you ever been exposed to combat or violence involving injuries or fatalities? (Darken one circle on each line)

   I have been exposed to combat or violence as:

a. a witness	Yes/No
b. a survivor or victim	Yes/No
c. a participant in cleanup, rescue, investigation, or aid (remote or non-site)	Yes/No
d. someone who has used deadly force in combat	Yes/No

3. Have you ever been exposed to a major accident involving injuries or fatalities? (Darken one circle on each line)

   I have been exposed to combat or violence as:

a. a witness	Yes/No
b. a survivor or victim	Yes/No
c. a participant in cleanup, rescue, investigation, or aid (remote or non-site)	Yes/No

Source: (Hourani et al., 1996) Perception of Wellness and Readiness Assessment (POWR)

D R A F T

Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women

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Running Head: PMS SYMPTOMS AMONG MILITARY WOMEN

Psychosocial and Lifestyle Correlates of Premenstrual Symptoms Among Military Women

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ABSTRACT

Objective: This study examines the prevalence of premenstrual symptoms among a large, population-based sample of reproductive-age, active-duty women.

Method: A multivariate approach is used to evaluate the relative importance of psychosocial and lifestyle predictors of premenstrual symptoms or pain after controlling for demographic differences in cases and controls.

Results: Premenstrual symptoms were reported by nearly 2 out of every 3 reproductive-age women. Women reporting premenstrual symptoms were more likely to report other symptoms of menstrual dysfunction, 2 or more current medical conditions, migraines, and health care provider visits in the past year. After controlling for the protective effects of taking Depo-Provera™ and never being pregnant, younger age, trying to lose weight, heavier drinking, poorer self-perceived health, and overall job stress were the most significant predictors of premenstrual symptoms. The greatest risk factor was a high level of job stress, with an almost 3-fold increase in risk relative to those without symptoms.

Conclusions: Work stress may mediate the relationship between depression and premenstrual symptoms. Further research is needed to elucidate the biological interrelationships between work stress, hormonal function, and premenstrual symptomatology.

Key words: premenstrual symptoms, depression, stress, lifestyle, epidemiology, military

Acronyms: PMS = premenstrual syndrome; POWR = Perception of Wellness and Readiness Assessment; NHANES = National Health and Nutrition Examination Survey; CES-D = Center for Epidemiologic Studies - Depression Scale; SUDAAN = Survey Data Analysis; CNS = central nervous system; HPA = hypothalamic-pituitary-adrenal; PMDD = premenstrual dysphoric disorder; SE = standard error; OR = odds ratio; CI = confidence interval

INTRODUCTION

Premenstrual symptoms are commonplace among reproductive-age women. In only a small proportion of women with symptoms are they severe enough to interfere with functioning, meet diagnostic criteria for premenstrual syndrome (PMS), or prompt a health care visit. However, little is known about differences between women who do not report premenstrual symptoms and the up to 80% of women who do (1). With such a large proportion of women experiencing premenstrual symptoms, it is important to understand both the precursors and effects of such symptoms. Psychosocial variables, particularly depressive symptoms (2-6) have been strongly associated with premenstrual symptoms, leading some investigators to suggest that severe premenstrual symptoms may reflect an underlying depressive disorder (3,4). Perceived stress and physiological stress arousal have also been frequently associated with premenstrual symptoms (6-12). Lifestyle factors such as smoking (13,14), alcohol intake (7,15), physical activity (7), and working outside the home (16) have been associated with a variety of menstrual cycle problems. Medical disorders (6,17), general well-being (5), contraceptive use (17,18), and sociodemographic characteristics (6,17) have also occasionally been associated with premenstrual symptoms.

Unfortunately, many of the studies of premenstrual symptoms have small numbers of subjects and are restricted to clinical samples. Also, many of the psychosocial and lifestyle variables associated with premenstrual symptoms are related to each other. For example, recent stressful life events have been recognized as strong predictors of vulnerability to episodes of major depression (19), and work stress has been associated with both mental distress (20) and greater health problems (21). Stress and depression are well known correlates of alcohol and tobacco use. Little is known, however, about the interrelationship of these variables in women

with premenstrual symptoms. Despite evidence for physiological linkages between gonadal hormones, depression, and stress (22,23), we could locate no epidemiological study that has investigated how these types of variables interact in women with premenstrual symptoms and which risk factors may be more important than others with regard to PMS symptoms.

The majority of women in the military are of reproductive age. They are all employed and, in general, are in optimal health. The present study examined the prevalence of premenstrual symptoms among a large, population-based sample of reproductive-age, active-duty women. A multivariate approach is used to evaluate the relative importance of a large number of potential psychosocial and lifestyle predictors after controlling for demographic differences in women who reported recent premenstrual symptoms compared to those who did not.

METHODS

Data Source and Procedures

This study drew on a combined data set from two large-scale studies: (a) the 1998 Health Status of Military Women and Men in the Total Force, also called Total Force Health Assessment (24), and (b) the 1995 Perception of Wellness and Readiness Assessment, or POWR Assessment (25). The Total Force Health Assessment surveyed all segments of the military, except active-duty Navy and Marine Corps personnel. Navy and Marine Corps assigned to shore commands were studied using the POWR Assessment. In combination, these two surveys provide one of the first sets of population-based health status results for military personnel. Participants were selected to represent shore-based females and males in all paygrades of all segments of the U.S. military throughout the world. The Defense Manpower Data Center provided the data files for sample selection. The majority of responses were from mailed

questionnaires and a small proportion of the Navy and Marine Corps responses were from a subsample of group worksite questionnaire administrations. Most questionnaire items were drawn from brief standardized instruments with reliable psychometric properties applicable to a military population. Military advisors were extensively consulted on priority and acceptability of items to be included in the questionnaire. Data collection involved three questionnaire mailings with a "reminder/thank you" postcard sent between the first and second and between the second and third mailings. Mailout materials included a cover letter, questionnaire booklet, participant consent form and instructions, and postage-paid return envelope. Completed questionnaires were optically scanned with programmed editing checks. Additional manual and computerized edits were conducted to optimize the quality of the data. The combined overall response rate was 39%. Details of the probability sampling design and survey methodology have been reported elsewhere (24,26). Subjects included in the present study were 6,026 active-duty women of all branches of military service stratified by service, paygrade group, race/ethnicity, and location. To properly compute sampling weights, only those with complete data on strata variables were included in the present analyses. Exclusions included 684 women who were pregnant, using hormone replacement therapy, or were over age 49 years, and 153 women who did not answer the questionnaire item on premenstrual symptoms. These exclusions resulted in a final sample of 6,026 women representing 164,299 active-duty military women.

Measures

A special supplement for women on the questionnaire measured female-specific conditions, menstrual problems, and estrogen use. Most items were adapted from national health surveys or risk factor measures. Prevalence of female-specific conditions was assessed from a list of 12 conditions the respondent may have had during the past 3 months, regardless of

whether they resulted in a visit to sick call or a health care provider. Women who responded positively that they had "premenstrual symptoms or pain (PMS, premenstrual cramps)" were defined as cases (N=3861); those responding negatively to this item were defined as controls (N=2165).

Medical history variables. The medical history portion of the questionnaire consisted of 28 medical conditions that were adapted from the National Health and Nutrition Examination Survey (NHANES) III and excluded conditions primarily associated with the elderly, such as stroke and osteoporosis (27). Respondents indicated whether a health care provider had ever told them they had any of these. A summary variable of the total number of *current medical conditions* was created based on the number of positive responses to questionnaire items inquiring if the respondent still had the condition.

Health care use was assessed with 3 items asking about the number of times personnel went to a military medical facility for their own health care during the past 12 months and by 3 items asking about the number of times personnel went to a civilian doctor's office or outpatient clinic. These items were adapted from the 1994-1995 Health Care Survey of DoD Beneficiaries (28) and the DoD Women's Health Survey (29). The number of civilian and military facility *visits for illness or injury* or follow-up for illness or injury were combined into one measure, and visits for civilian and military facility *mental health visits* were combined into a second measure.

Lifestyle variables. As part of the lifestyle measures developed originally for the Navy's Health and Physical Readiness (H&PR) Study (30), respondents indicated the approximate number of days they took vitamins during the past 7 days, and how they perceived their physical fitness on a 5-point scale ranging from poor (0) to excellent (4). Current birth control method was assessed from a list of 14 possible methods taken from NHANES III (27), as was an item

inquiring whether the respondent had tried to lose weight during the past 12 months. Cigarette use was assessed by items concerned with amount and frequency of smoking tobacco and adapted from items used in the 1992 Worldwide Survey of Substance Abuse and Health Behaviors Among Military Personnel (31). Military personnel were defined as *"current" smokers* if they reported having smoked at least 100 cigarettes in their lifetime and having smoked in the past 30 days.

Measures of alcohol use included the *number of days that alcohol was consumed* in the past 30 days and the *number of alcoholic drinks consumed* on a typical day in the past 30 days. These items were also adapted from the 1992 Worldwide Survey of Substance Abuse and Health Behaviors Among Military Personnel (31).

Psychosocial variables. *Perceived physical health status* was assessed with the 5-item general health perception scale from the Rand 36-Item Health Survey (Version 1.0) adapted from the Medical Outcomes Study (32). This scale has been found to have good reliability and is scored from 0 to 100, with 100 representing optimal health status (33).

Depressive symptomatology was assessed with a shortened version of the Center for Epidemiologic Studies-Depression Scale (CES-D). The 4-point (0 - 3) scale ranged from rarely or none of the time (less than 1 day) to most or all of the time (5-7 days) and inquired about how often respondents "have felt this way during the past 7 days" (34,35). Seven items were scored such that the higher the score, the more depressive symptomatology indicated by the respondent. This index correlates 0.92 with the full CES-D and has a reliability of alpha = .83 (36). A cutoff of 6 was used as an indicator of depression.

Perceived job stress was assessed with the 12-item Job Pressures Scale (37). Respondents were asked to indicate how often they were "bothered" by the pressure or stresses

of their job on a 5-point scale ranging from not at all (0) to nearly all the time (4). An overall score was obtained by summing and averaging the raw subscale scores (38). Other psychosocial variables examined are listed in the footnote to Table 3 and have been described elsewhere (25).

Sociodemographic variables included sex, age, race/ethnicity, paygrade, marital status, numbers of previous pregnancies and births, age at first livebirth, and age at menarche.

Analytic Approach

To account for the complex sampling design, the Survey Data Analysis (SUDAAN) software system, developed by Research Triangle Institute (39), was used for statistical analysis of the survey data. The CROSSTAB procedure in SUDAAN was used to calculate weighted estimates of percentages and frequencies and estimates of their standard errors. Chi-square tests and significant *p* values were employed to evaluate the differences between cases and controls on demographic, medical history, lifestyle, and psychosocial variables. The LOGISTIC procedure was utilized to estimate odds ratios and 95% confidence intervals and to fit a hierarchical multiple logistic regression model examining the relationships between premenstrual symptoms and psychosocial variables controlling for sociodemographic and lifestyle variables.

RESULTS

The prevalence of premenstrual symptoms within the prior 3 months among active-duty women was 69%; that is, 2 out of every 3 reproductive-age women experienced symptoms. As shown in Table 1, premenstrual symptoms were significantly associated with all menstrual dysfunction measures except endometriosis (gynecologic disease). Women with premenstrual symptoms were especially more likely to report heavy periods (excessive menstrual flow), abdominal pain, and bleeding between periods. Women reporting premenstrual symptoms were

also more likely to report 2 or more current medical conditions, migraines, and health care provider visits for illness or injury, or mental health care in the past year.

Table 2 shows the demographic distribution of active-duty women with premenstrual symptoms compared with controls. Cases were significantly more likely than controls to be among younger and older age groups and among white and Hispanic women than among black women. Cases and controls did not differ with respect to marital status, paygrade, number of children, age at first livebirth, or age at menarche.

Selected potential lifestyle and psychosocial correlates are shown in Table 3. Women who reported premenstrual symptoms within the prior 3 months were significantly more likely than control women to have tried to lose weight in the past year, rated their physical fitness poorer, had never been pregnant, were current smokers and heavier drinkers, had perceived their health more poorly, had more depression symptoms, and reported a higher level of job stress. A significant interaction was found between depression and abdominal pain such that women with premenstrual symptoms reported more depression with abdominal pain than with either depression or pain alone. As expected, women using Depo-Provera™ in the past month were less likely to report premenstrual symptoms; there was no association with use of birth control pills.

To identify which of the significant bivariate correlates were most important to the report of premenstrual symptoms among these women, a hierarchical logistic regression model was fit by entering all significant variables shown in Table 3 in three successive blocks: demographic variables on the first step, lifestyle factors on the second step, and psychosocial factors on the third step. Two summary dummy variables were created to combine users of birth control pills, users of Depo-Provera, and nonusers into one variable, and another in which heavier drinkers were defined as those who drank on either 11 or more days in the past month or consumed 5 or

more drinks on a typical day versus those who drank less. Table 4 shows the final model in which depression, smoking, and physical fitness are no longer important and have been removed from the equation. The bivariate association with race/ethnicity was lost when lifestyle measures were included indicating that whites and Hispanics were at higher risk for premenstrual symptoms due to their weight/dieting behavior and/or heavier drinking patterns. (After excluding women who reported taking diet pills, attempt to lose weight was still significantly associated with premenstrual symptoms. Therefore, symptoms were not attributed to the pill taking.) Significant variables remaining in the equation after controlling for the protective effects of taking Depo-Provera and never being pregnant, were young age (those less than 20 years of age at twice the risk of premenstrual symptoms than those aged 35+), trying to lose weight, heavier drinking, poorer self-perceived health, and overall job stress. The greatest risk factor for premenstrual symptoms was a high level of job stress, with an odds ratio of almost 3 relative to women without symptoms.

DISCUSSION

As in civilian population samples, the prevalence of premenstrual symptoms reported among military women was high. The 64% 3-month prevalence among military women is consistent with the 55% to 73% current prevalence found in other nonclinical samples, despite variation in the symptom measures used across studies (3, 40, 41). The considerable overlap in reports of premenstrual symptoms with that of other menstrual complaints has also been noted in a few clinical studies (2, 42) and has been attributed to a possible disruption in prostaglandin synthesis (42) or elevated estrogen/progesterone ratios (2).

Of the several lifestyle factors examined, only attempt to lose weight and heavier alcohol drinking were significant in multivariate analysis. This is consistent with the greater alcohol use

found in studies of PMS (15,18). It is of potential relevance that studies of other significant menstrual complaints, such as bleeding between periods, have found more important associations with smoking than with alcohol consumption (14). Such findings suggest that the effects of lifestyle factors may be phase-specific.

The findings of this study are consistent with the bivariate associations found between depression and premenstrual symptoms and pain found in smaller samples of women (3, 41-43). The association between premenstrual depression and premenstrual pain observed by Bancroft and Rennie (43) was identified as an interaction in the current study. Also of interest in the present study was the finding that when the attempt to lose weight was controlled, the association with depression was no longer significant. In another study that found a premenstrual sweet food craving associated with depressive mood, a possible serotonin link between premenstrual symptoms and depression was suggested (42). It is possible that a premenstrual craving is related to obesity and/or dieting behavior, which in turn is associated with depression. This possibility is also consistent with a serotonergic-gonadal hormonal link, supported by increasing evidence from a variety of animal and human studies that serotonin function is affected by estrogen (44).

The fact that depression is approximately twice as common among women as men (45-47), and that the incidence of depression and disturbed mood increases in girls with the onset of puberty and in perimenopausal women (46, 47), suggests that gonadal hormones play an important role in depression and regulation of mood. Recent findings of lower estradiol levels in the follicular phase of the menstrual cycles of women with depression than non-depressed women have implicated an interaction between estrogen and the central nervous system (CNS) operating via the hypothalamic-pituitary-gonadal axis and the hypothalamic-pituitary-adrenal

(HPA) axis (9,10). Normal levels of estradiol during the luteal phase in women with depression suggest that such an interaction is multidimensional and potentially modulated by other CNS and hormonal systems. The present findings would suggest these systems are mediated by stress.

Numerous studies show stress to affect both the reproductive axis and psychosocial functioning (8-11). The strongest predictor of premenstrual symptoms in this study, job stress, was associated with an almost 3-fold risk of symptoms after controlling for all other variables. To our knowledge, this is the first epidemiological study to identify an association between job stress and premenstrual symptoms. This unique finding, among a large sample of young military women, is generally consistent with the positive relationship found between the probability of having PMS and working outside the home (16), and the greater current life stress and history of trauma reported in women with premenstrual dysphoric disorder (PMDD) (48). It is largely consistent with the high negative affect scores found only in the premenstrual phase among young women who reported experiencing stressful life changes in the past year (49). The strength of the association found in this study, together with previous findings that few women with premenstrual symptoms report work impairment (40), suggests that work stress may be internalized in young, symptomatic, employed women rather than reflected in their work performance. It also suggests that work stress intervention efforts may help ameliorate premenstrual symptoms. Work stress, perhaps through cycle phase-related elevated cortisol levels, may represent an important additional biological link in postulated serotonergic-estrogen pathways. Supporting biological evidence comes from studies that have found that stress-induced amenorrhea activates the HPA axis and increases cortisol secretion (9) and that greater norepinephrine to cortisol ratios have been found in women with PMDD (45). The combined

examination of clinical and epidemiological findings may help elucidate the risk factors and biological mechanisms involved in the experience of premenstrual symptoms.

One limitation of the present study is the lack of a standardized assessment of premenstrual symptoms and other menstrual complaints. Further, there was no available measure of symptom severity; it is unknown how many women may have met diagnostic criteria for PMS (16). It will be important to determine the extent to which the present results are reproducible among women with severe symptomatology or PMS. As is usual in military mail surveys, the response rate was low, with the high mobility of the population accounting for the majority of undeliverable/incorrect addresses and nonresponses. There is no a priori reason, however, to believe women with premenstrual symptoms were more or less likely to return questionnaires than nonsymptomatic women. Another limitation of any self-report data is that they are subject to memory errors and recall bias. Also with cross-sectional data, causal associations cannot be determined. Although modeled as predictors in the present study, psychosocial variables may also be conceived of as outcomes of experiencing premenstrual symptoms. It may be possible, for example, that premenstrual symptoms, including depressed mood, influence self-reports of job stress. To overcome these limitations, the present results should be prospectively confirmed in longitudinal epidemiological studies that strive to determine cycle phase-specific changes in young, employed women.

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TABLE 1. Correlates of premenstrual symptoms or pain (PMS, cramps) among active-duty women

	Total	Cases	Controls	
	% (SE)	% (SE)	% (SE)	Test statistic
Total sample size (unweighted)	6026	3861	2165	
MEDICAL HISTORY				
Current medical conditions				
2 or more	19.99(1.36)	21.77(1.77)	16.04(1.76)	χ^2_2=6.69, p=.0353
1	26.06(1.58)	26.79(1.95)	24.45(2.57)	
None	53.95(1.82)	51.44(2.27)	59.52(2.87)	
Migraine	10.63(1.01)	11.89(1.31)	7.85(1.41)	χ^2_1=4.34, p=.0372
Illness or injury visit in past year				
4 or more	51.05(1.73)	55.88(2.14)	40.11(2.74)	χ^2_2=19.77, p=.0001
1-3	29.17(1.52)	26.81(1.83)	34.52(2.71)	
No visit	19.78(1.51)	17.31(1.79)	25.38(2.70)	
Mental health visit in past year				
1 or more	6.95(.99)	8.23(1.37)	4.05(.79)	χ^2_1=6.85, p=.0089
MENSTRUAL CONDITIONS				
Cramps or pain during periods	24.54(1.44)	33.16(1.95)	5.21(1.12)	χ^2_1=92.18, p<.0001
Heavy periods	36.51(1.78)	47.06(2.19)	12.91(2.01)	χ^2_1=97.80, p<.0001
Light periods	31.10(1.91)	35.49(2.35)	21.27(2.47)	χ^2_1=18.02, p<.0001
One missed period	17.08(1.35)	18.73(1.81)	13.34(1.49)	χ^2_1=5.32, p=.0210
No menstrual periods for 2 or more months	15.77(1.36)	9.86(1.48)	28.99(2.75)	χ^2_1=34.23, p<.0001
Period lasting longer than 1 week	18.25(1.48)	22.16(1.94)	9.49(1.82)	χ^2_1=22.08, p<.0001
Too many periods	11.53(1.10)	13.39(1.40)	7.36(1.70)	χ^2_1=7.30, p=.0069
Bleeding between periods	14.75(1.24)	17.16(1.62)	9.33(1.70)	χ^2_1=10.78, p=.0010
Problem with womb other than endometriosis	2.84(.57)	3.44(.78)	1.51(.61)	χ^2_1=3.75, p=.0528
Abdominal pain (from known cysts or unknown cause)	29.56(1.63)	35.07(2.08)	17.17(2.41)	χ^2_1=28.18, p<.0001
Endometriosis	2.01(.39)	2.36(.50)	1.23(.55)	χ^2_1=2.27, p=.1317

SE = standard error

TABLE 2. Percent demographic distribution of premenstrual symptoms or pain among active-duty women

Demographic variable	Total sample	Cases	Controls	Test statistic
Age				
20 or less	495	84.38	15.62	$X^2_3 = 19.05$, $p = .0003$
21-25	1705	67.14	32.86	
26-34	2178	64.22	35.78	
35 or >	1606	70.99	29.01	
Race				
White, Non Hispanic	3242	73.22	26.78	$X^2_3 = 14.04$, $p = .0029$
Black, Non Hispanic	1030	61.80	38.20	
Hispanic	980	72.66	27.34	
Other	774	66.34	33.66	
Paygrade				
E1-E5	3332	70.42	29.58	$X^2_2 = 2.44$, $p = .2952$
E6-E9	1437	67.59	32.41	
Officer	1257	65.68	34.32	
Marital status				
Not married	3040	69.59	30.41	$X^2_1 = .09$, $p = .7627$
Married	2963	68.68	31.32	
Number of children under 21				
None or less than 3	5619	68.90	31.10	$X^2_1 = 1.33$, $p = .2482$
3 or more	399	75.14	24.86	

TABLE 3: Selected risk factors of premenstrual symptoms or pain among active-duty women

Potential predictor variables*	Sample size	Percent with symptoms	SE	Test statistic
Total sample	6026	69.21	1.53	
Taken birth control pills				
Yes	1797	69.36	2.67	χ^2_1=.03, p=.8615
No	4101	68.79	1.91	
Using Depo-Provera™				
Yes	450	39.48	6.65	χ^2_1=18.82, p<.0001
No	5401	71.07	1.59	
Taken vitamin pills				
Yes	2528	68.18	2.39	χ^2_1=.40, p=.5294
No	3462	70.09	1.96	
Tried to lose weight in the past year				
Yes	4102	73.08	1.67	χ^2_1=13.00, p=.0003
No	1902	60.12	3.07	
Current physical fitness				
Fair/poor	1732	68.81	2.71	χ^2_2=9.32, p=.0095
Good	2307	74.10	2.21	
Very good/excellent	1961	62.68	3.01	
Pregnancy history				
Yes	3417	63.51	2.07	χ^2_1=13.70, p=.0002
No	2589	74.79	2.19	
Age at first live birth				
10-20	749	58.37	4.54	χ^2_2=.69, p=.7070
21-25	1205	62.62	3.53	
26+	871	62.95	3.60	
Age at first menstruation				
<10	148	68.22	8.04	χ^2_3=.50, p=.9182
10-12	2725	70.06	2.10	
13-15	2724	69.62	2.37	
16+	264	65.61	6.31	

Current smokers				
Yes	1477	77.29	2.68	χ^2_1=9.68, p=.0019
No	4451	66.83	1.81	
Days drank alcohol in past month				
11+	507	75.69	4.53	χ^2_3=8.06, p=.0448
4-10 days	1126	75.63	3.07	
2-3 days	2532	67.83	2.35	
None	1838	65.08	2.89	
No. alcohol drinks in past month				
5+	526	82.52	3.58	χ^2_3=10.85, p=.0126
2-4	1532	70.19	2.86	
1	1867	67.01	2.72	
None	2071	65.84	2.71	
Self-perceived state of health				
Fair/poor	300	79.78	4.87	χ^2_2=17.34, p=.0002
Very good/good	4038	71.80	1.78	
Excellent	1673	57.39	3.29	
Depression indicator (CES-D≥6)				
Yes	1729	77.18	2.35	χ^2_1=15.41, p=.0001
No	4046	64.81	1.97	
Overall job stress				
High	2191	78.78	1.93	χ^2_2=34.81, p<.0001
Medium	1925	69.22	2.65	
Low	1732	55.28	3.31	
Depression interaction with abdominal pain				
Depression & abdominal pain	648	89.01	2.34	χ^2_2=46.77, p<.0001
Abdominal pain only	857	75.87	4.16	
Depression only	1072	68.70	3.55	
None	3164	61.80	2.26	

*Other psychosocial variables examined that were not significantly associated with premenstrual symptms include perceived quality of life, positive and negative life events, suicidal ideation, current eating disorder, role limitations due to health or emotional problems, and social support (25).

TABLE 4. Final hierarchical logistic regression model of premenstrual symptoms or pain on psychosocial predictors after controlling demographic variables and lifestyle[1]

	Step I	Step II	Step III
R^2	.03	.10	.13
	OR (95% CI)	OR (95% CI)	OR (95%CI)
Block I: demographics			
Age			
≤20	2.17(1.28,3.67)**	2.33(1.30,4.17)**	2.18(1.20,3.96)**
21-25	.94(.65,1,34)	1.07(.72,1.59)	1.15(.78,1.72)
26-24	.84(.60,1.18)	.86(.60,1.22)	.92(.65,1.31)
35+	Reference	Reference	Reference
Race/Ethnicity			
White or other	1.62(1.17,2.25)**	1.37(.97,1.94)	1.24(.88,1.74)
Black	Reference	Reference	Reference
Block II: lifestyle			
Current birth method			
Birth control pills		.86(.62,1.18)	.88(.64,1.21)
Depo-provera™		.20(.11,.38)***	.18(.10,.32)***
None of above		Reference	Reference
Tried to lose weight			
Yes		1.84(1.34,2.55)***	1.79(1.32,2.43)***
No		Reference	Reference
Pregnancy history			
Yes		.64(.46,.89)**	.58(.42,.79)***
No		Reference	Reference
Heavier drinking			
Yes		1.68(1.11,2.53)*	1.62(1.08,2.42)*
No		Reference	Reference
Block III: psychosocial predictors			
Self-perceived state health			
Fair/poor			2.15(1.07,4.30)*
Very good/good			1.66(1.20,2.30)**
Excellent			Reference
Overall job stress			
High			2.76(1.95,3.92)***
Medium			1.78(1.24,2.54)**
Low			Reference

[1]N (unweighted sample size)= 5406; *$p < .05$;**$p < .01$; ***$p < .001$; OR = odds ratio; CI = confidence interval

Predictors of Job Satisfaction among Active-Duty and Reserve/Guard Personnel in the U.S. Military

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Abstract

Demographic, physical, and psychological predictors of job satisfaction among military personnel were examined in the present study. Data were collected from 24,881 members of the Military, including respondents from all Active-Duty and Reserve/Guard components of each Service. The two strongest predictors of job satisfaction were the perceived amount of job stress experienced by military personnel and having the biggest problem in the one's life result from job-related issues (such as a supervisor) rather than non-job issues (such as health or family). Those reporting higher levels of stress indicated lower levels of job satisfaction. Social support was also positively related to job satisfaction. Findings suggest areas where the military can intervene to increase the satisfaction of personnel and presumably their likelihood of remaining in the military. Because the nature of the military mission seems likely to result in considerable stress for military members, attention should be given to ensuring that personnel have effective coping skills, have good working relationships with immediate supervisors, and have strong support systems within the military.

Because it is critical that the U.S. Military operate seamlessly, it is important to minimize the time and costs associated with training new personnel and to capitalize on the experience of seasoned personnel. Attrition in the military is both common and costly. About 30-35% of enlisted personnel separate before completing their first term of service, and the estimated cost of recruiting, training, and screening for basic skills is approximately $20,000 per person (Clark et al., 1999). Retention of military personnel is therefore a major concern. Research has shown that among military personnel, those who report greater job satisfaction are more likely to stay or indicate an intention to stay in the military (Becker & Billings, 1993; Kocher & Thomas, 1994; Lakhani, 1991; Prevosto, 2001). By understanding the predictors of job satisfaction, it may be possible to take steps to encourage completion of full tours of duty and even re-enlistment, thereby increasing the number of experienced personnel in the Armed Forces and reducing the need for new recruits. In this paper, we use data from a comprehensive assessment of health and wellness issues among all components (both Active Duty and Reserve/Guard) of the Armed Forces to determine the factors that predict job satisfaction among military personnel.

Much prior research on health-related issues in the military has focused on military men and on the Active Duty Services. The data set analyzed in the present study provides one of the first and most comprehensive sets of health results for personnel from all segments of the Military. Using these data permits us to undertake a study of job satisfaction among military men and women that incorporates findings across all segments of the military. This knowledge is likely to become increasingly important as the U.S. Military becomes more reliant on Reserve/Guard components to work with Active Duty components in meeting any national defense or peacekeeping requirements.

In the present study, we examine several predictors of job satisfaction. First, we assess whether job satisfaction is higher among some demographic or Service groups than others. Because physical health and fitness play a major role in readiness and the execution of most military jobs, personnel are expected to maintain high levels of health and fitness. We examine whether these factors play a role in predicting job satisfaction. We also investigate several measures of stress as predictors in our model, including the number of life problems and pleasant life changes experienced in the past year, the cause of the biggest problem in the respondents' lives, and overall job stress. Finally, we examine the potential moderating effects of social support between job stress and job satisfaction.

Demographic Predictors of Job Satisfaction

Studies have shown that military personnel generally report lower levels of overall job satisfaction than do civilian personnel (Alpass, Long, Chamerlain, & MacDonald, 1997; Blair & Phillips, 1983; Bowers, 1976; Fredland & Little, 1983; Woodruff & Conway, 1990). Less is known, however, about the determinants of job satisfaction among military personnel, or the differences across Services.

Job satisfaction may be influenced by many variables, including demographic characteristics. Although inconclusive results have been found for several demographic characteristics including sex (Gruneberg, 1979; Weaver, 1980), income (Agho, Mueller, & Price, 1993; Glisson & Durick, 1988), education (Agho et al., 1993; Oldham & Hackman, 1981) other demographic variables have demonstrated more stable findings. Older age, for example, has been shown to be associated with greater job satisfaction (e.g., Agho et al., 1993; Blegen, 1993; Brush, Moch, & Pooyan, 1987), and African-American race generally has been associated

with lower job satisfaction (Jones, James, Bruni, & Sells, 1977; Weaver, 1980). It has been suggested that the extent to which personal characteristics influence job satisfaction in the military is an important consideration (Fredland & Little, 1983), and that not enough studies of job satisfaction have controlled for the effects of demographics variables (Brush et al., 1987). In the present study, we investigate several demographic characteristics as they relate to job satisfaction, using an analytic approach that will control for these characteristics.

We also will examine Service/Component differences in job satisfaction. To our knowledge, differences in job satisfaction among the Services has not been examined. A major strength of the present study is the inclusion of all components of the Total Force, including both Reserve/Guard and Active Duty. In recent years, Reserve/Guard segments have made an increasingly important contribution to the Armed Forces, and this trend is likely to continue with ongoing military reform and changes in U.S. military strategy. Members of the Reserve/Guard face different issues than personnel on Active Duty, including a greater responsibility for maintaining their health and exposure to different types or sources of stress. For example, whereas Active Duty personnel live with the possibility of acute stress (such as deployment or combat) as part of their daily jobs, when Reservists are called to action the duty is likely to be unexpected, disruptive, and hazardous, which categorizes is as a "catastrophic" stressor (McCubbin & Figley, 1983). These types of distinctions may play a role in differential job satisfaction between Active Duty and Reserve/Guard personnel. We will assess descriptive differences at the Service level, and also examine whether differences at the 'Component' level (i.e., Active Duty as a whole compared to Reserve/Guard as a whole) are significant, and if so, whether different predictors of job satisfaction emerge for the two components.

Physical Health and Fitness

Because the military environment is one in which personnel must maintain constantly high levels of physical health and fitness to assure readiness, an individual's level of health and fitness may play a role in job satisfaction among military personnel. It may be the case that those with lower levels of health and fitness are aware that this can be a shortcoming in a military occupation. This may lead to lower job satisfaction, and those with poor physical health or fitness therefore may be less likely to re-enlist.

Stress and the Military

Numerous studies have demonstrated that high levels of job stress are related to low levels of job satisfaction (e.g., Cummins, 1990; Landsbergis, 1988). Military personnel and their families face a unique combination of stressors, including frequent life changes (such as moves), the potential for deployment, being away from family, the possibility that the military member of the family will be killed or injured on duty, geographical isolation from extended family, low pay, young age (compared to the general population), and a high incidence of young children in the home (Black, 1993). In addition, new roles as peacekeepers may pose stressors that differ from those associated with a traditional combat or combat-support soldier (Litz, Orsillo, Friedman, Ehlich, & Batres, 1997; Orsillo, Roemer, Litz, Ehlich, & Friedman, 1998). We examine whether the number of positive and negative life changes in the past year, the source (job or non-job) of the biggest problem in the respondent's life, overall life satisfaction, and job stress predict job satisfaction among these personnel.

Job Stress and Social Support

Although the evidence is mixed, some studies have indicated that social support

moderates the relation between stressors at work and the associated strains, such as negative job feelings. The buffering hypothesis states that good social support moderates the negative impact of occupational stress and other stressful situations on employees' mental and physical health (Cassel, 1974, 1976; Cobb, 1976; Kaplan, Cassel, & Gore, 1977). Some studies have found support for this hypothesis (e.g., Viswesvaran, Sanchez, & Fisher, 1999), whereas others have not substantiated the moderating relationship (e.g., Beehr, Jex, Stacy, & Murray, 2000; Marcelissen, Winnubst, Buunk, & de Wolff, 1988), particularly when considering job-specific outcomes such as job satisfaction (Beehr & Drexler, 1986; Fisher, 1985; Ganster, Fusilier, & Mayes, 1986; Kaufmann & Beehr, 1986; LaRocco, House, & French, 1980). Within military populations, findings generally have shown that social support is important to the well-being of soldiers. This has been found for Active Duty U.S. military personnel (Martin,1999), cadets in basic training (Gold, 2000), and male Israeli soldiers (Etzion & Westman,1994). We examine whether social support functions as a moderator between job stress and overall job satisfaction.

Methods

Sample and Study Design

The data used in the present analyses were taken from a comprehensive data set of the entire Military, which we created by combining the data from two related studies: the Total Force Health Assessment (TFHA) and Perceptions of Wellness and Readiness (POWR). The comprehensive data set consists of 24,881 records (15,025 from TFHA and 9,856 from POWR).

Both surveys focused on health issues among Military personnel. The POWR study was conducted first, and included members of the Active Duty Navy and Marine Corps. The TFHA was designed primarily to complement POWR, and included personnel in the Active Army,

Army National Guard, Army Reserve, Naval Reserve, Active Air Force, Air National Guard, Air Force Reserve, and Marine Corps Reserve. Thus, between the two surveys, members of all Active-Duty and Reserve/Guard components are represented in the combined data set. Participants for each study were selected using sex, Service, pay grade group, race/ethnicity, and location as the sampling strata.

The POWR questionnaire was designed by the Naval Health Research Center (NHRC) to assess the health status of Active Duty Navy and Marine Corps. In developing the POWR questionnaire, NHRC gave priority to using well-established instruments that (a) had published and reliable psychometric properties, (b) were appropriate to an Active-Duty military population, and (c) were brief. The emphasis was on using questions from standardized, large national health surveys and other military surveys for comparability. The questionnaire survey was administered through the mail, and respondents' confidentiality was maintained through the use of tracking numbers printed on envelopes. The sample size for POWR was 9,856 women and men, which represented a response rate (i.e., the rate at which contacted eligible persons returned a usable questionnaire) of 41.8%. Further details concerning the methodology of the 1995 POWR study have been reported by Hourani et al. (1996).

The TFHA questionnaire was created by modifying the POWR survey to make it applicable to the Reserve/Guard components included in the TFHA. Other modifications were made at the request of a military advisory panel asked to review and shape the content of the questionnaire. The result of this review process was a new instrument called the 1998 Total Force Health Assessment. It retains many of POWR's elements, enabling us to link the two data sets. Further methodological details of the TFHA study have been reported by Vincus et al.

(1999).

The TFHA survey was conducted by mail because group administration was not feasible for the Reserve/Guard component. The response rate for the TFHA was 38.0%. To help compensate for the low response rate, a nonresponse adjustment was made to these data. The weights were adjusted by poststratifying them to the DoD population totals within selected demographic and pay grade groupings. These adjustments partially compensate for the differences attributable to varying cooperation rates among respondents in these groups.

Key Measures

Sociodemographic items included sex, race/ethnicity (White non-Hispanic, Black non-Hispanic, Hispanic, and Other), education (High school or less, Some college, College degree or beyond), age (20 or younger, 21-25, 26-34, and 35 or older), marital status, pay grade (enlisted or officer), and branch of Service.

Several established items and scales were used to assess physical and mental health status. The item to assess self-perceived physical health was stated, "In general, would you say your health is...," with five response options ranging from "poor" to "excellent." To measure self-perceived physical fitness, we asked respondents, "How would you rate your current physical fitness?" and provided five response options ranging from "poor" to "excellent."

A measure of "negative life events" and a measure of "positive life events" were included to help describe events that had occurred in the personal lives of Military personnel during the past year. These measures were taken from the Health Risk Appraisal (U.S. Army, n.d.). These events, including those perceived as positive, could be considered stressors and, therefore, adversely affect personnel's ability to carry out their military responsibilities. To assess negative

life events, we asked personnel, "In the past 12 months, how many serious personal losses or difficult problems have you had to handle (e.g., promotion passover, divorce or separation, legal or disciplinary action, bankruptcy, death of someone close, serious illness or injury of a loved one, etc.)?" Response options ranged from "none" to "many." To assess positive life events, we asked personnel, "In the past 12 months, how often did you experience a major pleasant change (for example, promotion, marriage, birth, award, etc.)?" Response options ranged from "never" to "often."

A measure of "life satisfaction" (Andrews & Withey, 1976) was included to provide insight into how personnel perceived their professional and family lives in tandem. We asked personnel, "How do you feel about your life as a whole?" The response options included "pleased/delighted"; "mostly satisfied"; "mixed"; "mostly dissatisfied"; and "terrible/unhappy."

The source of the biggest problem in the respondent's life was assessed with the question, "What causes the biggest problem in your life?". Responses were aggregated into those reflecting job related problems (e.g., supervisor, military job, civilian job) and non-job related problems (e.g., social life, health, family).

Job stress was assessed using the Job Pressures Scale (House, 1980; House, McMichael, Wells, Kaplan, & Landerman, 1979), and social support using the Social Network Index (Berkman & Syme, 1979; Strawbridge, 1995). The measures were developed and the responses scored according to each scale's protocol. Scaled data are presented as high, medium, or low relative to the entire range of responses received for the scale.

To evaluate job satisfaction, we used a scale developed by House et al. (1979) that consists of five items. Respondents were asked, "Overall, how satisfied would you say you are

with your current military job?," "Knowing what you know now, if you had to decide all over again whether to serve in your current military job, what would you decide?," "In general, how well would you say that your current military job measures up to the sort of job you wanted when you took it?," "If a good friend told you that he or she was interested in working in a job like your current military job, what would you tell him or her to do?," and "How happy or sad do you feel about your current military job?"

Analytical Approach

Analyses were conducted using SUrvey DAta ANalysis (SUDAAN) software for the statistical analysis of correlated data to take into account the complex survey design (Shah, Barnwell, & Bieler, 1997). Both descriptive and multivariate regression analyses were conducted. In presentation of the results, sample sizes are reported as unweighted counts, but statistics are based on weighted data.

Predictors were entered as main effects along with an interaction term to assess the impact of social support. Baron and Kenny (1986) noted that a moderator may be represented as an interaction between the moderating variable and the relevant predictor variable. For our analyses, the moderating effect of social support was tested by creating an interaction term between social support and job stress. The variables for social support and job stress were centered before the analysis to reduce unnecessary correlation between the interaction term and the variables comprising it (Aiken & West, 1991; Jaccard, Turrisi, & Wan, 1990).

Results

Military Population Characteristics

Table 1 provides information about the sociodemographic characteristics of the military population including the active and reserve/guard components. As shown, the main difference the components are that members of the active force are relative young (38% under age 26) whereas the guard/reserve components tend to be older (50% aged 35 o5 older). The majority of personnel in both components are likely to be male, to be Caucasian, at least partially college educated, married, and to be in the enlisted ranks. Most personnel from the active force are members of the Army and in the Army National Guard among the guard/reserve components.

Insert Table 1 about here

Predictors of Job Satisfaction Among Military Personnel

A series of multiple regression analyses were conducted to assess the relationships between demographics, health status, stress, and social support. First, a multiple regression analysis was conducted to investigate possible predictors of job satisfaction and to examine whether active and guard/reserve components differed on their military job satisfaction. All of the predictor variables described earlier, including the interaction between social support and job stress, were entered into the model. The results indicated that whether a respondent was a member of the Active or Reserve/Guard forces was a significant predictor of job satisfaction (Wald $F(1,35) = 5.94$, $p = .01$), suggesting that respondents on Active duty differ in job satisfaction from those in the Reserve or National Guard.

Given this finding and the possibility that members of the Active and Reserve/Guard forces may have different work-related experiences, it was expected that different factors may be

predictive of job satisfaction for these two groups. Therefore, separate regression models were calculated for the Active and Reserve/Guard forces. The resulting models accounted for 41% of the variance in job satisfaction for Active Duty personnel and 28% of the variance among Reserve/Guard personnel. The results of these regression analyses are presented in Table 2.

Insert Table 2 about here

For both Active and Reserve/Guard forces, age, race, pay grade, pleasant life changes, source of biggest problem in life, feelings about life as a whole, social support, and job stress were significant predictors of job satisfaction. In addition, self-perceived health status contributed uniquely to the prediction of job satisfaction for Active Duty personnel. Number of medical conditions was a significant predictor among Reserve/Guard personnel. The strongest predictor of satisfaction was job stress, followed by source of biggest problem in life, and age and pay grade.

Unstandardized regression coefficients for variables that emerged as significant predictors are presented in Table 3. For each categorical variable, the beta coefficient represents a comparison of each level of the variable with a reference level. For example, each age group is compared to those who are 35 years of age or older. As shown in Table 3, among both the Active Duty and Reserve/Guard samples, younger respondents experienced lower job satisfaction than those aged 35 years or more.

Insert Table 3 about here

Among the Active Duty forces, those who were Black reported lower job satisfaction in comparison to White personnel. However, among Reserve/Guard forces, both personnel who were Black or Hispanic had significantly lower job satisfaction scores than White personnel.

Pay grade was predictive of job satisfaction among both the Active Duty and Reserve/Guard forces. Overall, Enlisted personnel reported lower job satisfaction than Officers.

Self-perceived health status contributed significantly to the prediction of job satisfaction among Active Duty personnel. As shown in Table 3, respondents who reported that they were in excellent or very good health had significantly higher job satisfaction than those who believed they were in poor health.

Number of medical conditions was significantly negatively associated with job satisfaction among respondents in the Reserve/Guard forces. This result indicates that respondents with more medical conditions reported lower job satisfaction.

Feelings about life as a whole was a significant predictor of job satisfaction for both groups. Among Active Duty personnel, those who reported feeling pleased or delighted with their lives had higher levels of job satisfaction than those who reported than they were mostly satisfied, mixed, mostly dissatisfied, or unhappy with their lives. Among Reserve/Guard personnel, those who were pleased with their lives had significantly higher job satisfaction than those who were mostly dissatisfied.

Contrary to expectations, respondents on Active Duty who reported experiencing pleasant life changes sometimes or often reported lower job satisfaction than those who reported never having pleasant life changes during the past year. Similarly, among Reserve/Guard members, those who experienced pleasant life changes often, sometimes, or rarely all had lower levels of job satisfaction than those who reported never having this type of change during the past year.

Source of the biggest problem was predictive of job satisfaction for both Active and Reserve/Guard forces. In both groups, respondents who indicated that the biggest problem in

their lives was job-related had lower job satisfaction than those who indicated than a non-job related issue was the biggest problem. As shown in Table 2, this variable was particularly highly predictive of job satisfaction among Active Duty respondents with a Wald F of 197.04 in comparison to Reserve/Guard respondents which had a Wald F of 11.14.

Social support was significantly positively associated with job satisfaction for both Active Duty and Reserve/Guard personnel, indicating that respondents with higher social support reported greater job satisfaction. Job stress was the most important predictor for both active and reserve components and was significantly negatively associated with job satisfaction. Personnel with higher levels of job stress on average experienced lower levels of job satisfaction.

Discussion

Predictors of Job Satisfaction among Military Personnel

The two strongest predictors of job satisfaction were the perceived amount of job stress experienced by military personnel and having the biggest problem in the one's life result from job-related issues (such as a supervisor) rather than non-job issues (such as health or family). Those with higher levels of stress reported lower levels of satisfaction. These findings held both for active military and guard/reserve personnel, although the effects of the second variable (while still highly significant) were less pronounced among guard/reserve personnel. In addition, social support was positively related to satisfaction. Those who perceived higher levels of support reported greater satisfaction.

These findings are of particular interest in that they suggest areas where the military can intervene to increase the satisfaction of personnel and presumably their likelihood of remaining in the military. Because the nature of the military mission seems likely to result in considerable

stress for military members, attention must be given to ensuring that personnel have effective coping skills, have good working relationships with immediate supervisors, and that they have strong support systems within the military.

Contrary to expectations, we did not find evidence that social support moderated the job stress-job satisfaction relation. It may be the case that lack of specificity in the measure of social support contributed to the lack of an interaction in our study. Our measure was one of social support in general, not support in the work environment. Cohen and Wills (1985) suggested that buffering effects would be observed only if there was a match between the support requirements and environment. It is possible that if we had measured the perceived availability of social support in the work environment we would have observed our predicted interaction.

Several demographic variables (age, paygrade, and race) were found to predict job satisfaction among military personnel. The most likely explanation for higher job satisfaction among older personnel is self-selection. Older respondents are likely to have joined the military at a young age and have been satisfied with the choice enough to remain a member of the military. Those for whom the military proves to be a less satisfying job probably would not remain, and therefore are less likely to be a member of the military at an older age. The finding that officers expressed higher levels of job satisfaction than enlisted personnel may be due in part to the different duties, assignments, and privileges associated with differences in rank.

The finding that, compared to White personnel lower job satisfaction was reported by those who were Black replicates some previous findings. In the present study, we also found that in the Reserve/Guard only respondents who were Hispanic or of another racial ethnic group also reported lower job satisfaction than did those who were White. These findings suggest that the

military needs to give additional attention to differences in perceptions of minority groups since these groups are over represented in the military population and are an important source of future personnel..

In addition to the variables mentioned above, several mental health variables also predicted job satisfaction. The number of pleasant life changes a respondent had experienced in the past year was negatively associated with level of satisfaction with his or her military job. Although this finding may at first seem counterintuitive, a likely explanation is that many life changes that may be pleasant overall make a respondent's lifestyle less compatible with a military career (e.g., marriage, the birth of a child). One implication of this finding is that it is important for commanders to be aware of any life changes experienced by personnel in their units and for the military to consider actions that may make life transitions easier and more compatible with military jobs.

Strengths and Limitations of the Data

Self-reports in which respondents provide data about their behaviors, attitudes, and beliefs rely on respondents' ability and willingness to provide correct information about observations and events. Surveys have been a major vehicle for obtaining self-reported data about a wide variety of topics. A major strength of this study is that it permitted the collection of a rich array of information about the nature and extent of behaviors of interest along with information about correlates of these behaviors. Other strengths include the use of sophisticated sampling techniques and questions from well-researched, validated health scales. The sampling techniques allow for precise estimates of behaviors in specific populations, such as health issues among females, across all segments of the Military. The well-researched health scales provide

valid measures in assessing attitudes and behaviors.

Despite these strengths, survey results also are subject to the potential bias of self-reports and to the ambiguities caused by questions with varying interpretations. Moreover, other potential problems affecting the validity of the survey data include population coverage, response rates, and nonresponse error. If the population is not properly represented in the survey or if response rates are low, biases may be introduced that can invalidate the study results.

The relatively low response rate leaves open the possibility of response bias in the estimates (Groves & Couper, 1998). However, low response rates do not necessarily mean that findings are biased. Several factors may have worked in favor of reduced bias in the present study. First, bias is most likely if there exists a systematic relation between the survey questions and reasons for nonparticipation (e.g., if questions asked about sensitive behaviors might implicate respondents). The fact that the vast majority of items in the TFHA and POWR surveys did not ask about sensitive behaviors may have resulted in less bias. In addition, the frequency of missing data for the items used in this analysis indicated that most of the items had less than one percent missing data, with the range of missing data from 0% to 3.7%, thereby suggesting that our analyses would not be biased because of missing data. Another indication that nonresponse bias did not play a major role in the results of the present study is that comparisons of these data with another recent survey that had a much higher response rate showed similar results. We compared the TFHA's smoking rates for the Army and Air Force with those of the same Services from the 1998 DoD Survey of Health Related Behaviors Among Military Personnel (Bray et al., 1999) and found highly similar (within approximately 1 percentage point) results between the two studies. This similarity in findings suggests that the comprehensive data set contains

information that has not been strongly biased by nonresponse.

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Table 1. Sociodemographic Characteristics of Active Duty and Reserve/Guard Personnel.

Variable	Active Duty	Reserve/ Guard
Age		
20 years or less	12.5%	10.4%
21-25 years	25.5%	10.7%
26-34 years	35.0%	29.4%
35 years or more	26.9%	49.5%
Gender		
Male	85.9%	84.3%
Female	14.1%	15.7%
Race/Ethnicity		
White - Non Hispanic	66.4%	71.9%
Black - Non Hispanic	20.1%	16.5%
Hispanic	7.5%	7.1%
Other	6.0%	4.6%
Education		
High school or less	33.1%	25.0%
Some college	44.9%	48.1%
College degree	22.0%	26.9%
Marital Status		
Married	59.5%	56.8%
Not married	40.5%	43.3%
Pay Grade		
Enlisted	83.9%	84.7%
Officer	16.1%	15.3%
Service		
Active Air Force	26.4%	--
Active Army	34.3%	--
Active Marine Corps	12.6%	--
Active Navy	26.7%	--
Air Force Reserve	--	8.3%

Air National Guard	--	12.5%
Army National Guard	--	42.0%
Army Reserve	--	22.4%
Marine Corps Reserve	--	4.7%
Naval Reserve	--	10.1%

Table 2. Results of Multiple Regressions of Job Satisfaction for Active Duty and Reserve/Guard Personnel.

	Active Duty	Reserve/ Guard
Predictor Variable	**Wald F**	**Wald F**
Age	27.52***	9.43***
Gender	2.08	0.05
Race/Ethnicity	5.93***	6.98***
Education	1.28	0.75
Marital Status	0.62	2.46
Pay Grade	25.23***	10.92**
Health Status	3.02*	0.33
Number of Medical Conditions	0.22	4.09*
Physical Fitness	1.32	1.10
Difficult Problems	1.25	0.63
Pleasant Life Changes	10.59***	6.80***
Source of Biggest Problem	197.04***	11.14***
Feelings about Life as a Whole	12.57***	6.18***
Social Support	4.80*	4.81*
Job Stress	343.52***	275.84***
Social Support x Job Stress	0.29	0.04

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3. Unstandardized Regression Coefficients for Significant Predictor Variables for

Active and Reserve/Guard Personnel.

	Active Duty	Reserve/ Guard
Predictor Variable	β	β
Age		
20 years or less	-1.25***	-1.21***
21-25 years	-1.33***	-1.10***
26-34 years	-0.57***	-0.39**
35 years or more	0.00	0.00
Race/Ethnicity		
White - Non Hispanic	0.00	0.00
Black - Non Hispanic	-0.53***	-0.77***
Hispanic	-0.18	-0.29**
Other	-0.08	-0.21
Pay Grade		
Enlisted	-0.85***	-0.62**
Officer	0.00	0.00
Health Status		
Excellent	1.35**	0.84
Very Good	1.19*	0.81
Good	0.91	0.91
Fair	0.91	0.81
Poor	0.00	0.00
Number of Medical Conditions	0.02	-0.08*
Pleasant Life Changes		
Often	-0.75***	-1.39***
Sometimes	-0.47*	-0.91**
Rarely/Seldom	-0.01	-0.88**
Never	0.00	0.00
Feelings about Life as a Whole		

Pleased/Delighted	0.00	0.00
Mostly Satisfied	-0.74***	-0.24
Mixed	-1.00***	-0.43
Mostly Dissatisfied	-1.50***	-1.71***
Terrible/Unhappy	-0.95**	-0.90
Biggest Problem		
Job	-1.59***	-0.61***
Non Job	0.00	0.00
Social Support	0.05*	0.07*
Job Stress	-0.11***	-0.13***

APPENDIX C

SLIDE PRESENTATION

Active-Reserve Comparisons of Psychosocial Functioning in the Total Force

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Rebecca P. Sanchez, Ph.D.

Research Triangle Institute
Research Triangle Park, NC

Paper presented at the 108th Annual Meeting of
the American Psychological Association,
Washington, DC, August, 2000

Introduction

- Reserve/Guard components are playing increasingly important roles in the Nation's defense.
- There is a paucity of data examining the health of the Total Force.
- There is increasing recognition of the need to address mental health issues.
- Understanding the mental health status of Active Duty and Reserve/Guard personnel provides information about potential mental health service needs.
- To this end, we obtained comprehensive probability-based epidemiological data on the health status of the Total Force, encompassing men and women across all pay grades for the Active Force and for Reserve/Guard components of each Service.
- We will report our findings regarding the psychosocial health of military personnel.

Method

Results are drawn from a combined data set from 2 large scale studies:

- 1998 Health Status of Military Women and Men in the Total Force
- 1995 Perceptions of Wellness and Readiness

The combined data set is among the first to provide data from both Active Duty Army and Reserve/Guard components of all Services.

Eligible population: all Military personnel except recruits, Service academy students, and persons AWOL.

Data were collected primarily via mail, and were weighted to represent all Military personnel.

Sample: 24,881 completed questionnaires.

Demographics

	Active Duty	Reserve/Guard
• **Sex**		
– Male	86	84
– Female	14	16
• **Race/Ethnicity**		
– White, not Hispanic	67	72
– Black, not Hispanic	20	17
– Hispanic	8	7
– Other	6	5
• **Education**		
– High school or less	33	25
– Some college	44	48
– College degree +	22	27

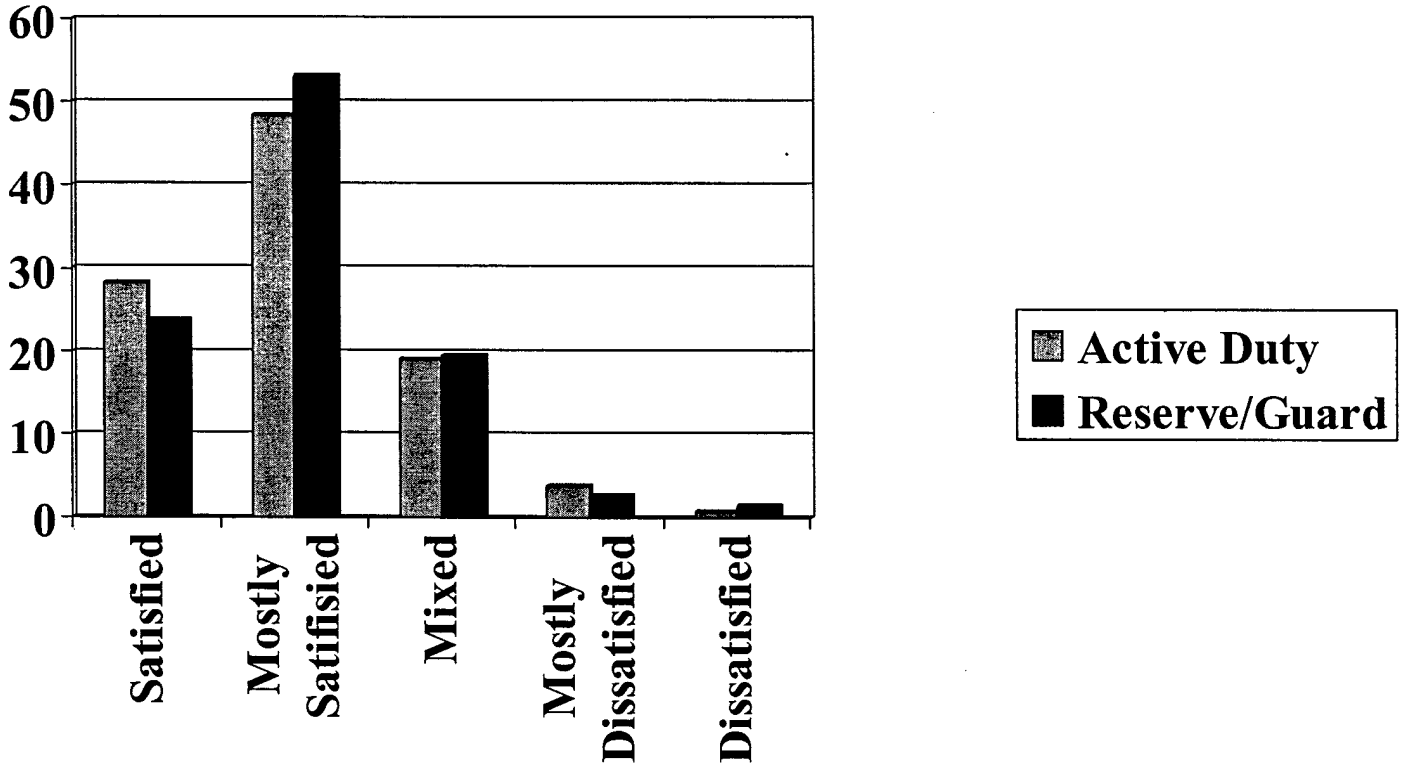
Demographics (continued)

	Active Duty	Reserve/Guard
• **Age**		
– 20 or younger	12	10
– 21-25	26	11
– 26-34	35	29
– 35 or older	27	50
• **Marital Status**		
– Not married	40	43
– Married	59	56
• **Paygrade**		
– Enlisted	84	85
– Officer	16	16

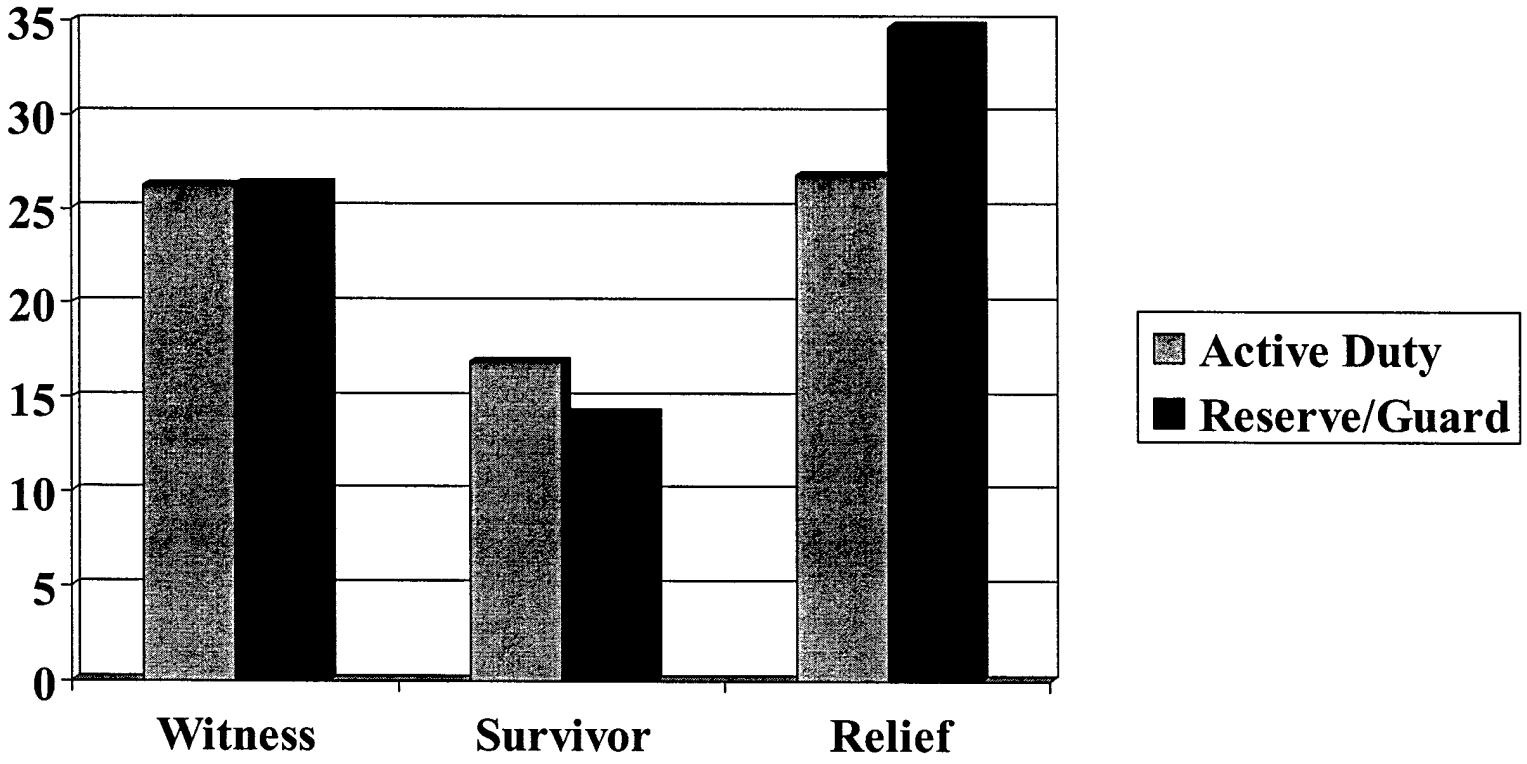
Mental Health Topics:

- Life Satisfaction
- Exposure to Natural Disaster or Combat
- Job Stress
- Emotional, Sexual, or Physical Abuse
- Depression
- Suicidal Ideation

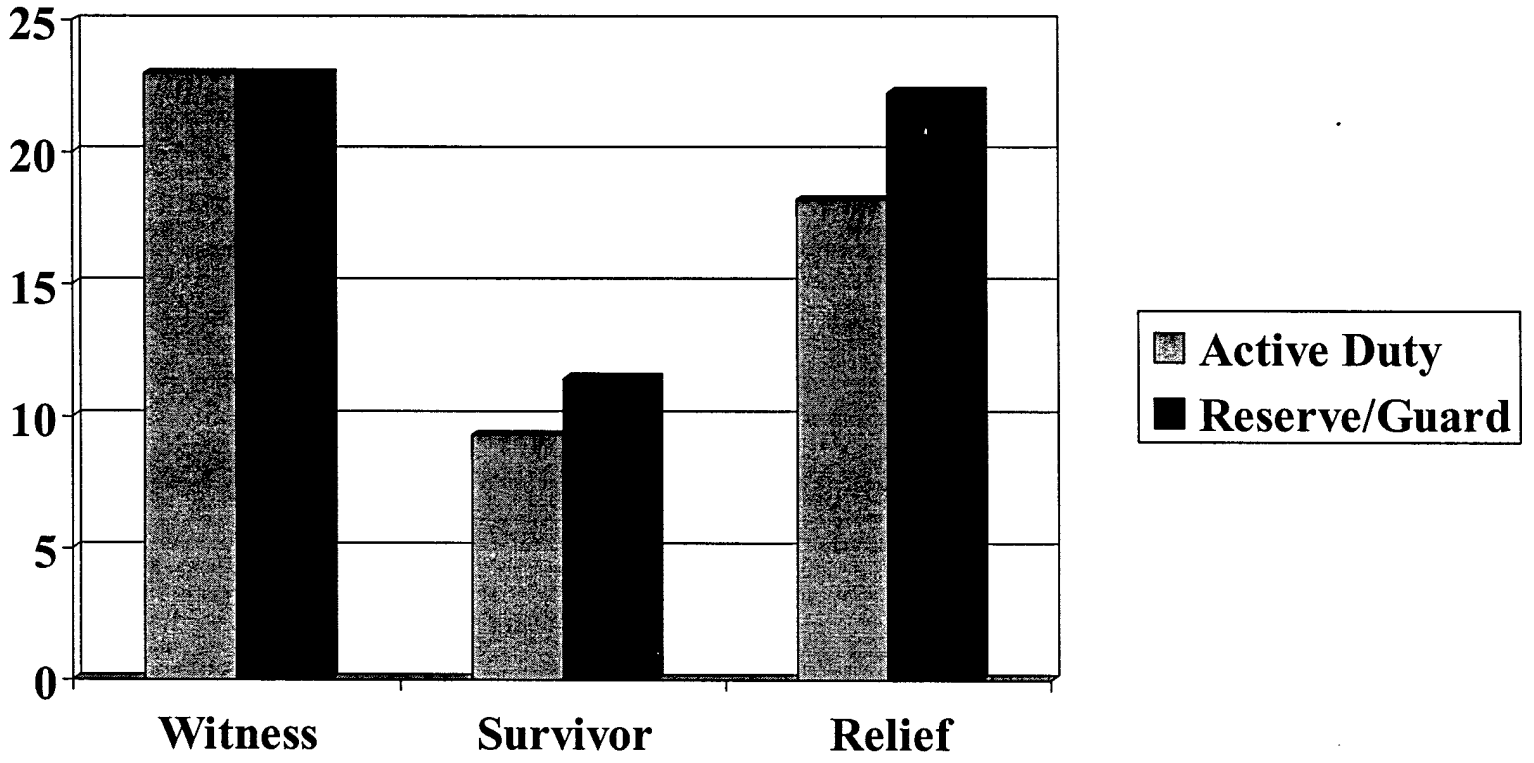
Life Satisfaction



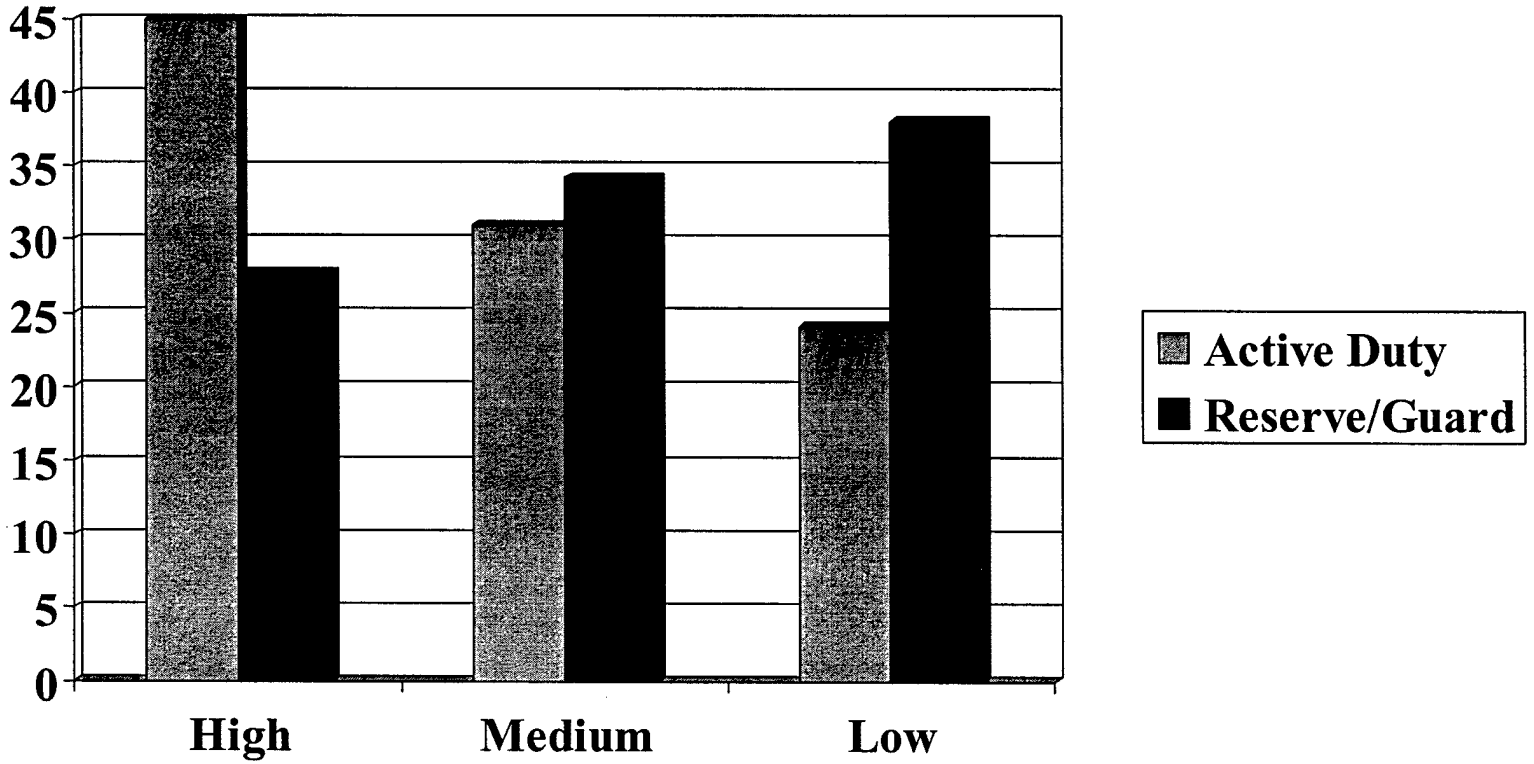
Exposure to Natural Disaster



Exposure to Combat

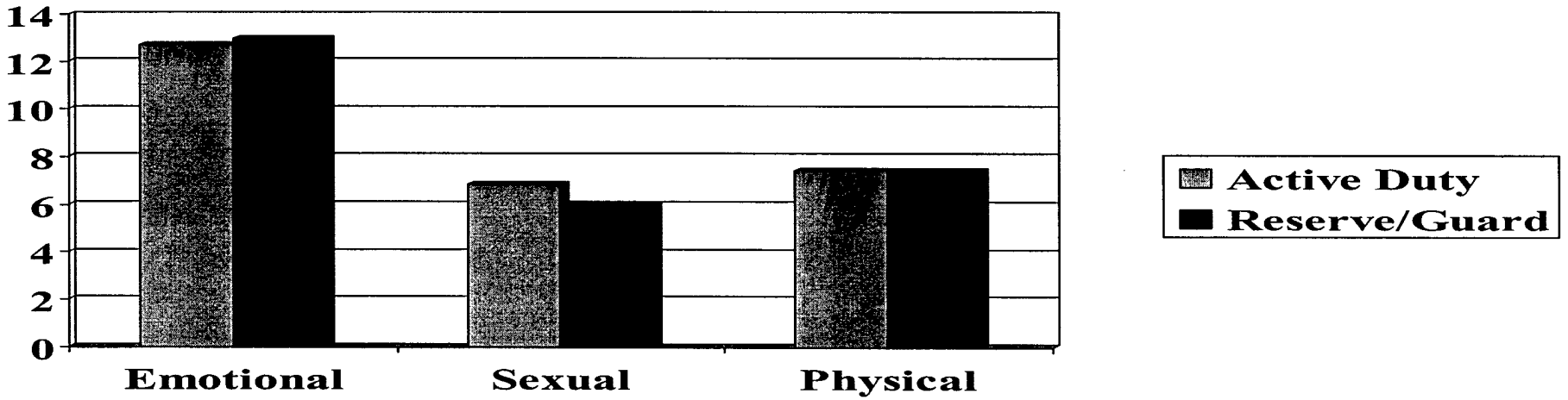


Overall Job Stress

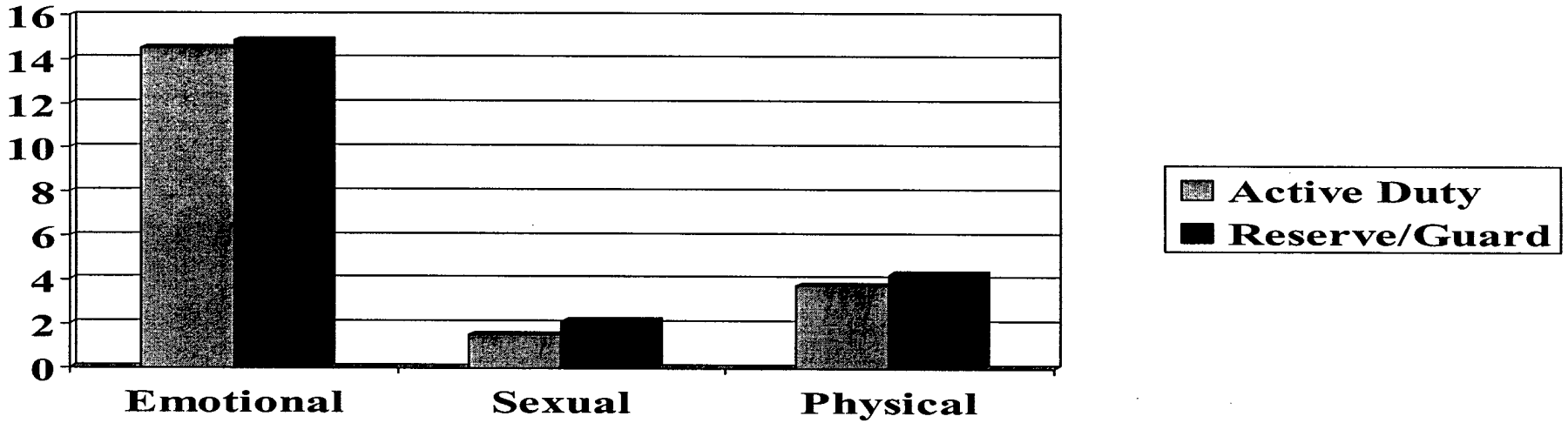


Abuse

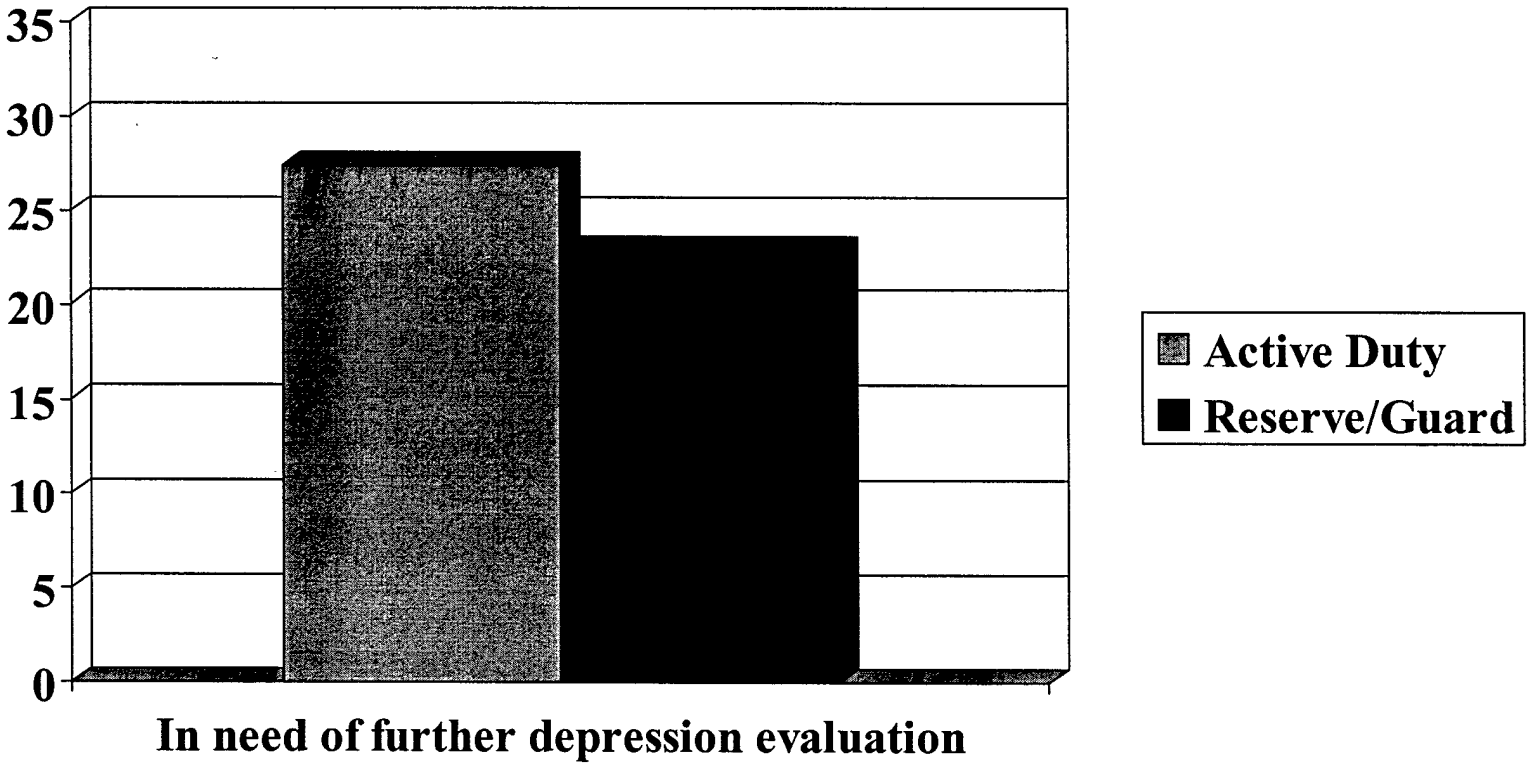
Before entering the Military



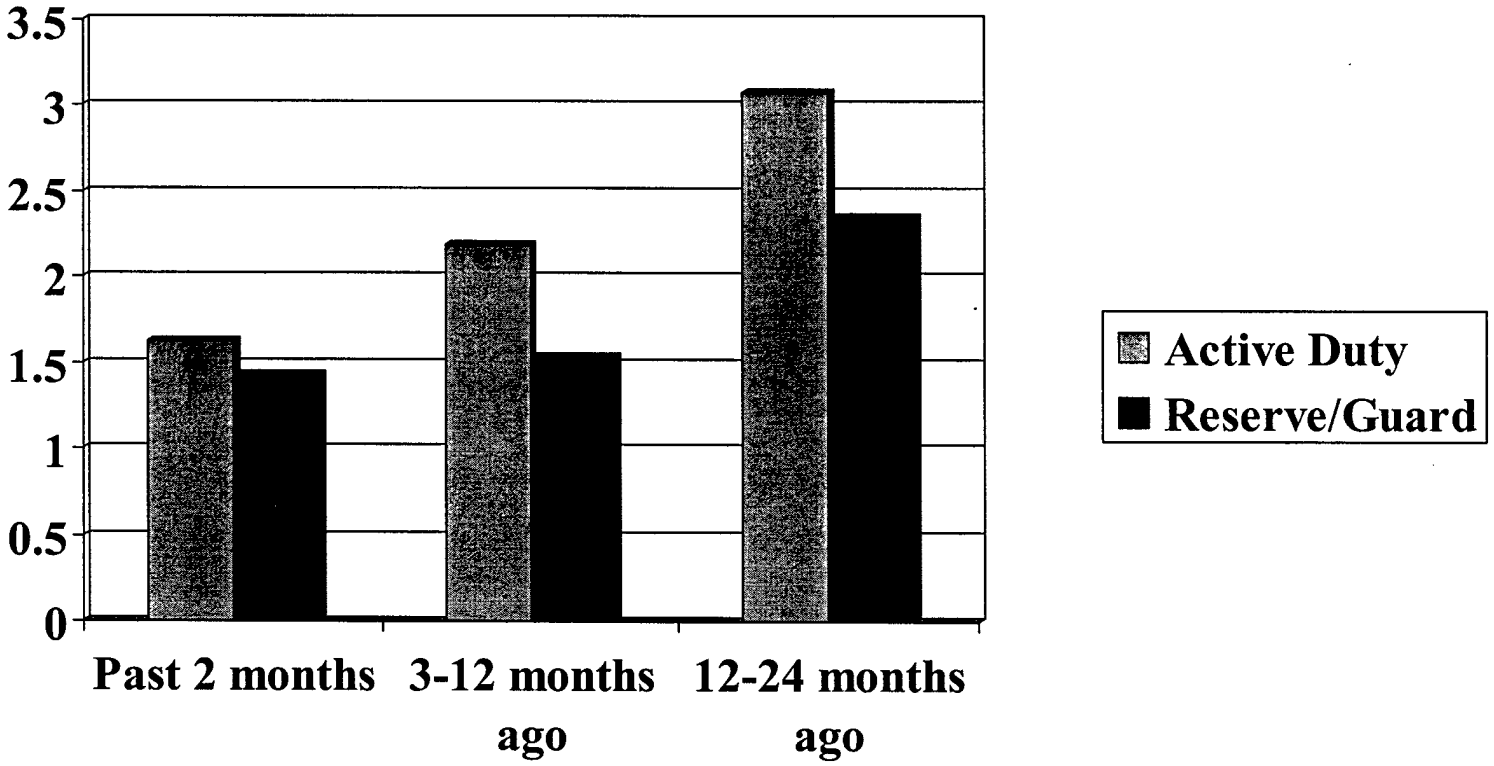
Since entering the Military



Depression


35
30
25
20
15
10
5
0
Active Duty
Reserve/Guard
In need of further depression evaluation

Seriously Considered Suicide



Summary and Implications

- Overall life satisfaction is high for both Active Duty and Reserve/Guard personnel.
- Because of the diverse roles of Reserve/Guard personnel, they have had significant exposure to natural disasters and combat, and were more likely than Active Duty personnel to have participated in relief efforts for these events.
- A substantial proportion of Active Duty personnel report high levels of job-related stress.
- Rates of emotional, sexual, and physical abuse were fairly low, and were similar across Active Duty and Reserve/Guard personnel, both before entering the Military and since that time.
- Compared to Reserve/Guard personnel, those on Active Duty were more likely to show signs of depression and to have seriously considered suicide.

APPENDIX D

1998 TOTAL FORCE HEALTH ASSESSMENT QUESTIONNAIRE

1998 Total Force Health Assessment

Survey Approval Authority: U.S. Army Research Institute for the Behavioral and Social Sciences
Survey Control Number: TAPC-ARI-AO-98-3
RCS: MILPC-3

Introduction

What is this study about? This study is mainly about your health with questions on illness, stress, smoking, and sexual behavior, for example.

How will your answers be used? Your answers will be combined with those from other military personnel to prepare a final report. The information in the report will be used to improve the quality of military life.

Who is overseeing the study? Research Triangle Institute, a not-for-profit research company, is under contract to the Department of Defense to oversee this study.

How were you selected? You were randomly selected to participate in this important survey.

Must you participate? Your participation in this survey is voluntary, but the survey's success depends on your willingness to take part. You represent thousands of other personnel, and we can't substitute anyone for you. Therefore, we encourage you to answer all of the questions honestly, but you are not required to answer any question to which you object.

Who will see your answers? Only civilian researchers will see your answers. No military personnel will ever see your individual answers. This questionnaire is confidential. DO NOT WRITE YOUR NAME OR SOCIAL SECURITY NUMBER ANYWHERE ON THIS BOOKLET.

Instructions for Completing the Questionnaire

- In responding to this questionnaire, you may find questions that you feel are repetitious. Please realize that it is important for us to ask questions about different aspects of the same issue to better understand it. In addition, we ask you NOT to skip questions—even if you don't think they apply to you—unless you are instructed to do so or you object to answering them. An important part of questionnaire design is making sure the questions follow the same patterns used in other questionnaires so we can compare information. Our comparisons may not be valid if you skip questions when you are not asked to skip them.
- Most questions provide a set of answers. Read all of the printed answers before marking your choice. If none of the printed answers exactly applies to you, mark the circle for the one answer that best fits your situation.
- Use only a soft-lead pencil (such as a #2) to complete this questionnaire.
- Make heavy black marks that fill the circle of your answer.



- Completely erase any answers you change.
- Do not make any stray marks anywhere in this booklet.
- For many questions, you should mark only one circle for your answer in the column below the question, as shown:

EXAMPLE: **In general, would you say your health is:**

- ○ Excellent
- ● Very good
- ○ Good
- ○ Fair
- ○ Poor

- Sometimes you will be asked to "Darken one circle on each line." For these questions, record an answer to each part of the question, as shown:

EXAMPLE:

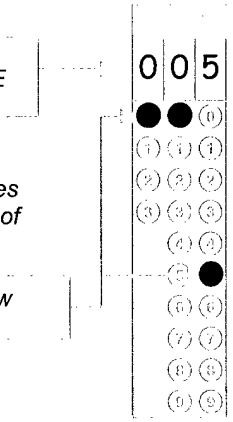
Has a health care provider ever told you that you had any of the following?	If yes, what was the result?		
	No, Never	Yes, But No Longer a Problem	Yes, Still a Problem
a. Asthma	○	●	○
b. Chronic bronchitis	○	○	●
c. Chronic rhinitis or hay fever	●	○	○

- If you are asked to give numbers for your answer, please complete the grid as shown below:

EXAMPLE:

Think about your illnesses you may have had in the past 12 months. How many days were you unable to perform your military job because of an illness in the past 12 months?

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *Always write the last number in the right-hand box. Fill in any unused boxes with zeroes. For example, an answer of "5 days" would be written as "005."*
- *Then, darken the matching circle below each box.*



Now, please turn the page and begin with question 1. →

DEMOGRAPHIC INFORMATION

1. **In which component of the Military do you currently serve?***
   - ◯ Active Army (USA)
   - ◯ Army National Guard (ARNG)
   - ◯ Army Reserve (USAR)
   - ◯ Naval Reserve (USNR)
   - ◯ Active Air Force (USAF)
   - ◯ Air National Guard (ANG)
   - ◯ Air Force Reserve (USAFR)
   - ◯ Marine Corps Reserve (USMCR)

2. **In all, how many years have you served on active duty?** Do not include Reserve/Guard years.
   (Choose the one answer that best applies)
   - ◯ Never served on active duty
   - ◯ Less than 6 months
   - ◯ At least 6 months, but less than 1 year
   - ◯ At least 1 year, but less than 2 years
   - ◯ At least 2 years, but less than 3 years
   - ◯ At least 3 years, but less than 4 years
   - ◯ At least 4 years, but less than 5 years
   - ◯ At least 5 years, but less than 10 years
   - ◯ At least 10 years, but less than 20 years
   - ◯ 20 or more years

3. **In all, how many years have you served in the Guard or Reserve?** Do not include active-duty years.
   (Choose the one answer that best applies)
   - ◯ Never served in the Guard or Reserve
   - ◯ Less than 6 months
   - ◯ At least 6 months, but less than 1 year
   - ◯ At least 1 year, but less than 2 years
   - ◯ At least 2 years, but less than 3 years
   - ◯ At least 3 years, but less than 4 years
   - ◯ At least 4 years, but less than 5 years
   - ◯ At least 5 years, but less than 10 years
   - ◯ At least 10 years, but less than 20 years
   - ◯ 20 or more years

4. **In the <u>past 12 months</u>, what is the total number of actual days you spent performing your military duty in the Guard or Reserves?** Do not include days spent in annual training.
   (Choose the one answer that best applies)
   - ◯ Active-duty military [Go to question 5]
   - ◯ Less than 21 days
   - ◯ At least 21 days, but less than 28 days
   - ◯ At least 28 days, but less than 35 days
   - ◯ At least 35 days, but less than 60 days
   - ◯ At least 60 days, but less than 90 days
   - ◯ More than 90 days

5. **Are you male or female?**
   - ◯ Male
   - ◯ Female

* Active Marine Corps (USMC) and Active Navy (USN) are not included in this list because they were already surveyed.

6. **What is your <u>highest</u> level of education now?**
   (Choose the one answer that best applies)
   - ◯ Did not graduate from high school
   - ◯ GED or ABE certificate
   - ◯ High school graduate
   - ◯ Trade or technical school graduate
   - ◯ Some college but not a 4-year degree
   - ◯ 4-year college degree (BA, BS, or equivalent)
   - ◯ Graduate or professional study but no graduate degree
   - ◯ Graduate or professional degree

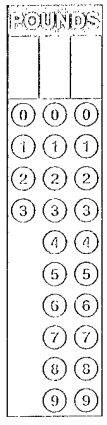
7. **About how tall are you without shoes on?**

◯ 4 feet, 7 inches	◯ 5 feet, 0 inches	◯ 6 feet, 0 inches
◯ 4 feet, 8 inches	◯ 5 feet, 1 inch	◯ 6 feet, 1 inch
◯ 4 feet, 9 inches	◯ 5 feet, 2 inches	◯ 6 feet, 2 inches
◯ 4 feet, 10 inches	◯ 5 feet, 3 inches	◯ 6 feet, 3 inches
◯ 4 feet, 11 inches	◯ 5 feet, 4 inches	◯ 6 feet, 4 inches
	◯ 5 feet, 5 inches	◯ 6 feet, 5 inches
	◯ 5 feet, 6 inches	◯ 6 feet, 6 inches
	◯ 5 feet, 7 inches	◯ 6 feet, 7 inches
	◯ 5 feet, 8 inches	◯ 6 feet, 8 inches
	◯ 5 feet, 9 inches	◯ 6 feet, 9 inches
	◯ 5 feet, 10 inches	◯ 6 feet, 10 inches
	◯ 5 feet, 11 inches	◯ 6 feet, 11 inches

8. **About how much do you weigh without shoes on?**
   (WOMEN: If you are currently pregnant, please enter your usual weight before you became pregnant.)

   • *First, enter your weight in the boxes. Use <u>all three</u> boxes. Write ONE number in each box.*

   • *Then, darken the matching circle below <u>each</u> box.*



9. How old were you on your last birthday?

- *First, enter your age in the boxes. Use both boxes. Write ONE number in each box.*
- *Then, darken the matching circle below each box.*



10. What is your current marital status?

- ◯ Not married, but living as married
- ◯ Married
- ◯ Separated and not living as married
- ◯ Divorced and not living as married
- ◯ Widowed and not living as married
- ◯ Single, never married, and not living as married

11. Are you of Spanish or Hispanic origin or descent?

- ◯ No (not Spanish or Hispanic)
- ◯ Yes, Puerto Rican
- ◯ Yes, Mexican or Mexican-American or Chicano
- ◯ Yes, Cuban
- ◯ Yes, Central or South American
- ◯ Yes, other Spanish or Hispanic origin

12. Which of these categories best describes you?

- ◯ American Indian/Eskimo/Aleut
- ◯ Black/African-American
- ◯ Asian/Chinese/Japanese/Korean/Filipino/Asian Indian/Pacific Islander
- ◯ White/Caucasian
- ◯ Other

13. Which of the following best describes your employment situation?
(Choose the one answer that best applies)

- ◯ Active-duty military
- ◯ Employed as a civilian in a military job
- ◯ Employed as a civilian in a non-military job
- ◯ Self-employed
- ◯ Unemployed
- ◯ Homemaker
- ◯ Student
- ◯ Retired
- ◯ Unable to work

14. What is your pay grade?

ENLISTED		OFFICER	
◯ E-1	◯ E-6	◯ Trainee	◯ O-4
◯ E-2	◯ E-7	◯ W1-W5	◯ O-5
◯ E-3	◯ E-8	◯ O-1 or O-1E	◯ O-6
◯ E-4	◯ E-9	◯ O-2 or O-2E	◯ O-7 to O-10
◯ E-5		◯ O-3 or O-3E	

15. Which of the following categories best describes your military responsibilities? If you need to, please refer to the handout that came with this survey for examples of different job categories.
(Choose the one answer that best applies)

ENLISTED

- ◯ Infantry, Gun Crew, Air Crew, or Seamanship Specialist
- ◯ Electronic Equipment Repair Specialist
- ◯ Communications or Intelligence Specialist
- ◯ Health Care Specialist/Technician
- ◯ Other Technical or Allied Specialist
- ◯ Functional Support and Administration
- ◯ Electrical or Mechanical Equipment Repair Specialist
- ◯ Craftsman
- ◯ Service and Supply Handler
- ◯ Other (e.g., officer candidates, students, special duties)

OFFICER

- ◯ General Officer, Executive Officer, or Commanding Officer
- ◯ Tactical Operations Officer
- ◯ Intelligence Officer
- ◯ Engineering or Maintenance Officer
- ◯ Scientist, Professional, or Staff Support (not involved in health care)
- ◯ Health Care Provider
- ◯ Administrator or Operational Support
- ◯ Supply, Procurement, or Allied Officer
- ◯ Other (e.g., students, trainees, billet designators)

16. What was your annual household income from ALL sources last year? Please estimate your annual household income before taxes were taken out. As with all information you provide on this survey, your answer to this question will be kept confidential.

- ◯ Less than $15,000
- ◯ $15,000 to $19,999
- ◯ $20,000 to $24,999
- ◯ $25,000 to $34,999
- ◯ $35,000 to $44,999
- ◯ $45,000 to $49,999
- ◯ $50,000 to $74,999
- ◯ $75,000 or more

17. **In general, would you say your health is:**

( ) Excellent
( ) Very good
( ) Good
( ) Fair
( ) Poor

18. **During the <u>past 30 days</u>, have you had any of the following problems with your work or other regular daily activities as a result of your <u>physical health</u>?**
(Darken one circle on each line)

Because of my physical health during the past 30 days, I:	**Yes**	**No**
a. Cut down the amount of time I spent on work or other activities		
b. Accomplished less than I would have liked		
c. Was limited in the kind of work or other activities I could do		
d. Had difficulty performing the work or other activities (took extra effort)		

19. **During the <u>past 30 days</u>, have you had any of the following problems with your work or other regular daily activities as a result of any <u>emotional problems</u> (such as feeling depressed or anxious)?**
(Darken one circle on each line)

Because of emotional problems during the past 30 days, I:	**Yes**	**No**
a. Cut down on the amount of time I spent on work or other activities		
b. Accomplished less than I would have liked		
c. Didn't do work or other activities as carefully as usual		

20. **During the <u>past 30 days</u>, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?**

( ) Not at all
( ) Slightly
( ) Moderately
( ) Quite a bit
( ) Extremely

21. **How much of the time during the <u>past 30 days</u>:**

	None of the time	**A little of the time**	**Some of the time**	**A good bit of the time**	**Most of the time**	**All of the time**
a. Did you feel full of pep?	○	○	○	○	○	○
b. Did you have a lot of energy?	○	○	○	○	○	○
c. Did you feel worn out?	○	○	○	○	○	○
d. Did you feel tired?	○	○	○	○	○	○

22. **How true or false is each of the following statements for you?**

	Definitely false	**Mostly false**	**Don't know**	**Mostly true**	**Definitely true**
a. I seem to get sick a little easier than other people I know	○	○	○	○	○
b. I am as healthy as anybody I know	○	○	○	○	○
c. I expect my health to get worse	○	○	○	○	○
d. My health is excellent	○	○	○	○	○

23. **During the <u>past 30 days</u>, how much of the time have your physical or emotional problems interfered with your normal social activities (like visiting with friends, relatives, etc.)?**

( ) All of the time
( ) Most of the time
( ) Some of the time
( ) A little of the time
( ) None of the time

24. **<u>During the past 30 days</u>, on the average, how many hours of sleep did you get per night?**

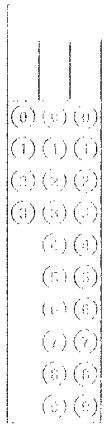
0 1 2 3 4 5 6 7 8 9 10 11

25. Has a health care provider ever told you that you had any of the following?

		No, Never	If yes, what was the result? Yes, But No Longer a Problem	Yes, Still a Problem
a.	Asthma	○	○	○
b.	Chronic bronchitis	○	○	○
c.	Chronic rhinitis or hay fever	○	○	○
d.	Other allergies	○	○	○
e.	Positive skin test for tuberculosis	○	○	○
f.	Cervical cancer	○	○	○
g.	Breast cancer	○	○	○
h.	Skin cancer	○	○	○
i.	Other cancer	○	○	○
j.	Heart disease or angina	○	○	○
k.	High blood pressure (hypertension)	○	○	○
l.	High cholesterol	○	○	○
m.	Anemia (low blood iron)	○	○	○
n.	Varicose veins	○	○	○
	Has a health care provider ever told you that you had:			
o.	Hernia or rupture	○	○	○
p.	Hemorrhoids	○	○	○
q.	Ulcer	○	○	○
r.	Bowel or intestinal trouble (e.g., colitis)	○	○	○
s.	Gallstones	○	○	○
t.	Thyroid disease	○	○	○
u.	Diabetes	○	○	○
v.	Hepatitis	○	○	○
w.	Urinary tract infection	○	○	○
x.	Repeated kidney infections	○	○	○
y.	Kidney stones	○	○	○
z.	Other kidney disease	○	○	○
	Has a health care provider ever told you that you had:			
aa.	Pelvic inflammatory disease (PID)	○	○	○
bb.	Herpes or genital warts	○	○	○
cc.	Other sexually transmitted diseases (e.g., gonorrhea, syphilis)	○	○	○
dd.	Positive test for the HIV/AIDS virus	○	○	○
ee.	Sterility/infertility	○	○	○
ff.	Arthritis	○	○	○
gg.	Other bone, muscle, or joint problems	○	○	○
hh.	Chronic back problems (e.g., sciatica)	○	○	○
ii.	Nerve pain (neuralgia)	○	○	○
jj.	Migraines	○	○	○
kk.	Head injury (involving stitches or unconsciousness)	○	○	○
ll.	Depression	○	○	○
mm.	Hearing loss or problems	○	○	○
nn.	Vision impairment or problems	○	○	○
oo.	Gum disease	○	○	○

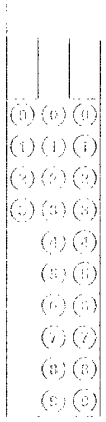
26. Think about any <u>illnesses</u> you may have had in the <u>past 12 months</u>. How many days were you unable to perform your military job because of an <u>illness</u> in the <u>past 12 months</u>? (WOMEN: Do NOT count illnesses that occurred during pregnancy or maternity leave as part of your answer.)

- *First, enter the number of days in the boxes. Use <u>all three</u> boxes. Write ONE number in each box.*
- *If you have NOT had an illness in the past 12 months, please enter 000.*
- *If you had any illnesses in the past 12 months but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below <u>each</u> box.*



27. Think about any <u>injuries</u> you may have had in the <u>past 12 months</u>. How many days were you unable to perform your military job because of an <u>injury</u> in the <u>past 12 months</u>? (WOMEN: Do NOT count injuries that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use <u>all three</u> boxes. Write ONE number in each box.*
- *If you have NOT had an injury in the past 12 months, please enter 000.*
- *If you had any injuries in the past 12 months but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below <u>each</u> box.*



If you are Reserve/Guard personnel, please go to question 28 at the top of the first column on the next page.

If you are active-duty personnel, please go to question 30 at the top of the second column on the next page.

If you are in the Guard or Reserve, **"usual job"** refers to your civilian job. If you are a student or homemaker, your work falls into the category of usual job.

28. **Think about any illnesses you may have had in the past 12 months. How many days were you unable to perform your usual job because of an illness in the past 12 months?** (WOMEN: Do NOT count illnesses that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an illness in the past 12 months, please enter 000.*
- *If you had any illnesses in the past 12 months but none of them made you unable to perform your usual job, please enter 000.*
- *Then, darken the matching circle below each box.*

29. **Think about any injuries you may have had in the past 12 months. How many days were you unable to perform your usual job because of an injury in the past 12 months?** (WOMEN: Do NOT count injuries that occurred during maternity leave or pregnancy as part of your answer.)

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you have NOT had an injury in the past 12 months, please enter 000.*
- *If you had any injuries in the past 12 months but none of them made you unable to perform your usual job, please enter 000.*
- *Then, darken the matching circle below each box.*

Preventive Care

30. **A fecal occult blood test is a test of a bowel movement to determine whether it contains blood. When did you have your most recent fecal occult blood test?**

- Within the past year
- More than 1 year ago, but within the past 2 years
- More than 2 years ago, but within the past 3 years
- More than 3 years ago, but within the past 5 years
- More than 5 years ago
- Never
- Don't know

31. **About how long has it been since you had your blood pressure taken by a doctor, nurse, or other health care professional?**

- Within the past year
- More than 1 year ago, but within the past 2 years
- More than 2 years ago, but within the past 3 years
- More than 3 years ago, but within the past 5 years
- More than 5 years ago
- Never
- Don't know

32. **About how long has it been since you had your cholesterol checked?**

- Within the past year
- More than 1 year ago, but within the past 2 years
- More than 2 years ago, but within the past 3 years
- More than 3 years ago, but within the past 5 years
- More than 5 years ago
- Never
- Don't know

33. **How long has it been since you last visited a dentist or dental health professional for a routine checkup or cleaning?**

- Within the past year
- More than 1 year ago, but within the past 2 years
- More than 2 years ago, but within the past 3 years
- More than 3 years ago, but within the past 5 years
- More than 5 years ago
- Never
- Don't know

Health Care

34. In the past 12 months, what has been the main (or primary) source of payment for your medical or doctor's bills?
(Choose the one answer that best applies)

- ○ Active-duty medical benefits
- ○ Reserve or Guard medical benefits
- ○ Veterans Administration medical benefits
- ○ Other government-sponsored medical insurance (such as Federal employee insurance, or Medicaid)
- ○ Health insurance from a civilian employer (including insurance you receive through your spouse's employment)
- ○ Other private insurance coverage
- ○ Your own money
- ○ Money received or borrowed from family or friends

35. In the past 12 months, what has been the main (or primary) source of payment for your dental bills?
(Choose the one answer that best applies)

- ○ Active-duty medical/dental benefits
- ○ Reserve or Guard medical/dental benefits
- ○ Veterans Administration medical/dental benefits
- ○ Other government-sponsored medical insurance (such as Federal employee insurance, or Medicaid)
- ○ Health insurance from a civilian employer (including insurance you receive through your spouse's employment)
- ○ Other private insurance coverage
- ○ Your own money
- ○ Money received or borrowed from family or friends

36. In the past 12 months, did cost keep you from getting any of the following?
(Darken one circle on each line)

Cost kept me from getting:	Yes	No
a. Health insurance coverage	○	○
b. Treatment of an illness or injury	○	○
c. Follow-up visit for an illness or injury	○	○
d. General physical exam	○	○
e. Prescription medication	○	○
f. Eye care	○	○
g. Prenatal care	○	○
h. Any type of surgery	○	○
i. Mental health care	○	○
j. Emergency care	○	○
k. Dental care	○	○
l. Counseling for an alcohol or other drug problem	○	○

37. In the past 12 months, were you unable to get any of the kinds of care described in question 36 because you could not meet your deductible or co-payments?

- ○ Yes
- ○ No

38. Please indicate how many times you went to a military health care provider for your own health care during the past 12 months. Care from a Veterans Administration facility is not included here—Go to question 39.

- ○ Did not receive care from a military provider in past 12 months [Go to question 39]

I went to a military provider for: (Darken one circle on each line)	Number of times 0	1	2	3	4 or more
a. Treatment of an illness or injury	○	○	○	○	○
b. Follow-up visit for an illness or injury	○	○	○	○	○
c. General physical exam	○	○	○	○	○
d. Prescription refill only	○	○	○	○	○
e. Eye exam only	○	○	○	○	○
f. Prenatal care	○	○	○	○	○
g. Same day surgery	○	○	○	○	○
h. Surgery that required an overnight hospital stay	○	○	○	○	○
i. Overnight hospital stay (other than for surgery)	○	○	○	○	○
j. Mental health care	○	○	○	○	○
k. Emergency care	○	○	○	○	○
l. Dental care	○	○	○	○	○
m. Counseling for an alcohol or other drug problem	○	○	○	○	○
n. Other type of care	○	○	○	○	○

39. Please indicate how many times you went to a civilian health care provider for your own health care during the past 12 months. Include care from a Veterans Administration facility here.

- ○ Did not receive care from a civilian provider in past 12 months [Go to question 40 at the top of the next page]

I went to a civilian provider for: (Darken one circle on each line)	Number of times 0	1	2	3	4 or more
a. Treatment of an illness or injury	○	○	○	○	○
b. Follow-up visit for an illness or injury	○	○	○	○	○
c. General physical exam	○	○	○	○	○
d. Prescription refill only	○	○	○	○	○
e. Eye exam only	○	○	○	○	○
f. Prenatal care	○	○	○	○	○
g. Same day surgery	○	○	○	○	○
h. Surgery that required an overnight hospital stay	○	○	○	○	○
i. Overnight hospital stay (other than for surgery)	○	○	○	○	○
j. Mental health care	○	○	○	○	○
k. Emergency care	○	○	○	○	○
l. Dental care	○	○	○	○	○
m. Counseling for an alcohol or other drug problem	○	○	○	○	○
n. Other type of care	○	○	○	○	○

Stress

40. When you feel pressured, stressed, or anxious, how often do you engage in <u>each</u> of the following activities?

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. Talk to a friend or family member	( )	( )	( )	( )	( )
b. Light up a cigarette	( )	( )	( )	( )	( )
c. Have a drink	( )	( )	( )	( )	( )
d. Exercise or play sports	( )	( )	( )	( )	( )
e. Get something to eat	( )	( )	( )	( )	( )
f. Smoke marijuana or use other illegal drugs	( )	( )	( )	( )	( )
g. Think of a plan to solve the problem	( )	( )	( )	( )	( )
h. Think about hurting yourself or killing yourself	( )	( )	( )	( )	( )

41. During the <u>past 12 months</u>, how much stress did you experience <u>in your usual job</u>?

( ) A great deal
( ) A fairly large amount
( ) Some
( ) A little
( ) None at all
( ) I don't have a usual or regular job

42. During the <u>past 12 months</u>, how much stress did you experience <u>in your personal life</u>?

( ) A great deal
( ) A fairly large amount
( ) Some
( ) A little
( ) None at all

43. During the <u>past 12 months</u>, how much did stress <u>in your usual job</u> interfere with your ability to perform your military responsibilities?

( ) A lot
( ) Some
( ) A little
( ) Not at all
( ) Had no stress in my usual job in the past 12 months
( ) I don't have a usual or regular job

44. During the <u>past 12 months</u>, how much did stress <u>in your personal life</u> interfere with your ability to perform your military responsibilities?

( ) A lot
( ) Some
( ) A little
( ) Not at all
( ) Had no stress in my personal life in the past 12 months

Emotions

45. Below is a list of ways you might have felt or behaved. Please indicate how often you have felt this way during the <u>past 7 days</u>.

	Most or all of the time (5-7 days)	Occasionally or a moderate amount of time (3-4 days)	Some or a little of the time (1-2 days)	Rarely or none of the time (less than 1 day)
In the <u>past 7 days</u>:				
a. My sleep was restless	( )	( )	( )	( )
b. I felt lonely	( )	( )	( )	( )
c. I felt I could not shake off the blues even with help from my family or friends	( )	( )	( )	( )
d. I felt sad	( )	( )	( )	( )
e. I could not get "going"	( )	( )	( )	( )
f. I had trouble keeping my mind on what I was doing	( )	( )	( )	( )
g. I felt that everything I did was an effort	( )	( )	( )	( )

46. How do you feel about your life as a whole?

( ) Pleased/delighted
( ) Mostly satisfied
( ) Mixed
( ) Mostly dissatisfied
( ) Terrible/unhappy

47. During the <u>past 12 months</u>, when you have gotten angry, how often have you:

	Very often	Fairly often	Sometimes	Almost never	Never
a. Sworn and cursed	( )	( )	( )	( )	( )
b. Gotten into an argument	( )	( )	( )	( )	( )
c. Hid your anger/tried not to show it	( )	( )	( )	( )	( )
d. Yelled or shouted	( )	( )	( )	( )	( )
e. Tried to calmly explain your feelings or opinions	( )	( )	( )	( )	( )
f. Just stopped talking, avoided arguing, and started to do something else	( )	( )	( )	( )	( )
g. Made a fist and shown an angry expression on your face	( )	( )	( )	( )	( )
h. Taken out your anger by kicking things (like a chair), giving a door a good slam, punching the wall, or looking for something to throw or smash	( )	( )	( )	( )	( )

Weight Management and Nutrition

48. During the past 12 months, have you tried to lose weight?

- ◯ Yes
- ◯ No

49. How easy or difficult has it been for you to meet military weight standards?

- ◯ Very easy
- ◯ Somewhat easy
- ◯ Somewhat difficult
- ◯ Very difficult

50. During the past 12 months, have you changed your eating habits because of any medical condition?

- ◯ Yes
- ◯ No

51. Are you satisfied with your eating patterns?

- ◯ Yes
- ◯ No

52. Do you ever eat in secret (intentionally hide your eating)?

- ◯ Yes
- ◯ No

53. During the past 7 days, on about how many days did you:
(Darken one circle on each line)

	Number of Days							
	0	1	2	3	4	5	6	7
a. Eat breakfast	◯	◯	◯	◯	◯	◯	◯	◯
b. Eat snacks between meals	◯	◯	◯	◯	◯	◯	◯	◯
c. Overeat	◯	◯	◯	◯	◯	◯	◯	◯
d. Not eat enough	◯	◯	◯	◯	◯	◯	◯	◯
e. Take vitamin pills	◯	◯	◯	◯	◯	◯	◯	◯
f. Take calcium supplements	◯	◯	◯	◯	◯	◯	◯	◯

54. During the past 7 days, about how many times did you:

	More than 7 times	4-6 times	1-3 times	Never
a. Eat high-fat meats or dairy products (e.g., hamburger, hot dogs, steak, bacon, whole milk, cheese, ice cream)	◯	◯	◯	◯
b. Eat fried foods (e.g., french fries, fried chicken, fried eggs)	◯	◯	◯	◯
c. Eat sweets (e.g., cakes, pies, cookies, candies)	◯	◯	◯	◯
d. Eat low-fat meats or dairy products (e.g., chicken or turkey without skin, low-fat milk, yogurt)	◯	◯	◯	◯
e. Eat "leafy" vegetables (e.g., broccoli, cabbage, greens, spinach)	◯	◯	◯	◯
f. Eat "starchy" vegetables (e.g., beans, peas, corn, potatoes)	◯	◯	◯	◯
g. Eat fruits (e.g., apples, fruit juice, raisins, dried fruit, melons, bananas)	◯	◯	◯	◯
h. Eat high-fiber foods (whole grain breads, cereals, bran)	◯	◯	◯	◯

55. How important do you feel that food choices are in terms of your health?

- ◯ Probably the most important factor
- ◯ Very important, but not the most important factor
- ◯ Important
- ◯ Not very important
- ◯ Of little or no consequence

56. Think about times when you've bought food—that could include groceries, food from restaurants, or food from snack bars. How important to you are the following considerations when you buy food?

When you buy food, how important are a food's:

	Extremely important	Very important	Moderately important	Somewhat important	Not at all important
a. Health benefits, nutritional value	◯	◯	◯	◯	◯
b. Price, cost	◯	◯	◯	◯	◯
c. Taste, eating enjoyment	◯	◯	◯	◯	◯
d. Convenience, ease of preparation	◯	◯	◯	◯	◯
e. Calories	◯	◯	◯	◯	◯

Exercise

57. During the past 30 days, how often did you do each of the following?

	About every day	5-6 days a week	3-4 days a week	1-2 days a week	1-3 days in past 30 days	Never in past 30 days
In the past 30 days, I:						
a. Engaged in strenuous physical activity for 20 minutes or more (such as running, jogging, or walking)	( )	( )	( )	( )	( )	( )
b. Engaged in activities that improve muscle strength (such as pushups, situps, weight lifting, or resistance training)	( )	( )	( )	( )	( )	( )
c. Engaged in mild physical activity (such as baseball, bowling, or volleyball) more for the recreation than for the exercise	( )	( )	( )	( )	( )	( )

58. If you indicated that you engaged in strenuous activity in question 57, how long have you been doing that (as often as you said in question 57)?

( ) Didn't do any strenuous activity in the past 30 days
( ) Less than 1 month
( ) At least 1 month, but less than 4 months
( ) At least 4 months, but less than 1 year
( ) At least 1 year, but less than 3 years
( ) At least 3 years, but less than 5 years
( ) 5 years or more

59. How would you rate your current physical fitness?

( ) Poor
( ) Fair
( ) Good
( ) Very good
( ) Excellent

60. In the past 12 months, how easy or difficult was it for you to pass your service's Physical Training (PT) test?

( ) Very easy
( ) Somewhat easy
( ) Somewhat difficult
( ) Very difficult
( ) I have taken a PT test, but not in the past 12 months
( ) I have never taken a PT test

Alcohol Use

Please answer ALL of the following alcohol use questions even if you don't drink or you're not a regular drinker.

61. During the past 30 days, on how many days did you drink one or more drinks of alcoholic beverages? Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; or a shot of liquor or a mixed drink or cocktail.

( ) 28-30 days (about every day)
( ) 20-27 days (5-6 days a week, average)
( ) 11-19 days (3-4 days a week, average)
( ) 4-10 days (1-2 days a week, average)
( ) 2-3 days in the past 30 days
( ) Once in the past 30 days
( ) None in the past 30 days
( ) Never drank alcoholic beverages in my life

62. Think about the days when you drank in the past 30 days. How many drinks did you usually drink on a TYPICAL day? Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; or a shot of liquor or a mixed drink or cocktail.

( ) 9 drinks or more
( ) 8 drinks
( ) 7 drinks
( ) 6 drinks
( ) 5 drinks
( ) 4 drinks
( ) 3 drinks
( ) 2 drinks
( ) 1 drink
( ) None in the past 30 days
( ) Never drank alcoholic beverages in my life

63. During the past 30 days, on how many days did you have 5 or more drinks on the same occasion? By "occasion," we mean at the same time or within a couple of hours of each other.

( ) 28-30 days (about every day)
( ) 20-27 days (5-6 days a week, average)
( ) 11-19 days (3-4 days a week, average)
( ) 4-10 days (1-2 days a week, average)
( ) 2-3 days in the past 30 days
( ) Once in the past 30 days
( ) Drank during the past 30 days, but never had 5 or more drinks on the same occasion
( ) None in the past 30 days
( ) Never drank alcoholic beverages in my life

Tobacco Use

Please answer ALL of the following tobacco use questions even if you don't use tobacco products or you're not a regular user.

64. When was the last time you smoked a cigarette?

- ◯ Today
- ◯ During the past 30 days
- ◯ 5-8 weeks ago
- ◯ 2-3 months ago
- ◯ 4-6 months ago
- ◯ 7-12 months ago
- ◯ 1-3 years ago
- ◯ More than 3 years ago
- ◯ Never smoked cigarettes in my life

65. Think about the past 30 days. How many cigarettes did you usually smoke on a TYPICAL day?

- ◯ About 3 or more packs a day (more than 55 cigarettes)
- ◯ About 2½ packs a day (46-55 cigarettes)
- ◯ About 2 packs a day (36-45 cigarettes)
- ◯ About 1½ packs a day (26-35 cigarettes)
- ◯ About 1 pack a day (16-25 cigarettes)
- ◯ About ½ pack a day (6-15 cigarettes)
- ◯ 1-5 cigarettes a day
- ◯ Less than 1 cigarette a day, on the average
- ◯ Did not smoke any cigarettes in the past 30 days
- ◯ Never smoked cigarettes in my life

66. Have you smoked at least 100 cigarettes in your entire life? (That would be 5 packs or more in your entire life.)

- ◯ Yes
- ◯ No

67. During the past 12 months, have you made a serious attempt to stop smoking cigarettes; that is, did you go for at least a week without smoking?

- ◯ Yes
- ◯ No
- ◯ Didn't smoke cigarettes in the past 12 months
- ◯ Never smoked cigarettes in my life

68. When was the last time you used chewing tobacco or snuff or other smokeless tobacco?

- ◯ During the past 30 days
- ◯ More than 1 month ago but within the past 6 months
- ◯ More than 6 months ago but within the past year
- ◯ More than 1 year ago but within the past 2 years
- ◯ More than 2 years ago
- ◯ Never used smokeless tobacco in my life

69. During the past 12 months, how often on the average have you used chewing tobacco or snuff or other smokeless tobacco?

- ◯ About every day
- ◯ 5-6 days a week
- ◯ 3-4 days a week
- ◯ 1-2 days a week
- ◯ 2-3 days a month
- ◯ About once a month
- ◯ 7-11 days in the past 12 months
- ◯ 3-6 days in the past 12 months
- ◯ Once or twice in the past 12 months
- ◯ Not once in the past 12 months
- ◯ Never used smokeless tobacco in my life

70. Have you used chewing tobacco or snuff or other smokeless tobacco at least 20 times in your entire life?

- ◯ Yes
- ◯ No

71. During the past 12 months, how often on the average have you smoked cigars or a pipe?

- ◯ About every day
- ◯ 5-6 days a week
- ◯ 3-4 days a week
- ◯ 1-2 days a week
- ◯ 2-3 days a month
- ◯ About once a month
- ◯ 7-11 days in the past 12 months
- ◯ 3-6 days in the past 12 months
- ◯ Once or twice in the past 12 months
- ◯ Not once in the past 12 months
- ◯ Never smoked cigars or pipes in my life

Sexual Behavior

72. How many sexual partners have you had in the <u>past 12 months</u>?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

73. <u>In the past 12 months</u>, how often did you or your partner(s) use a condom when you had sex?

- ◯ Did not have sex in the past 12 months
- ◯ Never
- ◯ Hardly any of the time
- ◯ Some of the time
- ◯ About half of the time
- ◯ Most of the time
- ◯ Every time

74. In the <u>past 12 months</u>, have you ever had sex with anyone who has been told that he or she has HIV, AIDS, or the AIDS virus?

- ◯ Yes
- ◯ No
- ◯ Don't know

75. In the <u>past 30 days</u>, which of the following methods did you and your partner(s) use to prevent pregnancy?

- ◯ Did not have sex in the past 30 days [Go to question 78 at the top of the next page]
- ◯ Did not use any method to prevent pregnancy in the past 30 days [Go to question 76]

To prevent pregnancy, we used:
(Darken one circle on each line)

	Yes	No
a. Birth control pills	◯	◯
b. Depo-provera	◯	◯
c. Norplant	◯	◯
d. Condom	◯	◯
e. Diaphragm or cervical cap	◯	◯
f. Spermicide (foam, jelly, cream, suppositories)	◯	◯
g. Sponge	◯	◯
h. IUD	◯	◯
i. Douche	◯	◯
j. Withdrawal	◯	◯
k. Rhythm	◯	◯
l. Abstinence (not having sex when you had the opportunity)	◯	◯
m. Some other method	◯	◯

76. In the following question, "partner" refers to the person you have sex with the most. Have you or your partner:

	Yes	No
a. Had a vasectomy	◯	◯
b. Had a tubal ligation (had "tubes tied")	◯	◯
c. Had a hysterectomy	◯	◯
d. Found out that one of you was infertile or sterile	◯	◯

[If you answered "yes" to <u>any</u> of these, go to question 78 at the top of the next page]

77. A list of reasons why people sometimes do not use birth control follows. Please indicate if each reason was a reason why you did not use birth control in the <u>past 30 days</u>:

- ◯ Used birth control in the past 30 days [Go to question 78 at the top of the next page]

I did NOT use birth control in the past 30 days because:
(Darken one circle on each line)

	Yes	No
a. Using birth control is against my religious or moral beliefs	◯	◯
b. My partner(s) didn't want us to use birth control	◯	◯
c. Using birth control is too much of a hassle	◯	◯
d. We wanted to have a baby (get pregnant)	◯	◯
e. Using birth control is too expensive	◯	◯
f. I was too embarrassed to ask for it	◯	◯
g. Some other reason	◯	◯

Life Changes

78. In the past 12 months, how many serious personal losses or difficult problems have you had to handle (such as a promotion passover, divorce or separation, legal or disciplinary action, bankruptcy, large bills or credit card debt, death of someone close, serious illness or injury of a loved one)?

- ◯ Many
- ◯ Some
- ◯ Few
- ◯ None

79. Have you seriously considered suicide?
(Darken one circle on each line)

I have seriously considered suicide within the:	Yes	No
a. Past 2 years	◯	◯
b. Past year	◯	◯
c. Past 2 months	◯	◯

If you answered "yes" to any of the items in question 79, please seek help. If you are in the US, contact Covenant House at 1-800-999-9999 (an anonymous, civilian hotline). They can also give you information about resources available in your area. If you are outside the US, please contact your unit's chaplain.

80. In the past 12 months, how often did you have any serious problems dealing with your spouse, parents, friends, co-workers, or with your children?

- ◯ Often
- ◯ Sometimes
- ◯ Rarely (but at least once)
- ◯ Never

81. In the past 12 months, how often did you experience a major pleasant change (such as a promotion, marriage, birth, award)?

- ◯ Often
- ◯ Sometimes
- ◯ Rarely (but at least once)
- ◯ Never

82. What causes the biggest problem in your life?
(Choose the one answer that best applies)

- ◯ Social life
- ◯ Family
- ◯ Supervisor
- ◯ Military job
- ◯ Civilian job
- ◯ Spouse's job
- ◯ Health
- ◯ Money
- ◯ Something else
- ◯ No problems

For this questionnaire, please use the following definitions for emotional, sexual, and physical abuse.
Physical abuse is forceful behavior (even once) that may result in physical injury.
Sexual abuse is taking advantage of another person by fondling, rape, or forcing that person to take part in other sex acts against that person's will.
Emotional abuse is the misuse of a person's feelings; as a result, one thinks less of oneself.

83. Were you abused before entering the Military?
(Darken one circle on each line)

Before entering the Military, I had been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

84. Since entering the Military, have you been abused by someone else in the Military?
(Darken one circle on each line)

Since entering the Military, I have been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

85. Since entering the Military, have you been abused by someone NOT in the Military?
(Darken one circle on each line)

Since entering the Military, I have been:	Yes	No
a. Physically abused	◯	◯
b. Sexually abused	◯	◯
c. Emotionally abused	◯	◯

86. Have you ever received counseling to help you deal with abuse you've suffered?
(Darken one circle on each line)

I have received counseling for:	Yes	No	Never been abused in this way
a. Physical abuse	◯	◯	◯
b. Sexual abuse	◯	◯	◯
c. Emotional abuse	◯	◯	◯

Friends and Family

87. How many close friends do you have (people you feel at ease with, can talk to about private matters, and can call for help)?

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

88. How many relatives do you have that you feel close to?

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

89. How many of these friends or relatives do you see at least once a month?

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

90. Are you a member of any social clubs or groups?

( ) Yes
( ) No

91. Are you an active member of a church, temple, or other religious organization?

( ) Yes
( ) No

92. In the <u>past 12 months</u>, how many children (natural, adopted, stepchildren, or grandchildren) <u>under the age of 21</u> lived in your household?

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

93. What are the ages of the children who lived in your household in the <u>past 12 months</u>?

( ) No children lived in my household in the past 12 months [Go to question 94]

I have had children living in my household who are: *(Darken one circle on each line)*	**Yes**	**No**
a. Less than 6 months old	( )	( )
b. 6 months to under 1 year old	( )	( )
c. 12 to 23 months old	( )	( )
d. 24 to 35 months old	( )	( )
e. 3 to 5 years old	( )	( )
f. 6 to 9 years old	( )	( )
g. 10 to 12 years old	( )	( )
h. 13 to 15 years old	( )	( )
i. 16 to 20 years old	( )	( )

Disaster or Violence Exposure

Exposure to a disaster or violence can sometimes have long-term effects. The following questions will help to provide a history of exposure to disasters or violence that may help in studying their effects.

94. Have you ever been exposed to a natural disaster involving injuries or fatalities (such as earthquakes, fires, floods)?
(Darken one circle on each line)

I have been exposed to a natural disaster as:	**Yes**	**No**
a. a witness	( )	( )
b. a survivor or victim	( )	( )
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	( )	( )

95. Have you ever been exposed to combat or violence involving injuries or fatalities?
(Darken one circle on each line)

I have been exposed to combat or violence as:	**Yes**	**No**
a. a witness	( )	( )
b. a survivor or victim	( )	( )
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	( )	( )
d. someone who has used deadly force in combat	( )	( )

96. Have you ever witnessed or been exposed to a major accident involving injuries or fatalities?
(Darken one circle on each line)

I have been exposed to a major accident as:	**Yes**	**No**
a. a witness	( )	( )
b. a survivor or victim	( )	( )
c. a participant in cleanup, rescue, investigation, or aid (remote or on-site)	( )	( )

Military Work

The following questions ask how you feel about your current military job.

97. How often are you bothered by each of the following in your military job?
(Darken one circle on each line)

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. Not having enough help and equipment to get the job done well	○	○	○	○	○
b. Feeling you have too much responsibility for the work of others	○	○	○	○	○
c. Thinking that you'll not be able to meet the conflicting demands of various people you work with	○	○	○	○	○
d. Having to do or decide things where mistakes could be quite costly	○	○	○	○	○
e. Not knowing just what the people you work with expect from you	○	○	○	○	○
f. Thinking that the amount of work you have to do may interfere with how well it gets done	○	○	○	○	○
How often are you bothered by each of the following in your military job?					
g. Feeling that you have to do things on the job that are against your better judgment	○	○	○	○	○
h. Feeling that your job tends to interfere with your family life	○	○	○	○	○
i. Feeling unable to influence your immediate supervisor's decisions and his/her actions that affect you	○	○	○	○	○
j. Having to deal with or satisfy too many different people	○	○	○	○	○
k. Being asked to work overtime when you don't want to	○	○	○	○	○
l. Feeling trapped in a job you don't like but can't change and can't get out of	○	○	○	○	○

98. Overall, how satisfied would you say you are with your current military job?

- ○ Very dissatisfied
- ○ Somewhat dissatisfied
- ○ Somewhat satisfied
- ○ Very satisfied

99. Knowing what you know now, if you had to decide all over again whether to serve in your current military job, what would you decide?

- ○ Decide definitely not to serve in my current military job
- ○ Have some second thoughts about serving in my current military job
- ○ Decide without hesitation to serve in my current military job

100. In general, how well would you say that your current military job measures up to the sort of job you wanted when you took it?

- ○ Measures up very much
- ○ Measures up somewhat
- ○ Doesn't measure up

101. If a good friend told you that he or she was interested in working in a job like your current military job, what would you tell him or her?

- ○ Advise him/her against it
- ○ Recommend it with some doubts
- ○ Strongly recommend it

102. How sad or happy do you feel about your current military job?

Happy ① ② ③ ④ ⑤ ⑥ Sad

Deployment occurs when you are alerted, activated, and processed for movement in support of "real world" military operations. Deployment does not include scheduled trainings (such as annual training).

103. In the past 5 years, have you ever been prevented or deferred from deploying for any of the following reasons:

- ( ) Never been deployed in the past 5 years [Go to question 112 at the top of the next page]
- ( ) Never been prevented from deploying in the past 5 years [Go to question 104]

I was not deployed because of:
(Darken one circle on each line)

	Yes	No
a. A pregnancy		
b. A family situation		
c. An injury		
d. Dental work or dental problems		
e. An abnormal Pap smear		
f. A chronic illness (e.g., asthma, diabetes)		

104. Think about the last time you were deployed. Did you have orders to go someplace other than your usual duty location?

- ( ) Yes
- ( ) No
- ( ) Never been deployed

105. The last time you were deployed, how long were you away from your home for 24 hours or more?

- ( ) Less than 1 week
- ( ) At least 1 week, but less than 2 weeks
- ( ) At least 2 weeks, but less than 3 weeks
- ( ) At least 3 weeks, but less than 4 weeks
- ( ) At least 1 month, but less than 2 months
- ( ) At least 2 months, but less than 5 months
- ( ) At least 5 months, but less than 6 months
- ( ) At least 6 months, but less than 12 months
- ( ) At least 1 year, but less than 2 years
- ( ) At least 2 years, but less than 4 years
- ( ) More than 4 years
- ( ) Never been deployed

106. Think about the last time you were deployed.

How satisfied were you with:

	Very satisfied	Satisfied	Dissatisfied	Very dissatisfied	Don't know
a. The number of toilet facilities provided					
b. The number of hand washing facilities provided					
c. The number of shower facilities provided					
d. The amount of privacy available for personal hygiene					
e. The availability of health care services					

107. Did you serve with the Military in any of the following areas?
(Darken one circle on each line)

I served in:	Yes	No
a. The Persian Gulf—Operations Desert Shield or Desert Storm	( )	( )
b. Panama—Operation Just Cause	( )	( )
c. Somalia—Operation Restore Hope	( )	( )
d. Haiti—Operation Uphold Democracy	( )	( )
e. Bosnia—Operations Joint Endeavor or Joint Guard	( )	( )
f. Cuba—Operation Safe Haven	( )	( )
g. Other foreign areas	( )	( )

108. While deployed during the following operations, how much of the time were you on foreign soil (do not include time aboard a ship)?

I was on foreign soil during:

	Nearly all the time	Rather often	Sometimes	Rarely	Not at all
a. The Persian Gulf—Operations Desert Shield or Desert Storm	( )	( )	( )	( )	( )
b. Panama—Operation Just Cause	( )	( )	( )	( )	( )
c. Somalia—Operation Restore Hope	( )	( )	( )	( )	( )
d. Haiti—Operation Uphold Democracy	( )	( )	( )	( )	( )
e. Bosnia—Operations Joint Endeavor or Joint Guard	( )	( )	( )	( )	( )
f. Cuba—Operation Safe Haven	( )	( )	( )	( )	( )
g. Other foreign areas	( )	( )	( )	( )	( )

If you are in the Guard or Reserve, **"usual job"** refers to your civilian job. If you are a student or homemaker, your work falls into the category of usual job.

109. The last time you were deployed, how much stress did you experience upon returning to your usual job?

- ( ) A great deal
- ( ) A fairly large amount
- ( ) Some
- ( ) A little
- ( ) None at all
- ( ) Never been deployed

110. The last time you were deployed, how much stress did you experience upon returning to your home?

- ( ) A great deal
- ( ) A fairly large amount
- ( ) Some
- ( ) A little
- ( ) None at all
- ( ) Did not leave home the last time I was deployed
- ( ) Never been deployed

111. During the past 12 months, have you been away from your home as part of your military service for at least 30 days in a row?

- ( ) Yes
- ( ) No

Occupational Health

112. During the past 30 days, have you been exposed to tobacco smoke for an hour or more a day?

	Yes	No
a. At work	○	○
b. At home	○	○

113. In your military job, how often are you/have you been exposed to the hazards listed below?

Most of the time
A moderate amount of the time
Some of the time
Rarely
Never
Don't know

I've been exposed to:

a. Fibrous glass (fiberglass)	○○○○○○
b. Asbestos	○○○○○○
c. Coal dust or rock dust	○○○○○○
d. Silica powder or sandblasting dust	○○○○○○
e. Other specific dusts (wood, talc, lime)	○○○○○○
f. Respiratory or skin irritants	○○○○○○
g. Chemicals (acids, alkalis, solvents)	○○○○○○
h. Paint (oil-based thinner, scrapings, or sanding)	○○○○○○
i. Metal fumes (from molten metal)	○○○○○○
j. Metal scrapings/filings	○○○○○○
k. Welding fumes	○○○○○○
l. Coal tar, pitch, asphalt	○○○○○○
m. Engine exhaust (gasoline, diesel, or jet)	○○○○○○
n. Fuels or motor oil	○○○○○○

I've been exposed to:

o. Loud noise (e.g., jets)	○○○○○○
p. Heavy lifting (over 25 lb)	○○○○○○
q. X-rays	○○○○○○
r. Radioactive materials (e.g., nuclear fuel, nuclear medicines)	○○○○○○
s. Vibration (vibrating tools, motors)	○○○○○○
t. General shop dust	○○○○○○
u. Pesticides, herbicides	○○○○○○
v. Alcohol (industrial)	○○○○○○
w. Medical waste (e.g., used hypodermic needles)	○○○○○○
x. Adhesives	○○○○○○
y. Explosives	○○○○○○
z. Radar antenna or array (within 50 ft)	○○○○○○
aa. Transmitting antennas (within 50 ft)	○○○○○○
bb. Some other hazard	○○○○○○

114. Is protective gear available for you to use in your current military job? Examples of protective gear are gloves, respirator, filter, mask, rubber boots, ear plugs, film badge, hazardous materials suit, and fire fighting suit.

- ○ Always
- ○ Sometimes, but not always
- ○ Never
- ○ Don't need to wear protective gear (no contact with harmful substances)

115. In your military job, when you have contact with substances that might be harmful, how often do you use protective gear?

- ○ Always
- ○ Sometimes, but not always
- ○ Never
- ○ Don't need to wear protective gear (no contact with harmful substances)

116. In your military job, when you have contact with substances that might be harmful, which reasons for NOT wearing protective gear are true for you?

- ○ Don't need to wear protective gear (No contact with harmful substances) [Read appropriate box at bottom of this page]

In my military job, I don't wear protective gear when:
(Darken one circle on each line)

	Yes	No
a. It doesn't work properly	○	○
b. It interferes with job performance	○	○
c. It is uncomfortable	○	○
d. I don't know how to use it	○	○

If you are **MALE**: *Please* STOP *here.*

Place the questionnaire in the enclosed postage-free envelope and mail it. Thank you for your time and cooperation.

If you are **FEMALE**: We would appreciate it if you would take a few extra minutes to answer some additional questions about women's health issues. Please continue to the next page.

Women's Health Issues

This section asks questions about women's health issues, including stress, health care, and medical conditions.

1. In the past 12 months, how much stress did you experience because you are a woman in the Military?

- ( ) None at all
- ( ) A little
- ( ) Some
- ( ) A fairly large amount
- ( ) A great deal

2. During the past 3 months, did you have any of these conditions? (Include times you have had these conditions even if you didn't seek medical care.)

( ) Have had a hysterectomy [Go to question 3]

In the past 3 months, I have had: *(Darken one circle on each line)*	**Yes**	**No**
a. Premenstrual symptoms or pain (PMS, premenstrual cramps)	( )	( )
b. Cramps or pain during menstrual period requiring medication or time off from work	( )	( )
c. Heavy periods (excessive menstrual flow)	( )	( )
d. Light periods (hardly any menstrual flow)	( )	( )
e. One missed period	( )	( )
f. No menstrual periods for 2 or more months	( )	( )
In the past 3 months, I have had:		
g. A period that lasted longer than a week	( )	( )
h. Too many periods (time between periods too short)	( )	( )
i. Bleeding between periods	( )	( )
j. Endometriosis	( )	( )
k. Problem with uterus (womb) other than endometriosis	( )	( )

3. During the past 3 months, did you have any of these conditions? (Include times you have had these conditions even if you didn't seek medical care.)

(Darken one circle on each line)

	Yes	**No**
a. Discharge from breast	( )	( )
b. Breast lump	( )	( )
c. Yeast or vaginal infection	( )	( )
d. Vaginal rash, discharge, or other disorder except yeast infection or sexually transmitted disease	( )	( )
e. Abdominal pain (from known cysts)	( )	( )
f. Abdominal pain (from unknown cause)	( )	( )

4. At what age did your menstrual cycles begin?

- ( ) Younger than 10 years old
- ( ) 10-12 years old
- ( ) 13-15 years old
- ( ) 16 years old or older
- ( ) Don't know

5. What is the total number of years you have taken birth control pills in your lifetime?

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)

6. A Pap smear is when a health care provider inserts a swab into your vagina to scrape cells from the cervix. How long has it been since you had a Pap smear?

- ( ) Within the past year
- ( ) More than 1 year ago, but within the past 2 years
- ( ) More than 2 years ago, but within the past 3 years
- ( ) More than 3 years ago, but within the past 5 years
- ( ) More than 5 years ago
- ( ) Never
- ( ) Don't know

7. Have you ever had a Pap smear where the result was NOT normal?

- ( ) Yes
- ( ) No
- ( ) Don't know

8. If you have had Pap smear results that were NOT normal, have you had any of the following?

(Darken one circle on each line)

Because of a Pap smear that was NOT normal, I have had:	**Yes**	**No**	**Never had an abnormal Pap**
a. Additional tests	( )	( )	( )
b. Surgery	( )	( )	( )
c. Other treatment	( )	( )	( )
d. More frequent Pap smears	( )	( )	( )

9. A mammogram is an X-ray taken of your breasts by a machine that presses each breast (one at a time) between two paddles. When did you have your most recent mammogram?

- ( ) Within the past year
- ( ) More than 1 year ago, but within the past 2 years
- ( ) More than 2 years ago, but within the past 3 years
- ( ) 3 or more years ago
- ( ) Never
- ( ) Don't know

10. How often do you examine your breasts for lumps?

- ( ) Monthly
- ( ) Once every few months
- ( ) Rarely or never

11. **About how long has it been since you had your breasts examined by a health care provider?**

- ( ) Within the past year
- ( ) More than 1 year ago, but within the past 2 years
- ( ) More than 2 years ago, but within the past 3 years
- ( ) 3 or more years ago
- ( ) Never had breasts examined
- ( ) Don't know

12. **Have you received training from a medical provider on how to examine your own breasts?**

- ( ) Yes
- ( ) No

13. **Have you ever had an operation to remove a breast lump that was found to be noncancerous?**

- ( ) Yes
- ( ) No

14. **While stationed outside the continental United States, how easy or difficult has it been to receive the kind of OB/GYN care you would like?**

- ( ) Very easy
- ( ) Somewhat easy
- ( ) Somewhat difficult
- ( ) Very difficult
- ( ) Never been stationed outside the continental United States

15. **Have you had problems (such as infertility) getting pregnant?**

- ( ) Yes
- ( ) No
- ( ) Never tried to get pregnant

16. **When you are pregnant, do you feel you are given enough time off from your usual job to see an OB/GYN when necessary?**

- ( ) Yes
- ( ) No
- ( ) Never been pregnant [Go to question 30, which is the last question on the next page]

17. **If you have been pregnant in the <u>past 12 months</u>, did you know where to get information about risks to your pregnancy from your <u>usual job</u>?**

- ( ) Yes
- ( ) No
- ( ) Have not been pregnant in the past 12 months

18. **How many times have you been pregnant since joining the Military?**

- ( ) 1 time
- ( ) 2 times
- ( ) 3 times
- ( ) 4 or more times
- ( ) Never been pregnant

19. **Think about the times you've been pregnant since joining the Military. How many <u>planned</u> pregnancies have you had?**

- ( ) 1 planned pregnancy
- ( ) 2 planned pregnancies
- ( ) 3 planned pregnancies
- ( ) 4 or more planned pregnancies
- ( ) Have had only <u>unplanned</u> pregnancies since joining the Military
- ( ) Have had no pregnancies since joining the Military

20. **Have you ever had a pregnancy to avoid deployment or to get to return early from deployment?**

- ( ) Yes
- ( ) No

21. **How many live births have you had?**

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

22. **How many premature babies have you had?**

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

23. **How many of the babies that you have had weighed less than 5 pounds at birth?**

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11)

24. **How old were you the first time you gave birth?**

- ( ) Never been pregnant

- *First, enter your age when your first child was born. Write <u>ONE</u> number in each box.*
- *Then, darken the matching circle below <u>each</u> box.*

(0)	(0)
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)
(5)	(5)
	(6)
	(7)
	(8)
	(9)

25. **To the best of your knowledge, when was the last time you were pregnant?**

- ( ) Currently pregnant
- ( ) May be pregnant now, but don't know for certain
- ( ) Within the past year, but not now
- ( ) More than 1 year ago, but within the past 2 years
- ( ) More than 2 years ago, but within the past 3 years
- ( ) More than 3 years ago, but within the past 4 years
- ( ) More than 4 years ago, but within the past 5 years
- ( ) More than 5 years ago
- ( ) Never been pregnant

WOMEN'S HEALTH ISSUES

The next 4 questions refer to the last time you were pregnant. If you are currently pregnant, please answer for this pregnancy. "Pregnancy checkups" refer to checkups for weight, blood pressure, physical exams, procedures such as ultrasound, or other medical procedures related to pregnancy.

26. Think about your last pregnancy (or your current pregnancy). How long after you became pregnant did you have your first pregnancy checkup?

- ( ) Within the first 3 months after becoming pregnant
- ( ) 4-6 months after becoming pregnant
- ( ) More than 6 months after becoming pregnant
- ( ) Did not have any pregnancy checkups
- ( ) Have not had first checkup
- ( ) Never been pregnant

27. For your last pregnancy (or your current pregnancy), did you have any of the following?

( ) Never been pregnant

During my last pregnancy (or current), I had: *(Darken one circle on each line)*	**Yes**	**No**
a. Pregnancy complications that restricted my normal activities (e.g., high blood pressure, severe swelling, spotting, premature labor, diabetes)	( )	( )
b. An ectopic or "tubal" pregnancy	( )	( )
c. Childbirth problems (e.g., hemorrhaging, Caesarean section, induced labor)	( )	( )
d. A miscarriage or spontaneous abortion	( )	( )
e. Complications after childbirth that restricted my normal activities (e.g., infection, depression)	( )	( )

28. How many days were you unable to perform your military job because of an illness during your last pregnancy (or your current pregnancy)?

( ) Never been pregnant

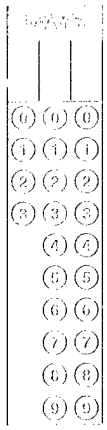
- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you did NOT have an illness during your last (or current) pregnancy, please enter 000.*
- *If you had any illnesses during your last (or current) pregnancy, but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



29. If you are in the Guard or Reserves, how many days were you unable to perform your usual job because of an illness during your last pregnancy (or your current pregnancy)?

( ) Active-duty personnel [Go to question 30]
( ) Never been pregnant [Go to question 30]

- *First, enter the number of days in the boxes. Use all three boxes. Write ONE number in each box.*
- *If you did NOT have an illness during your last (or current) pregnancy, please enter 000.*
- *If you had any illnesses during your last (or current) pregnancy, but none of them made you unable to perform your military job, please enter 000.*
- *Then, darken the matching circle below each box.*



30. During the past 30 days, have you taken replacement estrogens?

( ) Yes
( ) No

Thank you for the extra effort to complete these questions.

Place the questionnaire in the enclosed postage-free envelope and mail it.

Thank you for your time and cooperation.