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Comparison of Health Habits of Military Personnel With Civilian Populations

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The paper is a revision of a presentation at the April 1989 meeting of the Southern Sociological Society in Norfolk, VA. Findings, views, and opinions are those of the authors and should not be considered as an official Department of Defense position, policy, or decision. Preparation of this report did not involve the use of Federal funds.

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Synopsis

The relationship between health habits and health status has gained attention in the literature

in recent decades. In this report, the health habits of a particular occupational group—the military—are compared with those of the civilian population, and the extent to which the health habits of the military personnel are associated with their health status is examined. Responses to two surveys conducted in 1985 were analyzed by age group, sex, race, and educational level. The comparisons involved six of the seven health habits included in the Alameda study.

Military personnel, because they are younger and their lives are more regimented, excel in meeting weight standards for the services and engaging in desirable levels of physical activity. Smoking habits of military personnel were less favorable than those of the civilians. An examination of the health status of the military for the year preceding the survey suggested that some health habits have immediate manifestations, but the impact of others may not be evident until later in life.

RESearch ON THE EXTENT TO WHICH health habits are related to physical well-being has gained attention in the literature during recent decades (1-3). The general hypothesis is that health status and physical well-being are related to the health habits and lifestyle of the individual person. The assumption is that resistance to disease and infirmity is enhanced when one follows sound health practices. Research has focused on residents of specific geographic areas (1) and on the adult civilian population of the United States (4). This report attempts to match health habits of a particular occupational group—the military—with reports on similar habits of the civilian population.

Men and women in the military work in many different occupations, and the military profession as a category is one of the largest numerically in the United States. Members of the military services are not representative of the U.S. population; they are younger, a disproportionate number are male and, as an occupational group, health and stamina are of primary importance.

With the physical demands put upon military personnel, one would expect that their personal health habits would compare favorably with those of civilians. This expectation is particularly logical because the civilian population is not only older, but it also includes the chronically ill and those with congenital defects who have been systematically excluded from the military by rigorous physical examinations. The purpose of this report is twofold: first, to compare a set of health habits as practiced by military personnel and civilians within the limits of the data; second, to compare the current health habits of the military with their health status during the year preceding the survey.

Criteria for the comparisons are the "Alameda 7" health habits that were developed by researchers at the Human Population Laboratory of Berkeley, CA, following a health survey of the adult population in Alameda County, CA. The Alameda 7 consist of health behaviors considered to be associated with a general state of physical well-being. Using the World Health Organization's definition of health as "physical, mental and social well-being, not merely the absence of disease and infirmity" (5), the authors of the Alameda study produced an index of health practices which included hours of sleep, eating breakfast, snacking, alcohol consumption, cigarette smoking, physical exercise, and adherence to weight standards. Our study compares military and civilian respondents on six of the Alameda 7 health practices.

Data for the comparison of civilian and military health practices were obtained from two studies conducted in 1985. The civilian sample included U.S. men and women 18 years of age and older who participated in the NHIS Health Promotion and Disease Prevention Survey. Responses from this survey were reported by Schoenborn (4).

Data for military personnel were collected in the 1985 Department of Defense (DOD) Worldwide Survey of Alcohol and Nonmedical Drug Use Among Military Personnel. The DOD survey respondents were a sample of U.S. armed forces personnel on active duty assignments. The study was conducted wherever Army, Navy, Marine Corps, and Air Force personnel were assigned: the Americas, Asia and the Pacific, Europe, and the Middle East. The stratified two-stage, two-phase design and sampling procedures for the DOD survey are described in detail by Bray and coworkers (6). The military sample for 1985 contained 17,328 respondents, 92 percent of them men. Of the sample, 72 percent were white, 19 percent black, 7 percent Hispanic, and 4 percent were of other races. The survey included a number of health-related items; six of them closely paralleled the health practices in the Alameda study. Respondents were not asked about snacking between meals.

Since data for the comparisons on health behavior were drawn from two different surveys, the questions posed and response categories provided for respondents were not identical. This report describes procedural differences, when they occurred, for each of the health behaviors. In view of the large sample size, statistical significance is only reported when the probability was greater than .001. The tables indicate which items displayed statistical significance; the narrative describes the comparisons.

Breakfast

The findings of Belloc and Breslow (1) and Belloc (7) suggested that persons who skip breakfast have poorer health than those who eat breakfast daily. Using data from the 1985 NHIS survey, Schoenborn found that more than half (54.4 percent) of the civilian men reported that they ate breakfast every day. Among male military personnel, slightly more than a third (34.2 percent) ate breakfast daily. At the opposite end of the scale for this habit, 25.2 percent of the civilians and 31.0

Table 1. Breakfast-eating habits of military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—eating breakfast				Civilians—eating breakfast			
	Rarely, never	Sometimes	Every day	Number	Rarely, never	Sometimes	Every day	Number in thousands
Men								
<i>Age</i> ¹								
18–29 years	26.9	34.5	38.6	5,981	30.0	27.4	42.6	23,270
30–44 years	34.1	35.4	30.5	8,576	31.8	23.8	44.4	24,666
45–64 years	29.5	29.2	41.3	756	21.4	16.3	62.3	21,093
<i>Education</i>								
Less than 12 years	30.2	32.9	36.8	155	23.3	17.5	59.2	18,953
12 years	31.6	35.0	33.4	5,552	27.3	22.3	50.3	28,511
More than 12 years	30.7	34.7	34.6	9,665	24.4	20.5	55.1	32,356
<i>Race</i> ¹								
White	31.9	33.8	34.3	11,307	25.9	19.2	54.9	70,067
Black	27.4	39.9	32.7	2,335	19.8	31.2	49.0	8,078
Other	29.9	34.6	35.6	1,730	...	...	...	...
Total	31.0	34.8	34.2	15,372	25.2	20.4	54.4	80,062
Women								
<i>Age</i>								
18–29 years	41.9	30.4	27.7	852	30.8	28.2	41.1	89,809
30–44 years	37.6	28.8	33.7	410	28.5	24.3	47.1	26,102
45–64 years	43.8	37.5	18.8	16	21.4	16.2	62.5	23,206
<i>Education</i> ¹								
Less than 12 years	75.0	0.0	25.0	4	22.1	18.7	59.2	18,953
12 years	45.7	30.6	23.7	438	25.8	21.4	52.8	37,567
More than 12 years	37.8	29.9	32.3	841	22.1	19.3	58.6	29,863
<i>Race</i>								
White	40.4	28.8	30.7	888	23.2	18.5	58.2	77,339
Black	42.7	31.4	25.9	293	26.6	30.1	43.3	10,274
Other	36.3	36.3	27.5	102	...	...	...	...
Total	40.6	30.0	29.4	1,283	23.6	20.0	56.4	89,809

¹ P < .001.

percent of the military reported that they rarely or never ate breakfast. For male civilians, the likelihood of eating breakfast daily increased as age increased; military men between the ages of 30 and 44 were least likely to eat breakfast daily (table 1).

Educational level did not appear to influence breakfast eating habits, except that civilian men with a high school education were less likely to eat breakfast daily than those with fewer or more years of schooling. There were slight racial differences for both military and civilian men, with a larger proportion of black respondents reporting that they "sometimes" ate breakfast than did white respondents.

The pattern for female respondents was not radically different from that of the men; 56.4 percent of the civilians, and 29.4 percent of the military reported that they ate breakfast almost every day (table 1). However, 30- to 44-year-old women in the services ate breakfast more frequently than other age groups, the opposite of the findings for male military personnel. As with the men, white women ate breakfast more consistently

than their black counterparts.

These findings indicate that military personnel, both male and female, were less likely than civilians to eat breakfast daily.

Sleep

Findings by Belloc and Breslow (1) indicated that both men and women who sleep 6 hours or less per night were less healthy than those who reported a greater number of hours, with 7 or 8 hours of sleep per night associated with the healthiest group. According to Schoenborn (4), more than three-quarters of civilian men and women sleep more than 6 hours per night. Military personnel had a smaller percentage of respondents who slept more than 6 hours per night. For military men, 60.9 percent reported more than 6 hours of sleep; the proportion of female respondents was slightly lower, 59.4 percent. Comparable data are shown in table 2 for the sexes.

For civilians, the number of hours of sleep per night decreased as age increased, but for military

Table 2. Hours of sleep among military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—hours of sleep			Civilians—hours of sleep		
	≤ 6 hours	> 6 hours	Number	≤ 6 hours	> 6 hours	Number in thousands
Men						
<i>Age</i> ¹						
18–29 years	44.5	55.5	5,980	21.7	78.3	23,249
30–44 years	35.9	64.1	8,639	26.7	73.3	24,623
45–64 years	32.2	67.8	760	22.6	67.7	21,012
<i>Education</i> ¹						
Less than 12 years	58.5	41.5	152	22.0	78.0	18,809
12 years	45.6	54.4	5,588	23.2	76.8	28,449
More than 12 years	35.0	65.0	9,696	22.6	77.4	32,299
<i>Race</i> ¹						
White	34.9	65.1	11,373	21.7	78.3	69,871
Black	51.5	48.5	2,316	31.0	79.0	8,014
Other	49.7	50.3	1,747	...	...	...
Total	39.1	60.9	15,436	22.7	77.3	79,788
Women						
<i>Age</i>						
18–29 years	42.2	57.8	858	18.0	82.0	24,595
30–44 years	38.0	62.0	413	22.0	78.0	26,079
45–64 years	32.2	67.8	18	22.8	77.2	23,102
<i>Education</i>						
Less than 12 years	45.6	54.4	4	24.5	75.5	21,856
12 years	42.6	57.4	446	20.8	79.2	37,481
More than 12 years	39.5	60.5	842	19.8	80.2	29,796
<i>Race</i> ¹						
White	37.0	63.0	901	20.9	79.1	77,023
Black	52.3	47.7	767	25.3	74.7	10,143
Other	40.2	59.8	102	...	...	...
Total	40.6	59.4	1,292	21.4	78.6	89,339

¹ P < .001.

respondents, the percentage of those who sleep more than 6 hours per night increased with age. Among military respondents, longer hours of sleep were associated with higher educational attainment; nearly the opposite was true for the civilian sample, although the percentage point differences were small.

For both civilians and military, white respondents reported more than 6 hours of sleep per night with greater frequency than black respondents. The only exception was for male civilians; the difference was less than 1 percentage point.

Alcohol Consumption

Responses on alcohol consumption, presented in table 3, were classified into four groups: nondrinkers, 1–2 drinks per day, 3 or 4 drinks per day, and drinkers who consumed 5 or more drinks per day. However, the questions were not identical in the two studies. For civilians, the category “nondrinker” included persons who had done no drinking during the past year as well as those who had

not consumed alcohol in the past 2 weeks (4). For military respondents, the alcohol consumption was based upon the reported average daily consumption of wine, beer, and hard liquor reported during the past 30 days. The number of drinks was established by determining the ethanol composition of the alcoholic beverages consumed. The conversion process is described by Bray and coworkers (6). A nondrinker for military respondents was one who had not had a drink during the past 30 days. Thus, civilians’ responses were based upon the average daily consumption of alcohol over a 2-week period while the military’s was based upon average daily consumption over the past 30 days.

Only 14.8 percent of the male military respondents were nondrinkers, while 38.7 percent of the civilian men reported that they had not consumed alcohol during the past 2 weeks.

Among both civilian and military respondents, persons in the older age categories were more likely to be nondrinkers. This finding may partially explain the nondrinker disparity between military and civilian respondents. The military consists of a higher proportion of young persons than the adult

Table 3. Average number of alcoholic drinks consumed per day for military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—average drinks per day					Civilians—average drinks per day					Number in thousands
	None	1-2	3-4	≥5	Number	None	1-2	3-4	≥5		
Men											
<i>Age</i> ¹											
18-29 years	11.6	59.6	9.9	18.9	6,212	31.7	30.2	21.7	16.4	23,393	
30-44 years	16.8	66.7	7.4	9.1	8,918	32.4	39.0	18.0	10.6	24,629	
45-64 years	18.6	66.1	8.9	6.3	794	44.2	37.9	11.4	6.5	20,970	
<i>Education</i> ¹											
Less than 12 years	9.3	52.2	8.1	30.4	161	54.3	25.1	10.5	10.0	18,952	
12 years	14.5	56.7	9.8	19.0	5,819	38.1	31.8	17.6	12.5	28,445	
More than 12 years	15.2	68.3	7.7	8.8	10,008	29.9	44.9	17.2	7.9	32,327	
<i>Race</i> ¹											
White	14.3	65.4	8.2	12.2	11,710	37.2	36.1	16.2	10.6	69,950	
Black	16.6	56.0	10.6	16.8	2,461	47.6	32.2	13.5	6.8	8,103	
Other	16.5	65.4	7.2	11.0	1,817	...	...	...	...	...
Total	14.8	63.9	8.5	12.8	15,988	38.7	35.5	15.7	10.1	79,987	
Women											
<i>Age</i> ¹											
18-29 years	18.3	68.6	5.8	7.3	878	51.9	28.9	13.9	5.3	24,558	
30-44 years	20.5	72.9	3.5	3.1	424	54.0	35.1	8.4	2.5	26,022	
45-64 years	47.1	47.1	0.0	5.9	17	62.5	31.8	4.8	1.0	23,125	
<i>Education</i> ¹											
Less than 12 years	25.0	25.0	25.0	25.0	4	77.2	15.0	5.0	2.8	22,092	
12 years	20.6	64.8	6.6	8.1	457	60.0	28.6	8.5	2.9	37,412	
More than 12 years	19.0	72.2	4.2	4.6	863	46.0	43.3	8.9	1.8	29,759	
<i>Race</i> ¹											
White	15.6	73.0	5.7	5.8	919	57.6	31.7	8.2	2.6	77,151	
Black	29.0	60.7	4.0	6.3	300	71.6	21.1	5.4	1.9	10,209	
Other	27.6	63.8	2.9	5.7	105	...	...	...	...	...
Total	19.6	69.5	5.1	5.9	1,324	59.7	30.1	7.8	2.5	89,525	

¹ P < .001.

civilian population. Male respondents 18-29 years old in both studies were more likely than older respondents to consume 5 or more drinks per day. Male military respondents were more likely to be light drinkers (1-2 drinks per day) than their civilian counterparts.

There were contrasting findings about military and civilian drinking habits according to educational level. For the military, the more education, the greater the proportion of nondrinkers; for civilians, the more education, the less likely the respondent would be a nondrinker. In the military, less than 12 years of schooling was associated with 5 or more drinks per day, which was not the case for civilians.

For both military and civilian men, nonwhite respondents were less likely to drink than white respondents. Among military black men who did consume alcohol, there was a greater likelihood that the number of drinks would be greater than that for whites; the opposite was true for civilians.

As with men, a higher percentage of civilian women (59.7 percent versus 19.6 percent) were

nondrinkers (table 3). Both civilian and military women who drank tended to be light drinkers (1-2 drinks per day), regardless of age, education, or race. Over two-thirds of the black civilian women did not drink, while less than one-third of the black military women were nondrinkers. Yet, in both studies, a larger proportion of nonwhites than whites were nondrinkers.

Smoking

Cigarette smokers were divided into three categories: those who never smoked, former smokers, and current smokers (table 4). Questions about smoking habits were relatively similar for both the civilian and military samples.

For men, nearly the same percentage of military and civilian respondents reported that they never smoked (36.8 percent and 36.5 percent). However, 43.9 percent of the military and 32.6 percent of civilian men indicated that they currently smoke cigarettes. Among civilians, 30.9 percent were former smokers at the time of the survey; only 19.3

Table 4. Smoking status among military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—smoking status				Civilians—smoking status			
	Never	Former	Current	Number	Never	Former	Current	Number in thousands
Men								
<i>Age</i> ¹								
18–29 years	44.5	12.6	42.9	6,129	54.4	13.4	32.2	23,024
30–44 years	31.8	22.7	45.5	8,809	33.5	28.4	38.0	24,357
45–64 years	34.1	33.8	32.1	783	24.6	42.0	33.4	20,742
<i>Education</i> ¹								
Less than 12 years	22.8	13.9	63.3	158	24.9	35.0	40.1	18,480
12 years	32.3	14.7	50.1	5,729	34.5	28.9	36.6	28,220
More than 12 years	39.7	22.0	38.3	9,889	44.9	30.3	24.8	32,073
<i>Race</i> ¹								
White	35.6	20.0	44.4	11,586	35.9	32.4	31.7	69,132
Black	42.5	13.8	43.7	2,408	54.1	8.5	37.5	7,978
Other	37.1	21.9	41.0	1,782	...	...	...	...
Total	36.8	19.3	43.9	15,776	36.5	30.9	32.6	78,989
Women								
<i>Age</i> ¹								
18–29 years	45.6	12.7	38.9	872	55.6	18.2	27.8	23,783
30–44 years	49.4	11.7	38.9	419	50.5	18.3	31.2	25,632
45–64 years	41.2	47.1	11.8	18	48.7	21.4	29.9	22,899
<i>Education</i> ¹								
Less than 12 years	25.0	25.0	50.0	4	53.2	15.5	31.3	21,521
12 years	41.1	10.9	48.0	450	51.7	17.2	31.0	36,816
More than 12 years	49.7	13.9	36.4	857	57.4	21.4	21.2	29,380
<i>Race</i>								
White	42.9	14.1	43.0	911	53.1	19.2	27.7	75,839
Black	54.1	8.5	37.5	296	57.1	12.0	30.9	9,945
Other	58.7	15.4	26.0	104	...	...	...	...
Total	46.7	13.0	40.3	1,311	54.0	18.2	27.8	87,911

¹ $P < .001$.

percent of the military men were former smokers, suggesting that anti-smoking campaigns have been more effective with the civilian audience than with the military. However, some of the differences might be explained by the age distribution of the military sample.

For both military and civilian male respondents, the 18–29-year-olds had the highest percentage of respondents who never smoked (44.5 percent and 54.4 percent respectively). The 45–64-year-olds were more likely to be former smokers among both military personnel (33.8 percent) and civilians (42 percent). The highest percentage of current smokers consisted of respondents between 30 and 44 years.

The higher the educational attainment for both military and civilian men, the more likely the respondent was a nonsmoker. A higher percentage of black respondents than whites never smoked, but black military and civilian respondents were less likely to be former smokers, suggesting that anti-smoking campaigns have not been effective with the black population.

As table 4 shows, nearly half the military and

civilian women never smoked cigarettes, with a higher percentage (54 percent) among civilians than military (46.7 percent). The 40.3 percent of current smokers among military women was much higher than the 27.8 percent of civilians. Only 13 percent of the military women had quit smoking compared with 18.2 percent of civilian women.

Other findings for men and women were relatively the same except that among military women, the highest percentage of those who never smoked was among the 30–44-year-age group rather than among younger respondents.

Body Weight

Maintaining body weight in relation to height is a persistent theme in the literature on health. Ostfeld (8) found evidence that obesity contributes to the risk of stroke, largely independent of blood pressure. It is also reported that obesity aggravates both hypertension and diabetes.

Body weight of the civilians was based upon self-reported height and weight and matched to

Table 5. Desirable body weight among military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—meet weight standard			Civilians—meet desirable weight		
	Yes	No	Number	Yes	No	Number in thousands
<i>Men</i>						
<i>Age</i> ¹						
18–29 years	95.2	4.8	6,113	59.4	40.6	22,321
30–44 years	93.3	6.7	8,838	60.1	39.9	23,731
45–64 years	93.1	6.9	780	57.0	43.0	20,589
<i>Education</i>						
Less than 12 years	94.3	5.7	158	54.3	45.7	18,377
12 years	93.4	6.6	5,717	57.6	42.4	27,598
More than 12 years	94.3	5.7	9,913	62.9	37.1	31,201
<i>Race</i>						
White	93.9	6.1	11,590	59.1	40.9	67,861
Black	94.0	6.0	2,405	58.6	41.4	7,641
Other	94.8	5.2	1,793	...	...	...
Total	94.0	6.0	15,788	58.9	41.1	77,375
<i>Women</i>						
<i>Age</i>						
18–29 years	90.7	9.3	873	78.9	21.1	24,147
30–44 years	87.5	12.5	424	67.1	32.9	25,374
45–64 years	94.1	5.9	18	53.5	46.5	22,552
<i>Education</i>						
Less than 12 years	75.0	25.0	4	52.0	48.0	21,381
12 years	89.4	10.6	454	64.7	35.3	36,646
More than 12 years	90.0	10.0	860	74.7	25.3	29,080
<i>Race</i>						
White	89.7	10.3	915	66.6	33.4	75,337
Black	91.0	9.0	300	49.3	50.7	9,833
Other	86.4	13.6	103	...	...	...
Total	89.8	10.2	1,318	65.0	35.0	87,296

¹ $P < .001$.

Metropolitan Life Insurance Company standard tables. Civilian men who were between 5 percent under and 19.9 percent over the desirable body weight were classified as meeting the desired weight according to the Alameda definition (4). For women, any weight from 10 percent under to 10 percent over the desirable weight was defined as meeting the desired weight standard. The military sample was asked, "Do you meet your service's weight standard?" Answers for both samples were "yes" or "no" (table 5).

An overwhelming majority (94 percent) of military men indicated that they met the service's weight standard; only 58.9 percent of the civilian sample met desired weight standards. There were only minor differences among military respondents based upon age, education, and race; the same was true for civilians.

Of the military women, 89.8 percent met weight standards, and 65 percent of the civilian women met desired body weight standards. As with men, there were only minor variations based upon age, education, and race for the military sample. Civilian

women with less than 12 years of schooling were least likely to meet their desired weight. Also, black civilian women and women of other races were less likely than white women to meet desired weight standards.

Physical Exercise

A sedentary lifestyle has been found to be associated with weight gain and diminished vital capacity (9).

The range of activities included in physical exercises was relatively the same for military personnel and civilians. Civilian respondents were provided with a list of 22 physical activities and sports and asked the number of times that they had engaged in these activities during the past during the past 2 weeks (4). Respondents were classified as "sedentary," "moderately active," or "very active." Military respondents were asked how often they engaged in a range of exercises and sports activities during the past 30 days. Thus, the measure of physical exercise was participation in an activity

Table 6. Physical activity level among military and civilian respondents: percentage distribution by age, education, and race, 1985

Characteristic	Military—activity level				Civilians—activity level			
	In-active	Moderately active	Very active	Number	In-active	Moderately active	Very active	Number in thousands
Men								
<i>Age</i> ¹								
18–29 years	8.3	60.2	31.5	6,174	35.3	16.2	48.5	23,569
30–44 years	11.4	68.0	20.6	8,892	48.6	18.5	32.9	26,201
45–64 years	12.6	70.0	17.4	788	59.7	15.3	25.0	21,215
<i>Education</i> ¹								
Less than 12 years	11.2	54.4	34.4	160	64.2	12.7	23.1	19,186
12 years	11.9	59.3	28.7	5,789	49.7	17.1	33.2	28,736
More than 12 years	9.3	68.5	22.2	9,970	40.0	18.4	41.6	32,594
<i>Race</i> ¹								
White	10.8	68.1	21.1	11,669	48.9	16.8	34.2	70,582
Black	8.6	54.2	37.2	2,444	52.7	13.6	33.8	8,247
Other	9.4	59.2	31.4	1,806	...	...	...	...
Total	10.3	65.0	24.7	15,919	49.3	16.5	34.1	80,779
Women								
<i>Age</i> ¹								
18–29 years	17.1	64.2	18.7	877	51.8	17.9	30.3	24,756
30–44 years	20.0	69.6	10.4	424	58.3	18.2	23.5	26,201
45–64 years	17.6	70.6	11.8	17	66.3	15.3	18.4	23,297
<i>Education</i> ¹								
Less than 12 years	25.0	25.0	50.0	4	73.6	11.9	14.5	22,244
12 years	22.8	60.1	17.1	456	62.0	16.1	21.9	37,740
More than 12 years	15.8	68.9	15.3	863	52.5	19.8	27.7	29,942
<i>Race</i> ¹								
White	18.0	66.8	15.2	918	60.9	16.7	22.4	77,657
Black	19.3	63.0	17.7	300	66.8	14.1	19.2	10,333
Other	17.1	64.8	18.1	105	...	...	...	...
Total	18.2	65.8	16.0	1,323	61.8	16.3	21.9	90,192

¹ P < .001.

rather than the intensity of involvement. For example, a person who jogged for less than a mile would receive the same credit as a person who jogged a number of miles. Military respondents were classified into three categories corresponding to those for civilian respondents according to their cumulative activity score.

Among both military and civilian respondents, men were more active than women (table 6). A higher percentage of both men and women in the military were “very active” compared with civilian men and women.

Age was an important factor in the extent that both military and civilian men participated in physical activities: younger men were more active than older men. The same age differential was true for military and civilian women, except that for those classified as “inactive,” age did not appear to be as important a factor as it was for civilians.

For the military men and women, the fewer the years of school, the more likely the respondent was to be “very active”; in the civilian sample, the reverse was true—the more years of school, the

higher the percentage of “very active” respondents.

In the “very active” category, male black military respondents had a considerably higher percentage (37.2 percent) than white respondents (21.1 percent). There was no recognizable difference by race among “very active” male civilian respondents.

Summary of Comparisons

Schoenborn’s summary of civilians’ health habits (4) is reproduced, with a corresponding statement for military personnel (see box on page 508).

Of the six health habits, the military showed better performance on some habits; they excelled in physical exercise levels and were within body weight standards, while civilians appear to have better sleeping and breakfast eating habits. Military personnel were more likely to be smokers; a greater proportion of civilians had quit smoking. Non-drinkers were more evident among civilians. Military drinkers, while representing a higher percentage of the sample, tended to be light drinkers who

Table 7. Health status during previous year of military men and women: percentage distribution by health habits, 1985

Habits	Men—health status			Women—health status		
	Excellent	Good	Fair	Excellent	Good	Fair
<i>Eating breakfast</i>						
Never or rarely.....	38.6	59.2	2.2	19.8	72.1	8.1
Sometimes.....	38.1	59.8	2.1	19.0	73.0	8.0
Everyday.....	39.5	58.3	2.2	18.3	73.7	8.0
<i>Sleeping</i>						
6 hours or less.....	41.6	55.7	2.7	21.1	71.4	7.4
More than 6 hours.....	36.7	61.5	1.8	18.2	73.5	8.4
<i>Drinking</i>						
None.....	45.1	53.1	1.7	25.7	66.1	8.2
1-2 drinks.....	37.6	60.2	2.2	17.2	74.8	8.0
3-4 drinks.....	38.2	60.3	1.5	26.9	68.6	4.5
5 or more drinks.....	39.5	57.4	3.1	17.9	74.4	7.7
<i>Smoking</i>						
Never.....	42.2	56.3	1.5	19.3	73.5	7.2
Former.....	35.4	62.4	2.2	18.3	74.0	7.7
Current.....	37.8	59.5	2.7	19.4	71.7	8.9
<i>Meet weight standard</i>						
Yes.....	39.0	58.9	2.1	20.2	72.3	7.5
No.....	32.9	64.0	3.1	8.9	80.0	11.1
<i>Physical activity</i>						
Inactive.....	35.1	60.7	4.2	22.9	65.8	11.3
Moderately.....	36.6	61.5	1.9	16.6	76.2	7.2
Very active.....	46.2	51.7	2.1	26.9	66.5	6.6
Total.....	38.7	59.1	2.2	19.2	72.8	8.0

consumed 1 or 2 drinks per day when they drank.

Since the “Alameda 7” health habits are considered to be associated with good health, an additional table was prepared to compare health status during the previous year with health habits. A scale was developed to portray health status. Three questions in the military survey pertained to health status during the preceding year.

- the number of times the respondent visited a doctor’s office, clinic, hospital, or other medical facility during the past year
- the number of times the respondent contracted an illness which kept him or her away from work a week or longer during the year
- the number of days the respondent had been confined in a hospital during the past year

Scores on the responses to the questions were added to produce a health status score.

Table 7 shows that 38.7 percent of the military men were classified as having “excellent” health, 59.1 percent had “good” health, and 2.2 percent were listed as having “fair” health. Corresponding data for military women indicate that the health of 19.2 percent was classified as “excellent,” of 72.8 percent as “good,” and 8 percent as “fair.”

When the men’s health status was compared to their health habits, only minor differences were

found. Regardless of the number of hours of sleep or breakfast-eating habits, health status remained constant. In fact, respondents who reported less than 6 hours of sleep per night had a higher percentage in the “excellent” category than those who slept more than 6 hours.

Military men who did not drink and smoke cigarettes were found in the “excellent” health status category in greater percentages than those who drank and smoked. Excellent health was also associated more frequently with men who actively engaged in physical activities and maintained the weight standard of their service.

For female respondents, the pattern was less clear and less consistent. In addition, findings for military females differed from those for the men for all health habits. There was consistency for men and women on breakfast and sleeping habits but not for smoking and drinking.

Women who were nondrinkers had excellent health status a greater percentage of the time than drinkers except for women who had 3-4 drinks per day; they represented only 67 of the 1,324 female respondents.

For women, the percentage differences in the various health statuses were negligible, regardless of whether the respondent was a current smoker, a former smoker, or had never smoked. It is difficult to explain this lack of consistency with male

respondents' findings except to note that 36.8 percent of the men never smoked compared with 46.7 percent of the women, a difference of nearly 10 percent.

Female respondents who did not meet weight standards of their service were less evident in the "excellent" health status category; most (80 percent) were in the "good" health status category. Similarly, inactive women were most likely to be in the "fair" category rather than the moderately active or very active respondents.

Conclusions and Discussion

The contention of the investigators in the original Human Population Laboratory study who developed the "Alameda 7" habits was that certain common personal habits could affect physical health—cigarette smoking, alcohol consumption, physical exercise, eating breakfast regularly, maintaining weight standards, and adequate periods of sleep. It was evident from the original Alameda study and from followup studies that a number of confounding variables influence health and that other environmental factors also have an impact on physical well-being. For example, a heavy concentration of air pollutants may somewhat negate health benefits achieved through outdoor exercise. Furthermore, it has never been made clear whether a precise set of health habits produces an additive effect on health status.

One objective of this report is the comparison of health habits of military and civilian populations. It is evident from the findings that there are differences; the demographic composition of military personnel leads to a lifestyle that is different from that of the civilian population as a whole. Predominantly male and highly mobile, military personnel are less constrained by community expectations, but men and women in the services are constrained by greater demands for good health that are imposed by their superiors. As a young population, a majority of whom expect to be separated from military service before the compulsory retirement age, service in the Armed Forces tends to be the first step toward a specific occupation rather than a career itself. Even those who continue in the military as a career are likely to retire at a younger age than the civilian population.

Since continued appointment in the military is contingent upon good health, military personnel who suffer from a deterioration of health or develop a chronic illness that prevents performance of duties may be separated from the service.

'It was evident from the original Alameda study and from followup studies that a number of confounding variables influence health and that other environmental factors also have an impact on physical well-being.'

Military authorities have greater control of behavior in some health practices than in others. For example, failure to maintain weight standards can result in separation from the service, but sleeping and eating habits are under less control by military superiors. Drinking and smoking have only recently come under close scrutiny by the military; historically alcoholic beverages and cigarettes were not only available but were offered at more favorable prices to military personnel than the civilian population. Although the consumption of alcohol and smoking are restricted on some duty assignments, service clubs offer alcohol for military personnel.

The second objective of this study was to examine the association of health habits with health status during the past year. The information obtained in this survey did not suggest a close relationship between some health habits and health status. Eating breakfast appeared to have no association with health status, and relationships for other health habits were not strong. Although better health status was associated with higher levels of physical activity and maintaining weight standards, the findings for smoking and drinking were not as clear. Some health habits may not manifest an effect immediately, and the impact of others is not evident until later in life. Lung cancer, identified with smoking, is not evident when a person begins to smoke, and liver disease develops after years of drinking.

In a panel study of Alameda residents who were surveyed nearly a decade after the original study, Wiley and Camacho (2) found that cigarette smoking, alcohol consumption, physical exercise, weight in relation to height, and hours of sleep were significantly associated with overall health. It is possible that 1 year is too short a period to permit evaluation of the effects of health practices on the health status of military personnel. If negative health practices are additive, their impact may not be evident until the man or woman returns to civilian life.

Comparison of Health Habits Reported in Surveys of Military and Civilian Populations

Military

- About one-third of military personnel reported that they ate breakfast daily.
- About one-third of military personnel rarely or never ate breakfast.
- Proportion of older military who ate breakfast was not significantly different from younger persons.
- Racial differences were not evident among breakfast eaters in the military.
- About 60 percent of military personnel reported sleeping more than 6 hours per night.
- About 40 percent of military personnel reported sleeping 6 hours or less.
- Military personnel with more than 12 years of education were more likely to sleep more than 6 hours per night than those with less education (there were no comparisons of 7 or 8 hours of sleep).
- Whites were likely to sleep more than 6 hours per night than blacks (there were no comparisons of 7 or 8 hours of sleep).
- Men were about two times more likely than women to report having 5 or more drinks on days that they drank.
- Women were more likely than men to report that they did not drink any alcohol in the past 30 days.
- Younger men and women were more likely than persons ages 30 or older to report having 5 or more drinks on days that they drank.
- Men with less than 12 years of education were less likely to report not drinking alcohol during the past 30 days than men with post-high school education.
- Women with less than 12 years of education were more likely to report not drinking in the past 30 days than women with post high school education.
- Men and women with less than 12 years of education were more likely to have had 5 or more drinks than persons with more than 12 years of education.
- About 43 percent of men and 40 percent of women reported currently smoking cigarettes.
- Among those 18–29 years old, about 43 percent of men and 40 percent of women were current smokers.
- Smoking rates were highest for men aged 30–44 years (45 percent), men with less than 12 years education (63 percent), and white men (44 percent).
- Men and women with more than 12 years of education were less likely to smoke than persons with fewer years of schooling.
- Both white men (44 percent) and white women (43 percent) were more likely to smoke than black men (43.7 percent) and black women (37.5 percent).
- About 25 percent of men and 16 percent of women were classified as very active; 65 percent of men and 66 percent of women were classified as moderately active; and 10 percent of men and 18 percent of women were classified as sedentary.
- Men were more likely to be very active than women in every age group.
- Rates of being very active range from 32 percent of men and 19 percent for women ages 18–29 years to 17 percent for men and 12 percent of women in the oldest age group.
- Men and women with less than 12 years education were more likely to be very active than those with 12 years or more education.

Civilian¹

- More than half of U.S. adults reported that they ate breakfast daily.
- About one-fourth of U.S. adults rarely or never ate breakfast.
- Older persons were much more likely to eat breakfast daily than younger people.
- Whites were more likely to eat breakfast daily than blacks.
- About 78 percent of men and women reported sleeping more than 6 hours per night.
- More than 20 percent of men and women reported sleeping 6 hours a night or less.
- Men and women with more than 12 years of education were more likely to sleep 7–8 hours per night than persons with lower education.
- Whites were more likely to sleep 7–8 hours a night than blacks.
- Men were about four times (10.1 percent) more likely to report than women (2.5 percent) having 5 or more drinks on days that they drank.
- Women were more likely than men to report that they did not drink any alcohol in the past 2 weeks.
- Younger men and women were much more likely than older persons to report consuming 5 or more drinks on days that they drank.
- Men with less than 12 years of education were more likely to report not drinking alcohol in the past 2 weeks than men with post-high school education.
- Women with less than 12 years of education were more likely to report not drinking in the past 2 weeks than women with post high school education.
- Men and women with less than 12 years of education were more likely to have had 5 or more drinks than persons with more than 12 years of schooling.
- About 33 percent of men and 28 percent of women reported currently smoking cigarettes.
- Among persons 18–29 years old, men and women reported similar smoking habits; about 32 percent of both groups were current smokers.
- Smoking rates were highest for men aged 30–44 years (38 percent), men with less than 12 years education (40 percent), and nonwhite men (39 percent).
- Men and women with more than 12 years of education were less likely to smoke than persons with fewer years of schooling.
- Black men were more likely to smoke (40 percent) than white men (32 percent); black women were more likely to smoke (31 percent) than white women (28 percent).
- About 34 percent of men and 22 percent of women were classified as very active; 17 percent of men and 16 percent of women were classified as moderately active; and 49 percent of men and 62 percent of women were classified as sedentary.
- Men were more likely to be very active than women in every age group.
- Rates of being very active ranged from 49 percent of men and 30 percent of women ages 18–29 years to 14 percent of men and 7 percent of women in the oldest age group.
- Men and women with more than 12 years of education were almost twice as likely to be very active as were persons with less than 12 years of education.

¹ Reported by Schoenborn, reference 4.

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Adoption of Smoking Policies by Automobile Dealerships

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The cooperation of Michael Schober, Director of Marketing, and Richard Welte, President, of the Niagara Frontier Auto Dealers Association, helped to assure the success of the study.

Philip Matthei and Paula Richards of the computer center at the Research Institute on Alcoholism and John Griffin of the Roswell Park Memorial Institute assisted in data management.

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Synopsis.....

Despite an increase in policies regulating smoking at the workplace, little research has been conducted on organizational factors that may be associated with the adoption of those policies. In November 1986, a survey assessing tobacco use habits was sent to 3,432 employees of 68 auto dealerships in western New York. Managers at the worksites were

surveyed by telephone in 1986 and 1 year later to assess their attitudes about smoking by employees and changes in smoking policy implementation:

At the time of the initial survey, 21 percent (N=14) of businesses had smoking restrictions. Among the 54 worksites with no smoking restrictions, 14 (26 percent) adopted smoking policies within a year. The strongest predictor of policy adoption was an interaction between the presence of floating smoking restrictions (not tied to a specific area) and the manager's willingness to impose smoking restrictions on employees. Adoption of policies was also more likely to occur among worksites with younger employees.

That adoption of smoking policies was more likely to occur among worksites with floating smoking policies underscores the idea that focusing efforts at the managerial level within an organization can accelerate the diffusion process. In addition, the presence of unions and employee concerns about smoking policies are likely to impact upon management's decisions regarding implementation of policies. Given the potential of smoking prohibitions to influence the smoking habits of employees, future studies should begin to focus on ways to facilitate the adoption of smoking policies in worksites.

STIMULATED BY BOTH PUBLIC and private initiatives, an increasing number of businesses are adopting policies that either limit or ban smoking at the workplace. Regulating smoking in the workplace is not a new idea. Employers have, for many years, instituted smoking restrictions to prevent fires or product contamination (1). However, only

recently have employers established smoking policies primarily to protect the health of employees.

The concept of worksite smoking restrictions has become more acceptable as the hazards of involuntary smoking have become known (2-4). A 1985 survey of health promotion activities conducted by the Department of Health and Human Services